**[설치]**

[root@db1 ~]# yum install sysstat

[root@db1 sa]# systemctl start sysstat

[root@db1 sa]# systemctl status sysstat

● sysstat.service - Resets System Activity Logs

Loaded: loaded (/usr/lib/systemd/system/sysstat.service; enabled; vendor preset: enabled)

Active: active (exited) since Sun 2018-04-15 07:58:58 GMT; 5s ago

Process: 2315 ExecStart=/usr/lib64/sa/sa1 --boot (code=exited, status=0/SUCCESS)

Main PID: 2315 (code=exited, status=0/SUCCESS)

Memory: 0B

CGroup: /system.slice/sysstat.service

Apr 15 07:58:58 db1 systemd[1]: Starting Resets System Activity Logs...

Apr 15 07:58:58 db1 systemd[1]: Started Resets System Activity Logs.

**[설정]**

**vi /etc/cron.d/sysstat**

# Run system activity accounting tool every 10 minutes

\*/10 \* \* \* \* root /usr/lib64/sa/sa1 1 1 --> 10분마다 저장

# 0 \* \* \* \* root /usr/lib64/sa/sa1 600 6 &

# Generate a daily summary of process accounting at 23:53

53 23 \* \* \* root /usr/lib64/sa/sa2 –A --> 하루에 한번 daily파일로 저장

**vi /etc/sysconfig/sysstat**

# How long to keep log files (in days).

# If value is greater than 28, then log files are kept in

# multiple directories, one for each month.

HISTORY=28 --> 보관일수

# Compress (using gzip or bzip2) sa and sar files older than (in days):

COMPRESSAFTER=31

# Parameters for the system activity data collector (see sadc manual page)

# which are used for the generation of log files.

SADC\_OPTIONS="-S DISK"

# Compression program to use.

ZIP="bzip2"

**[로그]**

/var/log/sa밑에 sa날쨔 형태의 파일로 생성

[root@db1 sa]# ls -al

total 8

drwxr-xr-x. 2 root root 18 Apr 15 07:58 .

drwxr-xr-x. 12 root root 4096 Apr 15 07:55 ..

-rw-r--r--. 1 root root 3120 Apr 15 08:00 **sa15**

**[구성요소]**

**[root@db1 sa]# pwd**

**/usr/lib64/sa**

sar is a component of sysstat.[1] sar itself consists of the following components:

• **sar**(1) – displays the recorded data.

• **sadc**(8) - system activity data collector, which records the data regarding system activity in a binary format.

• **sa1**(8) – a BASH script used by sadc in background; called every ten minutes by cron (from /etc/cron.d/sysstat).

• **sa2**(8) – a BASH script used for writing the daily reports and called by cron once per day (from /etc/cron.d/sysstat).

• **sadf**(1) – displays the recorded data; in contrast with sar provides various formats (CSV, XML and so forth).

**[옵션 확인]**

[root@db1 sa]# **sar --help**

Usage: **sar [ options ] [ <interval> [ <count> ] ]**

Options are:

[ -A ] [ -B ] [ -b ] [ -C ] [ -d ] [ -H ] [ -h ] [ -p ] [ -q ] [ -R ]

[ -r ] [ -S ] [ -t ] [ -u [ ALL ] ] [ -V ] [ -v ] [ -W ] [ -w ] [ -y ]

[ -I { <int> [,...] | SUM | ALL | XALL } ] [ -P { <cpu> [,...] | ALL } ]

[ -m { <keyword> [,...] | ALL } ] [ -n { <keyword> [,...] | ALL } ]

[ -j { ID | LABEL | PATH | UUID | ... } ]

[ -f [ <filename> ] | -o [ <filename> ] | -[0-9]+ ]

[ -i <interval> ] [ -s [ <hh:mm:ss> ] ] [ -e [ <hh:mm:ss> ] ]

[root@db1 sa]# **sar -h**

Usage: sar [ options ] [ <interval> [ <count> ] ]

Main options and reports:

-b I/O and transfer rate statistics

-B Paging statistics

-d Block device statistics

-H Hugepages utilization statistics

-I { <int> | SUM | ALL | XALL }

Interrupts statistics

-m { <keyword> [,...] | ALL }

Power management statistics

Keywords are:

