

## Startup Fails with ORA-27125 And Alert Log Shows "Error: ENOSPC while creating shared memory segment of size xxxxx bytes" (Doc ID 2325742.1)

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### APPLIES TO:

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Oracle Database - Enterprise Edition - Version 12.1.0.2 and later  
Oracle Database Cloud Schema Service - Version N/A and later  
Oracle Database Exadata Cloud Machine - Version N/A and later  
Oracle Cloud Infrastructure - Database Service - Version N/A and later  
Oracle Database Cloud Exadata Service - Version N/A and later  
Information in this document applies to any platform.

### SYMPTOMS

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Undersized SHMMAX resulting to host trying to exceed SHMALL when adding a new instance as indicated below.

Reset SHMMAX and SHMALL to lower values and try to connect to the database.

```
[oracle@ha ~]$ su -
Password:
[root@ha ~]# echo 3800000000 > /proc/sys/kernel/shmmax
[root@ha ~]# echo 927735 > /proc/sys/kernel/shmall
[root@ha ~]# cat /proc/sys/kernel/shmmax
3800000000
[root@ha ~]# cat /proc/sys/kernel/shmall
927735
[root@ha ~]# su - oracle
ORACLE_SID = [----] ? test1212
The Oracle base has been set to /u01/app/oracle
[oracle@ha ~]$ cat /proc/sys/kernel/shmmax
3800000000
[oracle@ha ~]$ sqlplus / as sysdba

SQL*Plus: Release 12.1.0.2.0 Production on Thu Nov 2 22:53:02 2017

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Connected to:
Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production
With the Partitioning, OLAP, Advanced Analytics and Real Application Testing options

SQL> exit
Disconnected from Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production
With the Partitioning, OLAP, Advanced Analytics and Real Application Testing options
[oracle@ha ~]$ . oraenv
ORACLE_SID = [----] ? <ORACLE SID>
The Oracle base remains unchanged with value /u01/app/oracle
[oracle@ha ~]$ sqlplus / as sysdba

SQL*Plus: Release 12.1.0.2.0 Production on Thu Nov 2 22:53:23 2017

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```

Connected to an idle instance.

```
SQL> startup;
ORA-27125: unable to create shared memory segment
Linux-x86_64 Error: 28: No space left on device
Additional information: 3760
Additional information: 2499805184
SQL> !

[oracle@ha trace]$ vi alert_<ORACLE_SID>.log
Thu Nov 02 22:53:28 2017
Error: ENOSPC while creating shared memory segment of size 2499805184 bytes
Check the system shared memory parameters
Thu Nov 02 22:53:28 2017
*****
Thu Nov 02 22:53:28 2017
Dump of system resources acquired for SHARED GLOBAL AREA (SGA)

Thu Nov 02 22:53:28 2017
Per process system memlock (soft) limit = 250G
Thu Nov 02 22:53:28 2017
Expected per process system memlock (soft) limit to lock
SHARED GLOBAL AREA (SGA) into memory: 2402M
Thu Nov 02 22:53:28 2017
Available system pagesizes:
  4K, 2048K
Thu Nov 02 22:53:28 2017
Supported system pagesize(s):
Thu Nov 02 22:53:28 2017
  PAGE_SIZE  AVAILABLE_PAGES  EXPECTED_PAGES  ALLOCATED_PAGES  ERROR(s)
Thu Nov 02 22:53:28 2017
    4K          Configured           4              0      ORA-27125
Thu Nov 02 22:53:28 2017
   2048K          4             1201              2          NONE
Thu Nov 02 22:53:28 2017
RECOMMENDATION:
Thu Nov 02 22:53:28 2017
1. Configure system with expected number of pages for every
supported system pagesize prior to the next instance restart operation.
Thu Nov 02 22:53:28 2017
*****
```

Error ENOSPC indicates all possible shared memory IDs have been taken (SHMMNI), or allocating a segment of the requested size 2499805184 bytes would cause the system to exceed the system-wide limit on shared memory SHMALL.

Increasing SHMMAX and SHMALL to a value larger than the total SGA\_MAX\_SIZE on all instances on the server and restart the new instance again resolves the error.

```
[oracle@ha ~]$ su -
Password:
[root@ha ~]# echo 4398046511104 > /proc/sys/kernel/shmmax
[root@ha ~]# echo 1073741824 > /proc/sys/kernel/shmall
[root@ha ~]# su - oracle
ORACLE_SID = [----] ? <ORACLE_SID>
The Oracle base has been set to /u01/app/oracle
[oracle@ha ~]$ sqlplus / as sysdba

SQL*Plus: Release 12.1.0.2.0 Production on Thu Nov 2 23:13:03 2017

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Connected to an idle instance.

SQL> startup;
ORACLE instance started.

Total System Global Area 2516582400 bytes
Fixed Size 2927528 bytes
Variable Size 671089752 bytes
Database Buffers 1828716544 bytes
Redo Buffers 13848576 bytes
```

```
Database mounted.  
Database opened.
```

## CAUSE

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Error: ORA-27125 unable to create shared memory segment

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Cause: shmget() call failed

The Unix errno 28 is ENOSPC which means "No space left on device". This message is logged when Oracle tried to create shared memory segment.

This is caused by kernel parameters(SHMMAX and SHMALL) being misconfigured .

## SOLUTION

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- 1.-Set SHMMAX to a value larger than the total SGA\_MAX\_SIZE of all instances on your server.
- 2.-Set SHMALL to the value of SHMMAX divided by PAGE\_SIZE
- 3.-Restart the instance.

**NOTE:** Same error can occur at startup if SHMMAX and SHMALL are configured higher than the actual RAM on the machine, and instance startup is attempted with an SGA that matches SHMMAX, or the sum of all SGA's is bigger than RAM.

## REFERENCES

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[NOTE:1970546.1](#) - Instance start up reports ORA-27125: unable to create shared memory segment  
Didn't find what you are looking for?