Monitor High CPU and Manage SNMP OID Process on Cisco 9800 WLC

Contents

Introduction

This document describes monitoring CPU utilization to Troubleshoot High CPU Usage on the SNMP process.

Prerequisites

Requirements

Cisco recommends that you have basic knowledge in Cisco IOS®-XE WLC 9800 series.

Components Used

The information in this document is based on hardware versions Cisco IOS®-XE WLC 9800 series and is not restricted to specific software 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.

Background Information

We need to confirm if SNMP is the one having higher utilisation. For further investigation, collect these logs, during non-business hours when the issue is seen, because it can affect the performance,

Monitor

Example:

ID Runtime(ms) Invoked uSecs 5Sec 1Min 5Min TTY Process

736 6846005 11045858 619 88.09% 9.15% 3.28% 0 SNMP ENGINE

Troubleshoot

Open two WLC CLI sessions for gathering the these logs:

Session-1: show snmp stats hosts

Debug snmp packet Debug snmp detail terminal monitor

Session-2: These stats show output for an interval and enable the service internal to run this.

Conf t Service internal end wr test snmp cpu-stats start show snmp cpu-stats test snmp cpu-stats stop

Also, check the MIB that is being used for polling on the SNMP server when the issue is seen.

EEM script

Please follow the steps on non-production hours.

Step 1. Please run these commands

Conf t

Service internal

end

wr

Step 2. Enable the EEM script for snmp stats (copy & paste this script in the controller CLI):

Conf t

no event manager applet snmp-1

event manager applet snmp-1

event none maxrun 2000

action 10 cli command "enable"

action 11 cli command "terminal leng 0"

action 11.1 puts "Script starts"

action 12 cli command "debug snmp packet"

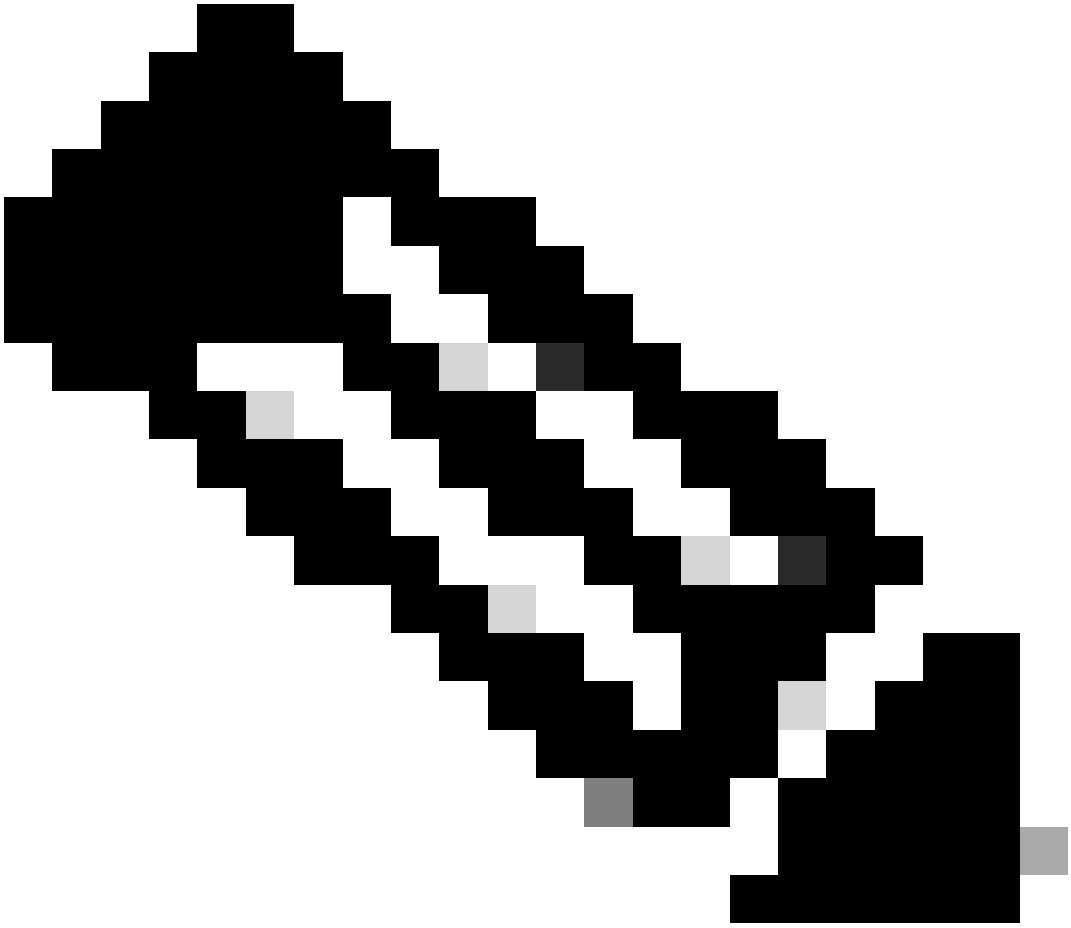
action 13 cli command "debug snmp detail"