CPU CPU instantaneous clock frequency

FAN Fans speed

FREQ CPU average clock frequency

IN Voltage inputs

TEMP Devices temperature

USB USB devices plugged into the system

-n { <keyword> [,...] | ALL }

Network statistics

Keywords are:

DEV Network interfaces

EDEV Network interfaces (errors)

NFS NFS client

NFSD NFS server

SOCK Sockets (v4)

IP IP traffic (v4)

EIP IP traffic (v4) (errors)

ICMP ICMP traffic (v4)

EICMP ICMP traffic (v4) (errors)

TCP TCP traffic (v4)

ETCP TCP traffic (v4) (errors)

UDP UDP traffic (v4)

SOCK6 Sockets (v6)

IP6 IP traffic (v6)

EIP6 IP traffic (v6) (errors)

ICMP6 ICMP traffic (v6)

EICMP6 ICMP traffic (v6) (errors)

UDP6 UDP traffic (v6)

-q Queue length and load average statistics

-r Memory utilization statistics

-R Memory statistics

-S Swap space utilization statistics

-u [ ALL ]

CPU utilization statistics

-v Kernel table statistics

-w Task creation and system switching statistics

-W Swapping statistics

-y TTY device statistics

**[현재 데이타]**

[root@db1 sa]# **sar –A --> 모든 항목을 한번에 확인**

Linux 3.10.0-693.17.1.el7.x86\_64 (db1) 04/15/2018 \_x86\_64\_ (1 CPU)

07:58:58 AM LINUX RESTART

08:00:01 AM CPU %usr %nice %sys %iowait %steal %irq %soft %guest %gnice %idle

08:10:02 AM all 8.71 0.00 1.93 0.00 0.00 0.00 0.03 0.00 0.00 89.33

08:10:02 AM 0 8.71 0.00 1.93 0.00 0.00 0.00 0.03 0.00 0.00 89.33

08:10:02 AM CPU %usr %nice %sys %iowait %steal %irq %soft %guest %gnice %idle

08:20:01 AM all 8.77 0.00 1.90 0.00 0.00 0.00 0.03 0.00 0.00 89.29

08:20:01 AM 0 8.77 0.00 1.90 0.00 0.00 0.00 0.03 0.00 0.00 89.29

Average: CPU %usr %nice %sys %iowait %steal %irq %soft %guest %gnice %idle

Average: all 8.74 0.00 1.92 0.00 0.00 0.00 0.03 0.00 0.00 89.31

Average: 0 8.74 0.00 1.92 0.00 0.00 0.00 0.03 0.00 0.00 89.31

08:00:01 AM proc/s cswch/s

08:10:02 AM 1.91 727.04

08:20:01 AM 1.81 718.93

Average: 1.86 722.99

08:00:01 AM pswpin/s pswpout/s

08:10:02 AM 0.00 0.00

08:20:01 AM 0.00 0.00

Average: 0.00 0.00

08:00:01 AM pgpgin/s pgpgout/s fault/s majflt/s pgfree/s pgscank/s pgscand/s pgsteal/s %vmeff

08:10:02 AM 4.45 4.35 5303.30 0.01 2853.41 0.00 0.00 0.00 0.00

08:20:01 AM 0.01 3.47 5296.59 0.00 2860.13 0.00 0.00 0.00 0.00

Average: 2.23 3.91 5299.95 0.00 2856.77 0.00 0.00 0.00 0.00

08:00:01 AM tps rtps wtps bread/s bwrtn/s

08:10:02 AM 0.28 0.06 0.22 8.90 8.69

08:20:01 AM 0.17 0.00 0.17 0.03 6.93

Average: 0.23 0.03 0.20 4.47 7.81

08:00:01 AM frmpg/s bufpg/s campg/s

08:10:02 AM -5.11 0.00 4.33

08:20:01 AM 1.06 0.00 5.96

Average: -2.03 0.00 5.15

08:00:01 AM kbmemfree kbmemused %memused kbbuffers kbcached kbcommit %commit kbactive kbinact kbdirty

