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Introduction

tacacsd is an IOS XR process which is associated with Tacacs AAA service. This document discusses a software bug and its symptoms which can cause routers running IOS XR version 4.2.X or lower to observe constant high CPU utilization.

Prerequisites

There are no specific requirements for this document.

Components Used

Problem addressed in this document applies to Cisco GSR, ASR9000, CRS and other routers running IOS XR. The outputs used below have been taken from a lab router running IOS XR version lower than 4.2.X.

Problem

Routers running IOS XR version 4.2.X or lower may observe constant high CPU utilization due to alarm-logger process due to a known software bug. **Show process cpu** output would show **alarm-logger** process consuming maximum amount of CPU utilization.

```
show proc cpu | ex "0% 0% 0%"
```

```
CPU utilization for one minute: 100%; five minutes: 100%; fifteen minutes: 100%
```

```
PID 1Min 5Min 15Min Process
```

```
<snip>
```

```
53281 2% 2% 2% syslogd_helper
```

```
57379 1% 1% 1% fabricq_prp_driver
```

```
69636 1% 1% 1% correlatord
```

```
69677 6% 6% 6% syslogd
```

```
118842 1% 1% 1% sysdb_svr_local
```

```
122962 3% 3% 3% gsp
```

```
229604 2% 2% 2% eem_ed_syslog
```

```
262456 1% 1% 1% tacacsd
```

```
452726918 67% 71% 72% alarm-logger
```

```
463302887 1% 1% 1% exec
```

```
<snip>
```

In logging buffer you may see continuous logs similar to:

```
tacacsd[XXXX]: %SECURITY-TACACSD-7-GENERIC_ERROR : Failed to get request for: key -XXXXXX/XXXX/XXXX/XXXX session XXXXX
```

show log

<snip>

```
RP/0/7/CPU0:Dec 26 04:02:03.149 : tacacsd[1110]: %SECURITY-TACACSD-6-SERVER_UP :
TACACS+ server 32.95.X.X/XXXX is UP
RP/0/7/CPU0:Dec 26 04:02:05.956 : tacacsd[1110]: %SECURITY-TACACSD-6-SERVER_DOWN :
TACACS+ server 32.95.X.X/XXXX is DOWN - Socket 43: Connection timed out
RP/0/7/CPU0:Dec 26 04:02:09.468 : tacacsd[1110]: %SECURITY-TACACSD-6-SERVER_DOWN :
TACACS+ server 199.37.X.X/XXXX is DOWN - Socket 43: Connection timed out
RP/0/7/CPU0:Dec 26 04:02:09.647 : tacacsd[1110]: %SECURITY-TACACSD-6-TIMEOUT_IGNORED :
A time out event has been ignored for context key -953829129/1073/60000000/6486405
(session 6486405)
RP/0/7/CPU0:Dec 26 04:02:11.647 : tacacsd[1110]: %SECURITY-TACACSD-7-GENERIC_ERROR :
Failed to get request for: key -953829129/1073/60000000/6486405 session 105407493
RP/0/0/CPU0:last message repeated 520 times
RP/0/7/CPU0:Dec 26 04:02:34.064 : tacacsd[1110]: %SECURITY-TACACSD-6-SERVER_UP :
TACACS+ server 32.95.X.X/XXXX is UP
RP/0/7/CPU0:Dec 26 04:02:34.064 : tacacsd[1110]: %SECURITY-TACACSD-7-GENERIC_ERROR :
Failed to get request for: key -953829129/1073/60000000/6486405 session 105407493
```

alarm-logger and **tacacsd** processes details can be seen as below.

show processes alarm-logger

<snip>

```
Job Id: 114
PID: 135303
Executable path: /c12k-os-4.2.4/sbin/alarm-logger
Instance #: 1
Version ID: 00.00.0000
Respawn: ON
Respawn count: 1
Max. spawns per minute: 12
Last started: Tue Aug 13 02:17:23 2013
Process state: Run
Package state: Normal
core: MAINMEM
Max. core: 0
Level: 91
Placement: None
startup_path: /pkg/startup/alarm-logger.startup
Ready: 0.672s
Process cpu time: 1401.018 user, 49.774 kernel, 1450.792 total
JID TID Stack pri state TimeInState HR:MM:SS:MSEC NAME
114 1 88K 10 Receive 0:00:02:0071 0:00:40:0919 alarm-logger
114 2 88K 10 Receive 3242:46:17:0308 0:00:00:0000 alarm-logger
114 3 88K 10 Reply 0:00:00:0000 0:23:08:0029 alarm-logger
114 4 88K 10 Mutex 0:00:00:0000 0:00:21:0957 alarm-logger
```

<snip>

show processes tacacsd

<snip>

```
Job Id: 1110
PID: 266551
Executable path: /disk0/iosxr-infra-4.2.4/bin/tacacsd
Instance #: 1
Version ID: 00.00.0000
Respawn: ON
Respawn count: 1
Max. spawns per minute: 12
```

```
Last started: Tue Aug 13 02:23:47 2013
Process state: Run
Package state: Normal
Started on config: cfg/gl/aaa/tacacs/
Process group: central-services
core: MAINMEM
Max. core: 0
Placement: Placeable
startup_path: /pkg/startup/tacacsd.startup
Ready: 3.954s
Process cpu time: 1010.118 user, 185.932 kernel, 1196.050 total
JID TID Stack pri state TimeInState HR:MM:SS:MSEC NAME
1110 1 108K 16 Sigwaitinfo 3242:46:40:0742 0:00:00:0116 tacacsd
1110 2 108K 10 Nanosleep 0:01:03:0835 0:00:00:0019 tacacsd
1110 3 108K 10 Receive 3242:46:41:0593 0:00:00:0002 tacacsd
1110 4 108K 10 Reply 0:00:00:0000 0:08:55:0970 tacacsd
1110 5 108K 16 Receive 3242:46:40:0771 0:00:00:0000 tacacsd
1110 6 108K 10 Receive 0:07:07:0403 0:04:03:0462 tacacsd
1110 7 108K 10 Receive 0:00:01:0389 0:03:28:0939 tacacsd
1110 8 108K 10 Receive 0:00:01:0332 0:03:03:0622 tacacsd
```

<snip>

High CPU is caused due to flood of syslog messages causing alarm-logger buffer to get full. Hence alarm-logger process remains busy trying to handle the message and facing buffer full condition at the same time. In this case, TACACS process is overwhelming alarm-logger. As alarm-logger is a victim, restarting alarm-logger process will not help as shared memory buffer remains persistent after process restart.

Solution

This issue has been addressed and fixed via software bug CSCuh98484 - Tacacsd "Failed to get request for key" error causes high CPU. Bug details are present [here](#)

Please note that restarting **tacacsd** process is a workaround which should stop the logs and CPU utilization should return to normal level. Restarting **tacacsd** process will not affect any functionality or data packet forwarding, it will put the process in its initial state.

This bug has been fixed in following IOS XR versions.

4.3.2.SP2

4.3.2.SP3

4.3.2.SP5

4.3.2.SP6

4.3.2.SP7

4.3.2.SP8