Troubleshoot of IPsecmgr in Warn or Over State

Contents

Introduction

This document describes the IPsecmgr facility in the warning state.

Overview

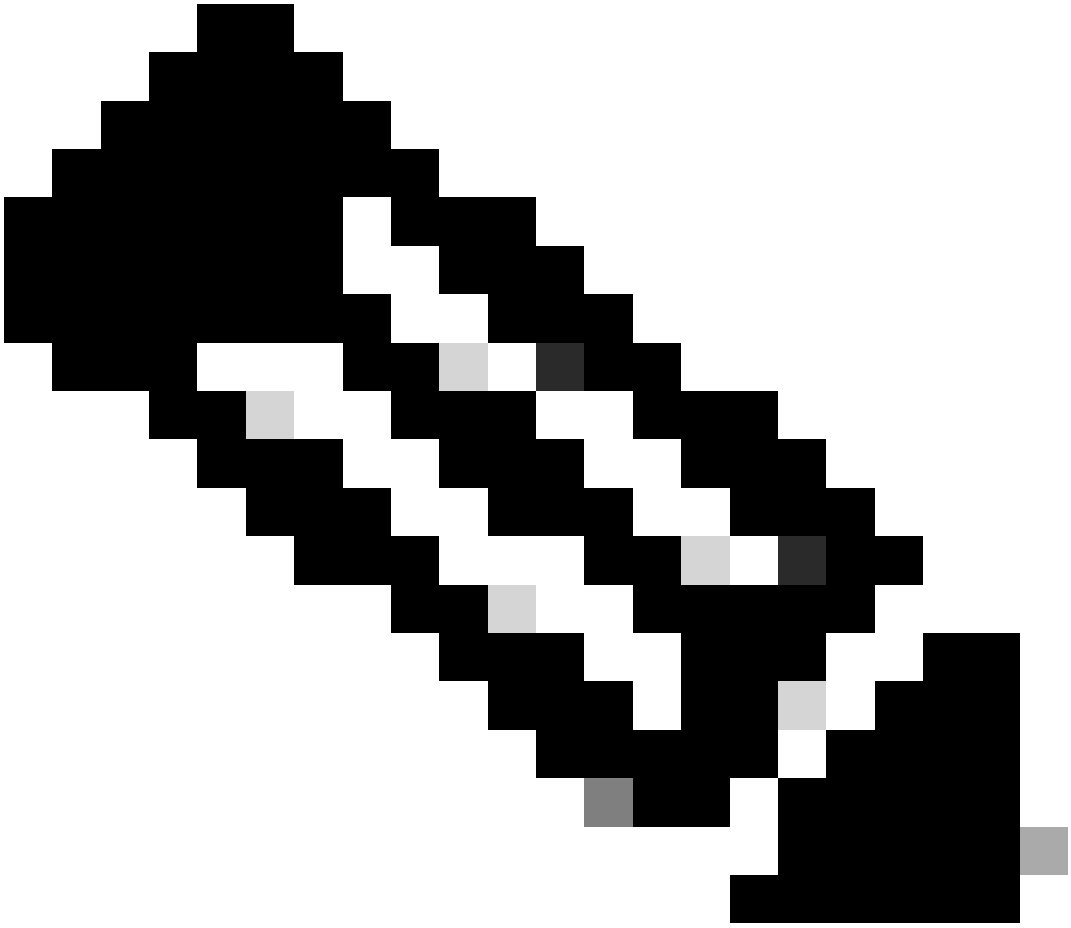
IPsecmgr is created by the Session Controller. It establishes and manages secure IKEv1, IKEv2, and IPSec data tunnels in Evolved Packet Data Gateway (ePDG).

Prerequisites

Cisco recommends that you have knowledge of these nodes and StarOS facilities:

- ePDG
- IPSecmgr facility

Logs Required



Note: In order to address these types of issues, it is necessary to gather the logs for analysis.