08:10:02 AM 191036 807600 80.87 2108 547248 516404 25.22 318844 344036 8

08:20:01 AM 193540 805096 80.62 2108 561372 504524 24.64 313136 347052 52

Average: 192288 806348 80.74 2108 554310 510464 24.93 315990 345544 30

08:00:01 AM kbswpfree kbswpused %swpused kbswpcad %swpcad

08:10:02 AM 1048572 0 0.00 0 0.00

08:20:01 AM 1048572 0 0.00 0 0.00

Average: 1048572 0 0.00 0 0.00

08:00:01 AM kbhugfree kbhugused %hugused

08:10:02 AM 0 0 0.00

08:20:01 AM 0 0 0.00

Average: 0 0 0.00

08:00:01 AM dentunusd file-nr inode-nr pty-nr

08:10:02 AM 36022 1088 23745 1

08:20:01 AM 36023 1056 23700 1

Average: 36022 1072 23722 1

08:00:01 AM runq-sz plist-sz ldavg-1 ldavg-5 ldavg-15 blocked

08:10:02 AM 1 132 0.02 0.17 0.18 0

08:20:01 AM 7 132 0.80 0.44 0.30 0

Average: 4 132 0.41 0.30 0.24 0

08:00:01 AM TTY rcvin/s xmtin/s framerr/s prtyerr/s brk/s ovrun/s

08:10:02 AM 0 0.00 0.00 0.00 0.00 0.00 0.00

08:20:01 AM 0 0.00 0.00 0.00 0.00 0.00 0.00

Average: 0 0.00 0.00 0.00 0.00 0.00 0.00

08:00:01 AM DEV tps rd\_sec/s wr\_sec/s avgrq-sz avgqu-sz await svctm %util

08:10:02 AM dev8-0 0.28 8.90 8.69 61.75 0.00 1.53 0.95 0.03

08:10:02 AM dev253-0 0.29 8.90 8.69 59.97 0.00 1.53 0.92 0.03

08:10:02 AM dev253-1 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

08:20:01 AM dev8-0 0.17 0.03 6.93 41.20 0.00 1.61 1.47 0.02

08:20:01 AM dev253-0 0.17 0.03 6.93 40.79 0.00 1.60 1.46 0.02

08:20:01 AM dev253-1 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Average: dev8-0 0.23 4.47 7.81 54.11 0.00 1.56 1.14 0.03

Average: dev253-0 0.23 4.47 7.81 52.93 0.00 1.56 1.12 0.03

Average: dev253-1 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

08:00:01 AM IFACE rxpck/s txpck/s rxkB/s txkB/s rxcmp/s txcmp/s rxmcst/s

08:10:02 AM lo 22.21 22.21 2.04 2.04 0.00 0.00 0.00

08:10:02 AM ens33 1.25 1.95 0.12 0.17 0.00 0.00 0.00

08:20:01 AM lo 22.36 22.36 2.05 2.05 0.00 0.00 0.00

08:20:01 AM ens33 0.74 1.52 0.07 0.17 0.00 0.00 0.00

Average: lo 22.28 22.28 2.04 2.04 0.00 0.00 0.00

Average: ens33 0.99 1.73 0.10 0.17 0.00 0.00 0.00

08:00:01 AM IFACE rxerr/s txerr/s coll/s rxdrop/s txdrop/s txcarr/s rxfram/s rxfifo/s txfifo/s

08:10:02 AM lo 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

08:10:02 AM ens33 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

08:20:01 AM lo 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

08:20:01 AM ens33 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Average: lo 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Average: ens33 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

08:00:01 AM call/s retrans/s read/s write/s access/s getatt/s

08:10:02 AM 0.00 0.00 0.00 0.00 0.00 0.00

08:20:01 AM 0.00 0.00 0.00 0.00 0.00 0.00

Average: 0.00 0.00 0.00 0.00 0.00 0.00

08:00:01 AM scall/s badcall/s packet/s udp/s tcp/s hit/s miss/s sread/s swrite/s saccess/s sgetatt/s

08:10:02 AM 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

08:20:01 AM 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

Average: 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00

08:00:01 AM totsck tcpsck udpsck rawsck ip-frag tcp-tw

08:10:02 AM 632 57 1 0 0 11

08:20:01 AM 593 21 1 0 0 8

Average: 612 39 1 0 0 10

**[과거 데이타]**

[root@db1 sa]# **sar -f /var/log/sa/sa15 –A -->15일에 해당하는 파일조회**

[root@db1 sa]# **sar -f /var/log/sa/sa15 –A -s 08:10:00 -e 08:30:00 -->15일 08시10분~08시30분까지 조회**