TA-nmon Documentation

Release 1.3.0

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May 11, 2018

Contents

Nmon Performance is now associated with Octamis to provide professional solutions for your business, and professional support for the Nmon Performance solution.

For more information: : http://nmon-for-splunk.readthedocs.io/en/latest/support.html#octamis-support

Contents:

CHAPTER 1

Overview:

1.1 About the TA-nmon, technical addon for Nmon Performance app for Splunk

- Author: Guilhem Marchand
- First release was published on starting 2014
- Purposes:

The TA-nmon for the Nmon Performance application for Splunk implements the excellent and powerful nmon binary known as Nigel's performance monitor. Originally developed for IBM AIX performance monitoring and analysis, it is now an Open source project that made it available to many other systems. It is fully available for any Linux flavor, and thanks to the excellent work of Guy Deffaux, it also available for Solaris 10/11 systems using the sarmon project.

The Nmon Performance monitor application for Splunk will generate performance and inventory data for your servers, and provides a rich number of monitors and tools to manage your AIX / Linux / Solaris systems.

Nmon Performance is now associated with Octamis to provide professional solutions for your business, and professional support for the Nmon Performance solution.

For more information:

1.1.1 Splunk versions

The TA-nmon is compatible with any version of Splunk Enterprise 6.x and Splunk Universal Forwarder 6.x.

1.1.2 Index time operations

The application operates index time operation, the PA-nmon_light add-on must be installed in indexers in order for the application to operate normally.

If there are any Heavy forwarders acting as intermediate forwarders between indexers and Universal Forwarders, the TA-nmon add-on must deployed on the intermediate forwarders to achieve successfully index time extractions.

1.1.3 About Nmon Performance Monitor

Nmon Performance Monitor for Splunk is provided in Open Source, you are totally free to use it for personal or professional use without any limitation, and you are free to modify sources or participate in the development if you wish.

Feedback and rating the application will be greatly appreciated.

- Join the Google group: https://groups.google.com/d/forum/nmon-splunk-app
- App's Github page: https://github.com/guilhemmarchand/nmon-for-splunk
- Videos: https://www.youtube.com/channel/UCGWHd40x0A7wjk8qskyHQcQ
- Gallery: https://flic.kr/s/aHskFZcQBn

1.2 Release notes

1.2.1 Requirements

- Splunk 6.x / Universal Forwarder v6.x and later Only
- Universal Forwarders clients system lacking a Python 2.7.x interpreter requires Perl WITH Time::HiRes module available

1.2.2 What has been fixed by release

V1.3.33:

- fix: review sourcetypes definition #60
- Feature: mutex implementation to avoid simultaneous run of shell scripts #59
- Feature: override serial number #58
- fix: Removing crcSalt from inputs since it is not required anymore #57
- fix: Typo in nmon_helper.sh during Perl / Python detection #56
- fix: Host override feature improvement for non data sourcetypes #55

V1.3.32:

- fix: batch mode and fishbuckets performance issues #53
- fix: Missing rotation of external header in fifo_reader.py/pl #54

V1.3.31:

- feature: Solaris - SARMON upgrade to v1.12 (Sparc FIFO mode) #51
- fix: Rename eventgen.conf to avoid splunkd WARN messages #52

V1.3.30:

- fix: reactivating the JFSFILE / JFSINODE collections until new core release is available to prevent missing features

V1.3.29:

- fix: Python parser - header detection correction for nmon external monitoring
- fix: unexpected operator issue during process identification #48
- fix: prevent bundle validation warn messages with spec files in README directory
- feature: Add df information for improved file system monitoring and storage capacity planning
- feature: JFSFILE/JFSINODE are being replaced (and deactivated) by external collection with DF_STORAGE/DF_INODES

V1.3.28:

- fix: Perl parser write new line after each write (Case #508792 Splunk universal forwarders duplicating data due to File too small to check seekcrc #47)
- fix: minor code cleaning
- feature: complete review of eventgen configuration using TA-nmon-hec samples

V1.3.27:

- feature: index and search time parsing configuration for the nmon-logger-splunk-hec package (agent less package for Splunk http input)
- fix: Fully Qualified Domain Name improvements #46

V1.3.26:

- fix: AIX - Better management of compatibility issue with topas-nmon not supporting the -y option #43
- fix: AIX - fix repeated and not justified pid file removal message #44
- fix: ALL OS - nmon_helper.sh code improvements #45

V1.3.25:

- feature: Optimize nmon_processing output and reduce volume of data to be generated #37
- fix: Linux issue: detection of default/nmon.conf rewrite required is incorrect #41
- fix: Error in nmon_helper.sh - bad analysis of external snap processes #42

V1.3.24:

- fix: AIX issue - non terminating processes will result in collecting stop #38
- fix: time zone issue - additional sourcetypes (collect, clean) use a date format that includes TZ and can lead to confusion #39
- fix: Review interpreter (python/perl) choice in all shell scripts, specially to fix some AIX issues #40

V1.3.23:

- unpublished intermediate release

V1.3.22:

- fix: nmon from syslog - missing indexed time creation for OStype and type fields #31
- fix: nmon from syslog - uptime extraction failure #32
- fix: nmon external - manager header in a dedicated file #33
- fix: Perl parser - prevent error message when –json_output option is set #34
- feature: Linux nmon binaries upgrade to nmon 16g #35
- fix: AIX - multiplication of nmon external snap instances on some systems #36

V1.3.21:

- fix: AIX issue - fifo_reader regex match some monitors into header #29
- fix: Nmon external issue - manage metrics collection into a dedicated file #30

V1.3.20:

- unpublished intermediate release

V1.3.19:

- fix: fifo mode implementation in parsers and several corrections #27
- fix: CIM compliance improvements and corrections
- fix: missing oshost tag for ITSI
- fix: fifo_consumer.sh error in file naming for rotated files purge
- fix: fifo_consumer.sh issue generates gaps in data #28
- feature: Allows deactivating fifo mode and switch to old mechanism via nmon.conf #26
- feature: Allows deactivating nmon external generation via nmon.conf #25

V1.3.16 to 18:

- unpublished intermediate releases

V1.3.15:

- Fix: nmon external load average extraction failure on some OS
- Fix: TA-nmon local/nmon.conf from the SHC deployer is not compatible #23
- Fix: Use the nmon var directory for fifo_consumer.sh temp file management
- Fix: solve nmon_external issues with AIX 6.1/7.1 (collection randomly stops)
- Fix: manage old topas-nmon version not compatible with -y option
- Feature: binaries for Ubuntu 17 (x86 32/64, power)

V1.3.14:

- intermediate version not published

V1.3.13:

This is a major release of the TA-nmon:

- Feature: fantastic reduction of the system foot print (CPU,I/O,memory) with the new fifo implementation, the TA-nmon cost is now minimal!
- Feature: easily extend the native nmon data with any external data (OS commands, scripts of any kind, shell, perl, python...) in 2 lines of codes
- Feature: easily customize the list of performance monitors to be parsed (using the nmonparser_config.json)
- Feature: choose between legacy csv and json data generation (limited to Python compatible hosts), you can now choose to generate performance data in json format and prioritize storage over performance and licensing volume
- Feature: new dedicated documentation for the TA-nmon, https://readthedocs.org/projects/ta-nmon
- Feature: nmon binaries for Amazon Linux (AMI)
- Fix: Removal of recursive stanza in inputs.conf #21
- Fix: Increase the interval for nmon_cleaning #18
- Fix: Various corrections for Powerlinux (serial number identification, binaries and architecture identification)
- Fix: AIX rpm lib messages at nmon_helper.sh startup #22
- Various: deprecation of the TA-nmon_selfmode (now useless since the new release does use anymore the unarchive_cmd feature)

Previous releases:

Please refer to: http://nmon-for-splunk.readthedocs.io/en/latest/knownissues.html

1.3 Known Issues

Major or minor bug, enhancement requests will always be linked to an opened issue on the github project issue page:

https://github.com/guilhemmarchand/nmon-for-splunk/issues

Please note that once issues are considered as solved, by a new release or support exchanges, the issue will be closed. (but closed issues can still be reviewed)

Current referenced issues:

1.4 Support

1.4.1 Octamis professional support for business

Nmon Performance is now available with professional support contract by Octamis limited.

Contact us at: sales@octamis.com

1.4.2 Community support

Nmon Performance Monitor for Splunk is provided in Open Source, you are totally free to use it for personal or professional use without any limitation, and you are free to modify sources or participate in the development if you wish.

This application and all of its components are provided under the Apache 2.0 licence, please remember that it comes with no warranty even if i intend to do my best in helping any people interested in using the App.

DISCLAIMER:

Unlike professional services, community support comes in "best effort" with absolutely no warranties.

Companies using this great piece are kindly invited to subscribe for a professional support contract to help us continuing developing the Nmon Performance solution!

Github

The Nmon Performance application is hosted on Github at the following location:

https://github.com/guilhemmarchand/TA-nmon

Use Github to open an issue for errors and bugs to be reported, or to ask for enhancements requests.

You can even provide your own improvements by submitting a pull request.

Splunk Answers

Splunk has a strong community of active users and Splunk Answers is an important source of information.

Access previous messages of users or open your own discussion:

https://splunkbase.splunk.com/app/3248

http://answers.splunk.com/answers/app/1753

Google Group Support

An App dedicated Google Group has been created:

https://groups.google.com/d/forum/nmon-splunk-app

This is also a great source of support from people using the Application, and you can also (if you subscribe to mailing news) receive important notifications about the App evolution, such as main release announcements.

1.5 Issues and enhancement requests

For any bug reporting, or enhancement request about the Nmon Performance application,you can:

- Open a question on Splunk Answers related to the app: https://answers.splunk.com/app/questions/3248.html
- Open an issue on the Git project home page: https://github.com/guilhemmarchand/TA-nmon/issues
- Get in touch by mail: guilhem.marchand@gmail.com

1.6 Operating Systems compatibility

1.6.1 OS compatibility

The TA-nmon is compatible with any version of:

- IBM AIX 6.1 (certified starting OSlevel 6.1.9.101, TL09)
- IBM AIX 7.1 (certified starting OSlevel 7.1.4.1, TL04)
- IBM AIX 7.2 (certified starting OSlevel 7.2.0.1, TL00)
- Linux x86 (32 / 64 bits)
- Linux PowerPC (32 / 64 bits in LE and BE)
- Linux on z Systems (s390 / s390x)
- Linux ARM
- Solaris 10, Solaris 11 on Sparc and x86

1.6.2 OS certification

Here is a non exhaustive list of systems and version that the TA-nmon is / has been intensively qualified:

IBM AIX:

- IBM AIX 6.1 (IBM POWER 8)
- IBM AIX 7.1 (IBM POWER 8)
- IBM AIX 7.2 (IBM POWER 8)

Linux on IBM PowerPC:

- SUSE Linux 12.2 LE (IBM POWER 8)
- SUSE Linux 11.4 BE (IBM POWER 8)
- RedHat Linux 7.3 LE (IBM POWER 8)

- RedHat Linux 7.2 LE (IBM POWER 8)
- Red Hat Linux 6.9 BE (IBM POWER 8)
- Red Hat Linux 6.5 BE (IBM POWER 8)
- Ubuntu 17.04 LTS (IBM POWER 8)
- Ubuntu 16.04 LTS (IBM POWER 8)
- Ubuntu 14.04 LTS (IBM POWER 8)

Linux x86, 32 bits and 64 bits:

Ubuntu:

- ubuntu-1704-64, ubuntu-1704-32
- ubuntu-1610-64, ubuntu-1610-32
- ubuntu-1604-64, ubuntu-1604-32
- ubuntu-1404-64, ubuntu-1404-32
- ubuntu-1204-64, ubuntu-1204-32

Oracle Linux (OL):

- oraclelinux-73-64
- oraclelinux-72-64
- oraclelinux-68-64
- oraclelinux-67-64
- oraclelinux-67-32

CentOS:

- centos-73-64
- centos-72-64
- centos-68-64, centos-68-32
- centos-67-64, centos-67-32

Debian:

- debian-8-64, debian-8-32
- debian-7-64, debian-7-32

SUSE Linux Enterprise Server: (SLES)

- sles11sp3
- sles12
- sles12sp1

OpenSuse:

- opensuse-13

Redhat Enterprise (RHEL):

- rhel5
- rhel65

- rhel73

Fedora:

- fedora24
- fedora25

Amazon AMI:

- AMI 2017.03
- AMI 2016.09

SOLARIS:

- solaris-11.3
- solaris-10

1.7 Introduction to Nmon processing

1.7.1 Nmon processing

The TA-nmon embeds different scripts to perform various tasks from starting nmon binaries to the creation of the final data to be indexed by Splunk.

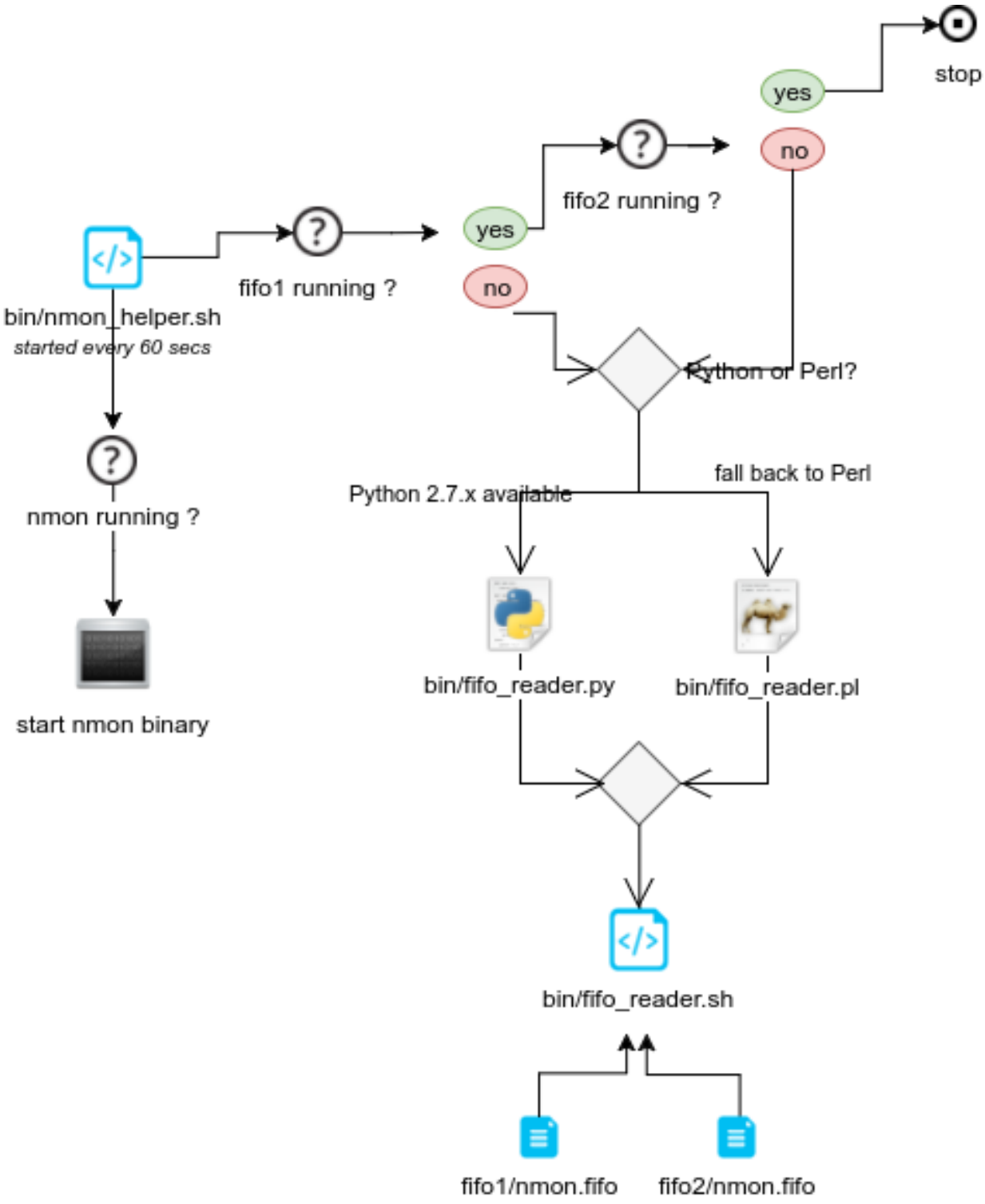
The following items expose the main steps of the processing, the technical details of each scripts and options are globally covered by the documentation.

bin/nmon_helper.sh

The "nmon_helper.sh" script is scheduled to be run every 60 seconds by Splunk, it is responsible for various tasks such as:

- identify the system (OS, processor architecture. . .)
- load default and custom configurations
- identify the best nmon binary candidate
- identify the running nmon process
- identify fifo_reader process running, and start the reader
- start the nmon binary

Simplified representation of the processing tasks:



bin/fifo_consumer.sh

The "fifo_consumer.sh" script is scheduled to be run every 60 seconds by Splunk, its purpose is consuming the dat files (different part of the nmon file) and stream its content to nmon2csv parsers:

- access the fifo files, wait at least 5 seconds since its last update

- Stream the content of the files to the nmon2csv parser
- empty the nmon_data.dat files for the next cycle

bin/nmon2csv.sh|.py|.pl

These are the nmon2csv parsers:

- the nmon2csv.sh is a simple wrapper which will choose between the Python and Perl parser
- the content is being read in stdin, and piped to the nmon2csv Python or Perl parser
- the Python or Perf parser reads the data, does various processing tasks and generate the final files to be indexed by Splunk

1.8 Benchmarks & TA-nmon foot print

1.8.1 What does cost the TA-nmon?

Before deploying the TA-nmon on your systems, you will want to know accurately what will be its costs in term of CPU, memory, and disk I/O.

Since the release 1.3.x of the TA-nmon, we have worked real hard to reduce it at the most, and good news, we got it minimal now!

Splunk Universal Forwarder

The TA-nmon needs off course the Splunk Universal Forwarder (or Splunk Enterprise!) to operate on top of it.

The Splunk Universal Forwarder is highly optimised to have the lowest level of costs in CPU and memory, on its own the Splunk Universal Forwarder has a very negligible foot print.

Please consult the official Splunk Universal Forwarder documentation: http://docs.splunk.com/Documentation/Forwarder/latest/Forwarder/Abouttheuniversalforwarder

nmon binaries

Depending on the operating system, the TA-nmon will start the nmon binary when required. (topas-nmon for AIX, nmon for Linux, sarmon for Solaris)

On its own, the resources foot print of the nmon binary is really very low, almost not detectable, its foot print is negligible.

TA-nmon

The TA-nmon does various processing tasks on the data being generated by nmon, this is where there are some risks of a CPU, memory and I/O foot print.

To avoid these risks, and limit at the maximum the amount of resources to be used, we implement fifo files, which allow controlling a constant volume of data to be proceeded.

Thanks to this implementation, the TA-nmon foot print is now very low and constant, the following analysis will factually demonstrate real costs of the TA-nmon processing:

Analysis scenario:

To analyse the costs, we will use a small Linux server (1 CPU, 2 GB RAM) and compare different situation in details:

- run a Splunk Universal Forwarder instance (with connection to a deployment server) + the TA-nmon
- run a Splunk Universal Forwarder instance (with connection to a deployment server) + an independent nmon process to collect performance statistics
- run a Splunk Universal Forwarder instance (without connection to a deployment server) + an independent nmon process to collect performance statistics
- nothing running else but the independent nmon process to collect performance statistics

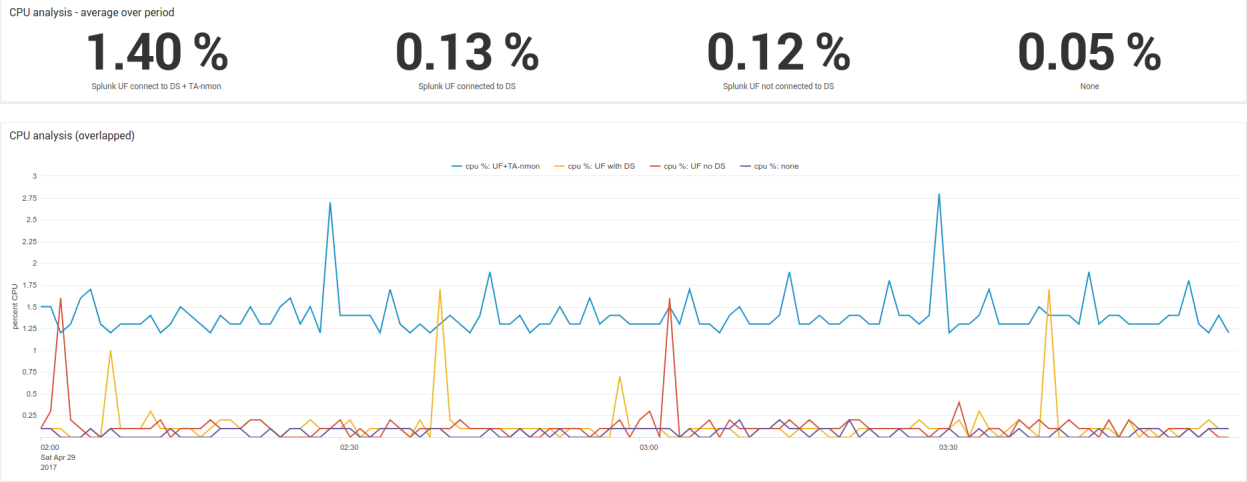
Notes:

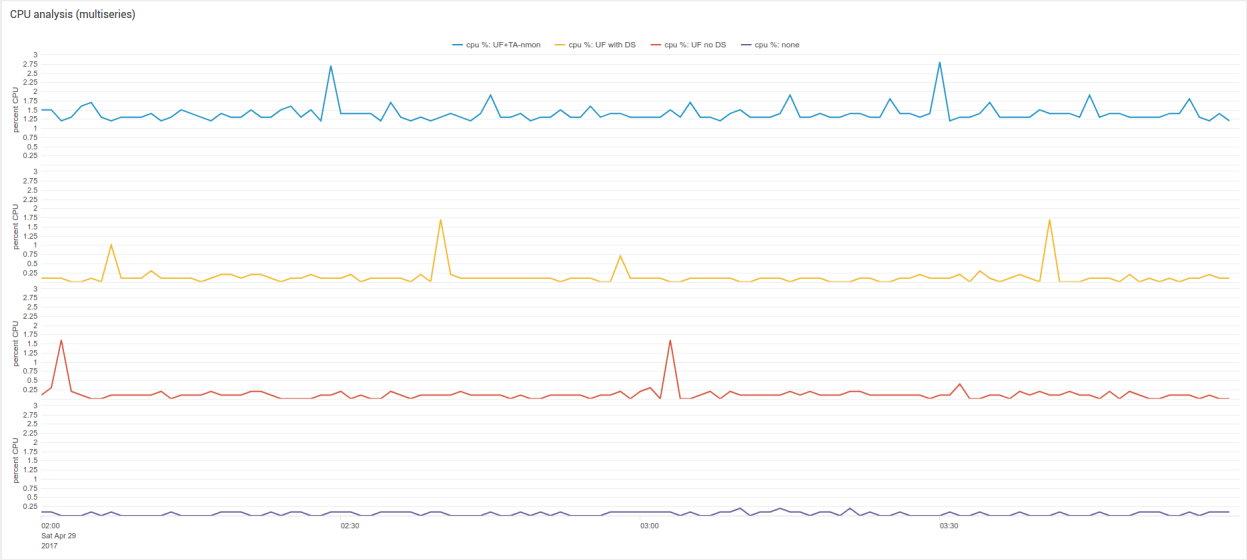
- analysing the system load with and without connection to a Splunk deployment server (DS) will be useful to isolate the cost of "calling home" from the UF to the DS

Finally, after having a run of 2 hours minimum for each scenario, we ingest the external nmon file (for non TA-nmon scenarios) and perform the analysis and comparison.

CPU usage comparison:

Average CPU % usage over periods for each scenario:

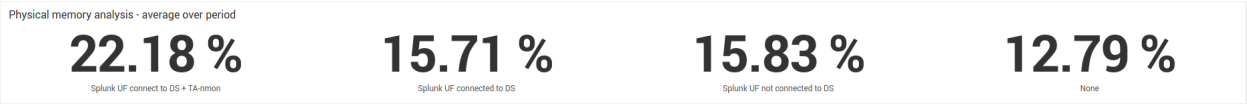




Observations:

- the average cost of running the Splunk Universal Forwarder (doing nothing) is similar with or without a connection to a deployment server
- the average CPU cost is approximately 0.10 % of global CPU usage on this server (usage-usage without UF)
- the imputable average CPU cost of running UF + TA-nmon is approximately 1.35% (TA-nmon processing costs, Splunk UF ingestion costs)
- the average CPU usage of system + UF + TA-nmon is approximately 1.40%
- We can observe an hourly task consuming CPU and imputable to the Splunk Universal Forwarder only (peaks exist without the TA-nmon, but only when running the UF)
- due to this hourly task of the Splunk Universal Forwarder (quick CPU peaks up to 1.7% without DS, up to 1.6% with DS connection), we can observe quick CPU peaks with UF + TA-nmon up to 2.8% CPU

Average physical memory % usage over periods for each scenario:

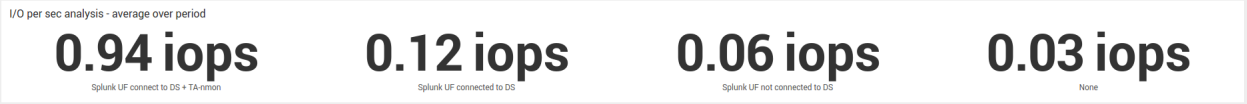


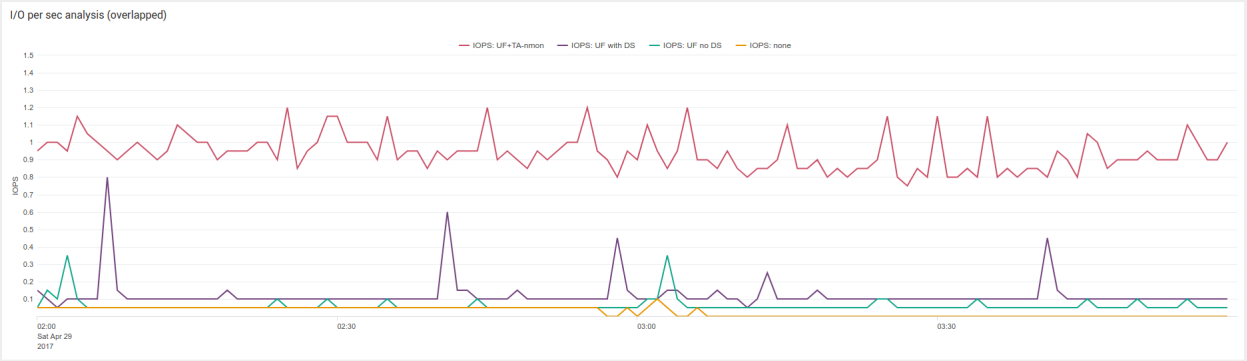
Observations:

- there is a small memory footprint of running the Splunk Universal Forwarder (approximately 3.20% of physical memory)

- this is not necessary what will proportionally cost on any system running a UF, this statistic has to be considered in the context of this configuration
- as well, we can observe a supplementary approximately 6% of memory costs running the UF + TA-nmon (TA-nmon processing costs, Splunk UF ingestion costs)
- caution: these memory utilisation statistics are what the system really uses, not necessary what the Splunk Universal Forwarder or the TA-nmon will use

Average I/O per second (IOPS) over periods for each scenario:





Observations:

- the level of IOPS imputable to the activity of the Universal Forwarder (when doing nothing) is obviously almost null
- when running the UF + TA-nmon, the level of IOPS is approximately 1 I/O per second.

