

raccheck Results Summary

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Findings Needing Attention

FAIL, WARNING, ERROR and INFO findings should be evaluated. INFO status is considered a significant finding and details for those should be reviewed in light of your environment.

Status	Type	Message	Status On	Details
WARNING	OS Check	Swap < 16GB (applies with >= 16GB of RAM)	All Database Servers	View
WARNING	OS Check	NTP is not running with correct setting	All Database Servers	View
WARNING	OS Check	OSWatcher is not running as is recommended.	All Database Servers	View
WARNING	OS Check	Remote listener is not set to SCAN name	All Database Servers	View
WARNING	OS Check	One or more ASM disks are found with partnership problem.	All Database Servers	View
WARNING	OS Check	/tmp is NOT on a dedicated filesystem	All Database Servers	View
WARNING	SQL Check	One or more redo log groups are NOT multiplexed	All Databases	View
WARNING	OS Check	AIX process contention scope is not set to systemwide for root	All Database Servers	View
WARNING	OS Check	Etherchannel is not configured for interconnect	All Database Servers	View
WARNING	OS Check	Etherchannel is not configured for Oracle VIP	All Database Servers	View
WARNING	OS Check	AIX process contention scope is not set to systemwide	All Database Servers	View
WARNING	OS Check	Virtual memory parameter "minperm%" is not set to Recommended Value of 3	All Database Servers	View
WARNING	OS Check	LMS is not running with correct scheduling policy	All Database Servers	View
INFO	OS Check	Number of SCAN listeners is NOT equal to the recommended number of 3.	All Database Servers	View
INFO	OS Check	audit_file_dest has audit files older than 30 days for DB11G	All Database Servers	View
INFO	SQL Check	One or more disks found which are not part of any disk group.	All Databases	View
INFO	SQL Check	Some tablespaces do not have allocation type as SYSTEM	All Databases	View
INFO	OS Check	\$CRS_HOME/log/hostname/client directory has too many older log files.	All Database Servers	View

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GRID and RDBMS patch recommendation Summary report

Summary Report for "aixnode01"

Clusterware patches

Total patches	Applied on CRS	Applied on RDBMS	Applied on ASM	Details
0	0	0	0	View

RDBMS homes patches

Total patches	Applied on RDBMS	Applied on ASM	ORACLE_HOME	Details
1	0	0	/u01/app/oracle/product/11.2.0/dbhome_1	View

Summary Report for "aixnode02"

Clusterware patches

Total patches	Applied on CRS	Applied on RDBMS	Applied on ASM	Details
0	0	0	0	View

RDBMS homes patches

Total patches	Applied on RDBMS	Applied on ASM	ORACLE_HOME	Details
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1	0	0	/u01/app/oracle/product/11.2.0/dbhome_1	View
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GRID and RDBMS patch recommendation Detailed report

Detailed report for "aixnode01"

0 Recommended CRS patches for 112020 from /u01/app/11.2.0/grid

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1 Recommended RDBMS patches for from /u01/app/oracle/product/11.2.0/dbhome_1

Patch#	RDBMS	ASM	Type	Patch-Description
12419353	no		merge	GI PSU 11.2.0.2.3 (INCLUDES DATABASE PSU)

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Detailed report for "aixnode02"

0 Recommended CRS patches for 112020 from /u01/app/11.2.0/grid

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1 Recommended RDBMS patches for from /u01/app/oracle/product/11.2.0/dbhome_1

Patch#	RDBMS	ASM	Type	Patch-Description
12419353	no		merge	GI PSU 11.2.0.2.3 (INCLUDES DATABASE PSU)

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Findings Passed

Status	Type	Message	Status On
PASS	Cluster Wide Check	OS Kernel version(uname -r) matches across cluster.	Cluster Wide
PASS	Cluster Wide Check	Clusterware active version matches across cluster.	Cluster Wide
PASS	Cluster Wide Check	Timezone matches for current user across cluster.	Cluster Wide
PASS	Cluster Wide Check	Public network interface names are the same across cluster	Cluster Wide
PASS	Cluster Wide Check	GI/CRS software owner has unique UID across cluster	Cluster Wide
PASS	Cluster Wide Check	RDBMS software owner has unique UID across cluster	Cluster Wide
PASS	Cluster Wide Check	Private interconnect interface names are the same across cluster	Cluster Wide
PASS	SQL Parameter Check	asm_power_limit is set to recommended value of 1	All Instances
PASS	OS Check	ohasd Log Ownership is Correct (root root)	All Database Servers
PASS	OS Check	ohasd/orarootagent_root Log Ownership is Correct (root root)	All Database Servers
PASS	OS Check	crsd/orarootagent_root Log Ownership is Correct (root root)	All Database Servers
PASS	OS Check	crsd Log Ownership is Correct (root root)	All Database Servers
PASS	OS Check	sb_max Network Parameter is Configured Large Enough	All Database Servers
PASS	OS Check	VKTM is running in real time scheduling class	All Database Servers
PASS	OS Check	CRS version is higher or equal to ASM version.	All Database Servers
PASS	OS Check	Local listener init parameter is set to local node VIP.	All Database Servers