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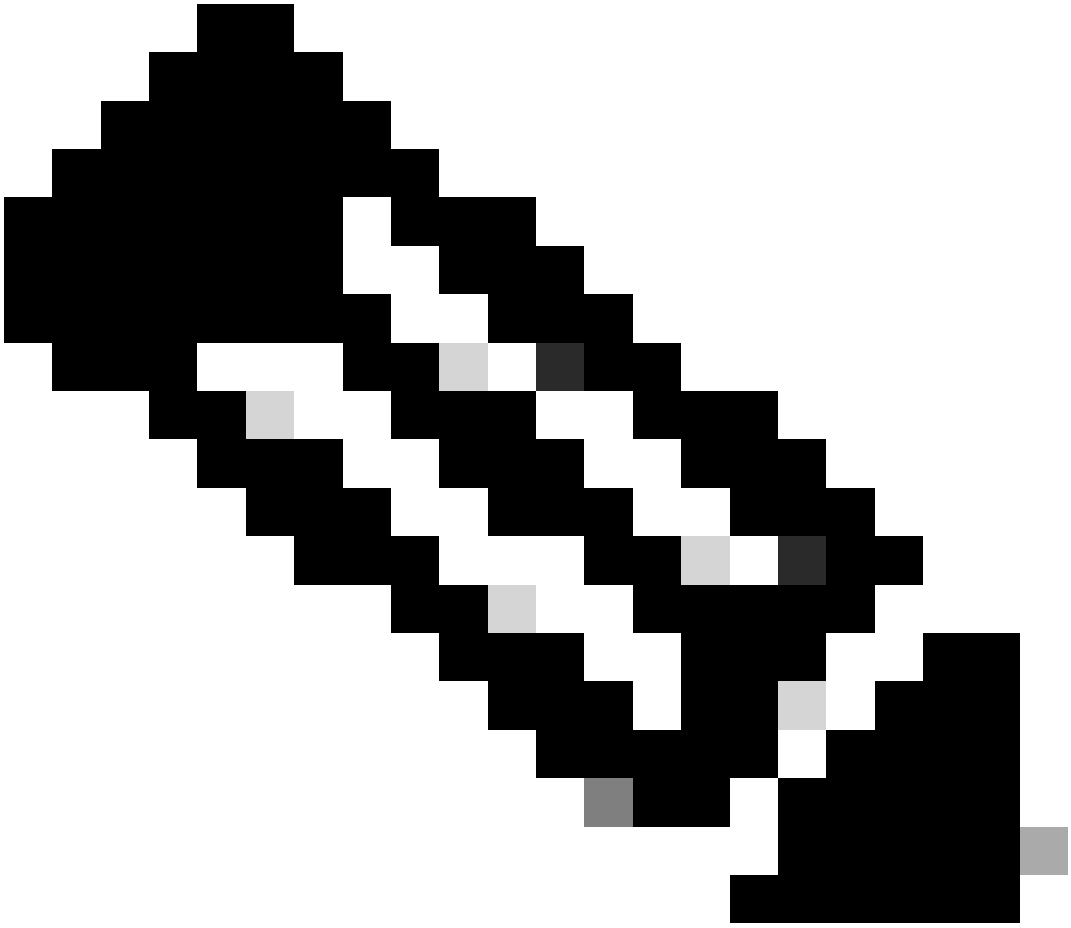
1. Identify the IPsecmgr facilities that are in a warning state and gather heap dumps for two good IPsecmgr instances, along with two bad instances during peak and non-peak hours.

