Troubleshoot Unusual Process States in SWA

Contents

Introduction

This document describes Process Status and how to use this to troubleshoot Secure Web Appliance (SWA), performance issue.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- Physical or Virtual SWA Installed.
- License activated or installed.
- Secure Shell (SSH) Client.
- The setup wizard is completed.

- Administrative Access to the SWA.

Components Used

This document is not restricted to specific software and hardware versions.

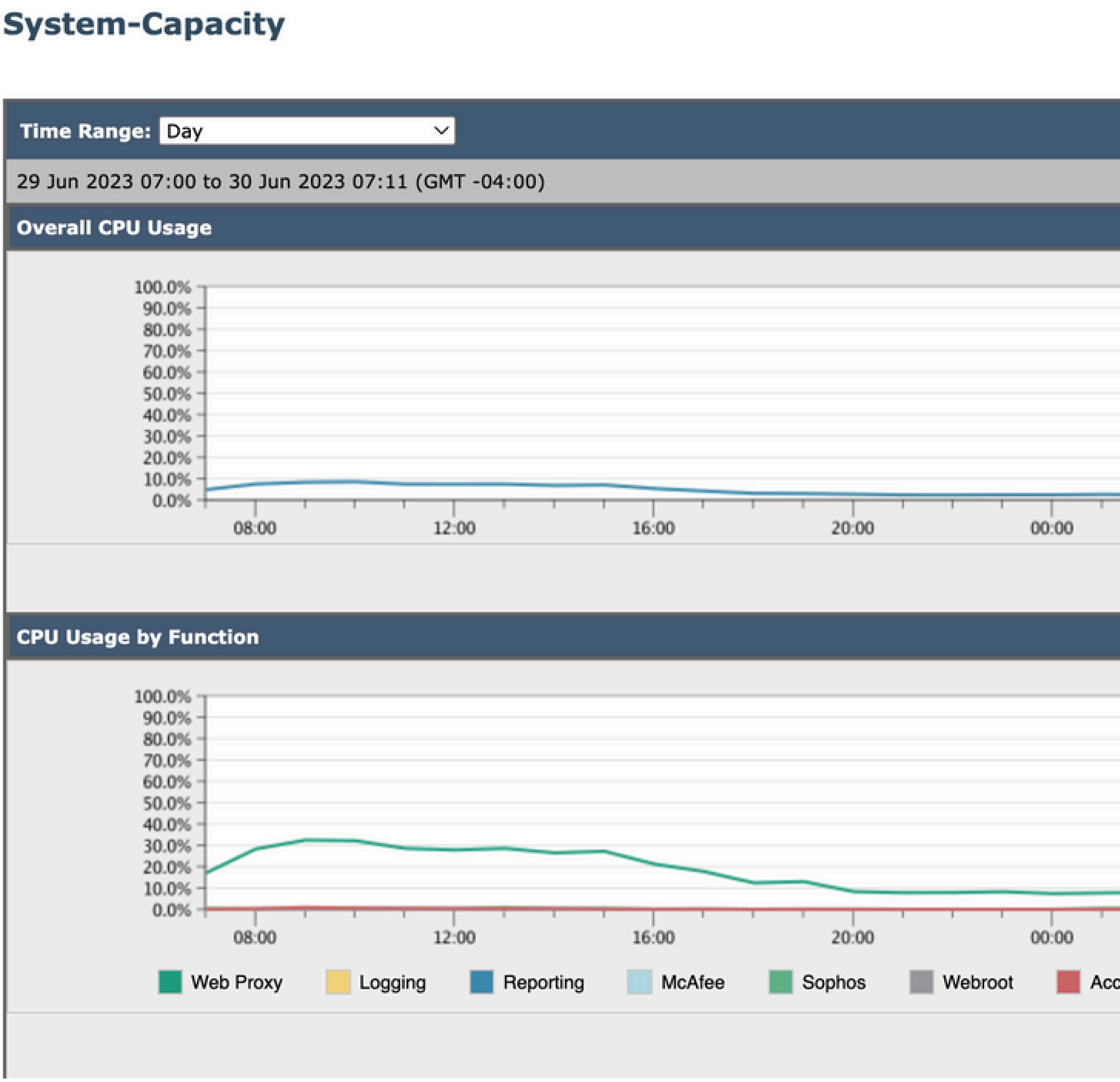
The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Monitor Process Status

You can monitor process Status from Graphical User Interface (GUI) or from Command Line Interface (CLI).

View Process Status from GUI

To view process statistics in **GUI**, navigate to **Reporting** and choose **System Capacity**. You can select Time Range to view the resource allocation for desired time stamp.