PASS	OS Check	All voting disks are online	All Database Servers
PASS	OS Check	Open file limit for root user (ulimit -n) >= 65536 or unlimited	All Database Servers
PASS	SQL Check	Controlfile is multiplexed	All Databases
PASS	SQL Check	GC block lost is not occurring	All Databases
PASS	SQL Check	Failover method (SELECT) and failover mode (BASIC) are configured properly	All Databases
PASS	OS Check	Virtual memory parameter "page_steal_method" OK	All Database Servers
PASS	OS Check	Virtual memory parameter "strict_maxperm" OK	All Database Servers
PASS	OS Check	Virtual memory parameter "strict_maxclient" OK	All Database Servers
PASS	OS Check	Virtual memory parameter "lru_file_repage" OK	All Database Servers
PASS	OS Check	kernel paramater ncargs is set to recommended value of 128	All Database Servers
PASS	OS Check	Open files limit (ulimit -n) for current user is set to recommended value >= 65536 or unlimited	All Database Servers
PASS	OS Check	LMS is running in real time scheduling class	All Database Servers
PASS	OS Check	OCCSD is running with correct priority setting	All Database Servers
PASS	OS Check	Virtual memory parameter "maxperm%" is OK	All Database Servers
PASS	OS Check	Network parameter rfc1323 is OK	All Database Servers
PASS	OS Check	Network parameter ipqmaxlen is OK	All Database Servers
PASS	OS Check	Network parameter udp_sendspace is OK	All Database Servers
PASS	OS Check	OCSSD is running with correct shceduling policy	All Database Servers
PASS	OS Check	Network parameter udp_recvspace is OK	All Database Servers
PASS	OS Check	Network parameter tcp_recvspace is OK	All Database Servers
PASS	OS Check	Network parameter tcp_sendspace is OK	All Database Servers
PASS	OS Check	Jumbo frames or mini jumbo frames are configured for interconnect	All Database Servers
PASS	SQL Check	No read/write errors found for ASM disks	All Databases
PASS	SQL Check	All tablespaces are using Automatic segment storage management	All Databases
PASS	SQL Check	All tablespaces are locally manged tablespace	All Databases
PASS	OS Check	OCR is being backed up daily	All Database Servers
PASS	SQL Parameter Check	Instance is using spfile	All Instances
PASS	OS Check	Interconnect is configured on non-routable network addresses	All Database Servers
PASS	OS Check	None of the hostnames contains an underscore character	All Database Servers
PASS	SQL Parameter Check	Database Parameter parallel_execution_message_size is set to the recommended value	All Instances
PASS	SQL Parameter Check	pre_page_sga = false	All Instances

PASS	SQL Check	SYS.AUDSE\$ sequence cache size >= 10,000	All Databases
PASS	SQL Check	SYS.IDGEN1\$ sequence cache size >= 1,000	All Databases

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Best Practices and Other Recommendations

Best Practices and Other Recommendations are generally items documented in various sources which could be overlooked. raccheck assesses them and calls attention to any findings.

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Swap < 16GB (applies with >= 16GB of RAM)

Success Factor	CORRECTLY SIZE THE SWAP SPACE
Recommendation	On AIX for Oracle 11gR2 the recommendation if the system has >= 16GB of RAM is to configure swap = 16GB
Links	<ul style="list-style-type: none"> Note: 169706.1 - Oracle Database on Unix OS Installation and Configuration Quick Reference -
Needs attention on	aixnode01,aixnode02

Status on aixnode01: WARNING => Swap < 16GB (applies with >= 16GB of RAM)

Status on aixnode02: WARNING => Swap < 16GB (applies with >= 16GB of RAM)

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NTP is not running with correct setting