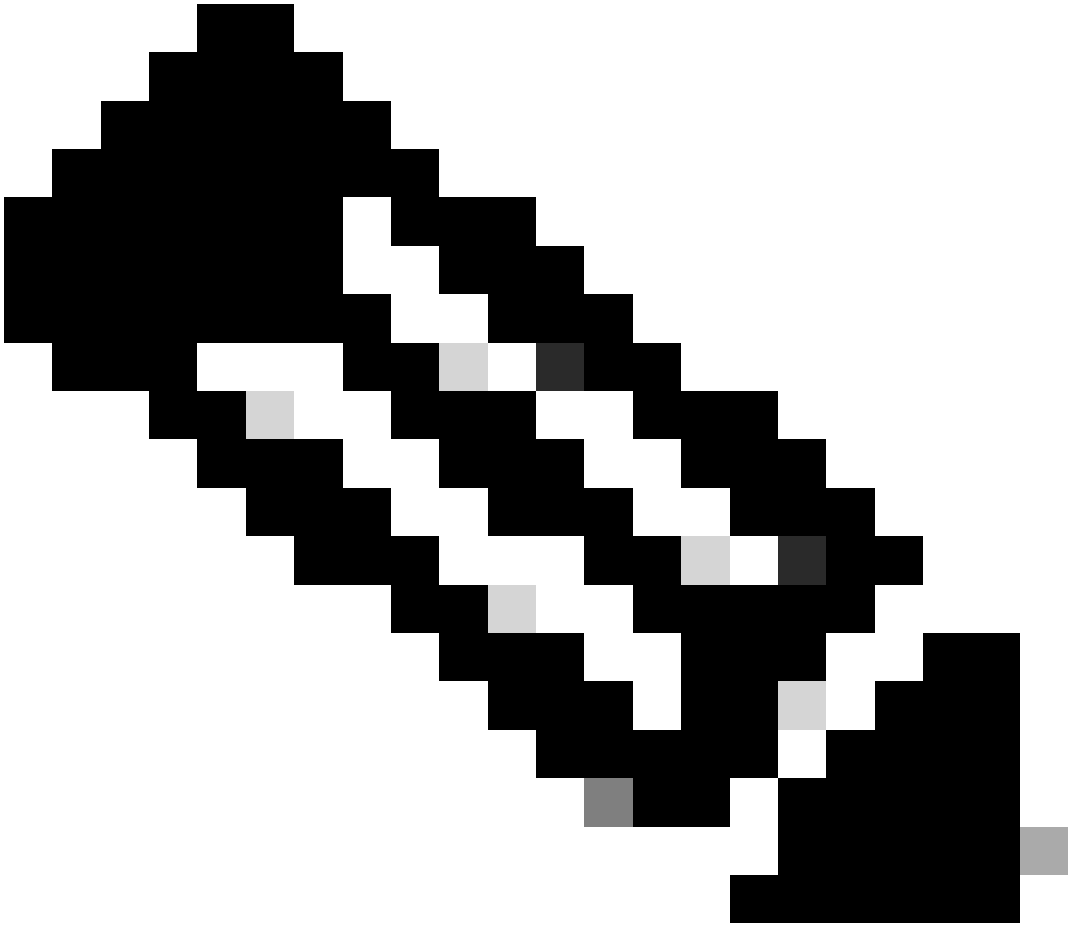
```
Show task resources
show messenger proclet facility ipsecmgr instance <instance number> heap depth 9
show messenger proclet facility ipsecmgr instance <instance number> system heap depth 9
show messenger proclet facility ipsecmgr instance <instance number> heap
show messenger proclet facility ipsecmgr instance <instance number> system
show messenger proclet facility ipsecmgr instance <instance number> graphs heap
show session subsystem facility ipsecmgr instance <instance number> debug-info verbose
show task resources facility ipsecmgr instance <instance number>
```



Note: Collect the logs for two functional and two faulty IPsecmgr instances. Every time, replace the instance number with the IPsecmgr instance number.