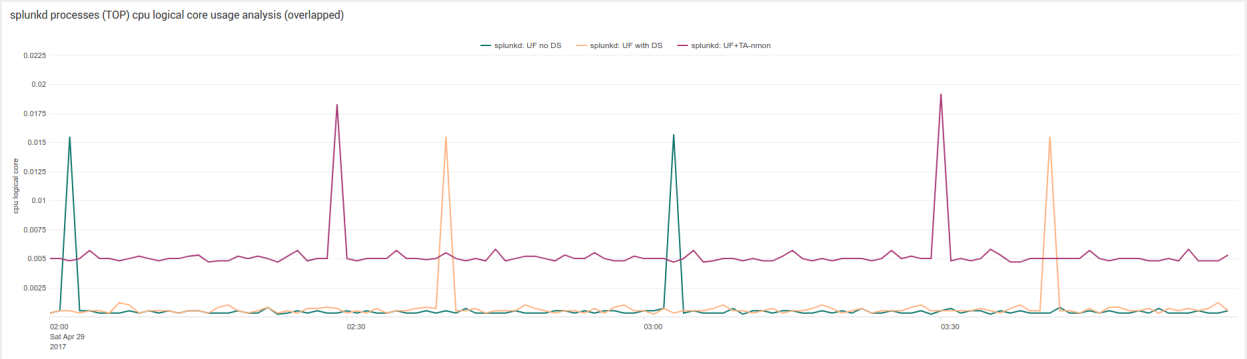
splunkd process (TOP data):

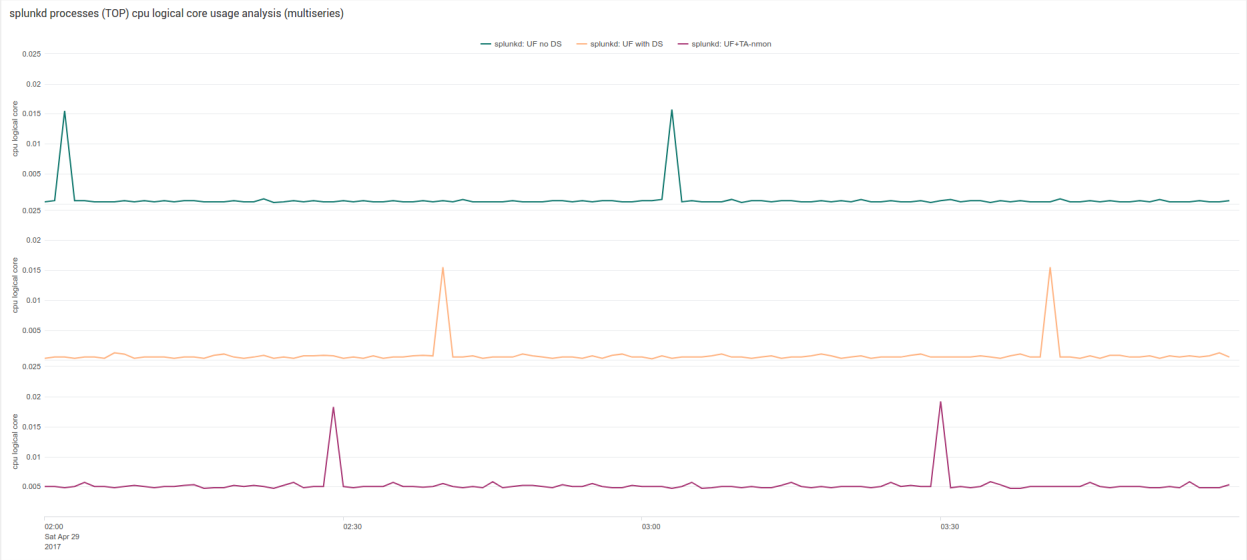
Notes:

For this exercise, we use the nmon binary in unlimited processes capture mode (option -I -1), this mode allows capturing the full processes table even such that capture low consuming processes.

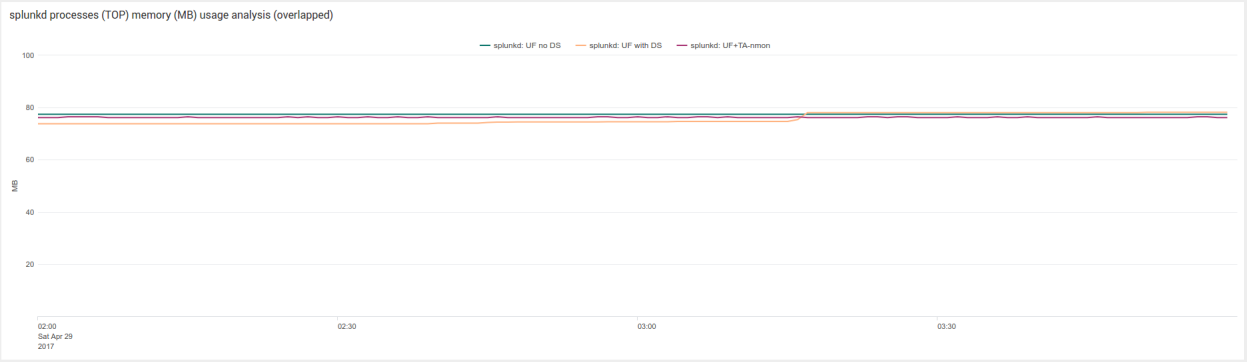
See: *Linux OS specific options*

splunkd CPU logical core usage:





splunkd memory usage:



Observations:

- we can clearly observe the hourly peak of CPU due to the Splunk Universal Forwarder
- CPU utilisation with or without deployment server connection is almost identical, the cost of calling home from the UF to the DS is almost null

Conclusions:

- the TA-nmon usage is stable and constant over time
- due to this internal Splunk Universal Forwarder hourly task, we can observe small hourly peaks of CPU usage
- running the Splunk Universal Forwarder + the TA-nmon generates approximately 1.35% of CPU usage on this machine
- the Splunk Universal Forwarder itself but doing nothing has obviously a very limited CPU foot print (but this mysterious hourly task!)
- the fifo implementation introduced in the TA-nmon 1.3.x allows now a very limited and constant system foo print!

The dashboard xml code used for this analysis is available in the Git docs directory, it has hardcoded host and time ranges but can be useful if you want to do your own analysis:

https://github.com/guilhemmarchand/TA-nmon/blob/master/docs/resources/footprint_analysis_and_comparison.xml

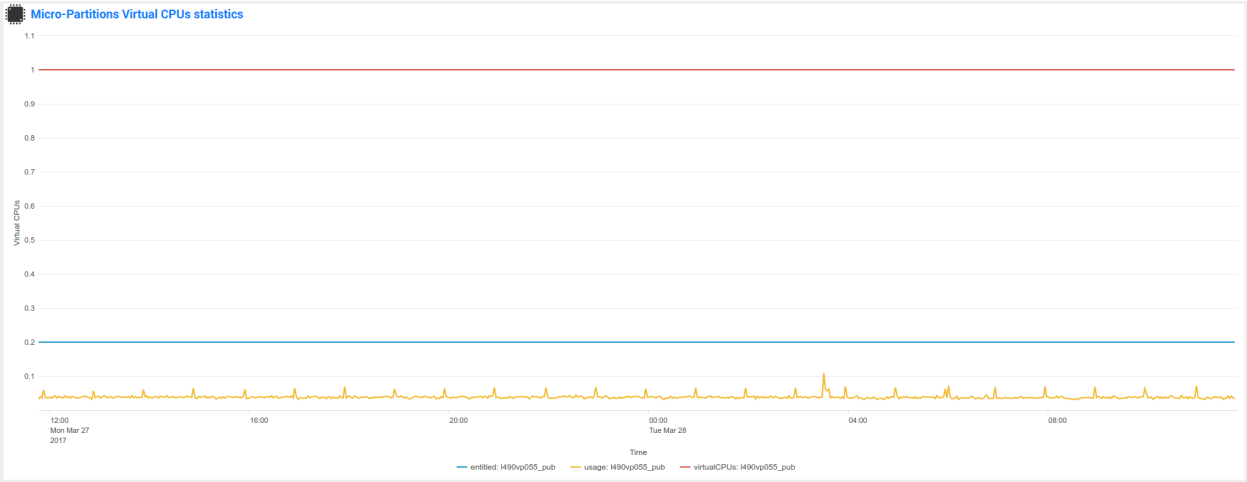
Enjoy!

IBM AIX BENCHMARKS:

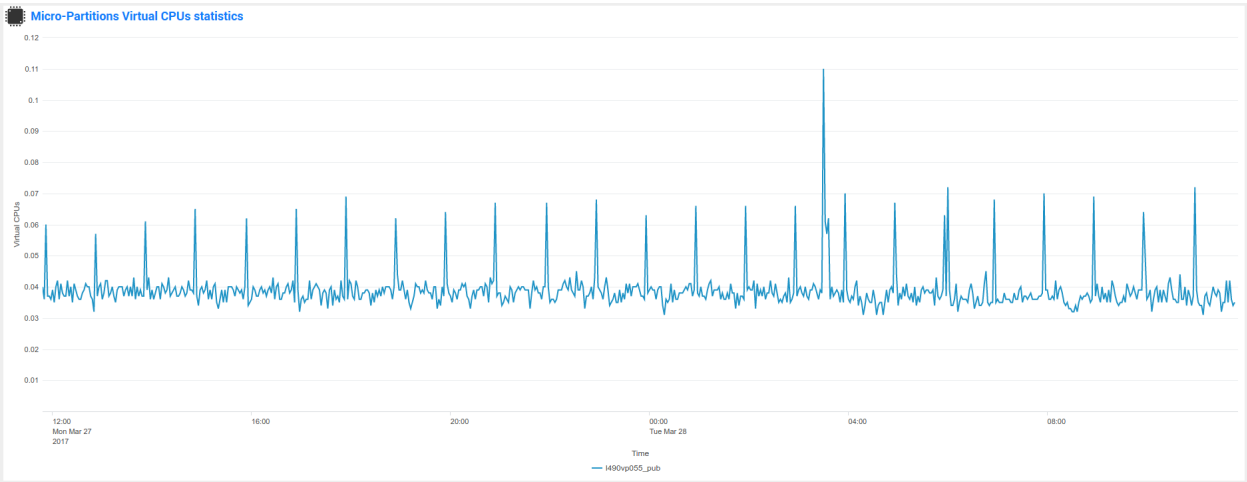
IBM AIX 6.1 ON POWER8 / Entitled 0.2 / VirtualCPUs 1:

date 27/03/2017, TA-nmon release 1.3.05, Splunk Universal Forwarder 6.5.2, Perl interpreter

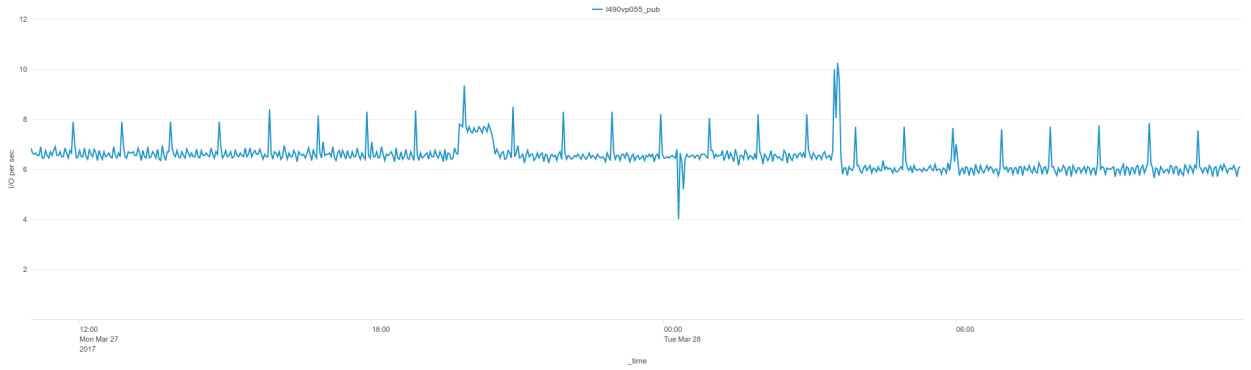
lpar usage over 24 hours:



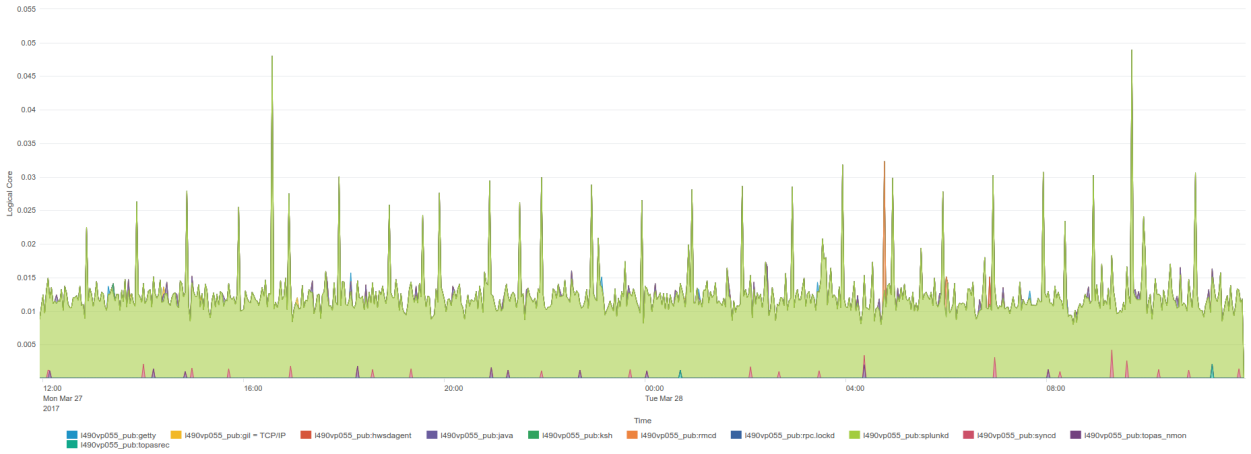
lpar usage_zoom over 24 hours:



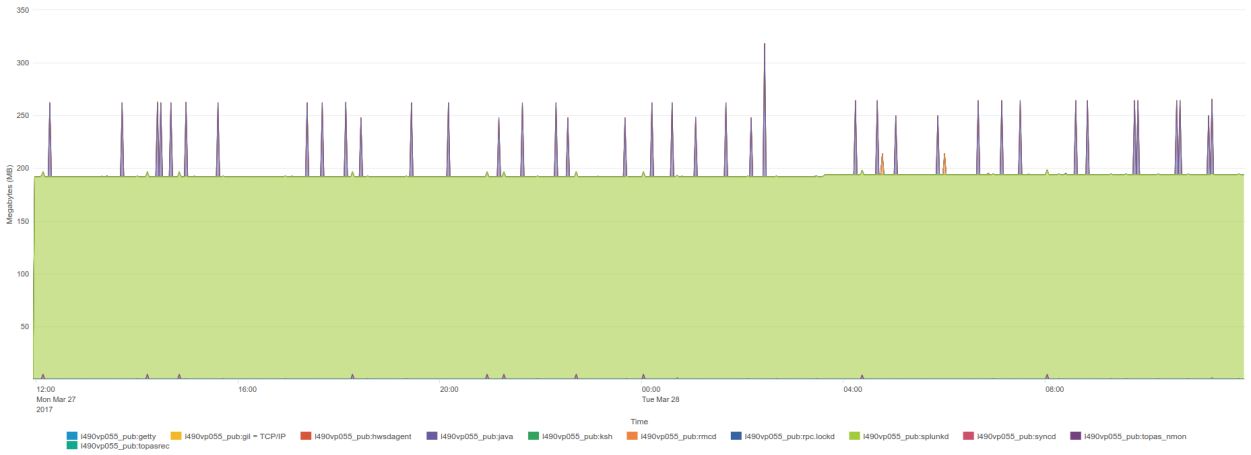
Average I/O over 24 hours:



TOP processes CPU core usage over 24 hours:



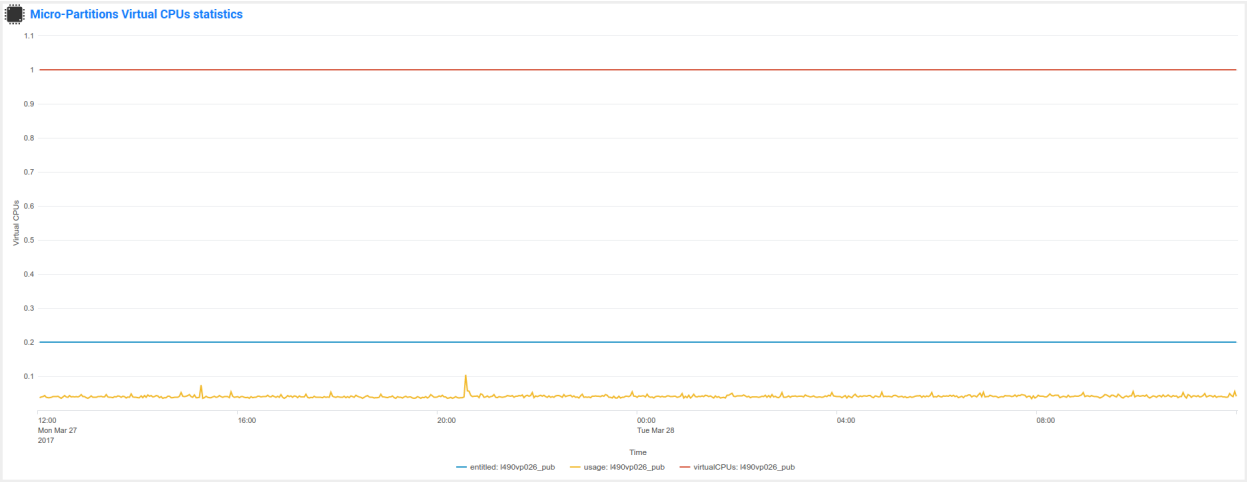
TOP processes memory usage over 24 hours:



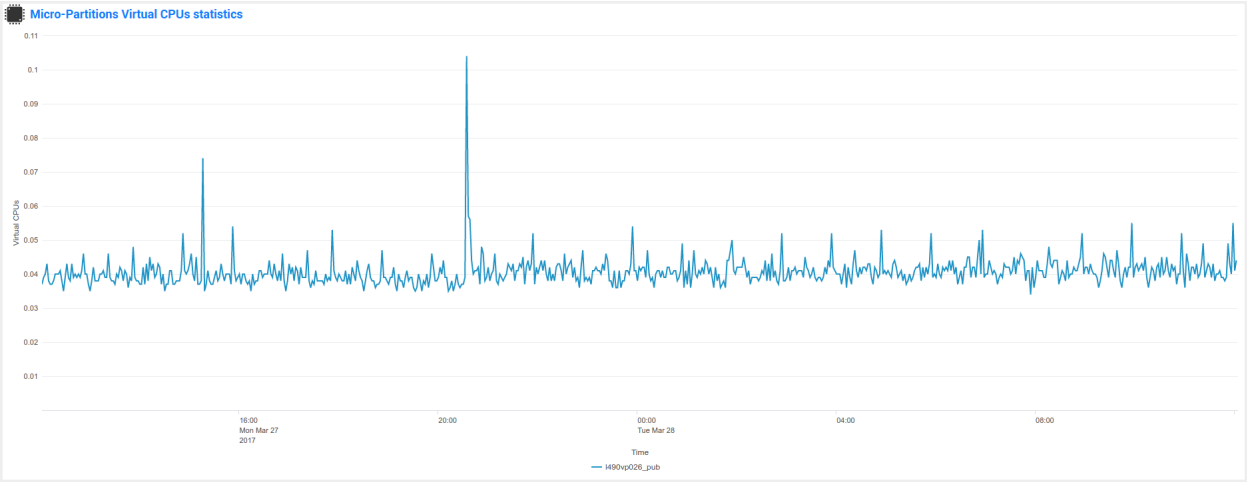
IBM AIX 7.1 ON POWER8 / Entitled 0.2 / VirtualCPUs 1:

date 27/03/2017, TA-nmon release 1.3.05, Splunk Universal Forwarder 6.5.2, Perl interpreter

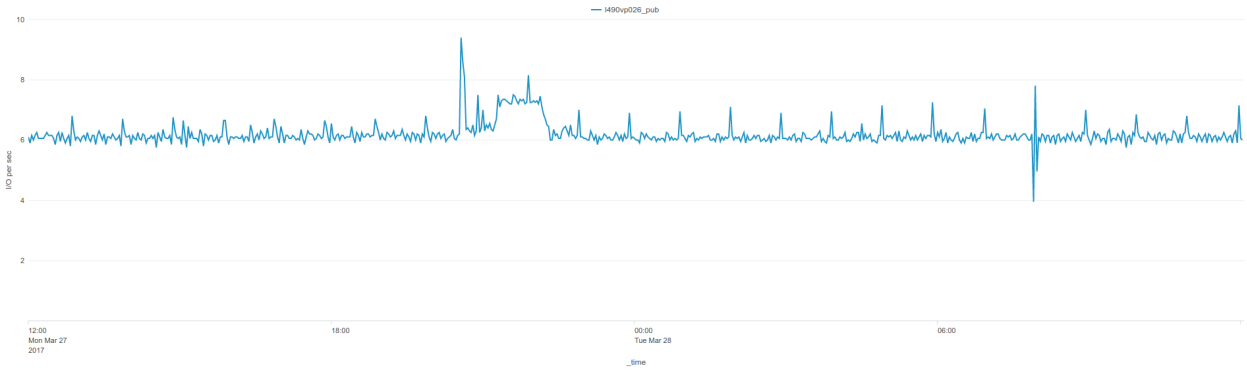
lpar usage over 24 hours:



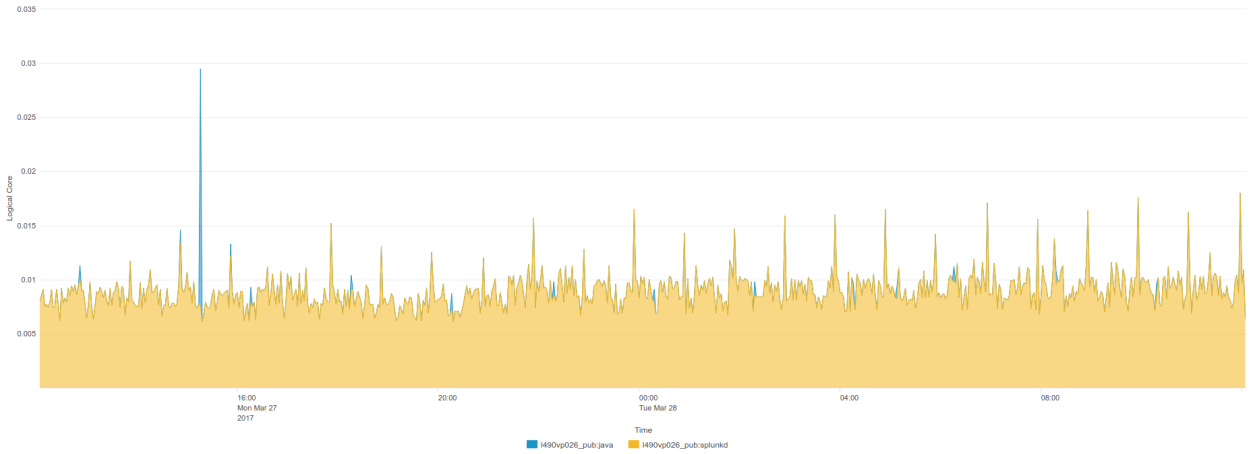
lpar usage_zoom over 24 hours:



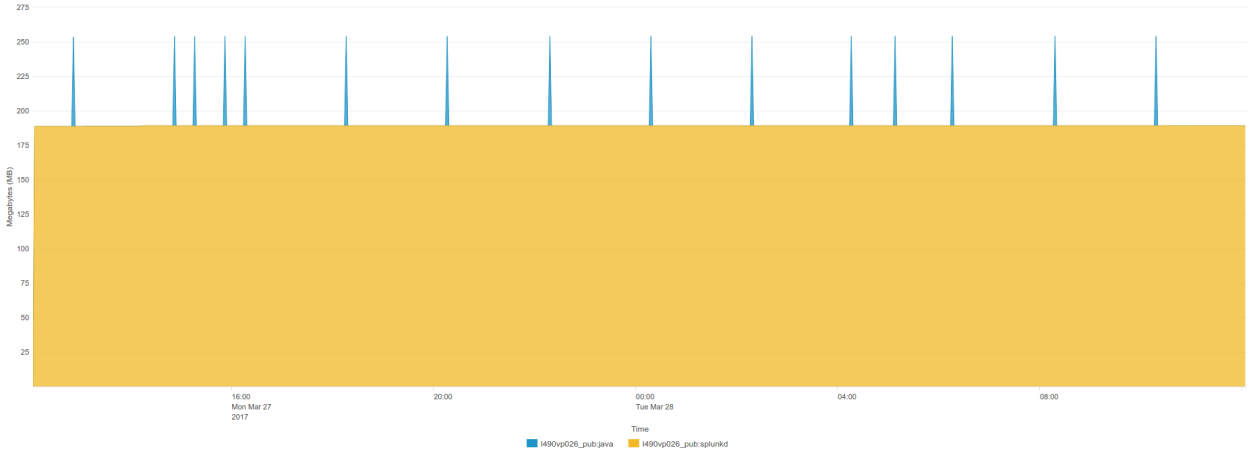
Average I/O over 24 hours:



TOP processes CPU core usage over 24 hours:



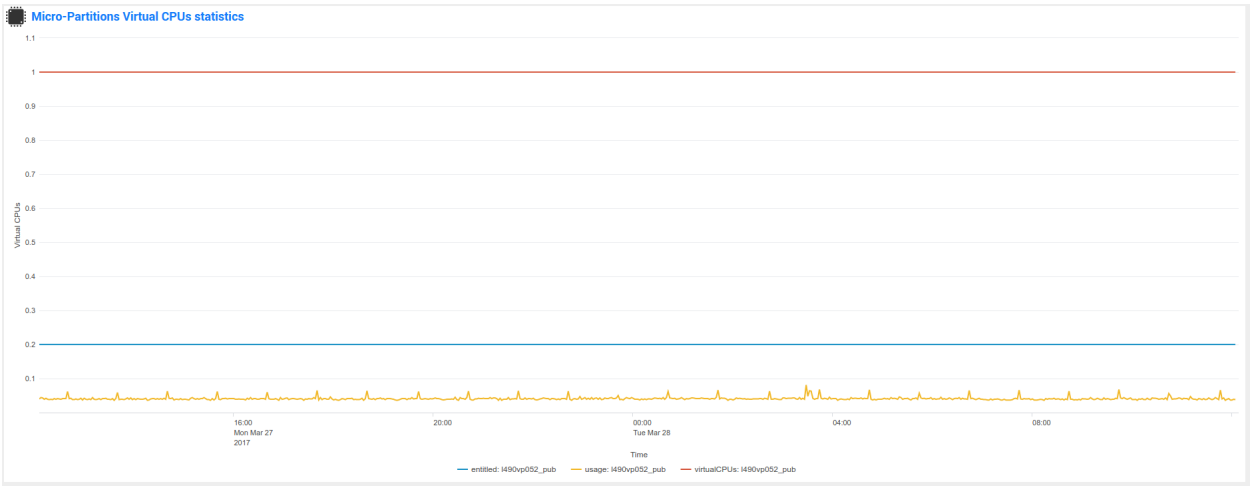
TOP processes memory usage over 24 hours:



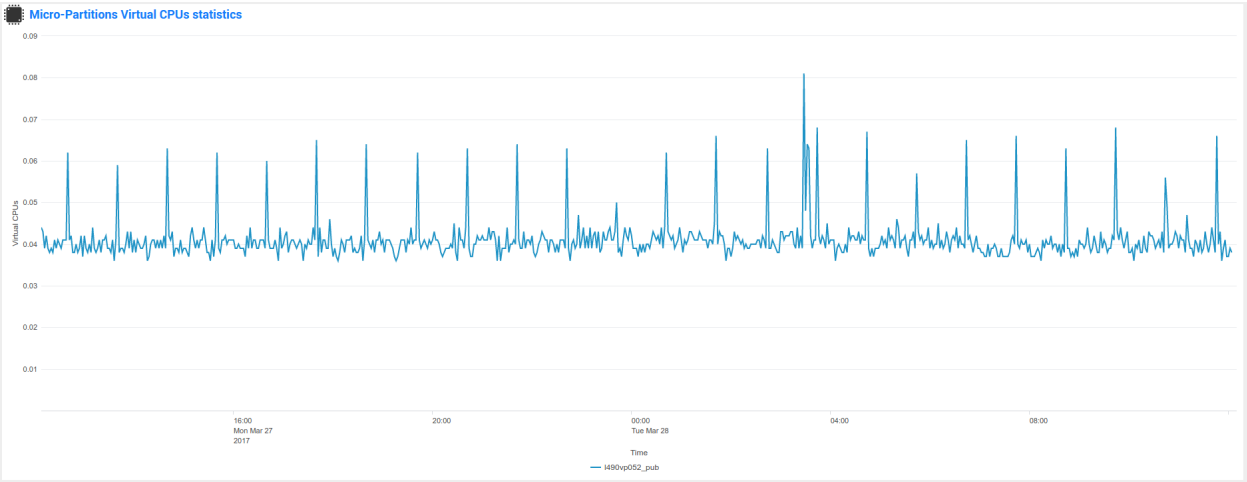
IBM AIX 7.2 ON POWER8 / Entitled 0.2 / VirtualCPUs 1:

date 27/03/2017, TA-nmon release 1.3.05, Splunk Universal Forwarder 6.5.2

lpar usage over 24 hours:

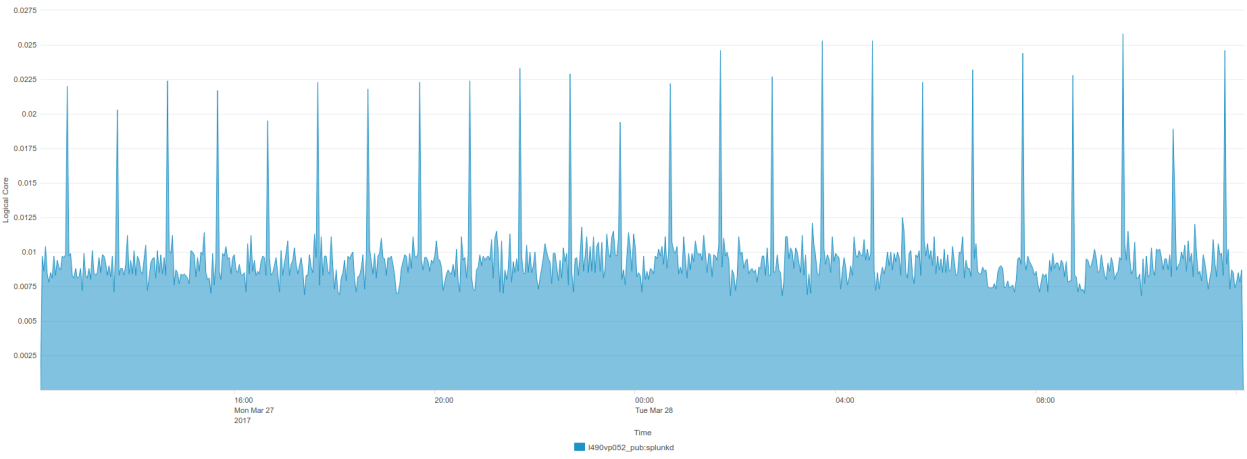


lpar usage_zoom over 24 hours:

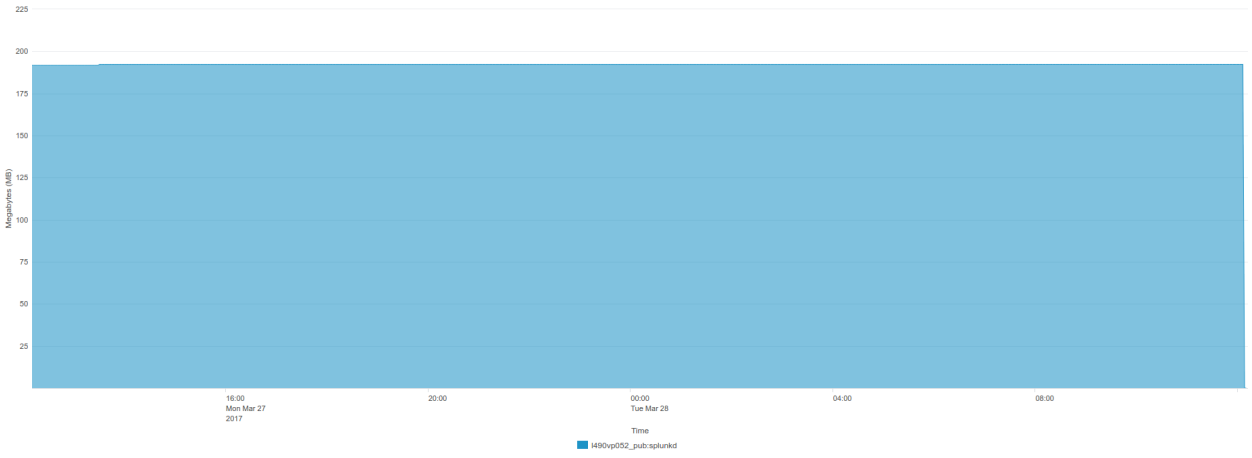


Average I/O over 24 hours:

TOP processes CPU core usage over 24 hours:



TOP processes memory usage over 24 hours:



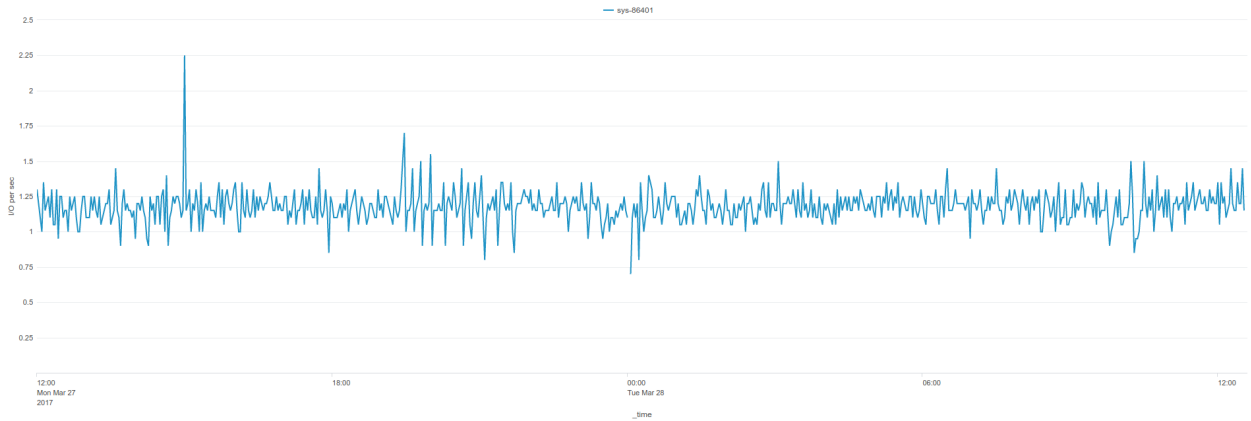
LINUX BENCHMARKS:

SUSE Linux 11.4 BE (IBM POWER 8)

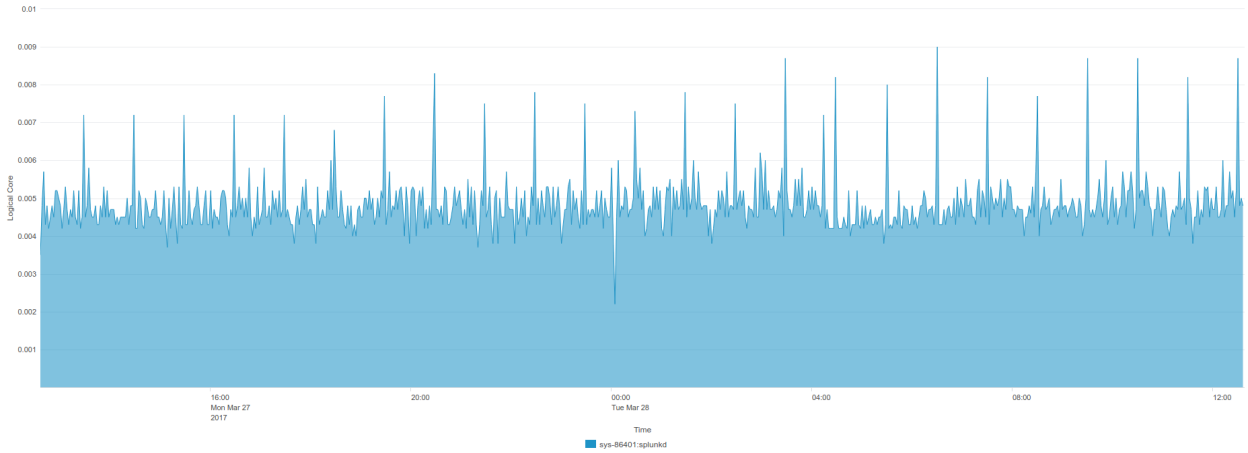
date 27/03/2017, TA-nmon release 1.3.05, Splunk Universal Forwarder 6.5.2, Perl interpreter, 1 CPU

CPU percentage usage over 24 hours:

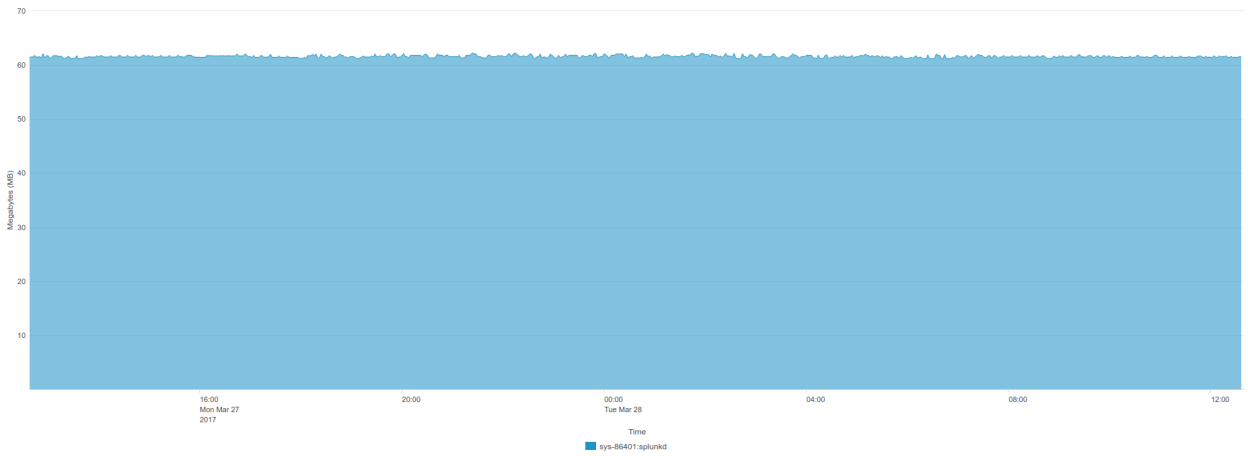
Average I/O over 24 hours:



TOP processes CPU core usage over 24 hours:



TOP processes memory usage over 24 hours:

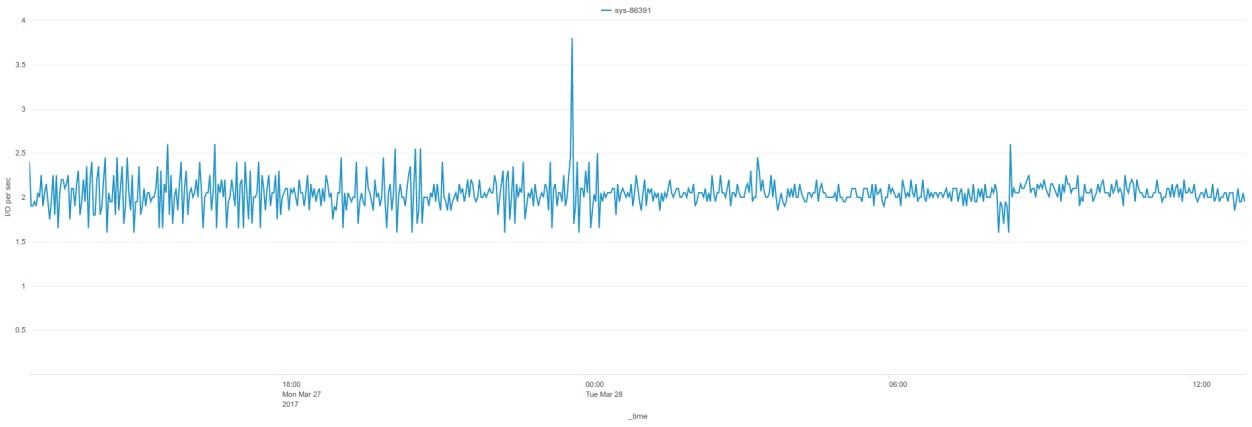


SUSE Linux 12.2 LE (IBM POWER 8)

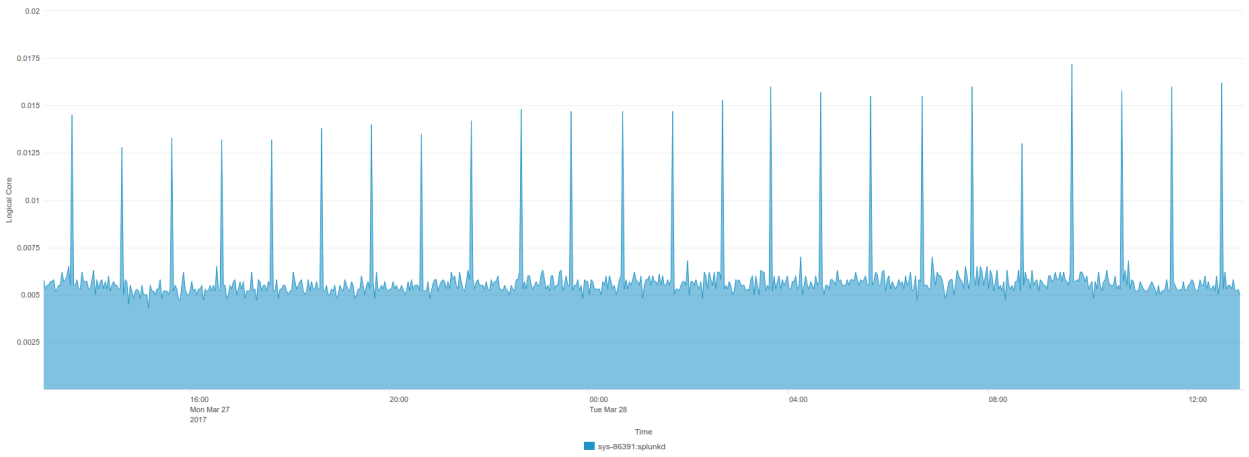
date 27/03/2017, TA-nmon release 1.3.05, Splunk Universal Forwarder 6.5.2, Python interpreter, 1 CPU

CPU percentage usage over 24 hours:

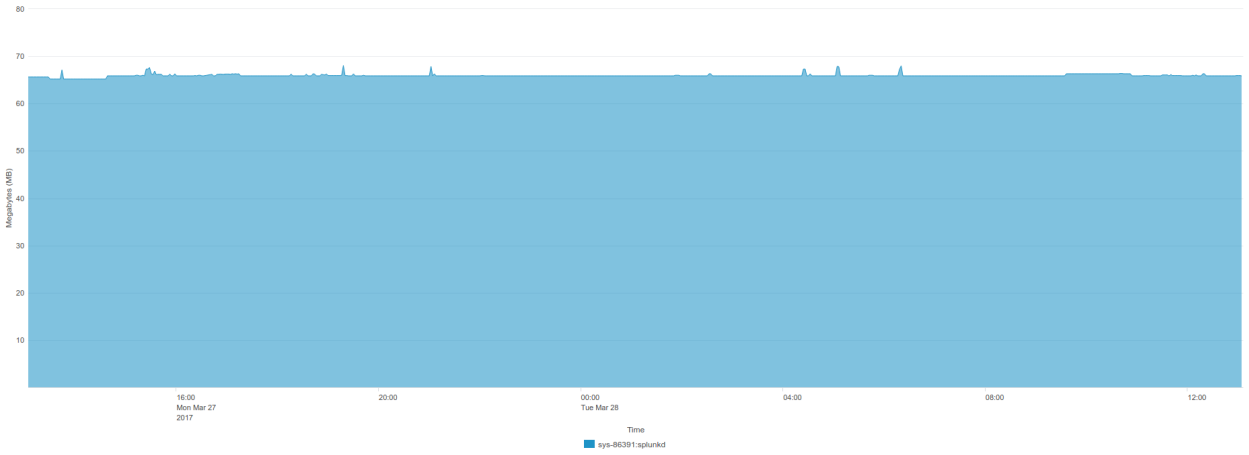
Average I/O over 24 hours:



TOP processes CPU core usage over 24 hours:

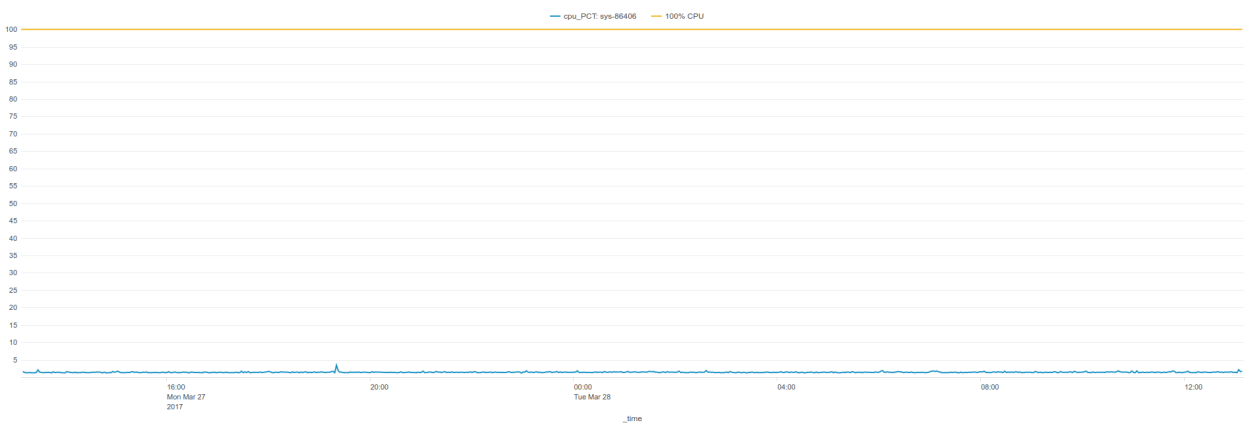


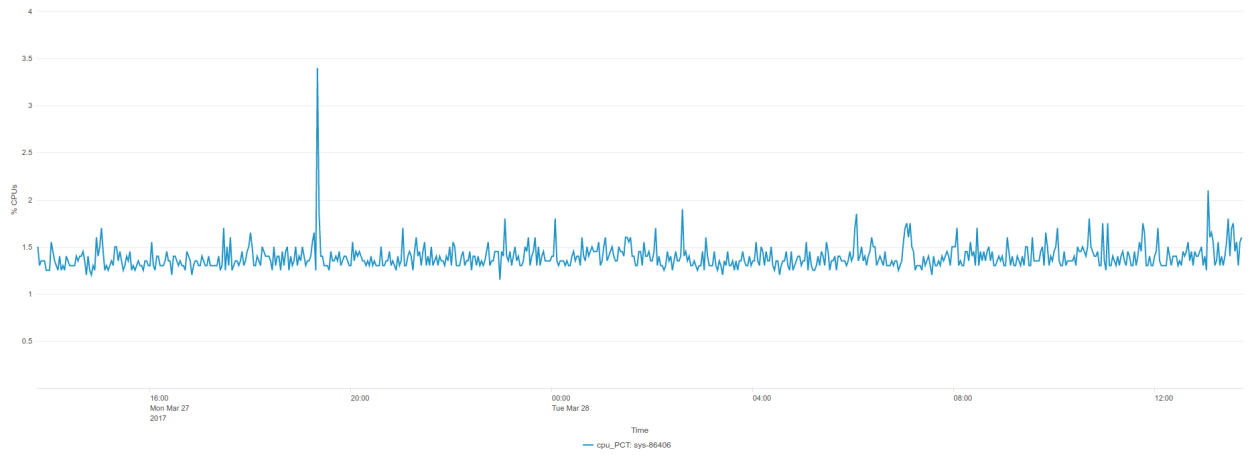
TOP processes memory usage over 24 hours:



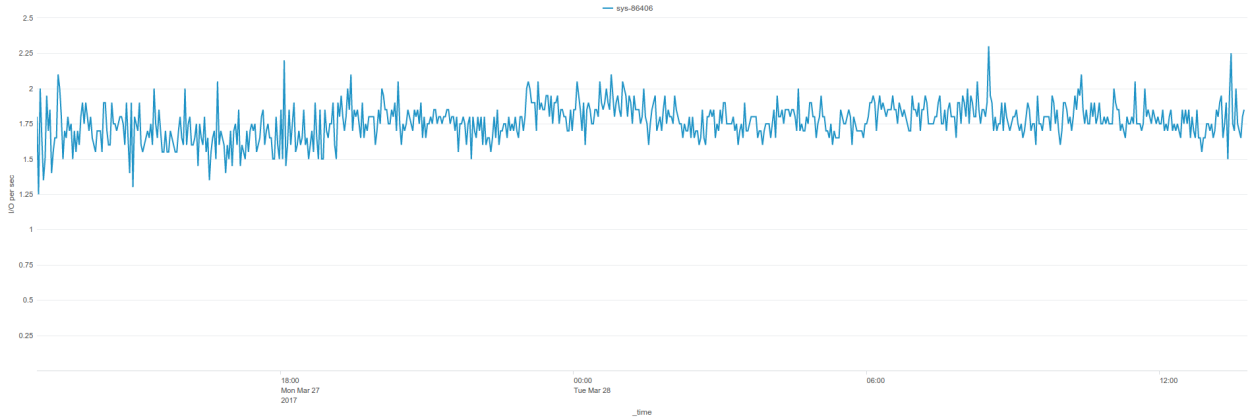
Red Hat Linux 6.9 BE (IBM POWER 8)

date 27/03/2017, TA-nmon release 1.3.05, Splunk Universal Forwarder 6.5.2, Perl interpreter, 1 CPU

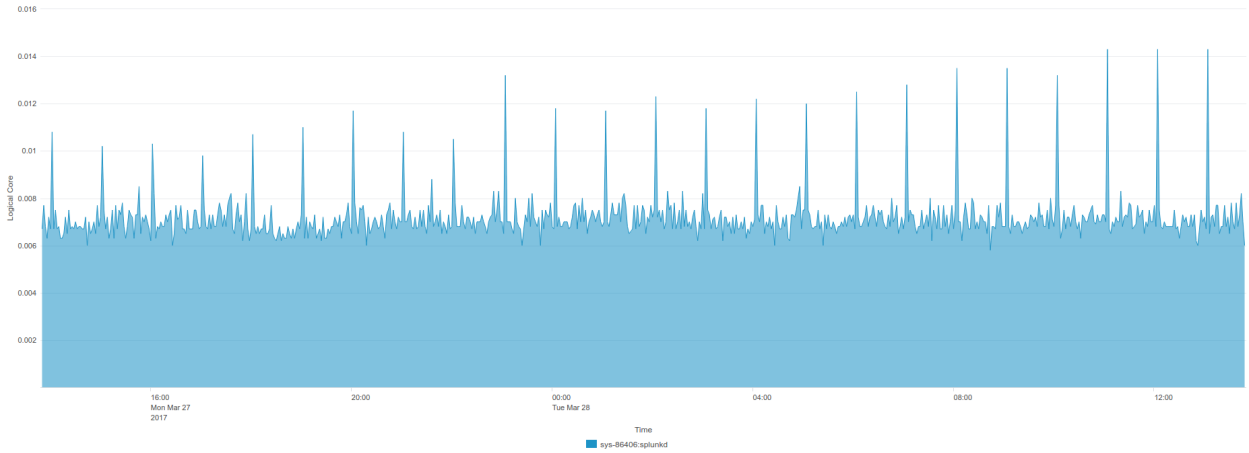




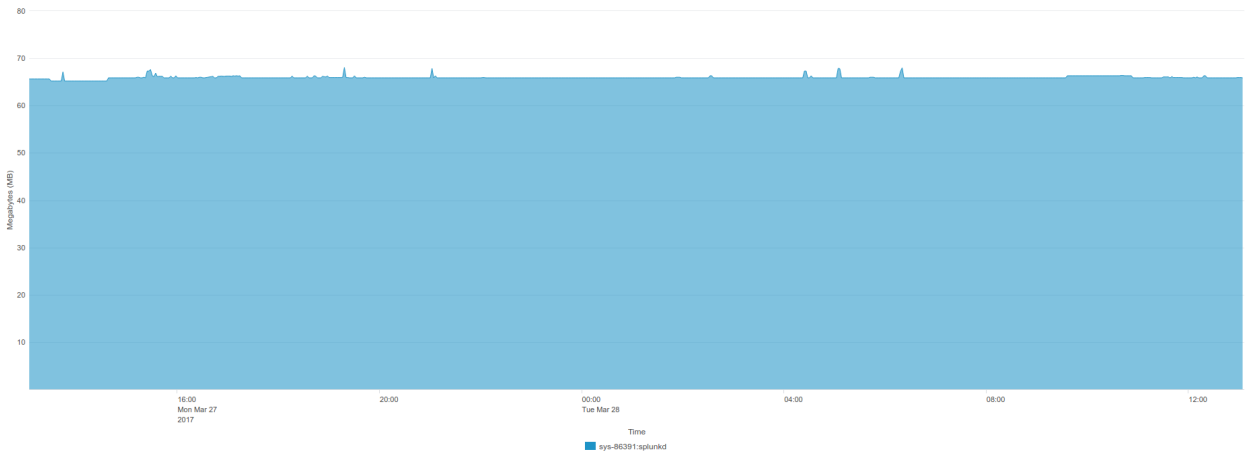
Average I/O over 24 hours:



TOP processes CPU core usage over 24 hours:



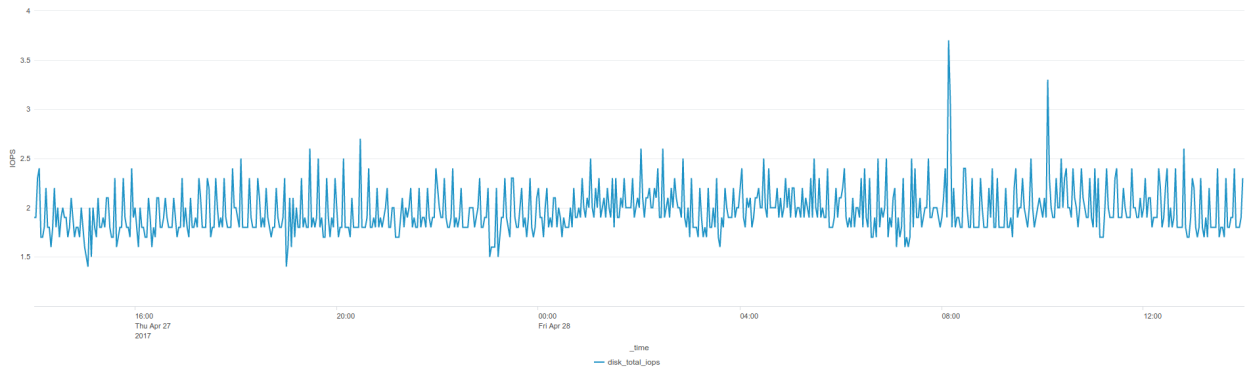
TOP processes memory usage over 24 hours:



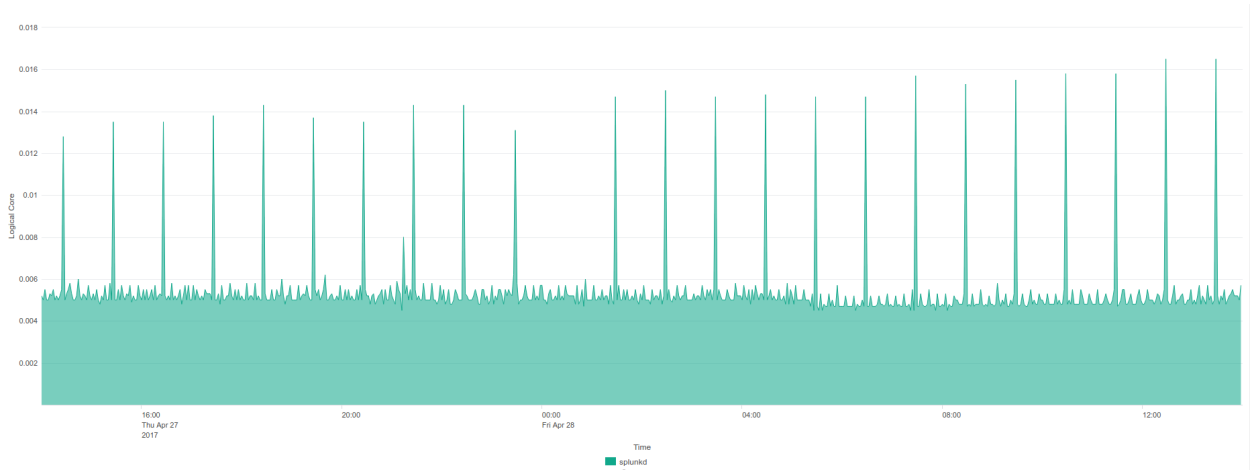
RedHat Linux 7.2 LE (IBM POWER 8)

date 29/04/2013, TA-nmon release 1.3.15, Splunk Universal Forwarder 6.5.3, Python interpreter, 1 CPU

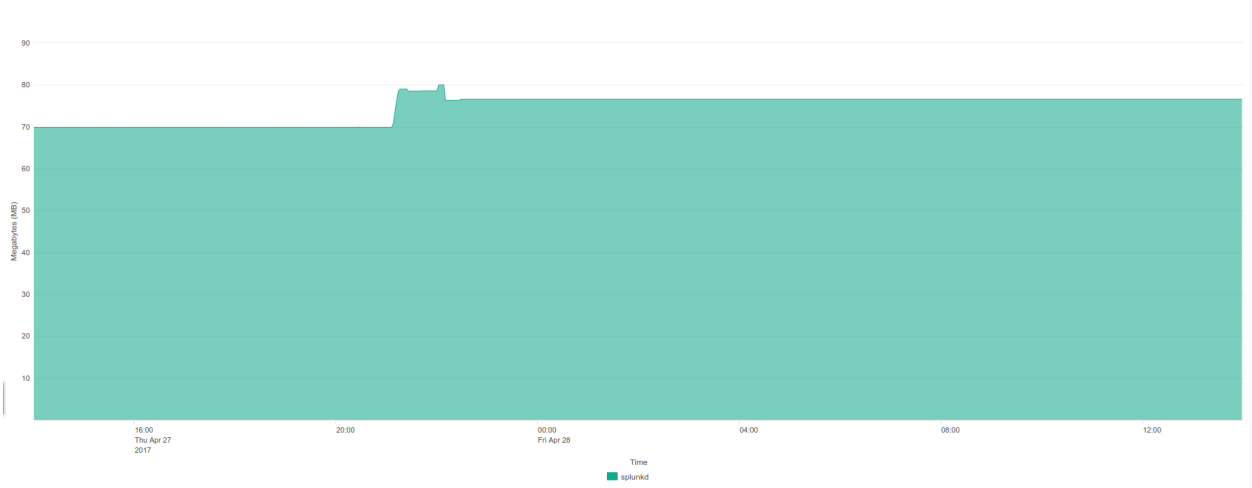
Average I/O over 24 hours:



TOP processes CPU core usage over 24 hours:



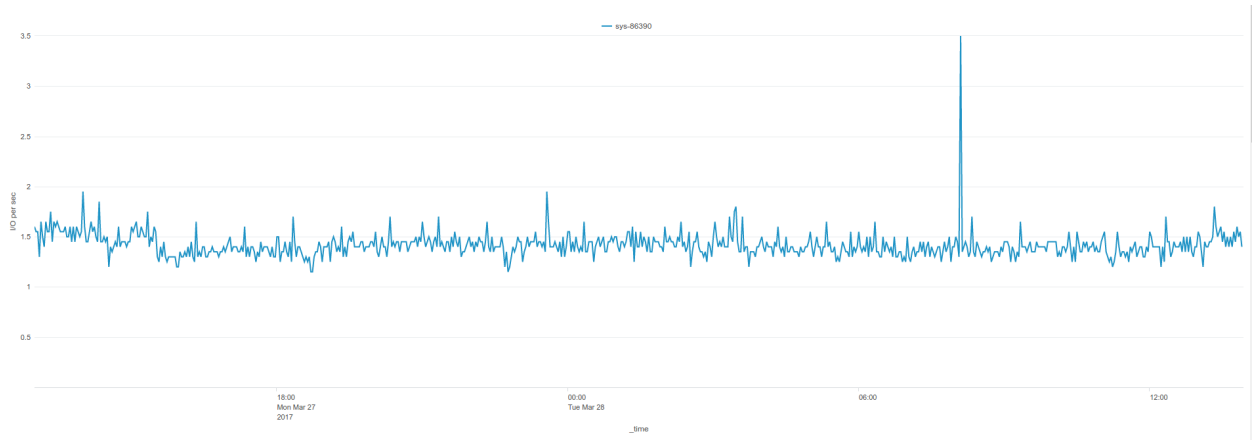
TOP processes memory usage over 24 hours:



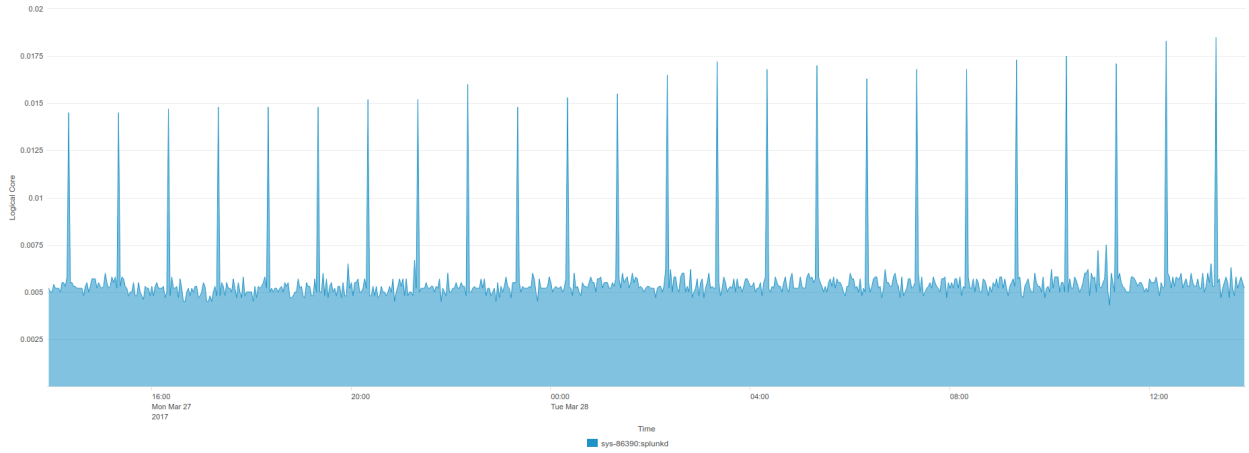
RedHat Linux 7.3 LE (IBM POWER 8)

date 27/03/2017, TA-nmon release 1.3.05, Splunk Universal Forwarder 6.5.2, Python interpreter, 1 CPU

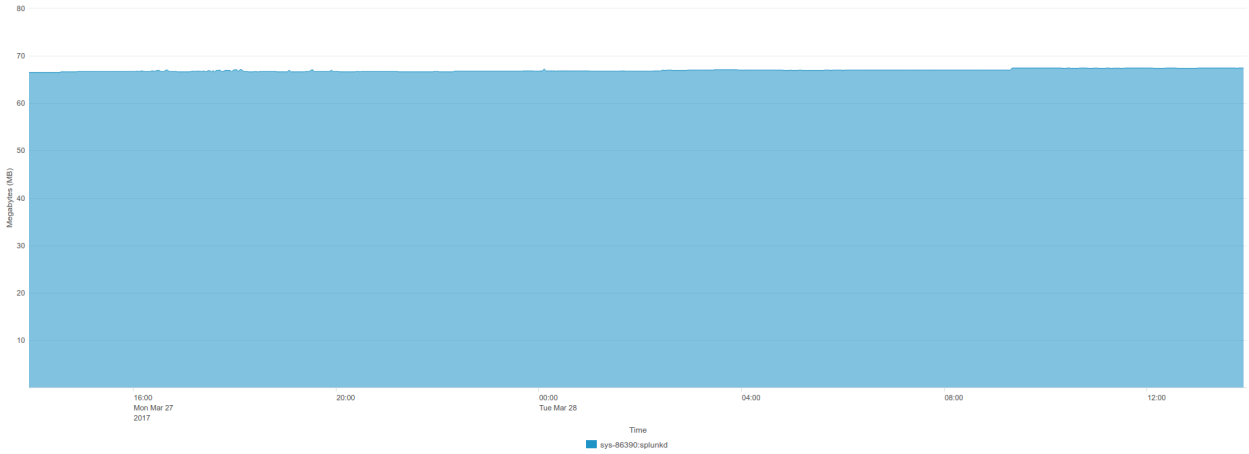
Average I/O over 24 hours:



TOP processes CPU core usage over 24 hours:

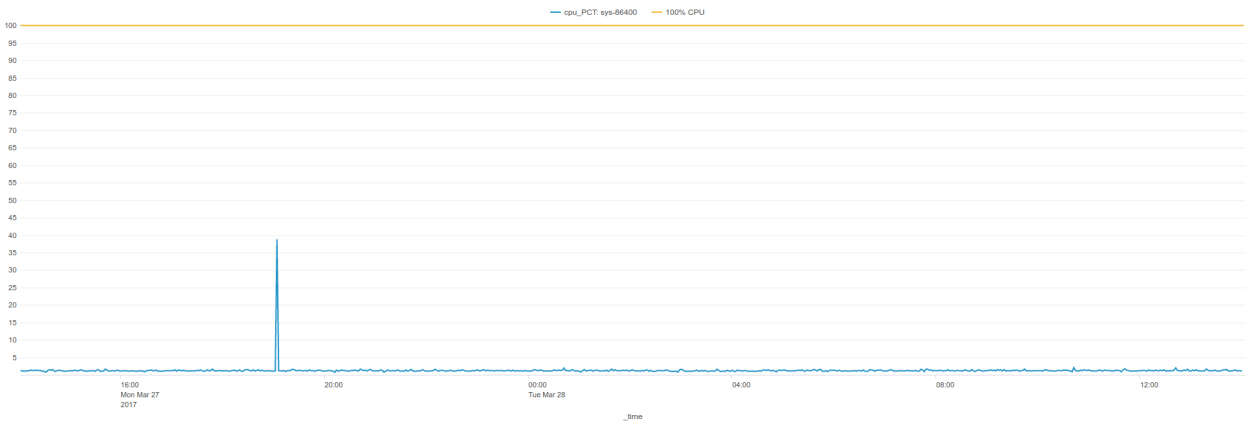


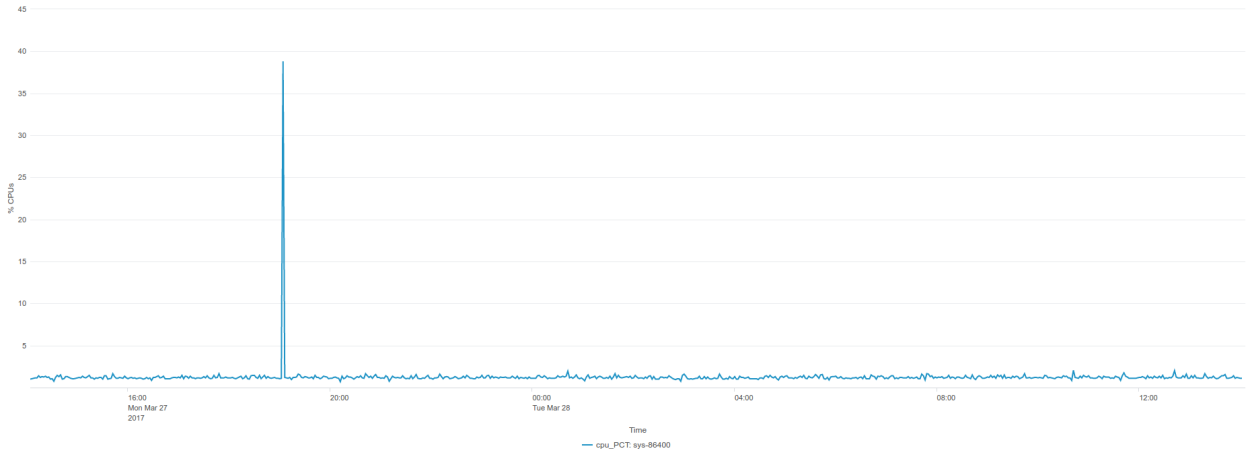
TOP processes memory usage over 24 hours:



Ubuntu 16.04 LTS (IBM POWER 8)

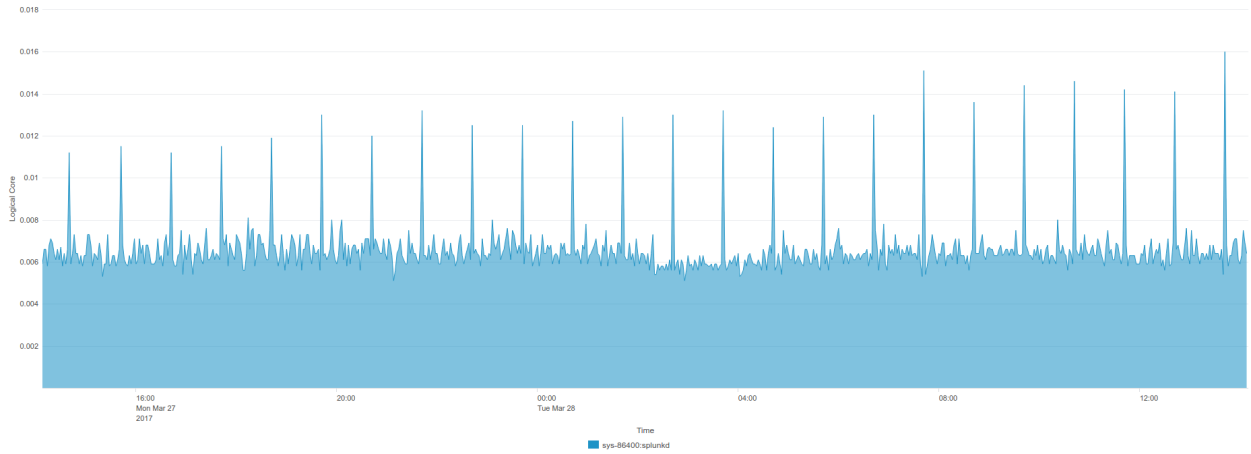
date 27/03/2017, TA-nmon release 1.3.05, Splunk Universal Forwarder 6.5.2, Python interpreter, 1 CPU



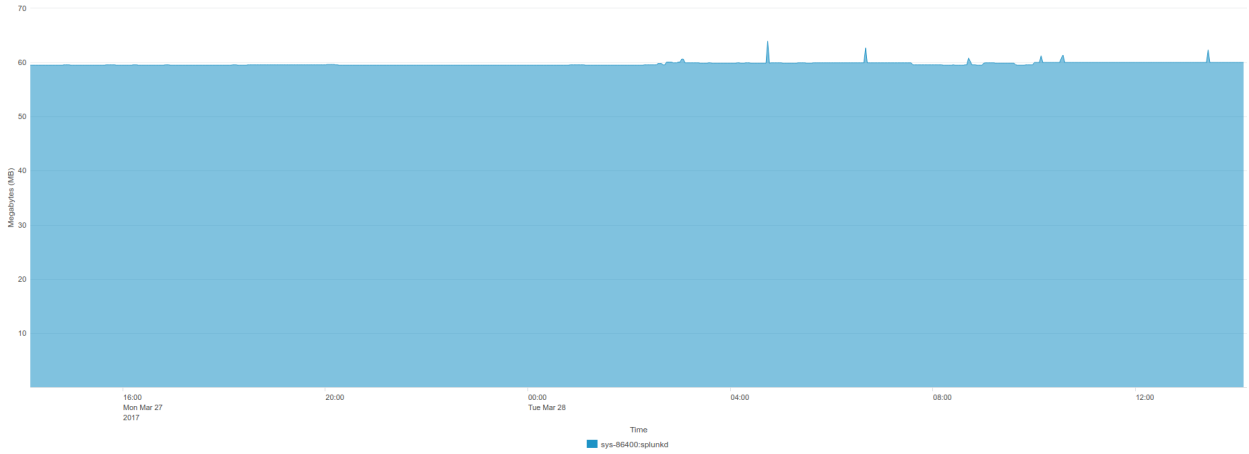


Average I/O over 24 hours:

TOP processes CPU core usage over 24 hours:



TOP processes memory usage over 24 hours:



1.9 Scripts and Binaries

1.9.1 Embedded Scripts in the TA-nmon

nmon_helper:

- bin/nmon_helper.sh:

This shell script is being used by the application to launch Nmon binaries whenever it is detected as required.

It is as well responsible in launching the fifo_reader scripts. (introduced in version 1.3.x)

fifo_reader:

- bin/fifo_reader.pl
- bin/fifo_reader.py
- bin/fifo_reader.sh

These scripts are continuously running as back ground processes on server running the technical addons. Their purpose is to read the fifo files (named pipe) nmon processes are writing to, and extract the different typologies of data from them nmon data

fifo_consumer:

- bin/fifo_consumer.sh

This script is scheduled by default to run every 60 seconds. Its purpose to recompose the nmon flaw of data to be parsed by the nmon parser scripts. (see bellow)

nmon_parser:

- bin/nmon2csv.sh | bin/nmon2csv.py | bin/nmon2csv.pl:

Shell / Python / Perl scripts used to manage and process Nmon raw data into multiple csv files being indexed by Splunk

The Shell script is a wrapper script to Python / Perl scripts. (decision is made on local interpreter availability with Python as the default choice)

nmon_cleaner:

- bin/nmon_cleaner.sh / bin/nmon_cleaner.py / nmon_cleaner.pl

Shell / Python / Perl scripts used to manage retention and purge of old nmon data.

Alternatively, it will also ensure that no outdated csv data is being left by Splunk in Performance and Configuration repositories

The Shell script is a wrapper script to Python / Perl scripts. (decision is made on local interpreter avaibility with Python as the default choice)

1.9.2 Embedded Binaries in the TA-nmon

The TA-nmon embeds Nmon binaries for Linux vendors and Solaris OS. AIX embeds by default its own version of Nmon, known as "topas-nmon".