Success Factor	MAKE SURE MACHINE CLOCKS ARE SYNCHRONIZED ON ALL NODES USING NTP
Recommendation	<p>Make sure machine clocks are synchronized on all nodes to the same NTP source. Implement NTP (Network Time Protocol) on all nodes. Prevents evictions and helps to facilitate problem diagnosis.</p> <p>Also use the -x option (ie. ntpd -x, xntpd -x) if available to prevent time from moving backwards in large amounts. This slewing will help reduce time changes into multiple small changes, such that they will not impact the CRS. Enterprise Linux: see /etc/sysconfig/ntpd; Solaris: set "slewalways yes" and "disable pll" in /etc/inet/ntp.conf.</p> <p>Like:-</p> <pre># Drop root to id 'ntp:ntp' by default. OPTIONS="-x -u ntp:ntp -p /var/run/ntpd.pid" # Set to 'yes' to sync hw clock after successful ntpdate SYNC_HWLOCK=no # Additional options for ntpdate NTPDATE_OPTIONS=""</pre> <p>The Time servers operate in a pyramid structure where the top of the NTP stack is usually an external time source (such as GPS Clock). This then trickles down through the Network Switch stack to the connected server. This NTP stack acts as the NTP Server and ensuring that all the RAC Nodes are acting as clients to this server in a slewing method will keep time changes to a minute amount.</p> <p>Changes in global time to account for atomic accuracy's over Earth rotational wobble , will thus be accounted for with minimal effect. This is sometimes referred to as the " Leap Second " " epoch ", (between UTC 12/31/2008 23:59.59 and 01/01/2009 00:00.00 has the one second inserted).</p> <p>More information can be found in Note 759143.1 "NTP leap second event causing Oracle Clusterware node reboot" Linked to this Success Factor.</p> <p>RFC "NTP Slewing for RAC" has been created successfully. CCB ID 462</p>
Links	<ul style="list-style-type: none"> Note: 759143.1 - NTP leap second event causing CRS node reboot - Linux Leap Second Note: 551704.1 - Linux OS Service 'ntpd' -

Needs attention on	aixnode01,aixnode02
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Status on aixnode01: WARNING => NTP is not running with correct setting

DATA FROM aixnode01 FOR NTP WITH CORRECT SETTING

Status on aixnode02: WARNING => NTP is not running with correct setting

DATA FROM aixnode02 FOR NTP WITH CORRECT SETTING

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OSWatcher is not running as is recommended.

Success Factor	INSTALL AND RUN OSWATCHER PROACTIVELY FOR OS RESOURCE UTILIZATION DIAGNOSIBILITY
Recommendation	Operating System Watcher (OSW) is a collection of UNIX shell scripts intended to collect and archive operating system and network metrics to aid diagnosing performance issues. OSW is designed to run continuously and to write the metrics to ASCII files which are saved to an archive directory. The amount of archived data saved and frequency of collection are based on user parameters set when starting OSW.
Links	<ul style="list-style-type: none"> Note: 301137.1 - OS Watcher User Guide -
Needs attention on	aixnode01,aixnode02

Status on aixnode01: WARNING => OSWatcher is not running as is recommended.

DATA FROM aixnode01 FOR OSWATCHER STATUS

Status on aixnode02: WARNING => OSWatcher is not running as is recommended.

DATA FROM aixnode02 FOR OSWATCHER STATUS

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Number of SCAN listeners is NOT equal to the recommended number of 3.

Success Factor	SQL DATA COLLECTIONS AND CHECKS
Recommendation	
Links	<ul style="list-style-type: none"> SINGLE CLIENT ACCESS NAME (SCAN)
Needs attention on	aixnode01,aixnode02

Status on aixnode01: INFO => Number of SCAN listeners is NOT equal to the recommended number of 3.

DATA FROM aixnode01 FOR NUMBER OF SCAN LISTNERS

SCAN Listener LISTENER_SCAN1 exists. Port: TCP:1551
 SCAN Listener LISTENER_SCAN2 exists. Port: TCP:1551

Status on aixnode02: INFO => Number of SCAN listeners is NOT equal to the recommended number of 3.

```
DATA FROM aixnode02 FOR NUMBER OF SCAN LISTNERS
```

```
SCAN Listener LISTENER_SCAN1 exists. Port: TCP:1551
SCAN Listener LISTENER_SCAN2 exists. Port: TCP:1551
```

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Remote listener is not set to SCAN name

Success Factor	SQL DATA COLLECTIONS AND CHECKS
Recommendation	For Oracle Database 11g Release 2, the REMOTE_LISTENER parameter should be set to the SCAN. This allows the instances to register with the SCAN Listeners to provide information on what services are being provided by the instance, the current load, and a recommendation on how many incoming connections should be directed to the instance.
Links	<ul style="list-style-type: none"> • SINGLE CLIENT ACCESS NAME (SCAN)
Needs attention on	aixnode01

Status on aixnode01: WARNING => Remote listener is not set to SCAN name

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One or more ASM disks are found with partnership problem.