System-Capacity

Time Range: Day

29 Jun 2023 07:00 to 30 Jun 2023 07:11 (GMT -04:00)

Overall CPU Usage

CPU Usage by Function

Image-System-Capacity

Overall CPU Usage: Shows Total CPU usage

CPU Usage by Function: Shows each sub process, CPU allocation.

Proxy Buffer Memory: Shows the Memory allocation for Proxy Process.

> **Note**: Proxy Buffer Memory is not total Memory Usage of SWA.

CLI Commands

There are multiple CLI commands which shows the main CPU load or sub process status:

status

From the output of **status** or **status**

CLI command, shows the proxy process load, which is a sub process which is the main process in SWA. This command refresh automatically every 15 seconds.

```
SWA_CLI>  rate

Press Ctrl-C to stop.
  %proxy  reqs                       client    server    %bw  disk  disk
     CPU  /sec   hits blocks misses  kb/sec    kb/sec  saved   wrs   rds
  8.00   116      0    237    928    3801      3794    0.2     6     0
  7.00   110      0    169    932    4293      4287    0.1     2     0
```

Note: "**proxystat**" is another CLI command which has the same output as "**rate**" command

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shd_logs

You can view main process status such as Proxy process status, Reporting Process status, and so on,from SHD_Logs. For more information about SHD logs please visit this link:

https://www.cisco.com/c/en/us/support/docs/security/secure-web-appliance/220446-troubleshoot-secure-web-appliance-perfor.html

Here is a sample of shd_logs output:

```
Sat Jun 24 06:30:29 2023 Info: Status: CPULd 2.9 DskUtil 14.4 RAMUtil 9.8 Reqs 112 Band 22081 Latency 47
```

Note: you can access shd_logs from **grep** or **tail** CLI command.

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process_status

To view Process Status, in versions 14.5 and above, SWA has a new command: process_status which gets process details of SWA.

Note: This command is available only in admin mode.

```
SWA_CLI> process_status

USER      PID   %CPU %MEM     VSZ     RSS TT  STAT STARTED           TIME COMMAND
root       11 4716.6  0.0       0     768  -  RNL    5May23 3258259:51.69 idle
root    53776   13.0  4.7 6711996 3142700  -  S     14:11       220:18.17 prox
admin   15664    8.0  0.2  123404  104632  0  S+    06:23         0:01.49 cli
admin   28302    8.0  0.2  123404  104300  0  S+    06:23         0:00.00 cli
root       12    4.0  0.0       0    1856  -  WL     5May23    7443:13.37 intr
root    54259    4.0  4.7 6671804 3167844  -  S     14:11       132:20.14 prox
root    91401    4.0  0.2  154524  127156  -  S      5May23    1322:35.88 counterd
root   54226    3.0  4.5 6616892 2997176  -  S     14:11       99:19.79 prox
root    2967    2.0  0.1  100292   80288  -  S      5May23    486:49.36 interface_controlle
root   81330    2.0  0.2  154524  127240  -  S      5May23   1322:28.73 counterd
root      16    1.0  0.0       0      16  -  DL     5May23   9180:31.03 ipmi0: kcs
root   79941    1.0  0.2  156572  103984  -  S      5May23   1844:37.60 counterd
root   80739    1.0  0.1  148380   94416  -  S      5May23   1026:01.89 counterd
root   92676    1.0  0.2  237948  124040  -  S      5May23   2785:37.16 wbnpd
root       0    0.0  0.0       0    1808  -  DLs    5May23     96:10.66 kernel
root       1    0.0  0.0    5428     304  -  SLs    5May23      0:09.44 init
root       2    0.0  0.0       0      16  -  DL     5May23      0:00.00 crypto
root       3    0.0  0.0       0      16  -  DL     5May23      0:00.00 crypto returns
root       4    0.0  0.0       0     160  -  DL     5May23     62:51.56 cam
root       5    0.0  0.0       0      16  -  DL     5May23      0:16.47 mrsas_ocr0
root       6    0.0  0.0       0      16  -  DL     5May23      0:00.52 soaiod1
root       7    0.0  0.0       0      16  -  DL     5May23      0:00.52 soaiod2
root       8    0.0  0.0       0      16  -  DL     5May23      0:00.52 soaiod3
root       9    0.0  0.0       0      16  -  DL     5May23      0:00.52 soaiod4
```

> **Note**: The CPU utilization of the process; this is a decaying average over up to a minute of previous (real) time. Since the time base over which this is computed varies (since processes could be very young) it is possible for the sum of all %CPU fields to exceed 100%.