2. Collect the core files for the same IPsecmgr instances that were collected in the earlier step.

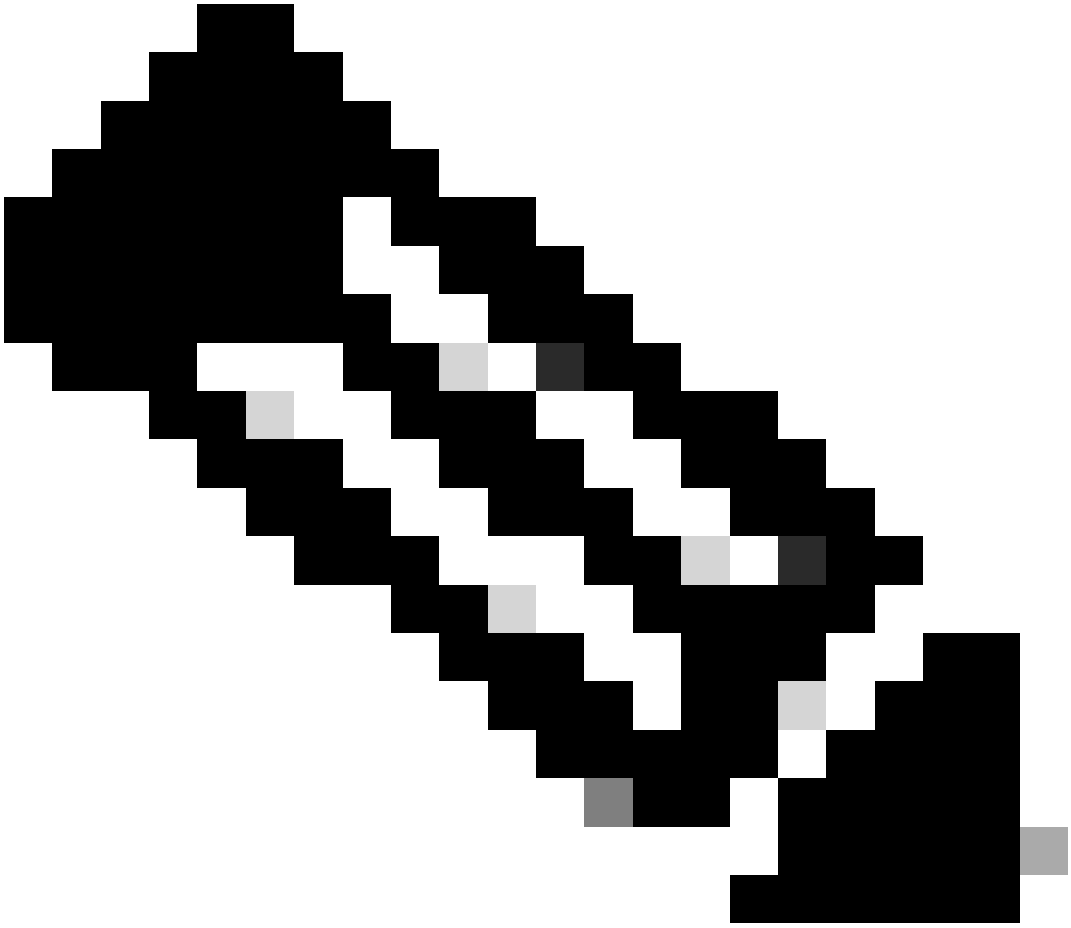
```
Login to hidden mode
Cli test-commands password <>
Task core facility ipsecmgr instance <instance number>
```



Note: Collect the core file for the same instance number for which the heap output has been collected.

3**.** Gather the Show Support Details (SSD) data, Simple Network Management Protocol (SNMP) traps, and system logs (syslogs).

4. Gather the output of the show task resource command multiple times throughout the day.



Note: It is necessary to determine whether the memory is consistently increasing or decreasing when the number of calls is reduced.