action 14 cli command "debug snmp request"

action 20.1 cli command "show clock"

```
action 21 regexp "(Jan|Feb|Mar|Apr|May|Jun|Jul|Aug|Sep|Oct|Nov|Dec) ([1-9]|0[1-9]|[1-2][0-9]|3[0-1])
(20[1-9][0-9])" "$_cli_result" time2 month day year

action 22 puts "$time2"

action 23 puts "$month"

action 24 puts "$day"

action 25 puts "$year"

action 26 cli command "show clock | append flash:/snmp-cpu-logs-$year$month$day.txt"

action 27 cli command "show snmp stats hosts | append flash:/snmp-cpu-logs-$year$month$day.txt"

action 30 cli command "test snmp cpu-stats start"

action 35 set iter 1

action 36 while $iter le 6

action 40 cli command "show snmp cpu-stats | append flash:/snmp-cpu-logs-$year$month$day.txt"

action 40.1 puts "Iterator:$iter"

action 41 wait 300

action 43 cli command "show clock | append flash:/snmp-cpu-logs-$year$month$day.txt"

action 44 increment iter 1

action 45 end

action 50 cli command "test snmp cpu-stats stop"

action 55 cli command "no debug snmp packet"

action 56 cli command "no debug snmp detail"

action 57 cli command "no debug snmp request"

action 58 puts "Script ends"

end

wr
```

Step 3. Run the previous script using this command: **#event manager run snmp-1**



Note: During non-business hours, when issue is seen, enable the script using the command,

Wait for the script to end the prompt in the CLI. It usually takes 30 minutes.

Step 4. The preceding script would take maximum 30-40 minutes to run and it would prompt “Script ends” message,

There is “Iterator” to be completed after that you see the message “Script ends”

Once the script ends, go to **GUI > Administration > File Manager > Bootflash**. Right click on the snmp-cpu-logs.txt log to download and share it with TAC.

Step 5. Check the MIB file being used to Poll the WLC during the time of the issue.

A sample reference output can look like :

DR 5sec% 1min% 5min% Running(ms) Time(usecs) Invoked OID

556272A00320 0.00 6.03 3.30 59 59408 44 vmMembershipSummaryEntry.2

556272A00320 50.48 9.68 4.09 59 59659 44 vmMembershipSummaryEntry.3

556272A00320 0.23 1.60 2.23 0 8333 6 clcCdpApCacheApName

556272A00320 0.19 1.62 2.24 2 6999 5 bsnDot11EssMacFiltering

556272A00320 0.23 1.60 2.23 2 3792 24 bsnDot11EssAdminStatus

556272A00320 0.23 1.60 2.23 2 4000 2 bsnDot11EssSecurityAuthType

556272A00320 0.23 1.60 2.23 2 3541 24 bsnDot11EssRowStatus

556272A00320 0.23 1.60 2.23 2 3500 2 bsnDot11EssWmePolicySet

The SNMP utilization above 70-90% for C9800-40 is normal.

Conclusion

If using SNMP to poll different OIDs, the CLI needs to be configured as a best practice to reduce the possible impact on the C9800 CPU: **C9800config)#snmp-server subagent cache**

With this command, the cache is cleared after 60 seconds. To change the interval, use this CLI:

C9800(config)#snmp-server subagent cache timeout ?

<1-100> cache timeout interval (default 60 seconds)

If the core is not to be utilized more on SNMP process, limit the SNMP polling from the server using the MIB. Disable the high-queue time object identifier from SNMP MIB/ server.

A highly queued SNMP object from the MIB can be disabled or removed.