Success Factor	SQL DATA COLLECTIONS AND CHECKS
Recommendation	<p>Here is a query that will identify problem partnerships. Rows with an action of MUST need to be dropped in order to permit allocation in high redundancy diskgroups, and permit metadata allocation in normal redundancy diskgroups. Rows with an action of SHOULD indicate that if the partnership is not changed, then one of the partners will fill up prematurely, and allocations may encounter ORA-15041 since one disk is full, even though the diskgroup as a whole has sufficient space. For normal redundancy, these are unlikely to cause problems. For high redundancy, SHOULD disks may be dropped during a maintenance window, or if ORA-15041 is encountered prematurely.</p> <pre>select g.name as "GROUP", d.name as "DISK", d.failgroup, fcnt, pcnt, decode(pcnt - fcnt, 0, 'MUST', 'SHOULD') as action from (select gnum, DISK1, failgroup, count(failgroup) as fcnt from (select gnum, DISK1 from (select d.group_number as gnum, disk as disk1, count(distinct failgroup) as dfail from x\$kfdpartner, v\$asm_disk_stat d where number_kfdpartner=disk_number and grp=d.group_number and active_kfdpartner=1 group by d.group_number, disk), v\$asm_disk_stat where dfail < 3 and disk1=disk_number and gnum=group_number), x\$kfdpartner, v\$asm_disk_stat d where number_kfdpartner=disk_number and grp=d.group_number and grp=gnum and disk1=disk and active_kfdpartner=1 group by gnum, disk1, failgroup), (select grp, disk, count(disk) as pcnt from x\$kfdpartner where active_kfdpartner=1 group by grp, disk), v\$asm_diskgroup_stat g, v\$asm_disk_stat d where gnum=grp and gnum=g.group_number and gnum=d.group_number and disk=disk1 and disk=disk_number and ((fcnt = 1 and (pcnt - fcnt) > 3) or ((pcnt - fcnt) = 0)) /</pre>
Links	<ul style="list-style-type: none"> • Note: 367445.1 - Script to Report the Percentage of Imbalance in all Mounted Disk groups -
Needs attention on	aixnode01

Status on aixnode01: WARNING => One or more ASM disks are found with partnership problem.

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/tmp is NOT on a dedicated filesystem

Success Factor	SQL DATA COLLECTIONS AND CHECKS
Recommendation	It is a best practice to locate the /tmp directory on a dedicated filesystem, otherwise accidentally filling up /tmp could lead to filling up the root (/) filesystem as the result of other file management (logs, traces, etc.) and lead to availability problems. For example, Oracle creates socket files in /tmp. Make sure 1GB of free space is maintained in /tmp.
Needs attention on	aixnode01,aixnode02

Status on aixnode01: WARNING => /tmp is NOT on a dedicated filesystem

Status on aixnode02: WARNING => /tmp is NOT on a dedicated filesystem

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One or more redo log groups are NOT multiplexed

Success Factor	SQL DATA COLLECTIONS AND CHECKS
Recommendation	The online redo logs of an Oracle database are critical to availability and recoverability and should always be multiplexed even in cases where fault tolerance is provided at the storage level.
Needs attention on	DB11G

Status on DB11G: WARNING => One or more redo log groups are NOT multiplexed

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audit_file_dest has audit files older than 30 days for DB11G

Success Factor	SQL DATA COLLECTIONS AND CHECKS
Recommendation	we should clean old audit files from audit_file_dest regularly otherwise one may run out of space on ORACLE_BASE mount point and may not be able to collect diagnostic information when failure occurs
Needs attention on	aixnode01

Status on aixnode01: INFO => audit_file_dest has audit files older than 30 days for DB11G

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AIX process contention scope is not set to systemwide for root

Success Factor	AIXTHREAD_SCOPE=S FOR AIX IN THE ENVIRONMENT BEFORE STARTING ORACLE
Recommendation	The AIXTHREAD_SCOPE environment variable can be used for control if an AIX process runs with process-wide contention scope (the default) or with system-wide contention scope. System-wide contention scope significantly reduces the memory required for each database process. AIX operates most effectively with Oracle Database and Oracle RAC when using system-wide contention scope
Needs attention on	aixnode01,aixnode02

Status on aixnode01: WARNING => AIX process contention scope is not set to systemwide for root

```
DATA FROM aixnode01 FOR ROOT'S ENVIRONMENT SETTINGS
```

Status on aixnode02: WARNING => AIX process contention scope is not set to systemwide for root

```
DATA FROM aixnode02 FOR ROOT'S ENVIRONMENT SETTINGS
```

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Etherchannel is not configured for interconnect