%MEM : The percentage of real memory used by this process

VSZ : Virtual size in Kbytes (alias vsize)

RSS : The real memory (resident set) size of the process (in 1024 byte units).

TT : An abbreviation for the path name of the controlling terminal, if any.

STAT

The stat is given by a sequence of characters, for example, "**RNL**". The first character indicates the run state of the process:

D : Marks a process in disk (or other short term, uninter- ruptible) wait.

I : Marks a process that is idle (sleeping for longer than about 20 seconds).

L : Marks a process that is waiting to acquire a lock.

R : Marks a runnable process.

S : Marks a process that is sleeping for less than about 20 seconds.

T : Marks a stopped process.

W : Marks an idle interrupt thread.

Z : Marks a dead process (a "zombie").

Additional characters after these, if any, indicate additional state information:

+ : The process is in the foreground process group of its control terminal.

< : The process has raised CPU scheduling priority.

C : The process is in capsicum(4) capability mode.

E : The process is trying to exit. J Marks a process which is in jail(2).

L : The process has pages locked in core (for example, for raw I/O).

N : The process has reduced CPU scheduling priority.

s : The process is a session leader.

V : The process' parent is suspended during a vfork(2), waiting for the process to exec or exit.

W : The process is swapped out.

X : The process is being traced or debugged.

TIME : Accumulated CPU time, user + system

Restart Process in SWA

General Process

You can restart SWA serviecs and process from CLI, here are the steps:

Step 1. log in to CLI

Step 2. Type diagnostic

> **Note**: **diagnostic** is CLI hidden command, so you can not auto-fill the command with TAB.

Step 3. Choose Services

Step 4. Choose the Service/ Process which you want to restart.

Step 5. Choose Restart

> **Tip**: You can view the status of the process from STATUS section.

In this example the WEBUI process which is responcible for GUI has been restarted:

```
SWA_CLI> diagnostic

Choose the operation you want to perform:
- NET - Network Diagnostic Utility.
- PROXY - Proxy Debugging Utility.
- REPORTING - Reporting Utilities.
- SERVICES - Service Utilities.
[]> SERVICES

Choose one of the following services:
```

```
- AMP - Secure Endpoint
- AVC - AVC
- ADC - ADC
- DCA - DCA
- WBRS - WBRS
- EXTFEED - ExtFeed
- L4TM - L4TM
- ANTIVIRUS - Anti-Virus xiServices
- AUTHENTICATION - Authentication Services
- MANAGEMENT - Appliance Management Services
- REPORTING - Reporting Associated services
- MISCSERVICES - Miscellaneous Service
- OCSP - OSCP
- UPDATER - UPDATER
- SICAP - SICAP
- SNMP - SNMP
- SNTP - SNTP
- VMSERVICE - VM Services
- WEBUI - Web GUI
- SMART_LICENSE - Smart Licensing Agent
- WCCP - WCCP
[]> WEBUI

Choose the operation you want to perform:
- RESTART - Restart the service
- STATUS - View status of the service
[]> RESTART

gui is restarting.
```

Restart Proxy Process

To restart Proxy process which is the main process for proxy, you can use CLI, here are the steps:

Step 1. log in to CLI

Step 2. Type diagnostic

> **Note**: **diagnostic** is CLI hidden command, so you can not auto-fill the command with TAB.

Step 3. Choose PROXY

Step 4. Type KICK, (it is a hidden command).

Step 5. Choose **Y** for yes.

```
SWA_CLI>diagnostic

Choose the operation you want to perform:
- NET - Network Diagnostic Utility.
- PROXY - Proxy Debugging Utility.
- REPORTING - Reporting Utilities.
- SERVICES - Service Utilities.
[]> PROXY
```

```
Choose the operation you want to perform:
- SNAP - Take a snapshot of the proxy
- OFFLINE - Take the proxy offline (via WCCP)
- RESUME - Resume proxy traffic (via WCCP)
- CACHE - Clear proxy cache
- MALLOCSTATS - Detailed malloc stats in the next entry of the track stat log
- PROXYSCANNERMAP - Show mapping between proxy and corresponding scanners
[]> KICK

Kick the proxy?
Are you sure you want to proceed? [N]> Y
```

Related Information

- User Guide for AsyncOS 15.0 for Cisco Secure Web Appliance - LD (Limited Deployment) - Troubleshooting [Cisco Secure Web Appliance] - Cisco
- Use Secure Web Appliance Best Practices - Cisco
- ps(1) (freebsd org)