For Linux OS:

- bin/linux: Main directory for Linux specific Nmon binaries
- bin/linux/amzn: 64 bits binaries for Amazon Linux (AMI)
- bin/linux/centos: 32/64 bits binaries for Centos
- bin/linux/debian: 32/64 bits binaries for Debian GNU/Linux
- bin/linux/fedora: 32/64 bits binaries for Fedora project
- bin/linux/generic: 32/64/ia64/power/mainframe binaries compiled for generic Linux
- bin/linux/mint: 32/64 bits binaries for Linux Mint
- bin/linux/opensuse: 32/64 bits binaries for Linux Opensuse
- bin/linux/ol: 32/64 bits binaries for Oracle Linux
- bin/linux/rhel: 32/64/ia64/mainframe/power binaries for Redhat Entreprise Server
- bin/linux/sles: 32/64/ia64/mainframe/power binaries for Suse Linux Entreprise Server
- bin/linux/ubuntu: 32/64/power/arm binaries for Ubuntu Linux
- bin/linux/arch: 32/64 bits binaries for Archlinux
- bin/raspbian: arms binaries for Raspbian Linux

Most of these binaries comes from the official Nmon Linux project site. On x86 processor and for Centos / Debian / Ubuntu / Oracle Linux these binaries are being compiled by myself using Vagrant and Ansible automation. (See https://github.com/guilhemmarchand/nmon-binaries)

Associated scripts resource (nmon_helper.sh) will try to use the better version of Nmon available, it will fall back to generic or system embedded if none of specially compiled versions can fit the system.

For Solaris OS:

sarmon binaries for Oracle Solaris x86 and Sparc:

- bin/sarmon_bin_i386: sarmon binaries for Solaris running on x86 arch
- bin/sarmon_bin_sparc: sarmon binaris for Solaris running on sparc arch

sarmon binaries comes from the official sarmon site project.

For AIX:

Nmon is shipped within AIX by default with topas-nmon binary.

1.10 Pre-requisites

1.10.1 Splunk requirements

Compatibility matrix:

Metricator for Nmon stack	Major version branch
Splunk Universal Forwarder 6.x, 7.x	Version 1.x

1.10.2 Technical Add-on requirements

Operating system

The Technical Add-on is compatible with:

- Linux OS X86 in 32/64 bits, PowerPC (PowerLinux), s390x (ZLinux), ARM
- IBM AIX 7.1 and 7.2
- Oracle Solaris 11

Third party software and libraries

To operate as expected, the Technical Add-ons requires a Python **OR** a Perl environment available on the server:

Python environment: used in priority

Requirement	Version
Python interpreter	2.7.x

Perl environment: used only in fallback

Requirement	Version
Perl interpreter	5.x
Time::HiRes module	any

In addition, the Technical Addon requires:

Requirement	Version
curl	Any

Notes:

- IBM AIX does not generally contain Python. Nevertheless, Perl is available as a standard. More, Time::HiRes is part of Perl core modules.
- Modern Linux distribution generally have Python version 2.7.x available and do not require any further action.
- Linux distributions lacking Python will fallback to Perl and must satisfy the Perl modules requirements.
- If running on a full Splunk instance (any Splunk dedicated machine running Splunk Enterprise), the Technical Add-on uses Splunk built-in Python interpreter.

1.11 Deployment Matrix

1.11.1 What goes where ?

- The TA-nmon is available for download as an independent application in Splunk base: https://splunkbase.splunk.com/app/3248
- The TA-nmon is also available for download in its Git repository: https://github.com/guilhemmarchand/TA-nmon

Standalone deployment: A single Splunk instance does all

Splunk Instance (role)	TA-nmon
Standalone	X (optional)

The TA-nmon provides nmon performance and configuration collection for the host than runs the add-on, which is optional

Distributed deployment:

Splunk Instance (role)	TA-nmon
Search head (single instance or clustered)	X (optional)
Indexer (single instance or clustered)	
Master node	X (optional)
Deployment servers	X (optional)
Heavy Forwarder	X
Universal Forwarder	X

The TA-nmon provides nmon performance and configuration collection for the host than runs the add-on, which is optional

CHAPTER 2

Processing:

2.1 Processing workflow in action

2.1.1 Generating Nmon data

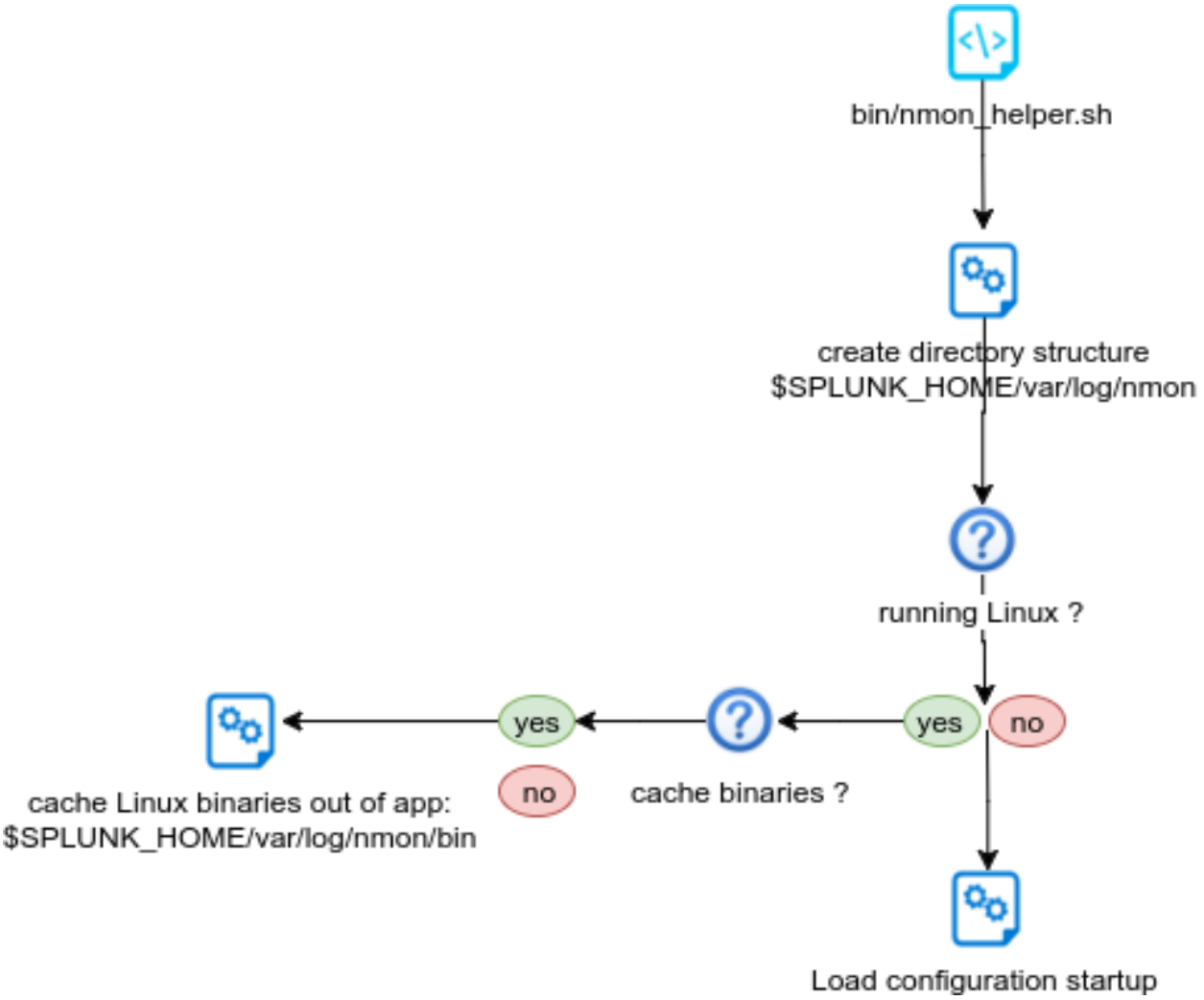
Generating the Nmon data which basically contains the performance measures and the configuration data is called "nmon_collect".

The activity of the scripts involves in these operations is being logged by Splunk into:

- sourcetype=nmon_collect: for standard output
- index=_internal sourcetype=splunkd: for stderr (unexpected errors)

Most of these operations are done by the main script: bin/nmon_helper.sh:

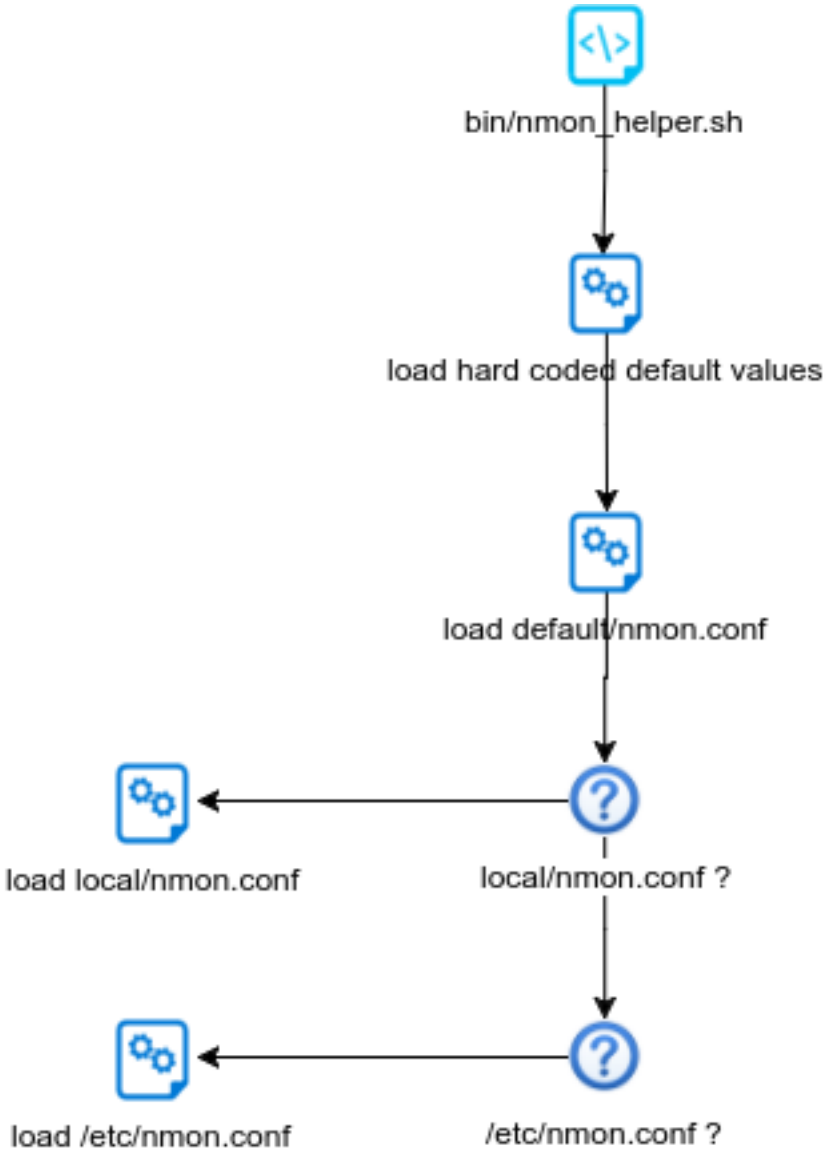
nmon_helper.sh tasks part1: initial startup tasks



Steps are:

- basics startup tasks: load SPLUNK_HOME variable, identify the application directories
- directory structure: load and verify directory structure, create if required in $SPLUNK_HOME/var/log/nmon
- binaries caching: for Linux OS only, verify if cache is existing and up to date, unpack linux.tgz to $SPLUNK_HOME/var/log/nmon if required
- start loading default and custom configurations

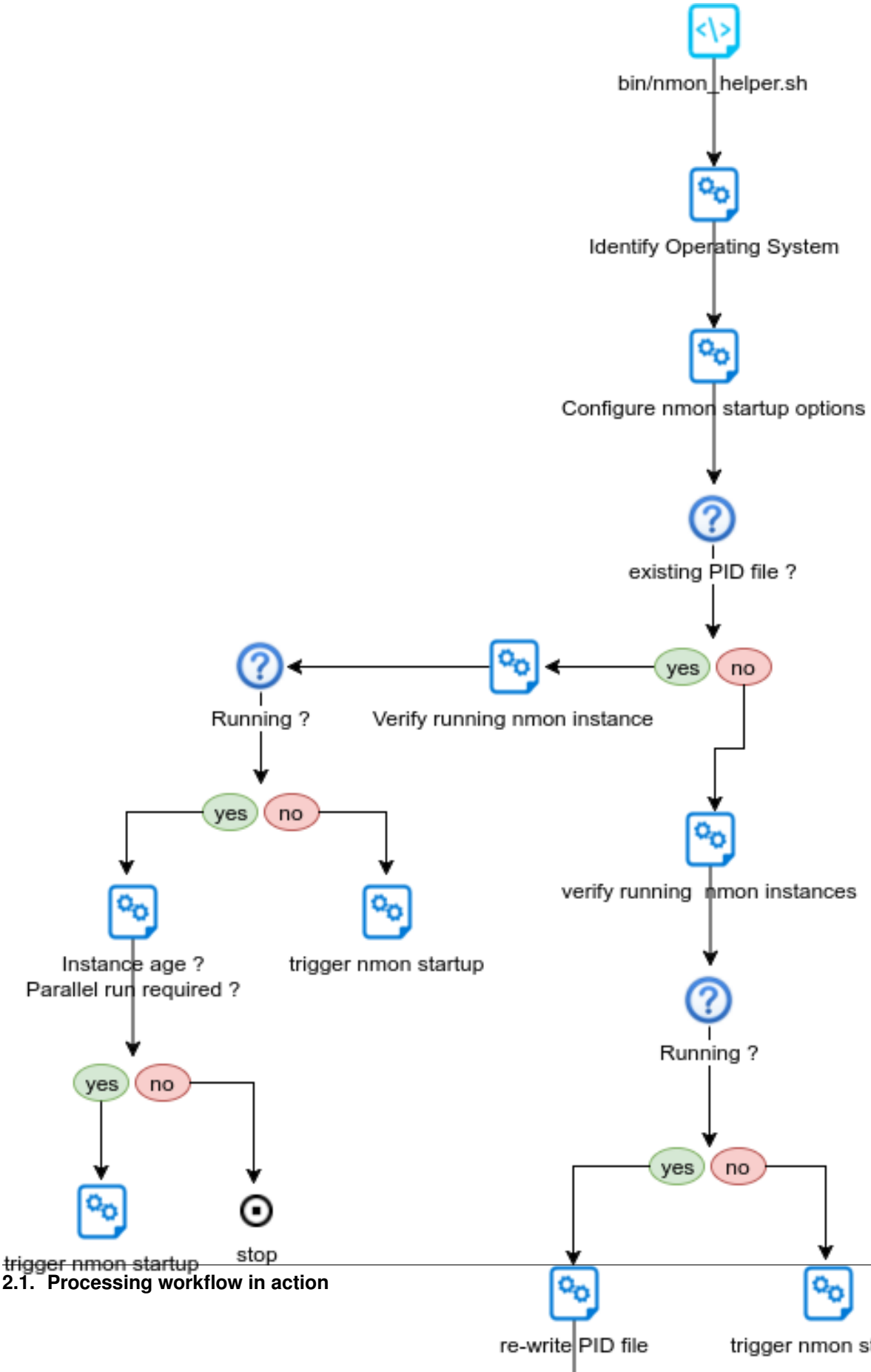
nmon_helper.sh tasks part2: load values and options



Steps are:

- load hard coded values for nmon options, such as interval and snapshot values
- load default/nmon.conf values (source default/nmon.conf)
- check if local/nmon.conf exist, and source file (override any previously defined values)
- check if /etc/nmon.conf exist (provide override mechanism at local server level), and source file (override any previously defined values)

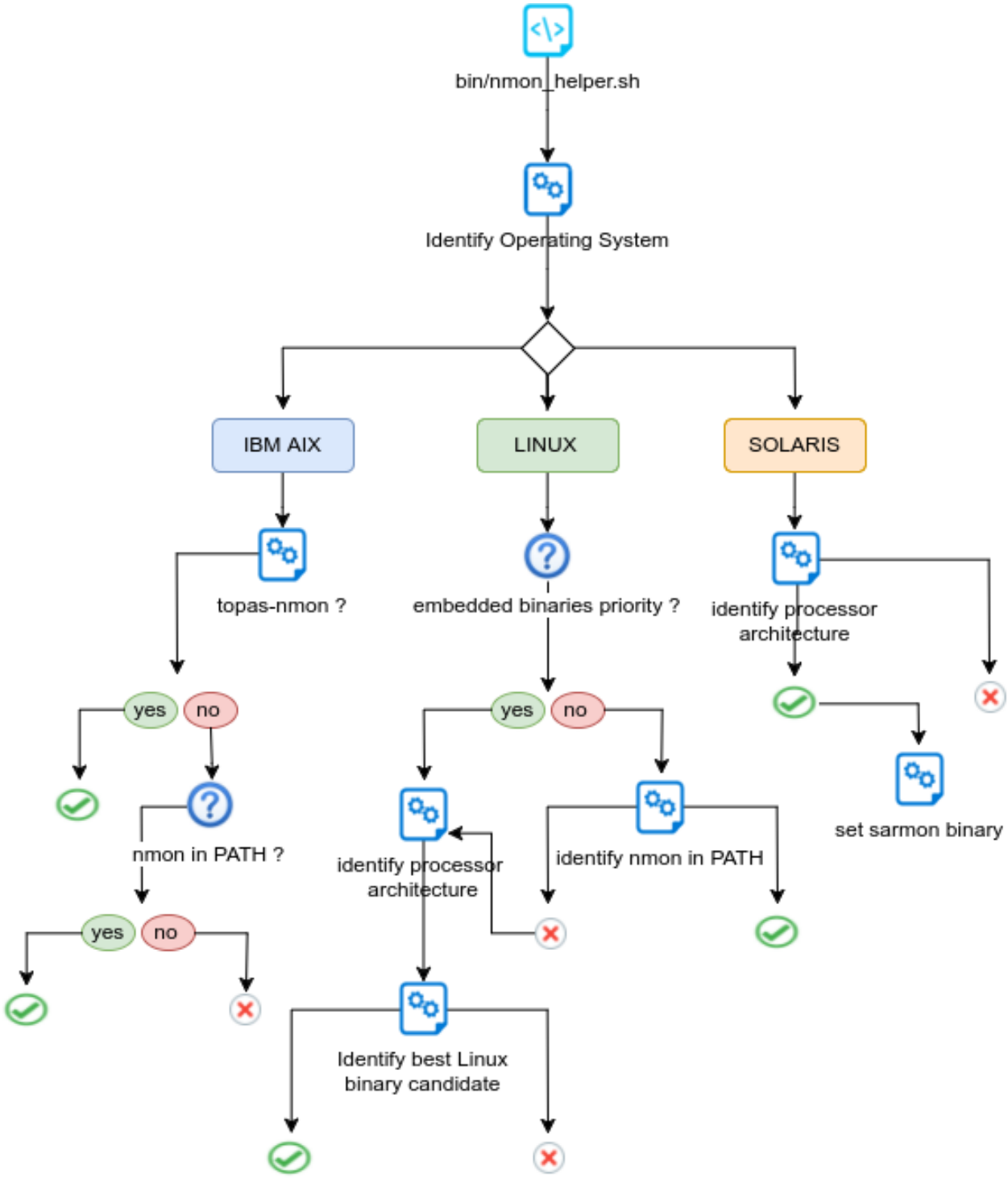
nmon_helper.sh tasks part3: identify instances



Steps are:

- Identify Operating System
- Verify PID file existence
- Is PID file valid ?
- If PID file exists, is the nmon instance running ?
- If PID not found, is there an nmon instance running ?
- rewrite PID file if nmon is running
- trigger nmon startup in other cases

nmon_helper.sh tasks part4: identify binaries

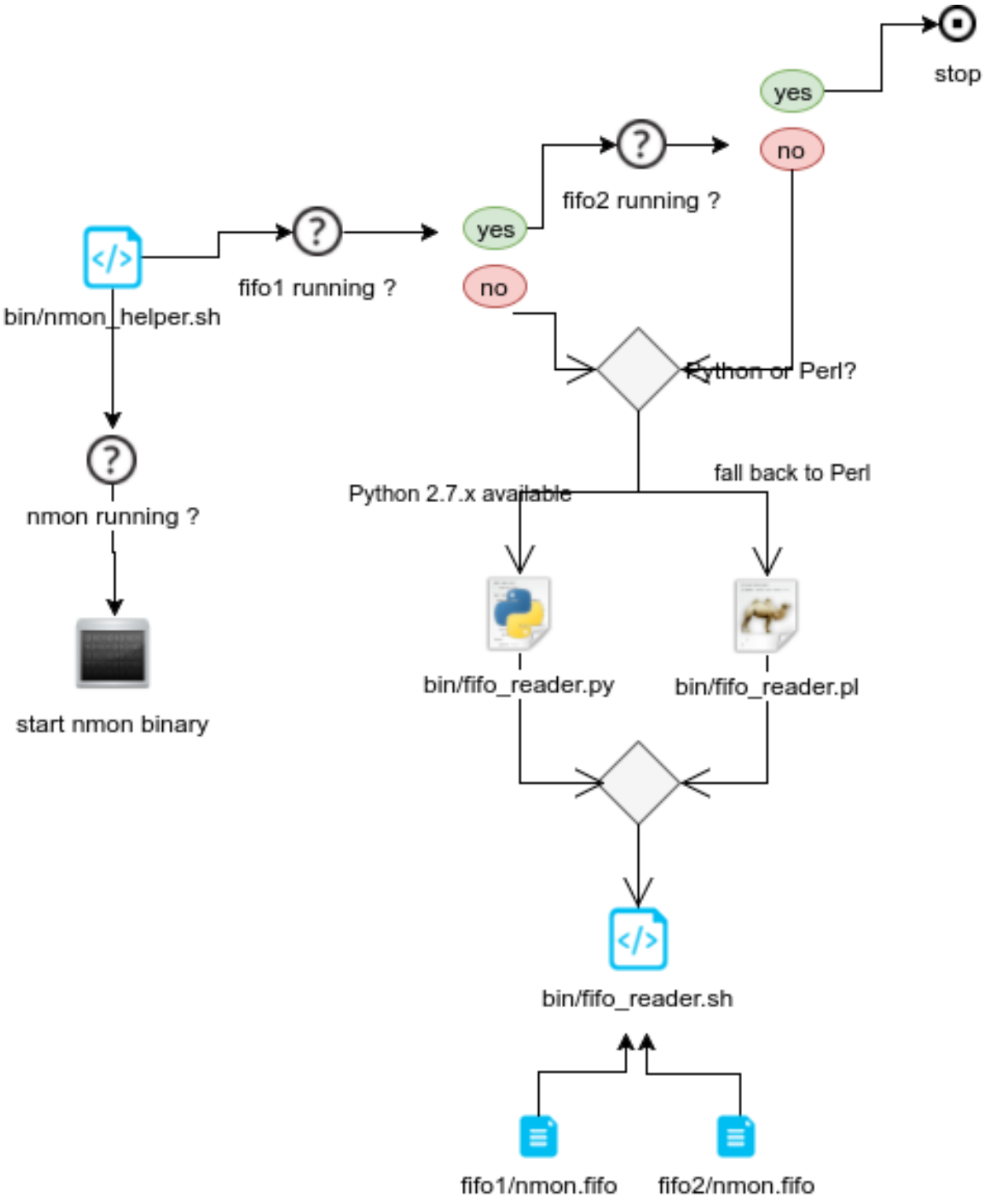


Steps are:

- Identify Operating System
- Identify Processor architecture for Linux / Solaris

- Identify local nmon binary for AIX
- For Linux, verify embedded binaries priority
- For Linux, identify best binary candidate and set nmon binary
- For Solaris, set sarmon binary

nmon_helper.sh tasks part5: startup



Steps are:

- Idenfity fifo_reader running

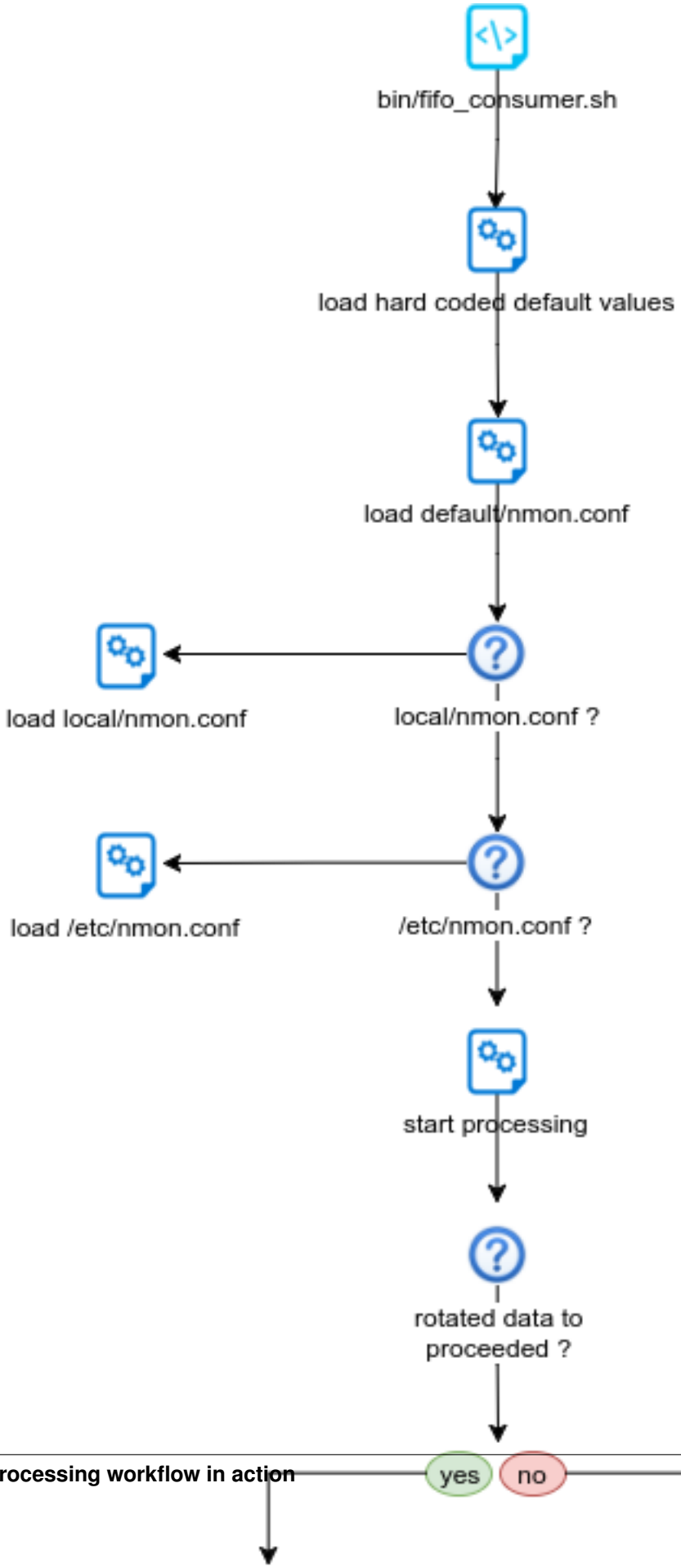
- set the nmon destination (fifo1 / fifo2)
- start nmon binary
- Identify interpreter to be used
- start the fifo_reader

2.1.2 Consuming Nmon data

Consuming the nmon data generated by the nmon_helper.sh and associated scripts (fifo_reader) is in first step operated by the "bin/fifo_consumer.sh" script.

