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| **ORA-27090 - Unable to Reserve Kernel Resources for Asynchronous Disk I/O (Doc ID 579108.1)** | [IMG_256](https://support.oracle.com/epmos/faces/DocumentDisplay?id=579108.1%26_adf.ctrl-state=qj1wng93g_72%26_afrLoop=337588191290079%20/o%20To%20Bottom)  [To Bottom](https://support.oracle.com/epmos/faces/DocumentDisplay?id=579108.1&_adf.ctrl-state=qj1wng93g_72&_afrLoop=337588191290079 \\o To Bottom) | IMG_257 |

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IMG_259

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| **In this Document**   |  |  | | --- | --- | |  | [Symptoms](https://support.oracle.com/epmos/faces/DocumentDisplay?id=579108.1&_adf.ctrl-state=qj1wng93g_72&_afrLoop=337588191290079 \\l SYMPTOM) |  |  |  | | --- | --- | |  | [Cause](https://support.oracle.com/epmos/faces/DocumentDisplay?id=579108.1&_adf.ctrl-state=qj1wng93g_72&_afrLoop=337588191290079 \\l CAUSE) |  |  |  | | --- | --- | |  | [Solution](https://support.oracle.com/epmos/faces/DocumentDisplay?id=579108.1&_adf.ctrl-state=qj1wng93g_72&_afrLoop=337588191290079 \\l FIX) |  |  |  | | --- | --- | |  | [References](https://support.oracle.com/epmos/faces/DocumentDisplay?id=579108.1&_adf.ctrl-state=qj1wng93g_72&_afrLoop=337588191290079 \\l REF) |   IMG_260  **APPLIES TO:**  Oracle Database - Enterprise Edition - Version 10.2.0.4 to 12.1.0.2 [Release 10.2 to 12.1]  Linux x86-64  Linux x86  \*\*\*Checked for relevance on 02-Sep-2016\*\*\*  Oracle Server Enterprise Edition - Version: 10.2.0.4  10.2.0.4  \*\*\*Checked for relevance on 26-AUG-2014\*\*\*    **SYMPTOMS**  You discover messages of this nature in your alert log:  ORA-27090: Message 27090 not found; product=RDBMS; facility=ORA  Additional information: 3  Additional information: 128  Additional information: 65536  - OR -  ORA-27090: UNABLE TO RESERVE KERNEL RESOURCES FOR ASYNCHRONOUS DISK I/O  Additional information: 3  Additional information: 128  Additional information: 65536  - OR -  ORA-27090: Message 27090 not found;  product=RDBMS; facility=ORA  Linux-x86\_64 Error: 4: Interrupted system call  Additional information: 3  Additional information: 128  Additional information: 65536  Strace against DBWR shows:  io\_setup(4096, 0x66e1588) = -1 EAGAIN (Resource temporarily unavailable),  which is related to "aio-max-nr" kernel limit.  **CAUSE**  The "aio-max-nr" kernel limit is too low.  **SOLUTION**  The "aio-max-nr" kernel limit should be adjusted according to Oracle recommendations which are available in this document:  Oracle Validated Configuration:  <http://linux.oracle.com/pls/apex/f?p=102:2:2007385298933639::NO::P2_VC_ID:426>  Also, this parameter should be set as follows:  -------------------------------------  fs.aio-max-nr= 3145728  -------------------------------------  **NOTE:**  Per bug [Bug 13554729](https://support.oracle.com/epmos/faces/BugDisplay?parent=DOCUMENT&sourceId=579108.1&id=13554729 \\t _blank) - CORRECT FS.AIO-MAX-NR = 3145728  the published limit in the Oracle Documentation at [http://docs.oracle.com/cd/E11882\_01/install.112/e24326/toc.htm#BHCCADGD](http://docs.oracle.com/cd/E11882_01/install.112/e24326/toc.htm /l BHCCADGD) is incorrect.  The Oracle documentation lists the minimum value as the max value.  **REFERENCES**  [BUG:13554729](https://support.oracle.com/epmos/faces/BugDisplay?parent=DOCUMENT&sourceId=579108.1&id=13554729 \\t _blank) - CORRECT FS.AIO-MAX-NR = 3145728  [BUG:7582159](https://support.oracle.com/epmos/faces/BugDisplay?parent=DOCUMENT&sourceId=579108.1&id=7582159 \\t _blank) - ORA-27090 CAN BE REPORTED BUT IS MISSING FROM MESSAGES FILE |