Here is the list for reference that could be disbaled if not needed:

clcCdpApCacheApName

bsnDot11EssMacFiltering

bsnDot11EssAdminStatus

bsnDot11EssSecurityAuthType

bsnDot11EssRowStatus

bsnDot11EssWmePolicySetting

bsnMobileStationIpAddress

bsnMobileStationUserName

bsnMobileStationAPMacAddr

bsnMobileStationAPIfSlotId

bsnMobileStationEssIndex

bsnMobileStationSsid

bsnMobileStationAID

bsnMobileStationStatus

bsnAPIfDot11BeaconPeriod

bsnGlobalDot11PrivacyOptionImplemented

bsnGlobalDot11MultiDomainCapabilityImplemented

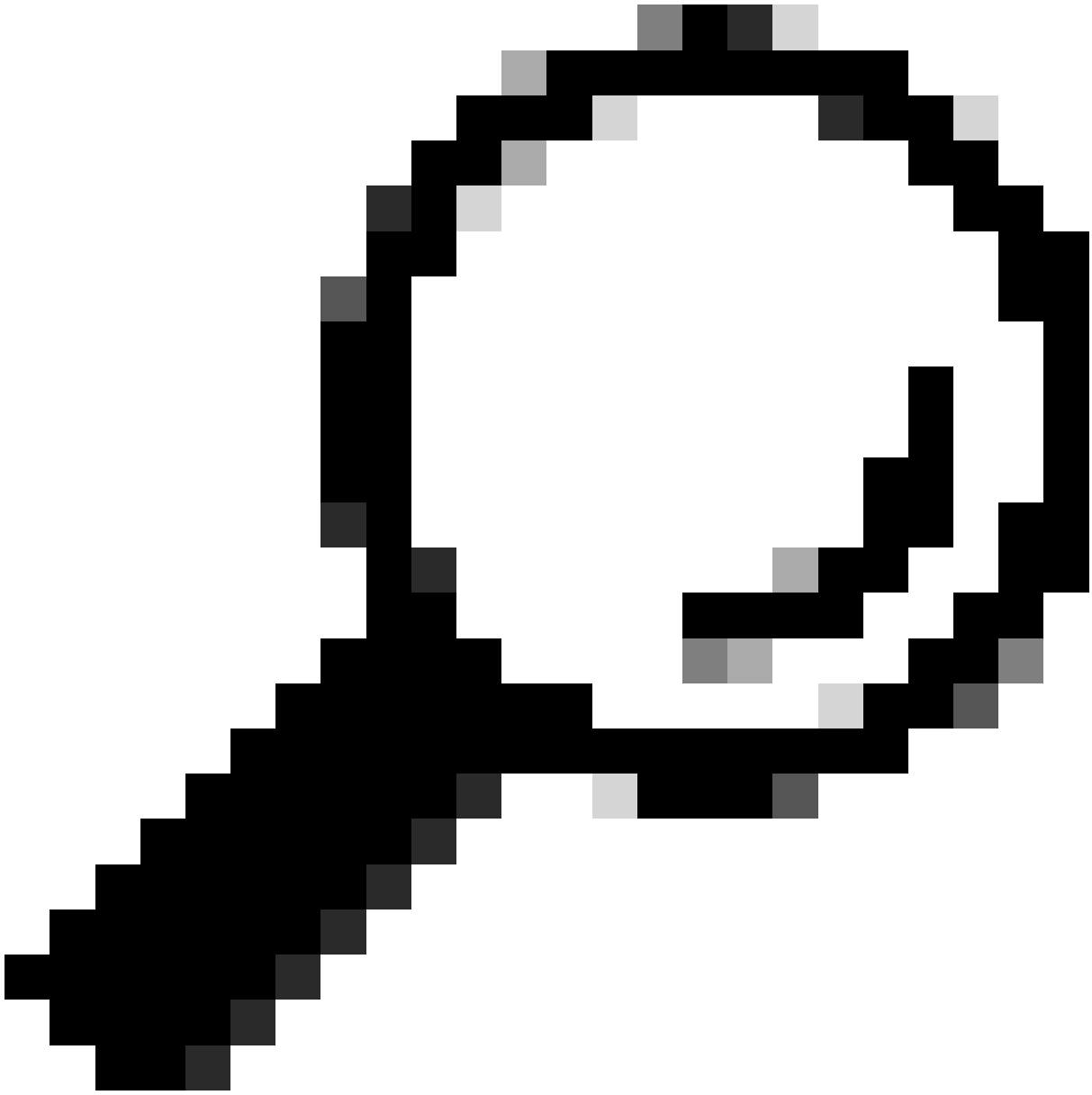
bsnGlobalDot11MultiDomainCapabilityEnabled

bsnGlobalDot11CountryIndex

bsnGlobalDot11LoadBalancing

bsnGlobalDot11bDot11gSupport

The “bsn station” object on SNMP would take queue time for getting additional details.



Tip: The best practice is to reduce the poll interval based on the number of nodes on the network, and to remove the MIBs that are not required

Related Information

For more information on SNMP on C9800 please refer to this link:

- https://www.cisco.com/c/en/us/support/docs/wireless/catalyst-9800-series-wireless-controllers/217460-monitor-catalyst-9800-wlc-via-snmp-with.html.