5. Determine the services that are currently running on the node.

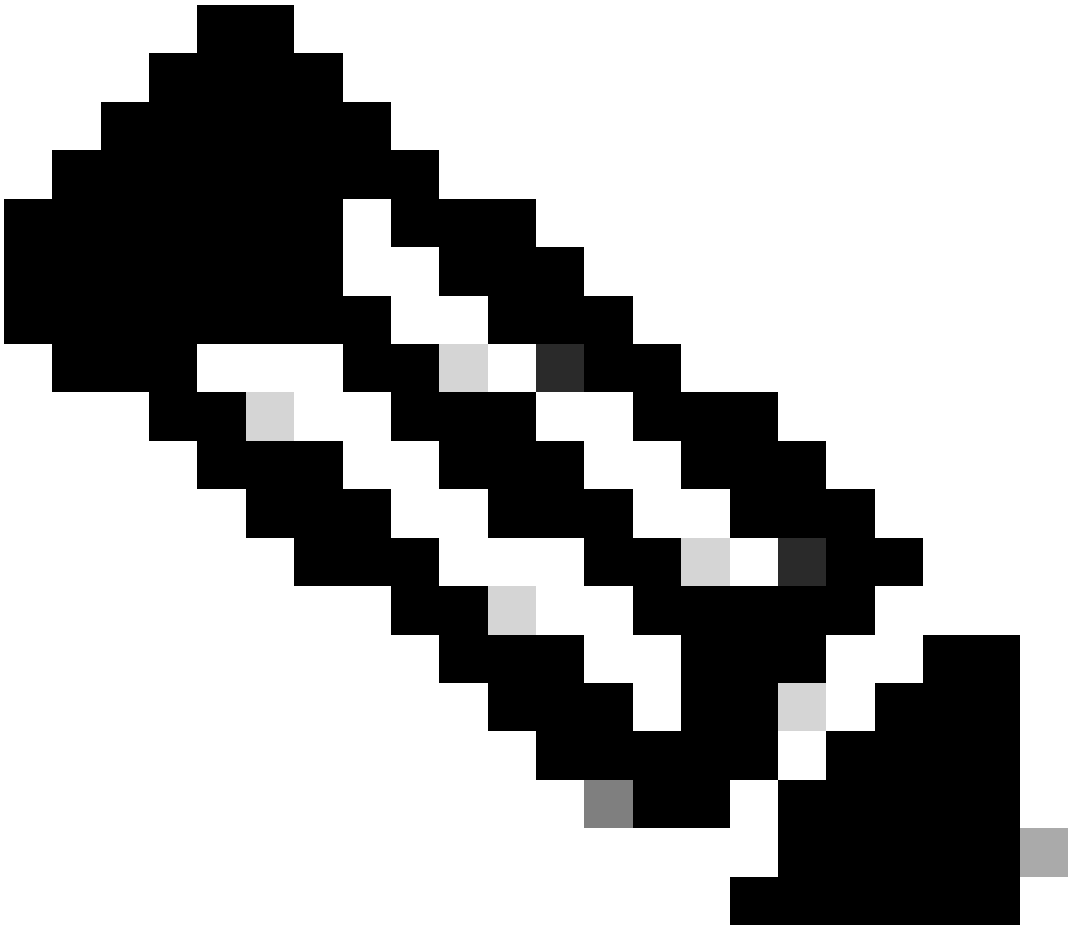
```
Show resources
```

6. Provide the subscriber trend data for each service running on the node, covering a period of two months.

For example, for ePDG-service, the ePDG subscriber trend is required. For the Mme-service, the mme subscriber trend is required.

7. Provide the SSD data for any other node in the network that has identical configurations and services

running.



Note: It is necessary to determine whether the issue is with the node or the software version.

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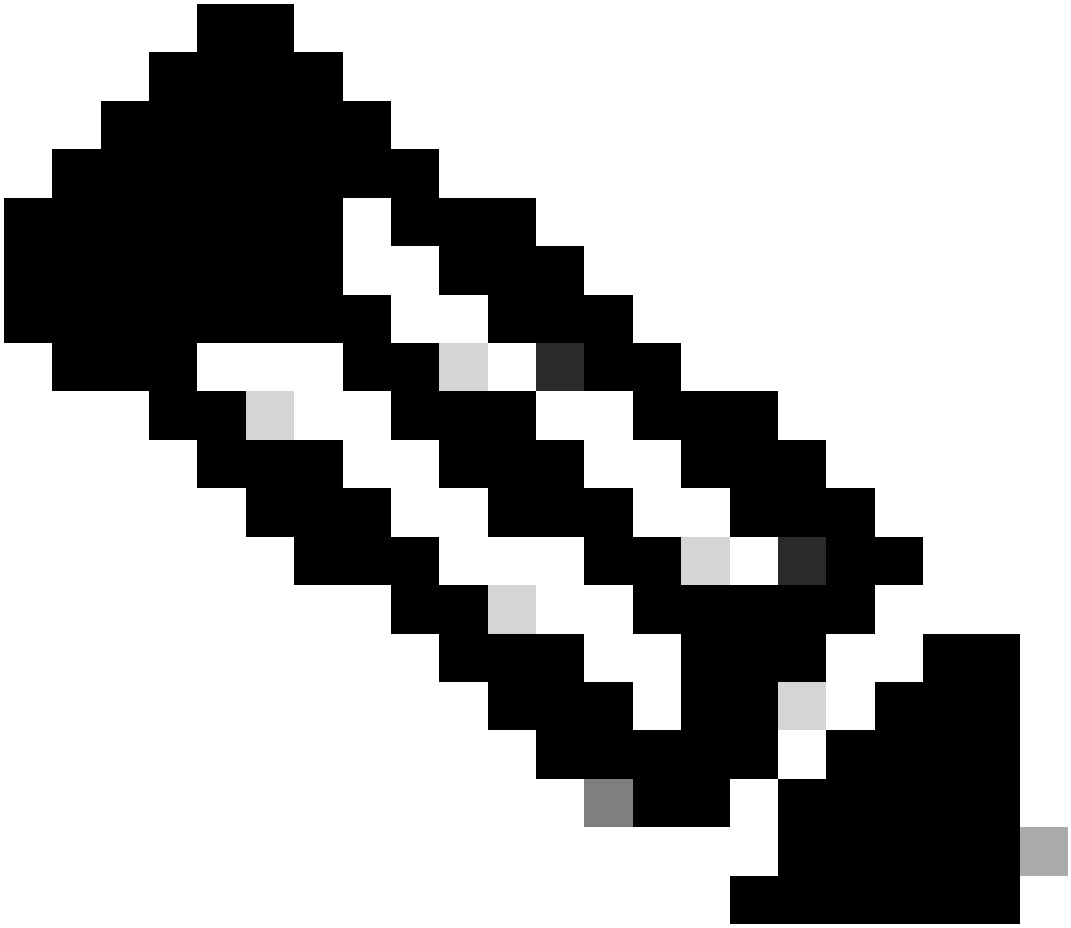
8. After the upgrade, the facility IPsecmgr turns into a warning state, and shares multiple Solid State Dr (SSD) data sets from both before and after the upgrade.