This is a very simple shell script that will recompose the nmon data in the correct order, and stream its content to nmon parsers. (nmon2csv)

This script does as well the files rotation, such that next cycle starts such that the nmon_data.dat file is empty after consumption, which guarantees a low level of CPU and resources usage over each iteration.


bin/fifo_consumer.sh
load hard coded default values
load default/nmon.conf
load local/nmon.conf
local/nmon.conf ?
load /etc/nmon.conf
/etc/nmon.conf ?
start processing
rotated data to proceeded ?
yes
no

Steps are:

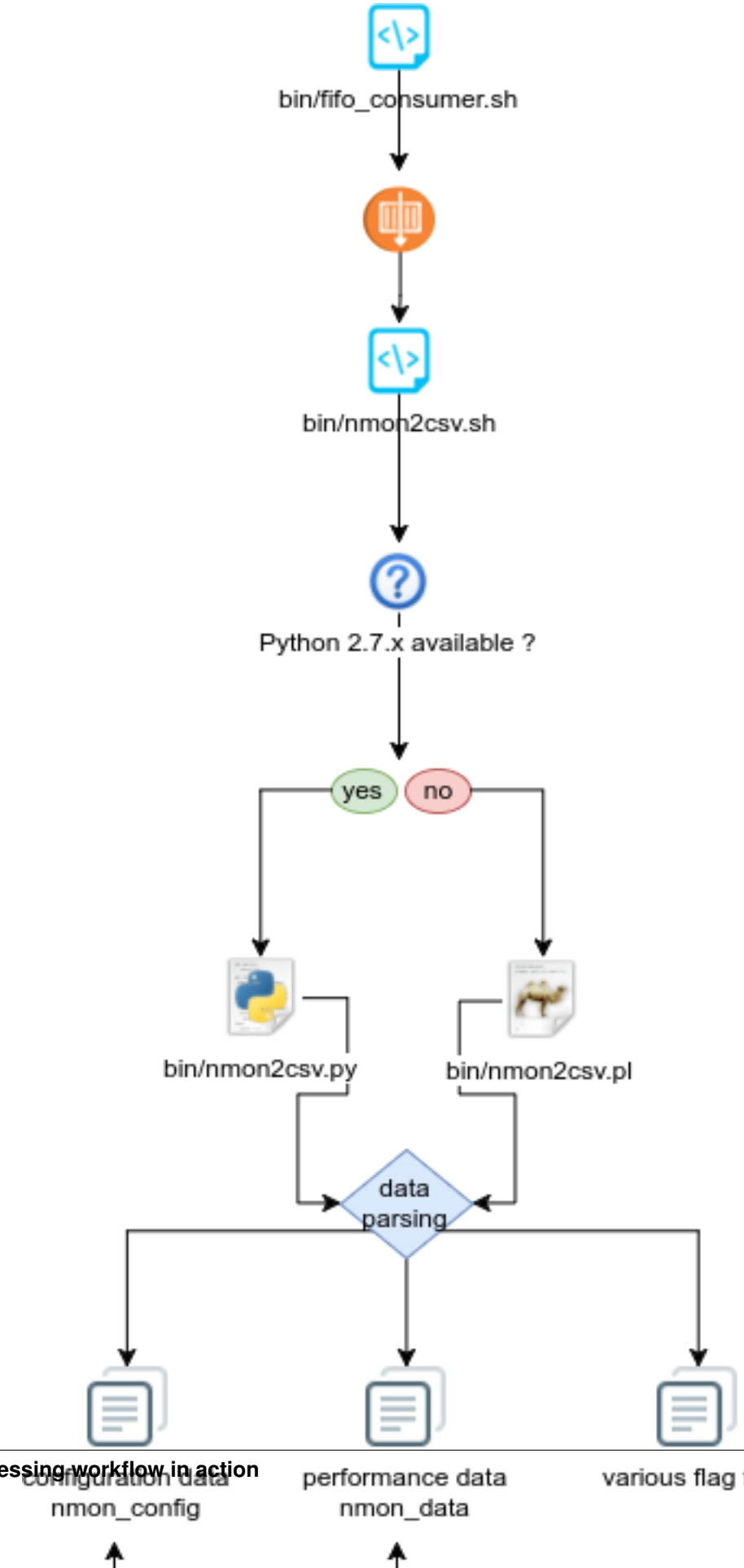
- Initialization and configuration loading
- Verify if fifo1 and fifo2 have rotated data to be proceeded
- Verify if fifo1 and fifo2 have non empty nmon_data.dat
- If so, wait at least 5 seconds age file before processing the data
- Stream nmon data to nmon2csv.sh

2.1.3 Parsing Nmon data

This is the final step in the nmon processing tasks, the nmon2csv parsers will consume the data receive in standard input (stdin), and produce final files to be indexed by Splunk.

There 3 scripts involved in these tasks:

- bin/nmon2csv.sh: simple shell wrapper that will decide to use Python or Perl parser
- bin/nmon2csv.py: the Python version parser
- bin/nmon2csv.pl: the Perl version parser


bin/fifo_consumer.sh
bin/nmon2csv.sh
Python 2.7.x available ?
yes
no
bin/nmon2csv.py
bin/nmon2csv.pl
data
parsing
nmon_config
performance data
nmon_data
various flag files

Steps are:

- nmon2csv.sh reads data from standard input
- nmon2csv.sh decides to use Python if version 2.7.x.available, or fall back to Perl
- nmon2csv.pyl.pl parse the data, generates configuration and performance data, as well as internal flag files
- data is being indexed in batch mode by Splunk, index and delete

CHAPTER 3

Deployment and configuration:

3.1 Deployment

Deploying the TA-nmon is very straightforward, basically it is just about extracting the TA-nmon tgz archive and restart Splunk.

However, Splunk is an highly distributable solution and some good practices have to be respected, please consult the Nmon Performance core documentation:

- Standalone deployment: http://nmon-for-splunk.readthedocs.io/en/latest/installation_standalone.html
- Distributed deployment: http://nmon-for-splunk.readthedocs.io/en/latest/installation_distributed.html
- Splunk Cloud deployment: http://nmon-for-splunk.readthedocs.io/en/latest/installation_splunkcloud.html

3.2 Upgrade

Upgrading the TA-nmon is nothing more than reproducing the initial installation steps, basically uncompressing the content of the TA-nmon tgz archive.

Please refer to the installation documentations:

- Standalone deployment: http://nmon-for-splunk.readthedocs.io/en/latest/installation_standalone.html
- Distributed deployment: http://nmon-for-splunk.readthedocs.io/en/latest/installation_distributed.html
- Splunk Cloud deployment: http://nmon-for-splunk.readthedocs.io/en/latest/installation_splunkcloud.html

Additional information:

The TA-nmon has an internal procedure that will cache the "/bin" directory from:

```
$SPLUNK_HOME/etc/apps/TA-nmon/bin
```

To:

```
$SPLUNK_HOME/var/log/nmon/bin
```

This procedure is useful because:

- The Splunk deployment server starts by first completely removing the entire TA-nmon removing, this would let running nmon processes orphan (for Linux and Solaris)
- In Search Head Cluster, a constantly running nmon process with the application directory would generate an error during the bundle publication

The cache directory will be updated every time the "app.conf" files in the application directory differs from the version in cache, and is operated by the "bin/nmon_helper.sh" script.

3.3 Eventgen testing

3.3.1 Testing Nmon performance with evengen

Splunk Evengen is a pretty good and straightforward way to test the application.

Starting the TA-nmon version 1.3.28 and TA-nmon-hec version 1.3.32, we provide sample data for 2 AIX and 2 Linux servers. The data has been generated on IBM Power Development Cloud servers.

Finally, we use to run a system stress tool on 1 server of each category, such that you will have quickly active alerts and system statistic anomalies.

Eventgen will generate data for:

- performance metrics (sourcetype=nmon_data / eventtype=nmon:performance)
- configuration data (sourcetype=nmon_config / eventtype-nmon:config)

Additional data normally available within the application is related to the nmon data collection and will not be generated by Eventgen.

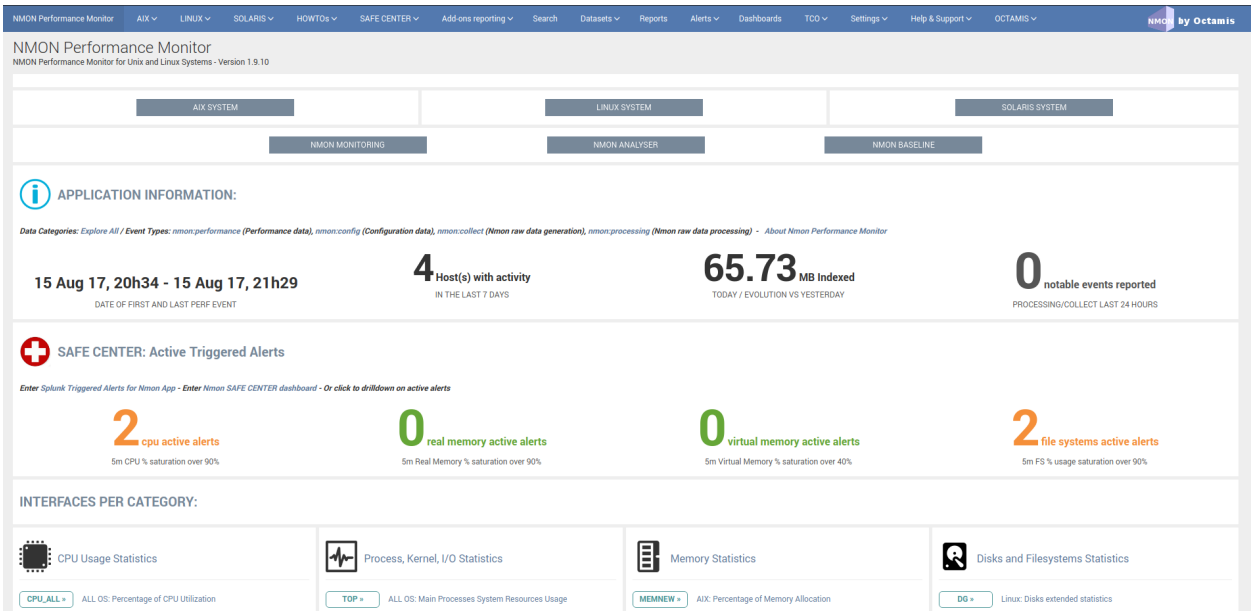
3.3.2 Get it working in 30 seconds

- Have a Splunk instance up and running
- Download the current eventgen version from https://github.com/splunk/eventgen
- Install the eventgen application, you should name the application directory as:

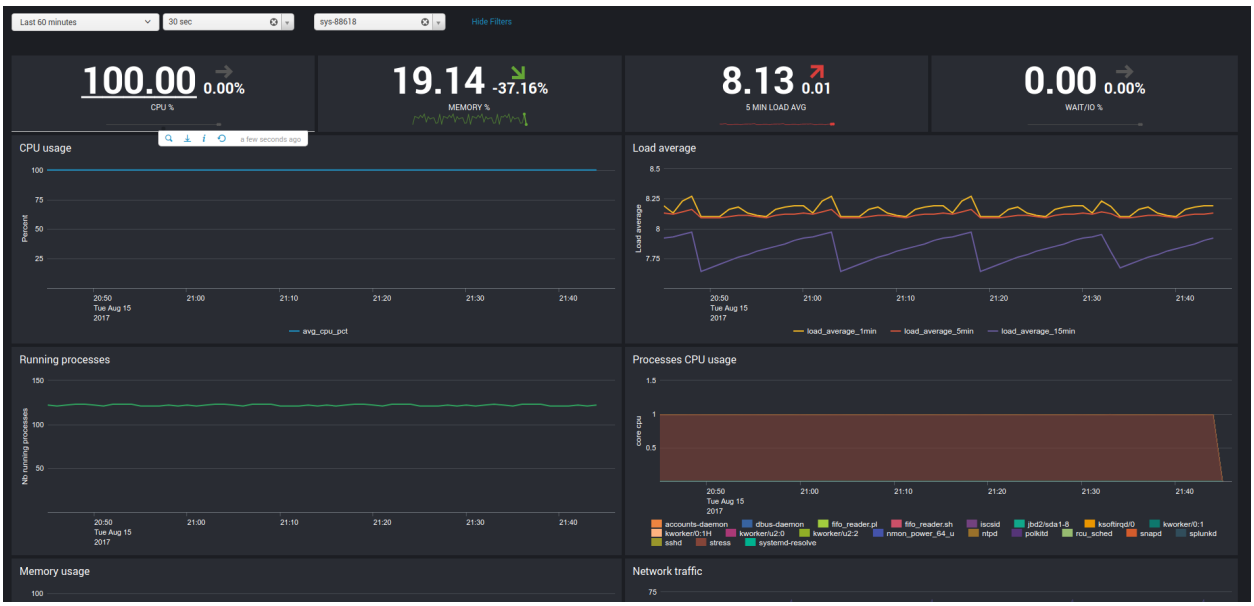
```
$SPLUNK_HOME/etc/apps/SA-Eventgen
```

- If not done already, install the Nmon Performance application (obvious!)
- Install either the TA-nmon or the TA-nmon-hec on this instance
- Create an index called "nmon"
- Restart Splunk

Immediately after Splunk restart, eventgen starts to generate nmon data, as visible from the application home page:



Example of a server running with abnormal load:



3.4 Extend Nmon with external data

Since the release 1.3.x of the TA-nmon, you can extend very easily the context of the nmon data using the nmon external scripts.

Integrating external data is an integrated feature in nmon binaries (for AIX, Linux and Solaris), and it has been integrated within the TA-nmon such that it is even much easier to integrate anything that matters for you.

The data can be retrieved from:

- Any command available to the operating system
- Script of any kind that can be called within a shell script: other shell script, Python, Perl...

Basically anything you can retrieve from your systems!

3.4.1 How does it work ?

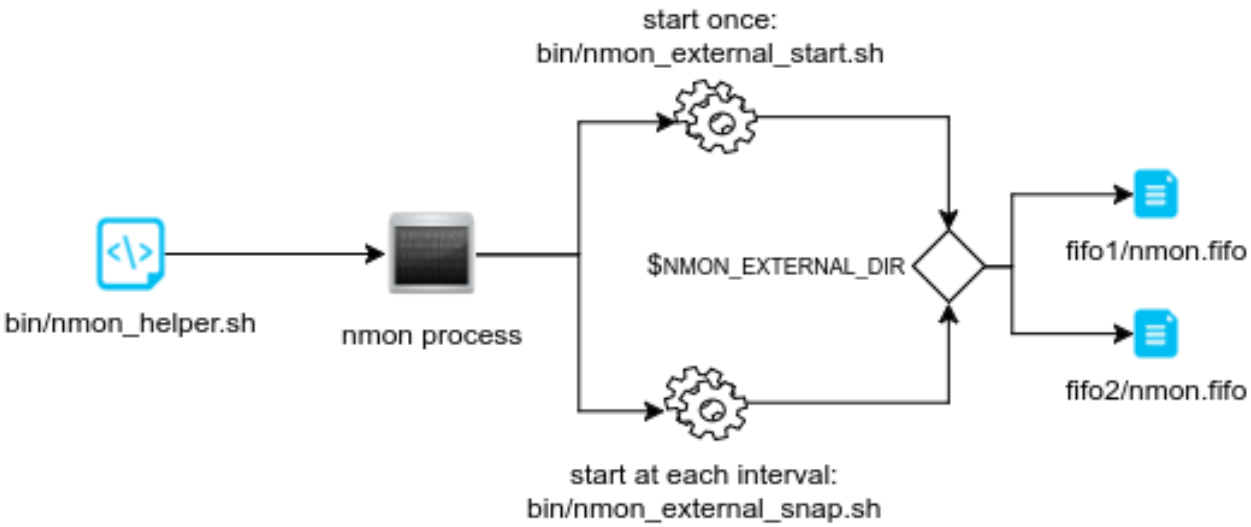
Very simple, we start with 2 simple shell scripts involved:

- bin/nmon_external_cmd/nmon_external_start.sh
- bin/nmon_external_cmd/nmon_external_snap.sh

Both scripts are being called automatically by nmon binaries, using the global environment variables (set by bin/nmon_helper.sh):

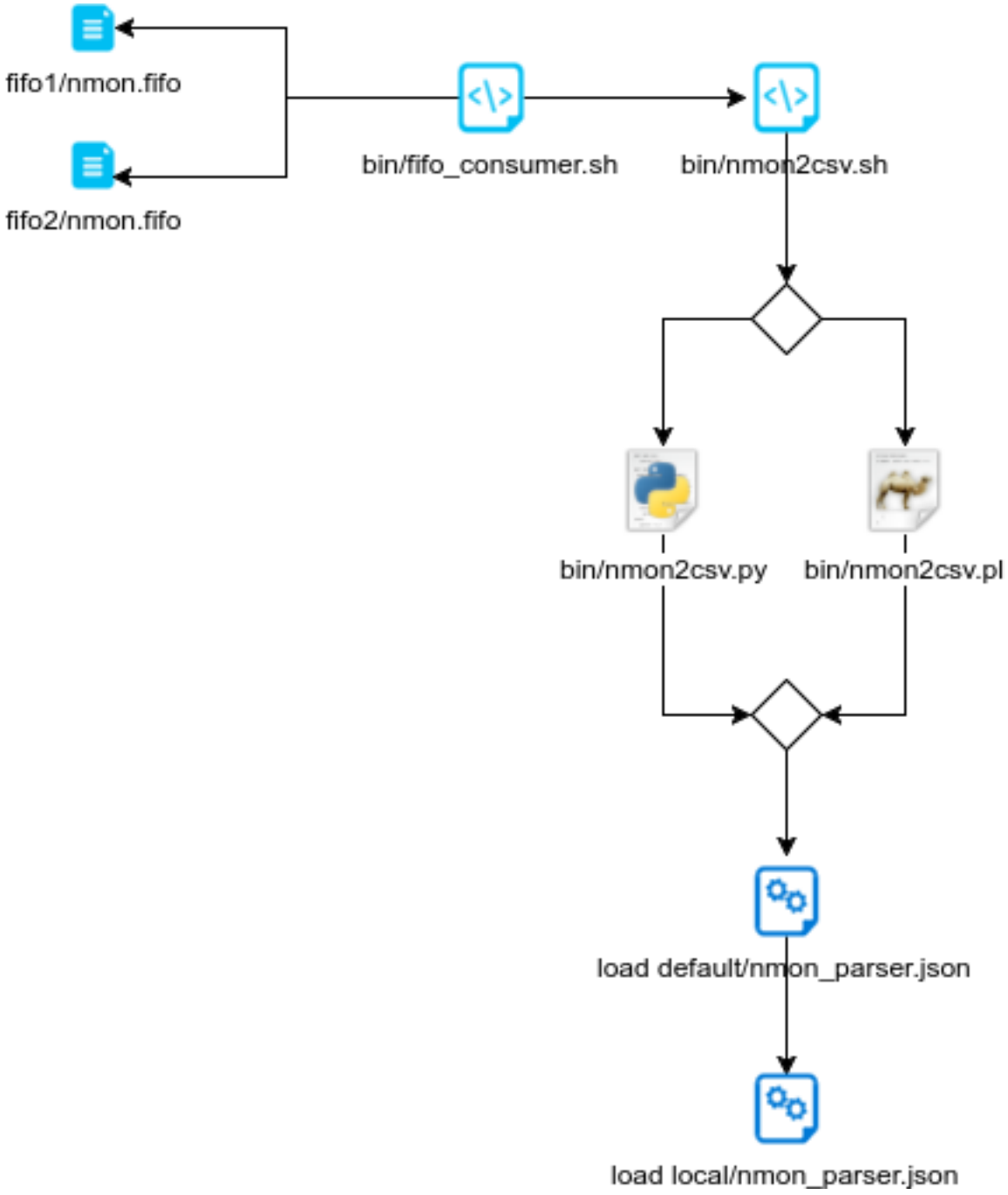
- NMON_START which equals to the full path of the nmon_external_start.sh script
- NMON_SNAP which equals to the full path of the nmon_external_snap.sh script

An additional variable set by bin/nmon_helper.sh defines the fifo file path were to write the data (used by bin/nmon_external_cmd/.sh script)*



Then, nmon parsers will automatically load the list of nmon sections to be parsed (the "type" field in Splunk) defined in:

- default/nmonparser_config.json (for the default configuration)
- local/nmonparser_config.json (for upgrade resilient customization)



3.4.2 Ok got it, how do I add mine ?

Right, very simple, let's take the example of the uptime command output:

Running the "uptime" command outputs various interesting information: server uptime, number of Unix users connected, system load for last minute, 5 minutes, 15 minutes:

```
19:08:45 up 11:00,  1 user,  load average: 0.13, 0.22, 0.19
```

STEP 1: header definition

Within the "bin/nmon_external_start.sh" script, we add:

```
# uptime information
echo "UPTIME,Server Uptime and load,uptime_stdout" >>$NMON_EXTERNAL_DIR/nmon.fifo
```

Explanations:

- The first field , in our "UPTIME", with the nmon section name, indexed in the "type" field in Splunk, and to be added in the nmonparser_config.json
- The second field is a descriptive field
- All the other fields are the data fields
- All fields must be comma separated

STEP 2: data generation

In the step 2, we modify the "bin/nmon_external_snap.sh" script to add:

```
# Uptime information (uptime command output)
echo "UPTIME,$1,\"`uptime | sed 's/^\s//g' | sed 's/,/;/g'`\"" >>$NMON_EXTERNAL_DIR/
↪nmon.fifo
```

Explanations:

- The first field refers to the nmon section we previously defined in "bin/nmon_external_snap.sh"
- The second field "$1" refers to the value of the nmon time stamp (Txxxx), and will be defined automatically by nmon
- The first field defines here our data field (we could have more than one!)
- In the uptime example, our command produces commas, to avoid any trouble we replace any comma by colons, and we protect the field by double quotes

STEP 3: add the monitor in nmonparser_config.json

The uptime example is integrated in the TA-nmon, its definition can be found in "default/nmonparser_config.json".

However, if you add your own monitors, please create a "local/nmonparser_config.json" and add your monitors declaration.