Troubleshooting Performed

1. An analysis of the IPsecmgr heap dump must be done. Based on this analysis, it has been identified that these top two functions consume a high amount of memory.

Proc	Aggregate	% ▲
ipm_databuf_alloc()	60900436	42.19

service_recovery_add_dest_handle()	17302140	11.99
ikev2_encode_alloc_opacket()	6319608	4.38
demuxmgr_init_smgr_pacing_queue_and_cache()	6258720	4.34
ipm_sad_ikesa_alloc()	6053856	4.19



Note: From the output of the heap analysis, it is evident that the function ipm_databuf_alloc() consumes a significant amount of memory.

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2. The ePDG subscriber trend for one month indicates that the traffic trend is normal, as no increase in traffic is observed.

Date	Measurement Level	Node	Total User Count

2023-01-01	Day Level	XXX-XX--SGSN-MME-03	308580
2023-01-02	Day Level	XXX-XX--SGSN-MME-03	331166
2023-01-03	Day Level	XXX-XX--SGSN-MME-03	332424
2023-01-04	Day Level	XXX-XX--SGSN-MME-03	324741
2023-01-05	Day Level	XXX-XX--SGSN-MME-03	329006
2023-01-06	Day Level	XXX-XX--SGSN-MME-03	326667
2023-01-07	Day Level	XXX-XX--SGSN-MME-03	327323
2023-01-08	Day Level	XXX-XX--SGSN-MME-03	327922
2023-01-09	Day Level	XXX-XX--SGSN-MME-03	331701
2023-01-10	Day Level	XXX-XX--SGSN-MME-03	334258
2023-01-11	Day Level	XXX-XX--SGSN-MME-03	331070
2023-01-12	Day Level	XXX-XX--SGSN-MME-03	327105
2023-01-13	Day Level	XXX-XX--SGSN-MME-03	310919
2023-01-14	Day Level	XXX-XX--SGSN-MME-03	280490
2023-01-15	Day Level	XXX-XX--SGSN-MME-03	299159
2023-01-16	Day Level	XXX-XX--SGSN-MME-03	312329
2023-01-17	Day Level	XXX-XX--SGSN-MME-03	318370
2023-01-18	Day Level	XXX-XX--SGSN-MME-03	316067
2023-01-19	Day Level	XXX-XX--SGSN-MME-03	314299

2023-01-20	Day Level	XXX-XX--SGSN-MME-03	322221
2023-01-21	Day Level	XXX-XX--SGSN-MME-03	317145
2023-01-22	Day Level	XXX-XX--SGSN-MME-03	317951
2023-01-23	Day Level	XXX-XX--SGSN-MME-03	320670
2023-01-24	Day Level	XXX-XX--SGSN-MME-03	320466
2023-01-25	Day Level	XXX-XX--SGSN-MME-03	304693
2023-01-26	Day Level	XXX-XX--SGSN-MME-03	307049
2023-01-27	Day Level	XXX-XX--SGSN-MME-03	304500
2023-01-28	Day Level	XXX-XX--SGSN-MME-03	303082
2023-01-29	Day Level	XXX-XX--SGSN-MME-03	309391
2023-01-30	Day Level	XXX-XX--SGSN-MME-03	314559
2023-01-31	Day Level	XXX-XX--SGSN-MME-03	318688
2023-02-01	Day Level	XXX-XX--SGSN-MME-03	315274
2023-02-02	Day Level	XXX-XX--SGSN-MME-03	320590
2023-02-03	Day Level	XXX-XX--SGSN-MME-03	276683
2023-02-04	Day Level	XXX-XX--SGSN-MME-03	288478
2023-02-05	Day Level	XXX-XX--SGSN-MME-03	298212
2023-02-06	Day Level	XXX-XX--SGSN-MME-03	300505
2023-02-07	Day Level	XXX-XX--SGSN-MME-03	308763

2023-02-08	Day Level	XXX-XX--SGSN-MME-03	303933
2023-02-09	Day Level	XXX-XX--SGSN-MME-03	304191
2023-02-10	Day Level	XXX-XX--SGSN-MME-03	296049
2023-02-11	Day Level	XXX-XX--SGSN-MME-03	304243
2023-02-12	Day Level	XXX-XX--SGSN-MME-03	398876
2023-02-13	Day Level	XXX-XX--SGSN-MME-03	327081
2023-02-14	Day Level	XXX-XX--SGSN-MME-03	318326
2023-02-15	Day Level	XXX-XX--SGSN-MME-03	308936
2023-02-16	Day Level	XXX-XX--SGSN-MME-03	307454
2023-02-17	Day Level	XXX-XX--SGSN-MME-03	299155
2023-02-18	Day Level	XXX-XX--SGSN-MME-03	310671
2023-02-19	Day Level	XXX-XX--SGSN-MME-03	308271
2023-02-20	Day Level	XXX-XX--SGSN-MME-03	313036
2023-02-21	Day Level	XXX-XX--SGSN-MME-03	308364
2023-02-22	Day Level	XXX-XX--SGSN-MME-03	297624
2023-02-23	Day Level	XXX-XX--SGSN-MME-03	307631
2023-02-24	Day Level	XXX-XX--SGSN-MME-03	303706
2023-02-25	Day Level	XXX-XX--SGSN-MME-03	331917
2023-02-26	Day Level	XXX-XX--SGSN-MME-03	304802

2023-02-27	Day Level	XXX-XX--SGSN-MME-03	314204
2023-02-28	Day Level	XXX-XX--SGSN-MME-03	312129
2023-03-01	Day Level	XXX-XX--SGSN-MME-03	318518
2023-03-02	Day Level	XXX-XX--SGSN-MME-03	400818
2023-03-03	Day Level	XXX-XX--SGSN-MME-03	298952
2023-03-04	Day Level	XXX-XX--SGSN-MME-03	286058
2023-03-05	Day Level	XXX-XX--SGSN-MME-03	283346
2023-03-06	Day Level	XXX-XX--SGSN-MME-03	280037
2023-03-07	Day Level	XXX-XX--SGSN-MME-03	275515
2023-03-08	Day Level	XXX-XX--SGSN-MME-03	290489
2023-03-09	Day Level	XXX-XX--SGSN-MME-03	291972
2023-03-10	Day Level	XXX-XX-SGSN-MME-03	289658
2023-03-11	Day Level	XXX-XX--SGSN-MME-03	284311
2023-03-12	Day Level	XXX-XX--SGSN-MME-03	293878
2023-03-13	Day Level	XXX-XX--SGSN-MME-03	298662
2023-03-14	Day Level	XXX-XX--SGSN-MME-03	299430
2023-03-15	Day Level	XXX-XX--SGSN-MME-03	297959
2023-03-16	Day Level	XXX-XX--SGSN-MME-03	299208
2023-03-17	Day Level	XXX-XX--SGSN-MME-03	293534