There is 2 types of declaration to be used:

- "nmon_external:" This is a simple literal parsing of the data, the output will be indexed the same way it has been produced
- "nmon_external_transposed": This is a different case where data will be transposed, it has to be used when you have a notion of "device/value"

Example:

In our example, we just need to have:

```
"nmon_external":["UPTIME"],
```

More explanations about the "nmon_external_transposed":

Here is an example of nmon data that the parser automatically transpose:

```
DISKXFER,Disk transfers per second sys-86400,sr0,sda,sda1,sda2,sdb
DISKXFER,T0001,0.5,0.7,0.2,0.5,0.0
DISKXFER,T0002,0.0,3.1,0.0,3.1,0.0
```

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```
DISKXFER,T0003,0.0,2.1,0.0,2.1,0.0
DISKXFER,T0004,0.0,1.1,0.0,1.1,0.0
```

Using the "nmon_external_transposed" will produce the following type of data in Splunk:

> DISKXFER,sys-86391,sys-86391,Linux,60,1440,28-03-2017 14:36:14,sda,2.0 DISKXFER,sys-86391,sys-86391,Linux,60,1440,28-03-2017 14:36:14,sda1,0.0 DISKXFER,sys-86391,sys-86391,Linux,60,1440,28-03-2017 14:36:14,sda2,2.0 DISKXFER,sys-86391,sys-86391,Linux,60,1440,28-03-2017 14:36:14,sdb,0.0 DISKXFER,sys-86391,sys-86391,Linux,60,1440,28-03-2017 14:36:14,sr0,0.0

With the following major fields:

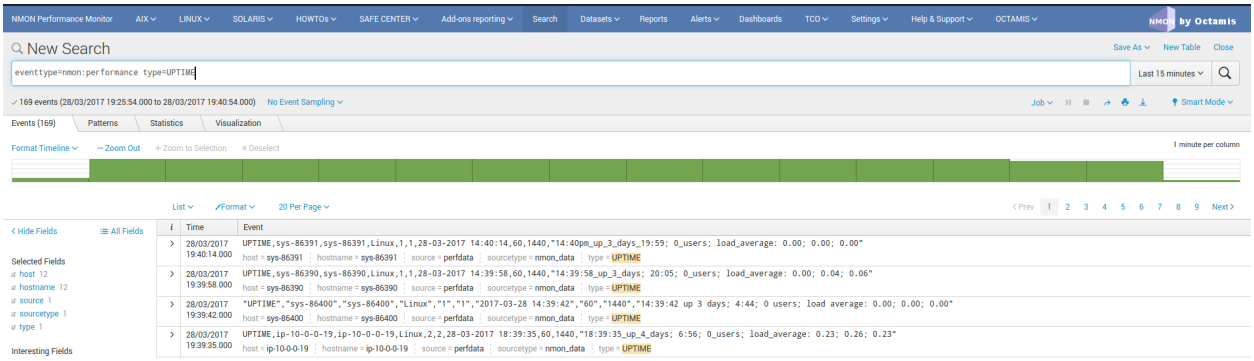
- type=DISKXFER
- host=xxxxxxx
- device=xxxxxxx (sda, sda1…)
- value=xxxxxxx (with the relevant value for that device, at that time stamp)

Which will be much more easy to analyse in Splunk, and allow the management of very large volume of data.

Et voila !

FINAL:

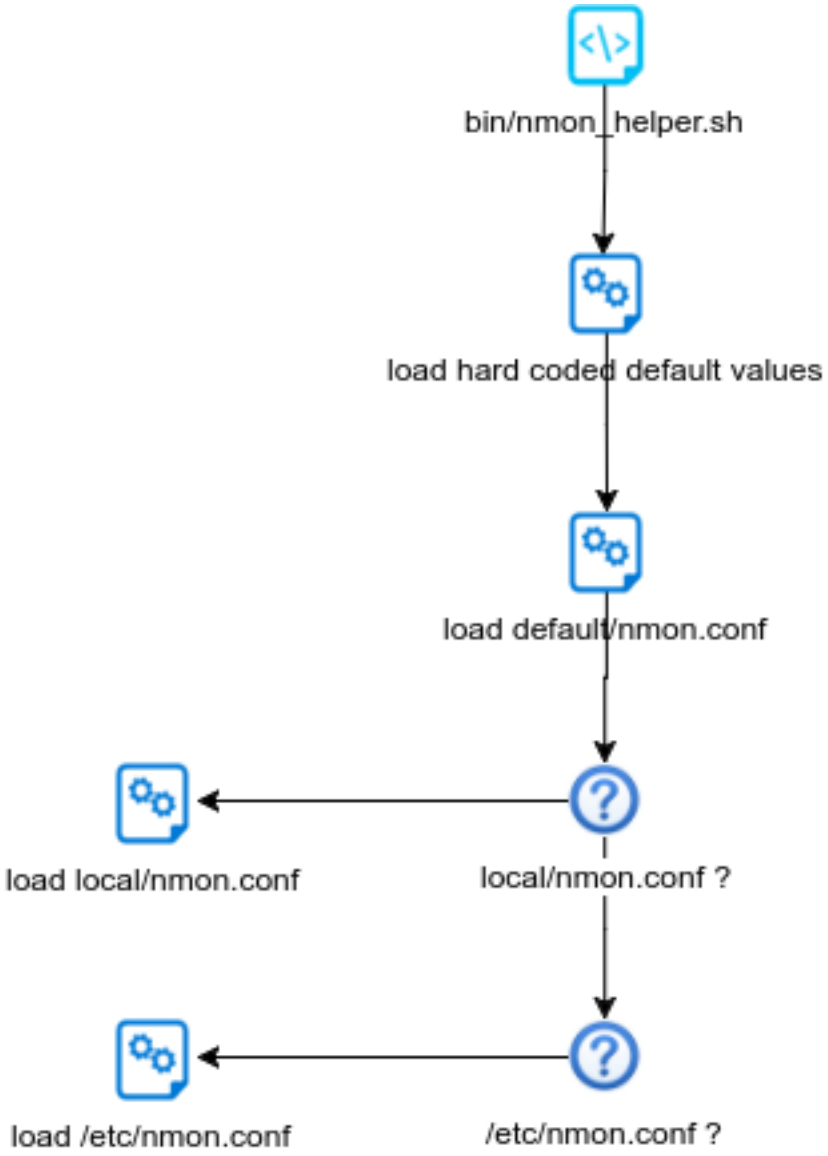
Finally deploy you new configuration to your servers, kill the running nmon processes or wait for their current cycle to end.



3.5 Configure your options with nmon.conf

The TA-nmon implements a main configuration file "nmon.conf" to be used for your customizations.

The configuration file uses the Splunk configuration philosophy (default versus local, etc…) such that you set your own options, and retain them over updates.



3.5.1 interval & snapshot

The "interval" and "snapshot" variables are the 2 nmon options that will define respectively the time in seconds between 2 measures of performance, and the number of measures to be achieved.

These 2 factors will define the time to live in seconds of a given nmon process, since the branch 1.3 of the TA-nmon, it is by default a cycle of 24 hours.

Legacy options for the TA-nmon for non fifo

The previous branch of the TA-nmon (not using fifo files) was having short cycle of nmon processes life time, to prevent from generating CPU load due to the processing of the nmon data:

```
###
### Legacy options for nmon writing to regular files (these values are used by the TA-
↪nmon not using fifo files)
```

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```
###

# The "longperiod_high" mode is a good compromise between accuracy, CPU / licensing␣
↪cost and operational intelligence, and can be used in most case
# Reducing CPU foot print can be achieved using one of the following modes,␣
↪increasing the interval value and limiting the snapshot value are the factors that␣
↪will impact the TA footprint
# If you observe a too large CPU foot print on your servers, please choose a␣
↪different mode, or a custom mode

# Available modes for proposal below:

#   shortperiod_low)
#                   interval="60"
#                   snapshot="10"

#   shortperiod_middle)
#                   interval="30"
#                   snapshot="20"

#   shortperiod_high)
#                   interval="20"
#                   snapshot="30"

#   longperiod_low)
#                   interval="240"
#                   snapshot="120"

#   longperiod_middle)
#                   interval="120"
#                   snapshot="120"

#   longperiod_high)
#                   interval="60"
#                   snapshot="120"

# custom --> Set a custom interval and snapshot value, if unset short default values␣
↪will be used (see custom_interval and custom_snapshot)

# Default is longperiod_high
mode="longperiod_high"

# Refresh interval in seconds, Nmon will use this value to refresh data each X seconds
# UNUSED IF NOT SET TO custom MODE
custom_interval="60"

# Number of Data refresh occurrences, Nmon will refresh data X times
# UNUSED IF NOT SET TO custom MODE
custom_snapshot="120"
```

These options are not used anymore by the TA-nmon and will be removed in the future

New options for the fifo implementation

The new branch of the TA-nmon use the following parameters to define the interval & snapshot values:

```
###
### FIFO options: used since release 1.3.0
###

# Using FIFO files (named pipe) are now used to minimize the CPU footprint of the␣
↪technical addons
# As such, it is not required anymore to use short cycle of Nmon run to reduce the␣
↪CPU usage

# You can still want to manage the volume of data to be generated by managing the␣
↪interval and snapshot values
# as a best practice recommendation, the time to live of nmon processes writing to␣
↪FIFO should be 24 hours

# value for interval: time in seconds between 2 performance measures
fifo_interval="60"

# value for snapshot: number of measure to perform
fifo_snapshot="1440"
```

The minimal value for the "fifo_interval" should not be less than 10 seconds to let enough time for the "bin/fifo_consume.sh" script to be able to manage the nmon_data.

The recommended cycle for the time to live of an nmon process is 24 hours.

3.5.2 NFS Statistics

NFS options for AIX and Linux: Activate NFS statistics:

Out of the box, NFS statistics generation is disabled. You may enable this feature but note it is only applicable to Linux and AIX - not Solaris.

To activate NFS statistics generation, you must activate this in a local/nmon.conf, as shown bellow:

```
### NFS OPTIONS ###

# Change to "1" to activate NFS V2 / V3 (option -N) for AIX hosts
AIX_NFS23="0"

# Change to "1" to activate NFS V4 (option -NN) for AIX hosts
AIX_NFS4="0"

# Change to "1" to activate NFS V2 / V3 / V4 (option -N) for Linux hosts
# Note: Some versions of Nmon introduced a bug that makes Nmon to core when␣
↪activating NFS, ensure your version is not outdated
Linux_NFS="0"
```

3.5.3 End time marging (Nmon parallel run)

Nmon processes generated by technical add-ons have specific time of live which is the computation of INTERVAL * SNAPSHOT.

Between two run of nmon collections, there can be several minutes required by nmon to collect configuration items before starting collecting performance metrics, moreover on very large systems.

For this reason, a parallel run of two nmon concurrent processes will occur a few minutes before the current process ends, which prevents from having gaps in charts and data.

This feature can be controlled by changing the value of the endtime_margin, and can also be totally deactivated if you like:

```
### VARIOUS COMMON OPTIONS ###

# Time in seconds of margin before running a new iteration of Nmon process to prevent␣
↪data gaps between 2 iterations of Nmon
# the nmon_helper.sh script will spawn a new Nmon process when the age in seconds of␣
↪the current process gets higher than this value

# The endtime is evaluated the following way:
# endtime=$(( ${interval} * ${snapshot} - ${endtime_margin} ))

# When the endtime gets higher than the endtime_margin, a new Nmon process will be␣
↪spawned
# default value to 240 seconds which will start a new process 4 minutes before the␣
↪current process ends

# Setting this value to "0" will totally disable this feature

endtime_margin="240"
```

3.5.4 Linux OS specific options

Embedded nmon binaries versus locally available nmon binaries

In default configuration, the "nmon_helper.sh" script will always give the priority to embedded nmon binary.

The Application has embedded binaries specifically compiled for almost every Linux OS and versions, such that you can manage from a center place nmon versions for all your Linux hosts!

The nmon_helper.sh script will proceed as above:

- Search for an embedded binary that suits processor architecture, Linux OS version (example: RHEL), that suite vendor version (example: RHEL 7) and vendor subversion (RHEL 7.1) Best result will be achieved using /etc/os-release file, if not available specific information file will be searched (example: /etc/issue, /etc/redhat-release, etc…)
- In the worst case (no binary found for vendor OS (example: Linux RHEL), the nmon_helper.sh search for generic binary that fits the local processor architecture
- If none of these options are possible, the script will search for nmon binary in PATH
- If this fails, the script exists in error, this information will stored in Splunk and shown in home page "Notable events reported".

```
### LINUX OPTIONS ###

# Change the priority applied while looking at nmon binary
# by default, the nmon_helper.sh script will use any nmon binary found in PATH
# Set to "1" to give the priority to embedded nmon binaries
# Note: Since release 1.6.07, priority is given by default to embedded binaries
Linux_embedded_nmon_priority="1"

# Change the limit for processes and disks capture of nmon for Linux
# In default configuration, nmon will capture most of the process table by capturing␣
↪main consuming processes
# This function is percentage limit of CPU time, with a default limit of 0.01
```

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```
# Changing this value can influence the volume of data to be generated, and the␣
↪associated CPU overhead for that data to be parsed

# Possible values are:
# Linux_unlimited_capture="0" --> Default nmon behavior, capture main processes (no -
↪I option)
# Linux_unlimited_capture="-1" --> Set the capture mode to unlimited (-I -1)
# Linux_unlimited_capture="x.xx" --> Set the percentage limit to a custom value, ex:
↪"0.01" will set "-I 0.01"
Linux_unlimited_capture="0"

# Set the maximum number of devices collected by Nmon, default is set to 1500 devices
# This option will be ignored if you set the Linux_unlimited_capturation below.
# Increase this value if you have systems with more devices
# Up to 3000 devices will be taken in charge by the Application (hard limit in␣
↪nmon2csv.py / nmon2csv.pl)
Linux_devices="1500"

# Enable disks extended statistics (DG*)
# Default is true, which activates and generates DG statistics
Linux_disk_dg_enable="1"

# Name of the User Defined Disk Groups file, "auto" generates this for you
Linux_disk_dg_group="auto"
```

Unlimited capture

Recently introduced, you can set nmon linux to run its mode of capture in unlimited mode, specially for the TOP section (processes) and block devices.

CAUTION: This option is experimental and can cause increasing volume of data to be generated

```
# Change the limit for processes and disks capture of nmon for Linux
# In default configuration, nmon will capture most of the process table by capturing␣
↪main consuming processes
# You can set nmon to an unlimited number of processes to be captured, and the entire␣
↪process table will be captured.
# Note this will affect the number of disk devices captured by setting it to an␣
↪unlimited number.
# This will also increase the volume of data to be generated and may require more cpu␣
↪overhead to process nmon data
# The default configuration uses the default mode (limited capture), you can set␣
↪bellow the limit number of capture to unlimited mode
# Change to "1" to set capture of processes and disks to no limit mode
Linux_unlimited_capture="0"
```

Maximum number of disk devices

The maximum number of disk devices to be taken in charge by nmon for Linux has to be set at starting time.

Note that currently, nmon2csv parsers have a hard limit at 3000 devices

```
# Set the maximum number of devices collected by Nmon, default is set to 1500 devices
# Increase this value if you have systems with more devices
# Up to 3000 devices will be taken in charge by the Application (hard limit in␣
↪nmon2csv.py / nmon2csv.pl)
Linux_devices="1500"
```

disk extended statistics:

```
# Enable disks extended statistics (DG*)
# Default is true, which activates and generates DG statistics
Linux_disk_dg_enable="1"

# Name of the User Defined Disk Groups file, "auto" generates this for you
Linux_disk_dg_group="auto"
```

3.5.5 Solaris OS specific options

Using a local/nmon.conf file, you can activate the generation of statistics for VxVM volumes:

```
### SOLARIS OPTIONS ###

# CHange to "1" to activate VxVM volumes IO statistics
Solaris_VxVM="0"
```

You can manage the activation / deactivation of UARG generation: (full commands arguments)

```
# UARG collection (new in Version 1.11), Change to "0" to deactivate, "1" to activate␣
↪(default is activate)
Solaris_UARG="1"
```

3.5.6 AIX OS specific options

For AIX hosts, you can customize the full command line sent to nmon at launch time, at the exception of NFS options. (see previous section)

```
### AIX COMMON OPTIONS ###

# CAUTION: Since release 1.3.0, we use fifo files, which requires the option "-
↪yoverwrite=1"

# Change this line if you add or remove common options for AIX, do not change NFS␣
↪options here (see NFS options)
# the -p option is mandatory as it is used at launch time to save instance pid
AIX_options="-T -A -d -K -L -M -P -^ -p -yoverwrite=1"

# enable this line if you want to get only active disks
# AIX_options=""-T -A -d -K -L -M -P -^ -p -k `lspv|grep active|awk '{print $1","}
↪'|tr -d '\040\011\012\015'` -yoverwrite=1"
```

3.5.7 Global options

These options are not related to nmon binary options but to the TA-nmon global configuration:

```
# This option can be used to force the technical add-on to use the Splunk configured␣
↪value of the server hostname
# If for some reason, you need to use the Splunk host value instead of the system␣
↪real hostname value, set this value to "1"

# We will search for the value of host=<value> in $SPLUNK_HOME/etc/system/local/
↪inputs.conf
```

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```
# If no value can be found, or if the file does not exist, we will fallback to the␣
↪normal behavior

# Default is use system hostname

# FQDN management in nmon2csv.pl/nmon2csv.py: The --fqdn option is not compatible␣
↪with the host name override, if the override_sys_hostname
# is activated, the --fqdn argument will have no effect

override_sys_hostname="0"

# nmon external generation management

# This option will manage the activation or deactivation of the nmon external data␣
↪generation at the lower level, before it comes to parsers
# default is activated (value=1), set to "0" to deactivate

nmon_external_generation="1"

# Fifo options

# This option will deactivate the auto switch to fifo mode, in other words the TA-
↪nmon will use the file mode and the old mechanism
# unless you encounter unexpected issues, you should not switch to the old mechanism␣
↪as the foot print is much higher

# Default is "1" which means write to fifo

mode_fifo="1"

# Since the release 1.3.0, AIX and Linux OS use the fifo_consumer.sh script to␣
↪consume data produced by the fifo readers
# the following option allows specifying the options sent to the nmon2csv parsers

# consult the documentation to get the full list of available options

# --mode realtime|colddata|fifo --> explicitly manage realtime data
# --use_fqdn --> use the host fully qualified domain name
# --json_output --> generate the performance data in json format instead of regular␣
↪csv data

# In fifo mode, options are sent by the fifo_consumer.sh
# In file mode, options are sent by Splunk via the nmon_processing stanza in props.
↪conf

nmon2csv_options="--mode fifo"
```

3.6 JSON indexing versus legacy CSV

Nmon data is basically generating CSV data (Comma Separated Value), and this is as well the case for the files generated by the TA-nmon

By default, the TA-nmon generates several files to be indexed in the following directories:

- $SPLUNK_HOME/var/log/nmon/var/csv_repository

- $SPLUNK_HOME/var/log/nmon/var/config_repository

In the case of the nmon performance data (the "csv_repository" 0, we generate one csv data file by nmon section. (basically per performance monitor)

Then, Splunk indexes the data using the CSV "INDEXED_EXTRACTIONS" mode, these parameters are visible in "default/props.conf" under the "nmon_data" sourcetype:

```
[nmon_data]

FIELD_DELIMITER=,
FIELD_QUOTE="
HEADER_FIELD_LINE_NUMBER=1

# your settings
INDEXED_EXTRACTIONS=csv
```

In this mode, Splunk identifies the fields name using the CSV header, then each field is indexed as an "indexed fields", to be opposed to fields extraction at search time. (like Key Value data for instance)

The indexed CSV mode provides great performances at search time, and CSV data generates a low level of data volume which saves Splunk licensing costs.

However, the disadvantage of this is an higher cost in storage requirements due to the volume of tsidx (indexes files) versus raw data, in comparison indexing other kind of data that can be fully extracted at search time. (like key value or json extracted data)

This is why we have introduced in the release 1.3.x a new optional mode that allows to generate the performance data (99.99% of the data volume) in JSON mode instead of legacy CSV data.

LIMITATION:

Currently, the JSON mode indexing is only available to the Python parser, if your hosts user Perl parser, this parameter will have no impact and CSV data will be generated.

3.6.1 Comparison of CSV indexing versus JSON indexing

There are advantages and disadvantages in both solutions, this is basically low licensing cost versus storage costs.

The following benchmark has been made on a set of nmon cold data, 3 months of data for 6 servers with an interval of 4 minutes between performance measures. (2 x AIX, 2 x Linux, 2 x Solaris)

For a sample of 874 MB of raw cold nmon data (6 servers, 2 AIX, 2 Linux, 2 Solaris)

Item / Type of indexing	CSV	JSON EXTRACTED (no additional indexed)	EVOL RATE VS CSV	JSON EXTRACTED (with 2 indexed fields)	EVOL RATE VS CSV	JSON INDEXED	EVOL RATE VS CSV
Storage comparison							
Licensing cost (GB)	5.29	12.37	+134.00%	12.37	+134.00%	12.37	+134.00%
Millions of events (Millions)	62.89	62.89	+0.00%	62.89	+0.00%	62.89	+0.00%
Size on disk (MB)	1881	1491	-21.00%	1524	-19.00%	2075	+10.00%
Size uncompressed (MB)	5422	12672	+134.00%	12672	+134.00%	12672	+134.00%
compression rate (%)	65.31%	88.23%	+35.00%	87.97%	+35.00%	83.63%	+28.00%
compression ratio	2.88:1	8.50:1		8.31:1		6.11:1	
Total rawdata (MB)	514	573	+11.00%	592	+15.00%	647	+26.00%
Total tsidx (MB)	1367	918	-33.00%	925	-32.00%	1396	+2.00%
Total rawdata + tsidx (MB)	1881	1491	-21.00%	1517	-19.00%	2043	+9.00%
rawdata compression rate	0.27	0.384	+42.00%	0.39	+44.00%	0.316	+17.00%
tsidx compression rate	0.73	0.615	-16.00%	0.615	-16.00%	0.683	-6.00%
Performance comparison							
avg runtime sample search 1 (sec)	0.637			0.752	+18.00%	0.661	+4.00%
avg runtime sample search 2 (sec)	9.875			14.888	+51.00%	10.847	+10.00%
avg runtime sample search 3 (sec)	10.534			10.814	+3.00%	10.551	+0.00%

Notes: This is a benchmark that operated on a Splunk standalone server, using cold data. This not necessary fully representative of what to expect in term of results depending on various factors. It provides however a good vision, and results in real life should be closed enough.

As a conclusion, in JSON data we generate much more data (approximately x 2 volume), licensing costs are then significantly highers due to this factor.

But the lower volume of tsdix a better data compression ratio generates approximately 20% less of final storage costs.

There is a well a lower performance level, which could be even more significant at scale.

3.6.2 Ok, how to use JSON then ?

Activating JSON mode is very easy, all you need is activating the "–json_output" option in your own "local/nmon.conf":

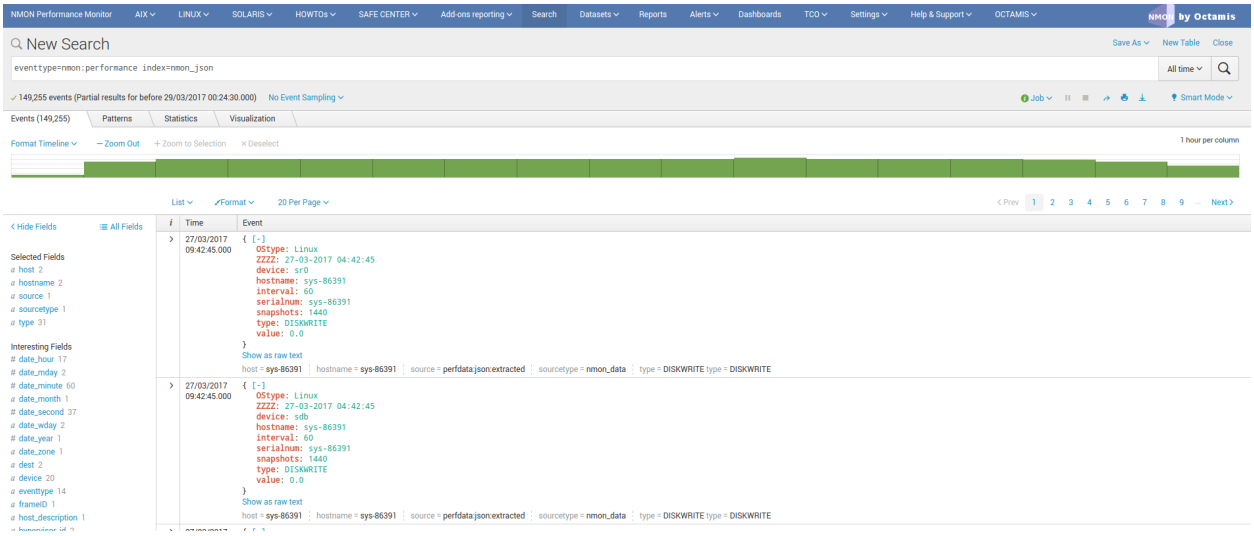
Create a "local/nmon.conf" and activate json mode::

```
# Since the release 1.3.0, AIX and Linux OS use the fifo_consumer.sh script to␣
↪consume data produced by the fifo readers
# the following option allows specifying the options sent to the nmon2csv parsers

# consult the documentation to get the full list of available options

# --mode realtime --> explicitly manage realtime data (default)
# --use_fqdn --> use the host fully qualified domain name
# --json_output --> generate the performance data in json format instead of regular␣
↪csv data

nmon2csv_options="--mode realtime --json_output"
```

And deploy your new configuration.

At next parsing cycle, the data will be generate in JSON mode and transparently rewritten to the nmon_data sourcetype.

Et voila!



Additional notes:

For more coherence, and best index performances, I would recommend to store the JSON nmon data into a separated and dedicated index.

CHAPTER 4

Troubleshoot:

4.1 Troubleshoot

There is a nice and complete troubleshoot guide in the Nmon Core application:

http://nmon-for-splunk.readthedocs.io/en/latest/Userguide.html#troubleshooting-guide-from-a-to-z

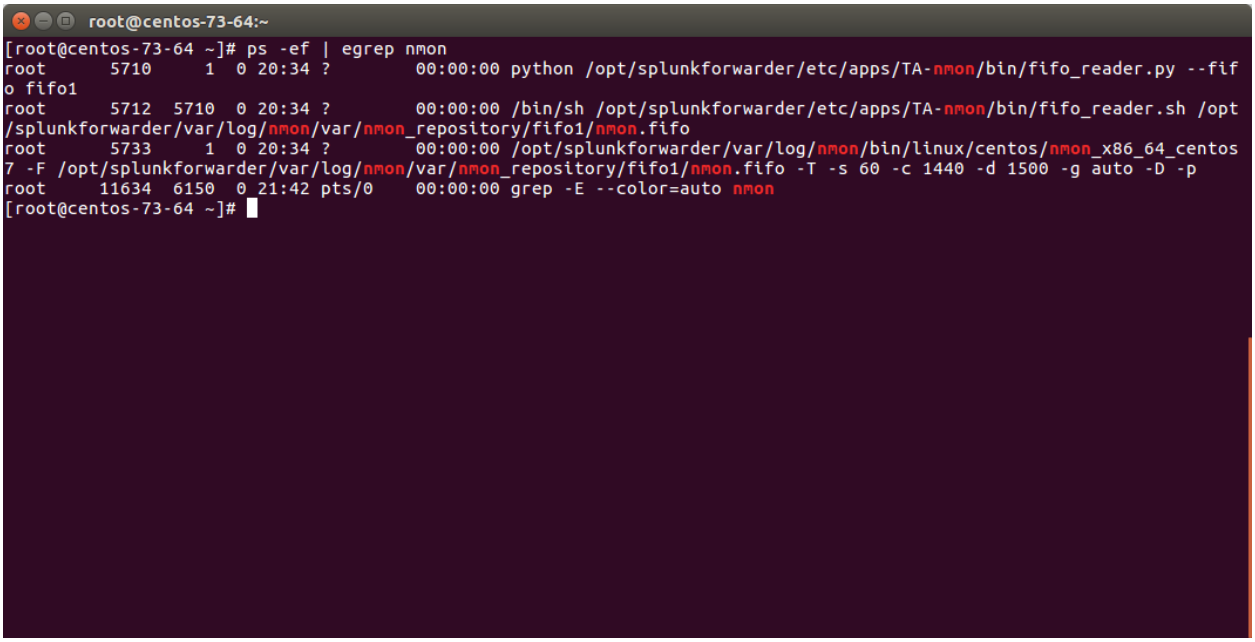
In a nutshell:

4.1.1 Expected running processes

Since the 1.3.x branch, you should find various processes running:

- 1 x nmon process (or 2 x nmon processes during the parallel interval)
- 1 x main Perl or Python fifo_reader process (or 2 x processes during the parallel interval)
- 1 x subshell fifo_reader process (or 2 x processes during the parallel interval)

On a Linux box:



On AIX, the nmon process will be called "topas-nmon"

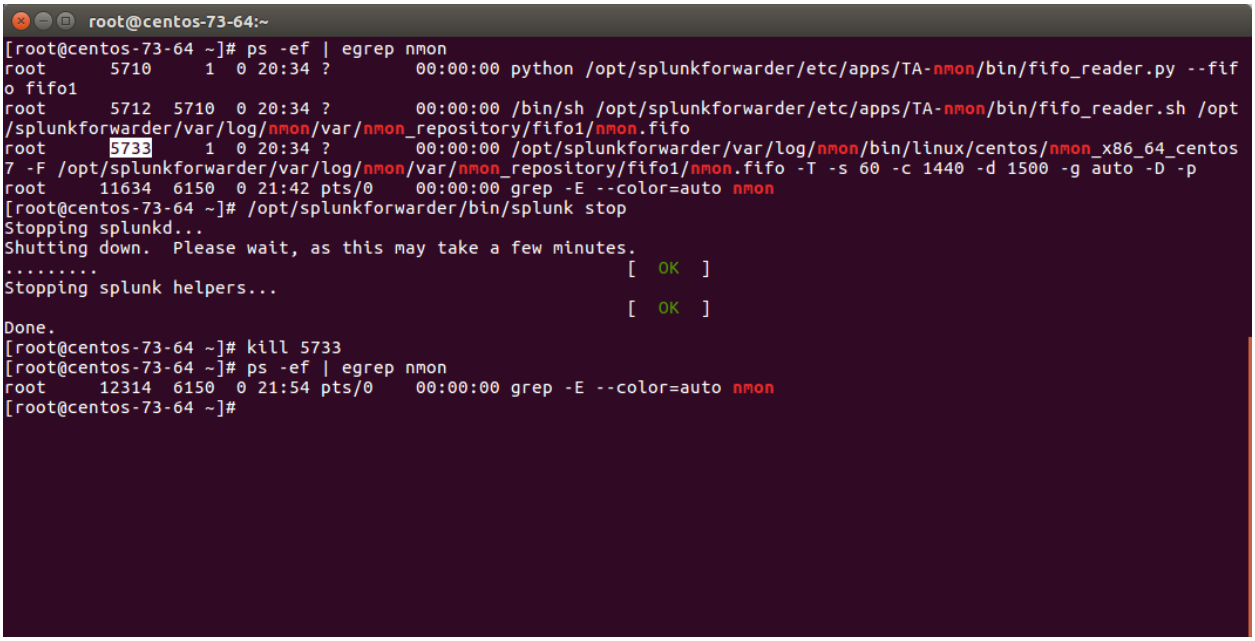
On Solaris, the sarmon process will be called "sadc"

4.1.2 Starting processes

If you run in trouble and want to troubleshoot the situation, the easiest approach is stopping Splunk, kill existing nmon process and run the tasks manually:

- Stop Splunk and kill the nmon process:

```
./splunk stop
```



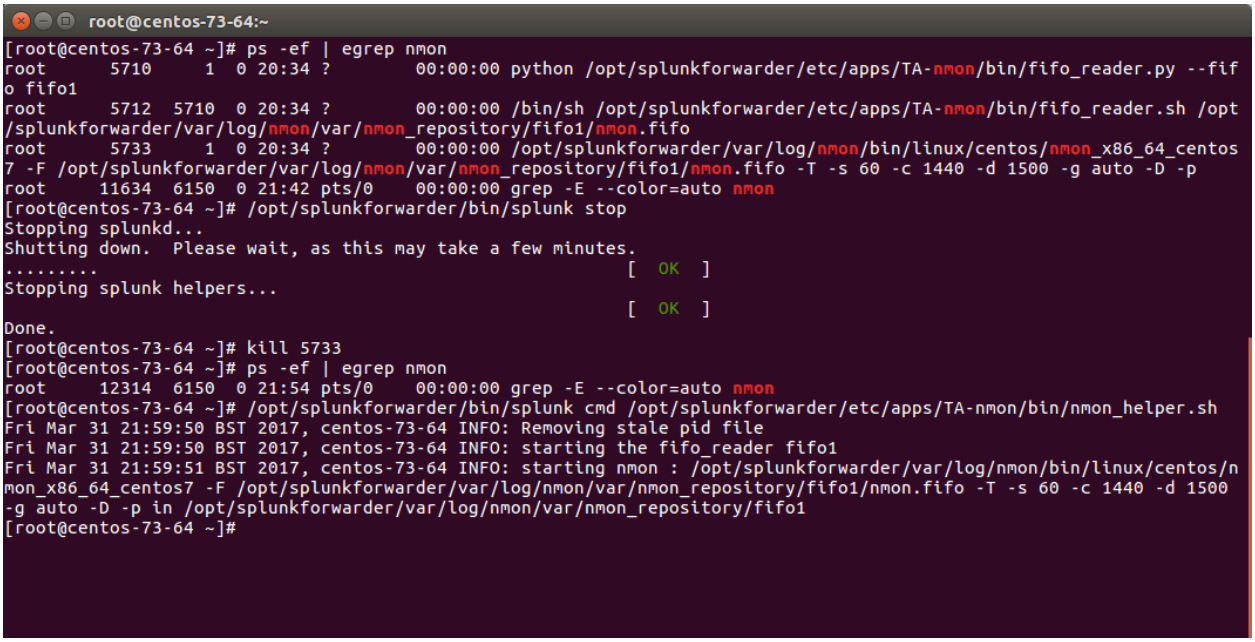
You will observe that killing the nmon process will automatically terminate the fifo_reader.pll.py and the subshell fifo_reader.sh. This the expected behavior, and mandatory.

If the processes do not stop, then your problem became mine and please open an issue !

- Now we can manually starting the processes, example:

```
/opt/splunkforwarder/bin/splunk cmd /opt/splunkforwarder/etc/apps/TA-nmon/bin/
↪nmon_helper.sh
```

Please adapt the paths to your context



Let's summarize what happened here:

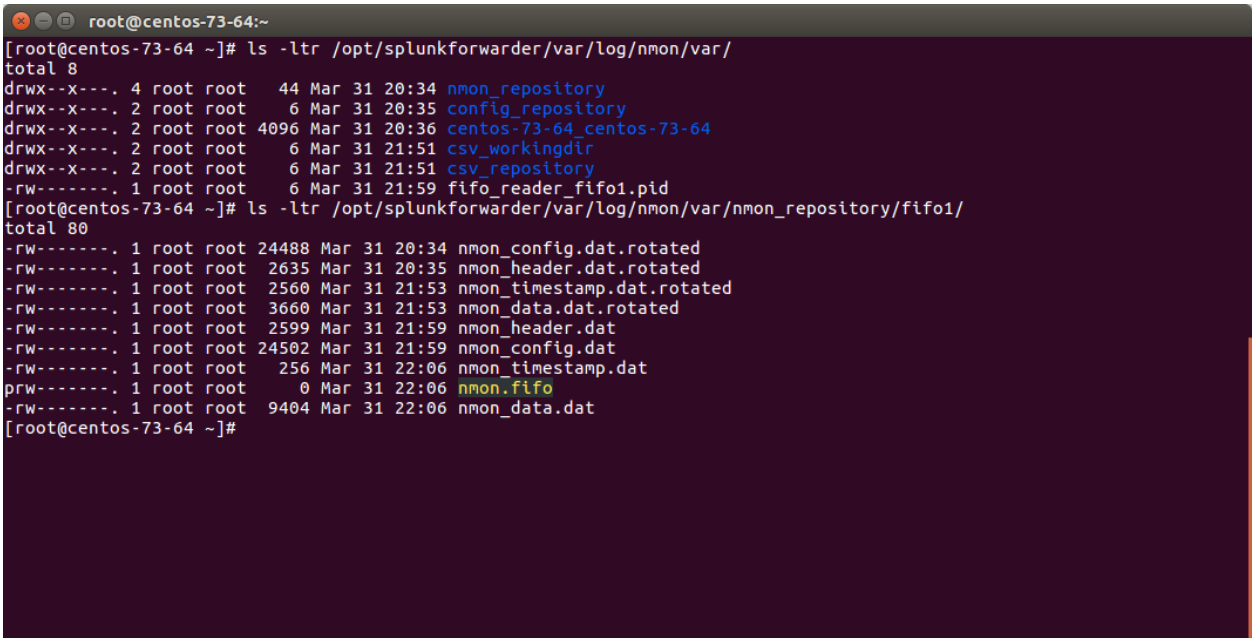
- nmon_helper.sh starts the fifo reader, if there is no fifo_reader running, the "fifo1" process will be started
- the fifo_reader.pll.py starts a fifo_reader.sh process in the background
- nmon_helper.sh starts the nmon process which will write its data to the relevant fifo file
- the nmon process cannot start if the fifo_reader has not started

If something unexpected happens and that the fifo_reader and nmon process do not start normally, you may want to trouble shoot the nmon_helper.sh script.

You can do very easily by commenting out "# set -x", re-run the script and analyse the output. (you might need to add the set-x within the functions as well)

4.1.3 Checking fifo_reader processes

The fifo_reader processes will continuously read the fifo file writen by the nmon process, and generate various dat files that represent the different typologies of nmon data:



How this it work?

- The fifo_reader.sh reads every new line of data writen to the fifo file (named pipe) and sends the data to the fifo_reader.pll.py
- The fifo_reader.pll.py parses the lines and applies various regular expressions to decide where to write the data, depending on its content
- If there were existing *.dat files at the startup of the fifo_reader processes, those dat files are rotated and renamed to* ".rotated"
- The nmon.fifo is not regular file but a named pipe (observe the "prw——-"), its size will always be equal to 0

4.1.4 Checking the data parsing

The parsing of those dat files is being achieved in 2 main steps:

- The "bin/fifo_consumer.sh" script is started every 60 seconds by Splunk
- This script will check if an nmon_data.dat file exists and that its size is greater than 0
- If the size of the nmon_dat.data file equals to 0, then the fifo_consumer.sh has nothing to do and will exit this fifo file
- If the size is greater than 0 but its modification time (mtime) is less than 5 seconds, the script will loop until the condition is true
- The fifo_consumer.sh reads the dat file, recompose the nmon file and stream its content to the "bin/nmon2csh.sh" shell wrapper
- After this operation, the nmon_data.dat file will be empty for the next cycle
- The shell wrapper reads in stdin the data, and send it to the nmon2csv parser (bin/nmon2csv.pll.py)
- The parser reads the nmon data, parses it and produces the final files to be indexed by Splunk

Easy no ;-)

You can easily run the fifo_consumer.sh manually:

```
/opt/splunkforwarder/bin/splunk cmd /opt/splunkforwarder/etc/apps/TA-nmon/bin/fifo_
↪consumer.sh
```

```
root@centos-73-64:~
MEM section: Wrote 46 lines
PROC section: Wrote 46 lines
VM section: Wrote 46 lines
UPTIME section: Wrote 46 lines
PROCCOUNT section: Wrote 46 lines
TOP section: Wrote 1 lines
DISKBUSY section: Wrote 271 lines
DISKBSIZE section: Wrote 271 lines
DISKREAD section: Wrote 271 lines
DISKWRITE section: Wrote 271 lines
DISKXFER section: Wrote 271 lines
NET section: Wrote 271 lines
NETPACKET section: Wrote 271 lines
JFSFILE section: Wrote 226 lines
DGBUSY section: Wrote 46 lines
DGREAD section: Wrote 46 lines
DGWRITE section: Wrote 46 lines
DGSIZE section: Wrote 46 lines
DGXFER section: Wrote 46 lines
DGREADS section: Wrote 46 lines
DGREADMERGE section: Wrote 46 lines
DGREADSERV section: Wrote 46 lines
DGWRITES section: Wrote 46 lines
DGWRITEMERGE section: Wrote 46 lines
DGWRITESERV section: Wrote 46 lines
DGINFLIGHT section: Wrote 46 lines
DGIOTIME section: Wrote 46 lines
DGBACKLOG section: Wrote 46 lines
Elapsed time was: 0.476205 seconds
[root@centos-73-64 ~]#
```

The files to be indexed by Splunk can be found in:

```
$SPLUNK_HOME/var/log/nmon/var/csv_repository
$SPLUNK_HOME/var/log/nmon/var/config_repository
$SPLUNK_HOME/var/log/nmon/var/json_repository
```

Example:

```
root@centos-73-64:~
[root@centos-73-64 ~]# ls -ltr /opt/splunkforwarder/var/log/nmon/var/csv_repository/*CPU_ALL*
-rw-------. 1 root root  425 Mar 31 22:43 /opt/splunkforwarder/var/log/nmon/var/csv_repository/centos-73-64_31_MAR_20
17_203421_CPU_ALL_30815_20170331224358.nmon.csv
-rw-------. 1 root root 4487 Mar 31 22:44 /opt/splunkforwarder/var/log/nmon/var/csv_repository/centos-73-64_31_MAR_20
17_215951_CPU_ALL_80132_20170331224400.nmon.csv
[root@centos-73-64 ~]# head /opt/splunkforwarder/var/log/nmon/var/csv_repository/centos-73-64_31_MAR_2017_215951_CPU_
ALL_80132_20170331224400.nmon.csv
type,serialnum,hostname,OStype,logical_cpus,virtual_cpus,ZZZZ,interval,snapshots,User_PCT,Sys_PCT,Wait_PCT,Idle_PCT,S
teal_PCT,Busy,CPUs
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 21:59:52,60,1440,0.0,1.9,0.0,98.1,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:00:52,60,1440,0.0,0.0,0.0,100.0,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:01:52,60,1440,0.0,0.1,0.0,99.9,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:02:52,60,1440,0.0,0.0,0.0,100.0,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:03:52,60,1440,0.0,0.0,0.0,100.0,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:04:52,60,1440,0.0,0.0,0.0,100.0,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:05:52,60,1440,0.0,0.0,0.0,100.0,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:06:52,60,1440,0.0,0.1,0.0,99.9,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:07:52,60,1440,0.0,0.1,0.0,99.9,0.0,,1
[root@centos-73-64 ~]#
```

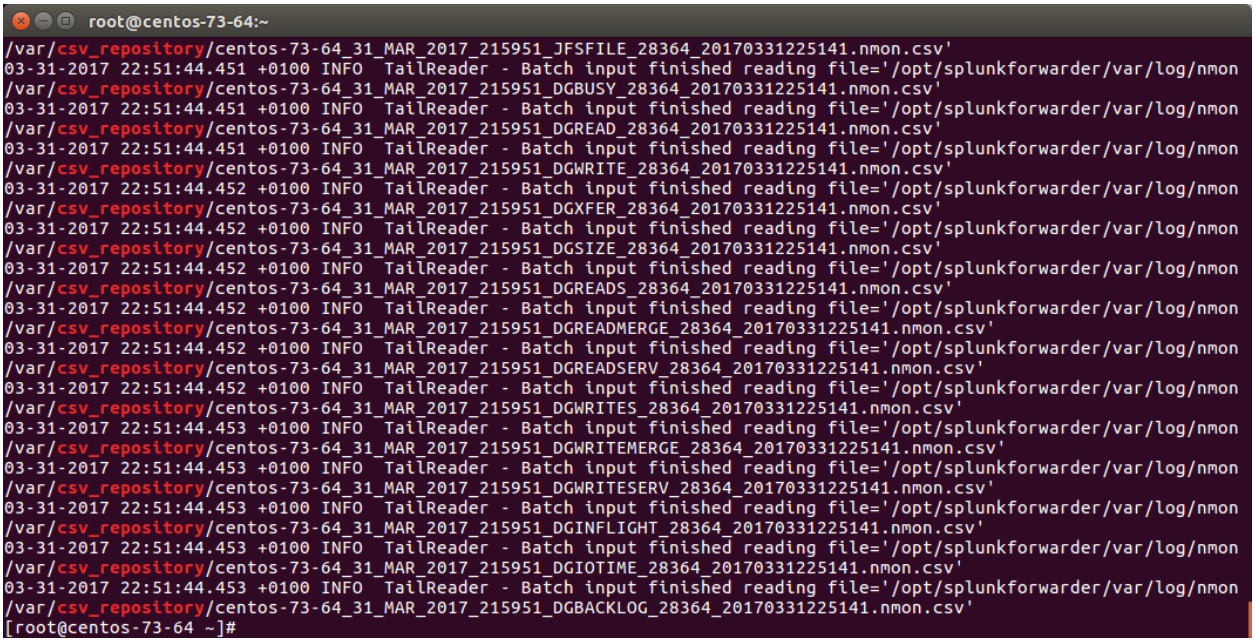
4.1.5 Checking Splunk indexing

Splunk monitors those directories in "batch" mode, which means index and delete.

Once you will have restarted Splunk, all the files will be consumed and disappear in a few seconds:

```
root@centos-73-64:~
type,serialnum,hostname,OStype,logical_cpus,virtual_cpus,ZZZZ,interval,snapshots,User_PCT,Sys_PCT,Wait_PCT,Idle_PCT,S
teal_PCT,Busy,CPUs
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 21:59:52,60,1440,0.0,1.9,0.0,98.1,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:00:52,60,1440,0.0,0.0,0.0,100.0,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:01:52,60,1440,0.0,0.1,0.0,99.9,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:02:52,60,1440,0.0,0.0,0.0,100.0,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:03:52,60,1440,0.0,0.0,0.0,100.0,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:04:52,60,1440,0.0,0.0,0.0,100.0,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:05:52,60,1440,0.0,0.0,0.0,100.0,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:06:52,60,1440,0.0,0.1,0.0,99.9,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:07:52,60,1440,0.0,0.1,0.0,99.9,0.0,,1
[root@centos-73-64 ~]# /opt/splunkforwarder/bin/splunk start

Splunk> See your world.  Maybe wish you hadn't.

Checking prerequisites...
        Checking mgmt port [8089]: open
        Checking conf files for problems...
        Done
        Checking default conf files for edits...
        Validating installed files against hashes from '/opt/splunkforwarder/splunkforwarder-6.5.3-36937ad027d4-linux
-2.6-x86_64-manifest'
        All installed files intact.
        Done
All preliminary checks passed.

Starting splunk server daemon (splunkd)...
Done
                                                           [  OK  ]
[root@centos-73-64 ~]#
```

```
root@centos-73-64:~
type,serialnum,hostname,OStype,logical_cpus,virtual_cpus,ZZZZ,interval,snapshots,User_PCT,Sys_PCT,Wait_PCT,Idle_PCT,S
teal_PCT,Busy,CPUs
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 21:59:52,60,1440,0.0,1.9,0.0,98.1,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:00:52,60,1440,0.0,0.0,0.0,100.0,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:01:52,60,1440,0.0,0.1,0.0,99.9,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:02:52,60,1440,0.0,0.0,0.0,100.0,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:03:52,60,1440,0.0,0.0,0.0,100.0,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:04:52,60,1440,0.0,0.0,0.0,100.0,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:05:52,60,1440,0.0,0.0,0.0,100.0,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:06:52,60,1440,0.0,0.1,0.0,99.9,0.0,,1
CPU_ALL,centos-73-64,centos-73-64,Linux,1,1,31-03-2017 22:07:52,60,1440,0.0,0.1,0.0,99.9,0.0,,1
[root@centos-73-64 ~]# /opt/splunkforwarder/bin/splunk start

Splunk> See your world.  Maybe wish you hadn't.

Checking prerequisites...
        Checking mgmt port [8089]: open
        Checking conf files for problems...
        Done
        Checking default conf files for edits...
        Validating installed files against hashes from '/opt/splunkforwarder/splunkforwarder-6.5.3-36937ad027d4-linux
-2.6-x86_64-manifest'
        All installed files intact.
        Done
All preliminary checks passed.

Starting splunk server daemon (splunkd)...
Done
                                                           [  OK  ]
[root@centos-73-64 ~]# grep 'csv_repository' /opt/splunkforwarder/var/log/splunk/splunkd.log
```


root@centos-73-64:~
/var/csv_repository/centos-73-64_31_MAR_2017_215951_JFSFILE_28364_20170331225141.nmon.csv'
03-31-2017 22:51:44.451 +0100 INFO TailReader - Batch input finished reading file='/opt/splunkforwarder/var/log/nmon
/var/csv_repository/centos-73-64_31_MAR_2017_215951_DGBUSY_28364_20170331225141.nmon.csv'
03-31-2017 22:51:44.451 +0100 INFO TailReader - Batch input finished reading file='/opt/splunkforwarder/var/log/nmon
/var/csv_repository/centos-73-64_31_MAR_2017_215951_DGREAD_28364_20170331225141.nmon.csv'
03-31-2017 22:51:44.451 +0100 INFO TailReader - Batch input finished reading file='/opt/splunkforwarder/var/log/nmon
/var/csv_repository/centos-73-64_31_MAR_2017_215951_DGWRITE_28364_20170331225141.nmon.csv'
03-31-2017 22:51:44.452 +0100 INFO TailReader - Batch input finished reading file='/opt/splunkforwarder/var/log/nmon
/var/csv_repository/centos-73-64_31_MAR_2017_215951_DGXFER_28364_20170331225141.nmon.csv'
03-31-2017 22:51:44.452 +0100 INFO TailReader - Batch input finished reading file='/opt/splunkforwarder/var/log/nmon
/var/csv_repository/centos-73-64_31_MAR_2017_215951_DGSIZE_28364_20170331225141.nmon.csv'
03-31-2017 22:51:44.452 +0100 INFO TailReader - Batch input finished reading file='/opt/splunkforwarder/var/log/nmon
/var/csv_repository/centos-73-64_31_MAR_2017_215951_DGREADS_28364_20170331225141.nmon.csv'
03-31-2017 22:51:44.452 +0100 INFO TailReader - Batch input finished reading file='/opt/splunkforwarder/var/log/nmon
/var/csv_repository/centos-73-64_31_MAR_2017_215951_DGREADMERGE_28364_20170331225141.nmon.csv'
03-31-2017 22:51:44.452 +0100 INFO TailReader - Batch input finished reading file='/opt/splunkforwarder/var/log/nmon
/var/csv_repository/centos-73-64_31_MAR_2017_215951_DGREADSERV_28364_20170331225141.nmon.csv'
03-31-2017 22:51:44.452 +0100 INFO TailReader - Batch input finished reading file='/opt/splunkforwarder/var/log/nmon
/var/csv_repository/centos-73-64_31_MAR_2017_215951_DGWRITES_28364_20170331225141.nmon.csv'
03-31-2017 22:51:44.453 +0100 INFO TailReader - Batch input finished reading file='/opt/splunkforwarder/var/log/nmon
/var/csv_repository/centos-73-64_31_MAR_2017_215951_DGWRITEMERGE_28364_20170331225141.nmon.csv'
03-31-2017 22:51:44.453 +0100 INFO TailReader - Batch input finished reading file='/opt/splunkforwarder/var/log/nmon
/var/csv_repository/centos-73-64_31_MAR_2017_215951_DGWRITESERV_28364_20170331225141.nmon.csv'
03-31-2017 22:51:44.453 +0100 INFO TailReader - Batch input finished reading file='/opt/splunkforwarder/var/log/nmon
/var/csv_repository/centos-73-64_31_MAR_2017_215951_DGINFLIGHT_28364_20170331225141.nmon.csv'
03-31-2017 22:51:44.453 +0100 INFO TailReader - Batch input finished reading file='/opt/splunkforwarder/var/log/nmon
/var/csv_repository/centos-73-64_31_MAR_2017_215951_DGIOTIME_28364_20170331225141.nmon.csv'
03-31-2017 22:51:44.453 +0100 INFO TailReader - Batch input finished reading file='/opt/splunkforwarder/var/log/nmon
/var/csv_repository/centos-73-64_31_MAR_2017_215951_DGBACKLOG_28364_20170331225141.nmon.csv'
[root@centos-73-64 ~]#

Et voila!

CHAPTER 5

Various:

5.1 FAQ

Can I have my own nmon collection while running the TA-nmon ?

For some reason, you may want to have your own collection of nmon files and run the TA-nmon in the same time. The TA-nmon will not have trouble if your run your own collection, the answer is yes you can.

Note that it is not recommended to try using those files instead of the TA-nmon processing stuff, for performance and CPU foot print reasons.

Can I have the TA-nmon and the TA-Unix in the same time ?

You might need the TA-unix for specific tasks that are out of the scope of the Nmon application, such as ingesting security related data.

Running both addons in same servers is not a problem at all.

The TA-nmon is CIM compatible, for most performance related metrics, the TA-nmon can be transparently used in replacement of the TA-Unix.

Is the TA-nmon CIM compatible ?

Yes it is. The TA-nmon is CIM compatible, it will specially deal with the following CIM data models:

- Application State
- Inventory
- Network Traffic
- Performance

If you are an Enterprise Security customer for instance, all you need is having the TA-nmon deployed in search heads as well.