2023-03-18	Day Level	XXX-XX--SGSN-MME-03	292673
2023-03-19	Day Level	XXX-XX--SGSN-MME-03	296111
2023-03-20	Day Level	XXX-XX-SGSN-MME-03	301181
2023-03-21	Day Level	XXX-XX--SGSN-MME-03	297604
2023-03-22	Day Level	XXX-XX--SGSN-MME-03	309897
2023-03-23	Day Level	XXX-XX--SGSN-MME-03	304351
2023-03-24	Day Level	XXX-XX--SGSN-MME-03	305605
2023-03-25	Day Level	XXX-XX--SGSN-MME-03	295694
2023-03-26	Day Level	XXX-XX--SGSN-MME-03	300188
2023-03-27	Day Level	XXX-XX--SGSN-MME-03	302467
2023-03-28	Day Level	XXX-XX--SGSN-MME-03	303965
2023-03-29	Day Level	XXX-XX--SGSN-MME-03	270432
2023-03-30	Day Level	XXX-XX--SGSN-MME-03	289729
2023-03-31	Day Level	XXX-XX--SGSN-MME-03	249336
2023-04-01	Day Level	XXX-XX--SGSN-MME-03	269109
2023-04-02	Day Level	XXX-XX--SGSN-MME-03	283437
2023-04-03	Day Level	XXX-XX--SGSN-MME-03	298453
2023-04-04	Day Level	XXX-XX--SGSN-MME-03	301649
2023-04-05	Day Level	XXX-XX--SGSN-MME-03	298797

2023-04-06	Day Level	XXX-XX--SGSN-MME-03	306610
2023-04-07	Day Level	XXX-XX--SGSN-MME-03	298449
2023-04-08	Day Level	XXX-XX--SGSN-MME-03	294205
2023-04-09	Day Level	XXX-XX--SGSN-MME-03	306048
2023-04-10	Day Level	XXX-XX--SGSN-MME-03	316718
2023-04-11	Day Level	XXX-XX--SGSN-MME-03	315327
2023-04-12	Day Level	XXX-XX-SGSN-MME-03	313059

3. The show task resources from multiple Solid State Drives (SSDs) were collected. Based on the SSD data, it is seen that these IPsecmgr instances are in a warning state.

<#root>

```
8/1 ipsecmgr 296 2.64% 50% 193.3M 191.0M 978 1500 1331 4700 - warn
 8/2 ipsecmgr 363 2.51% 50% 194.1M 191.0M 854 1500 1304 4700 - warn
 9/0 ipsecmgr 231 2.85% 50% 129.0M 191.0M 271 1500 1323 4700 - good
 9/1 ipsecmgr 303 2.61% 50% 161.5M 191.0M 1141 1500 1322 4700 - good
 9/2 ipsecmgr 381 2.46% 50% 192.9M 191.0M 839 1500 1312 4700 - warn
```

Note: This output is collected on 12th April at 8:40 PM

This output collected on the 13th April 8 PM.

```
8/1 ipsecmgr 296 2.61% 50% 193.3M 191.0M 985 1500 1221 4700 - warn
8/2 ipsecmgr 363 2.38% 50% 193.7M 191.0M 828 1500 1222 4700 - warn
 9/0 ipsecmgr 231 2.40% 50% 129.0M 191.0M 1116 1500 1237 4700 - good
9/1 ipsecmgr 303 2.43% 50% 161.5M 191.0M 1120 1500 1220 4700 - good
9/2 ipsecmgr 381 2.23% 50% 192.9M 191.0M 829 1500 1228 4700 - warn
```

No decrease in memory is observed, even when the number of calls is reduced in each of the instances. For example, if you look at the IPsecmgr instance 296, which is in a warning state, the number of calls decreased on April 13th, but the memory did not decrease

4. The show task resources data collected throughout the day also confirms that the memory is not decreasing, even when the number of calls is reduced.

5. The SSD data from before the upgrade shows that there is no increase in memory. This suggests that there can be a problem with the new software.

Based on the analysis, you can suspect a memory leak at the IPsecmgr facility level. Raise a service request (SR) in order to investigate further and address the issue.