Success Factor	AIX DATA COLLECTIONS
Recommendation	In order to avoid the interconnect being a single point of failure, Oracle highly recommends configuring a redundant set of network interface cards (NIC's) on each cluster node for interconnect.
Links	<ul style="list-style-type: none"> Note: 296856.1 - Configuring the IBM AIX 5L Operating System for the Oracle 10g VIP -
Needs attention on	aixnode01,aixnode02

Status on aixnode01: WARNING => Etherchannel is not configured for interconnect

```
DATA FROM aixnode01 FOR ETHERCHANNEL CONFIG FOR INTERCONNECT
```

```
-----
ETHERNET STATISTICS (en3) :
Device Type: 2-Port 10/100/1000 Base-TX PCI-X Adapter (14108902)
Hardware Address: 00:1a:64:a7:7a:db
Elapsed Time: 3 days 2 hours 0 minutes 56 seconds
```

```
Transmit Statistics: Receive Statistics:
```

```
-----
Packets: 38719342 Packets: 37576967
Bytes: 30252396735 Bytes: 30240876764
Interrupts: 0 Interrupts: 30855144
Transmit Errors: 0 Receive Errors: 0
Packets Dropped: 0 Packets Dropped: 0
Bad Packets: 0
Max Packets on S/W Transmit Queue: 82
S/W Transmit Queue Overflow: 0
...More
```

Status on aixnode02: WARNING => Etherchannel is not configured for interconnect

```
DATA FROM aixnode02 FOR ETHERCHANNEL CONFIG FOR INTERCONNECT
```

```
-----
ETHERNET STATISTICS (en3) :
Device Type: 2-Port 10/100/1000 Base-TX PCI-X Adapter (14108902)
Hardware Address: 00:1a:64:a7:6c:fb
Elapsed Time: 3 days 5 hours 5 minutes 24 seconds
```

```
Transmit Statistics: Receive Statistics:
```

```
-----
Packets: 37636993 Packets: 39109252
Bytes: 30473819879 Bytes: 30425092883
Interrupts: 0 Interrupts: 31938586
Transmit Errors: 0 Receive Errors: 0
Packets Dropped: 0 Packets Dropped: 0
Bad Packets: 0
Max Packets on S/W Transmit Queue: 80
S/W Transmit Queue Overflow: 0
```


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Etherchannel is not configured for Oracle VIP

Success Factor	AIX DATA COLLECTIONS
Recommendation	In order to avoid the VIP being a single point of failure, Oracle highly recommends configuring a redundant set of network interface cards (NIC's) on each cluster node for VIP.
Links	<ul style="list-style-type: none"> Note: 296856.1 - Configuring the IBM AIX 5L Operating System for the Oracle 10g VIP -
Needs attention on	aixnode01,aixnode02

Status on aixnode01: WARNING => Etherchannel is not configured for Oracle VIP

DATA FROM aixnode01 FOR ETHERCHANNEL CONFIG FOR VIP

```

-----
ETHERNET STATISTICS (en1) :
Device Type: 2-Port 10/100/1000 Base-TX PCI-X Adapter (14108902)
Hardware Address: 00:1a:64:91:3e:fb
Elapsed Time: 3 days 2 hours 0 minutes 50 seconds

```

Transmit Statistics: Receive Statistics:

```

-----
Packets: 348309653 Packets: 2020992577
Bytes: 83904803755 Bytes: 2829435953075
Interrupts: 0 Interrupts: 361246669
Transmit Errors: 0 Receive Errors: 0
Packets Dropped: 0 Packets Dropped: 0
Bad Packets: 0
Max Packets on S/W Transmit Queue: 39
S/W Transmit Queue Overflow: 0

```

[...More](#)

Status on aixnode02: WARNING => Etherchannel is not configured for Oracle VIP

DATA FROM aixnode02 FOR ETHERCHANNEL CONFIG FOR VIP

```

-----
ETHERNET STATISTICS (en1) :
Device Type: 2-Port 10/100/1000 Base-TX PCI-X Adapter (14108902)
Hardware Address: 00:1a:64:a7:7c:7d
Elapsed Time: 3 days 5 hours 5 minutes 19 seconds

```

Transmit Statistics: Receive Statistics:

```

-----
Packets: 65184880 Packets: 96661967
Bytes: 58379226582 Bytes: 56876615786
Interrupts: 0 Interrupts: 54746383
Transmit Errors: 0 Receive Errors: 0
Packets Dropped: 0 Packets Dropped: 0
Bad Packets: 0
Max Packets on S/W Transmit Queue: 38
S/W Transmit Queue Overflow: 0

```

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AIX process contention scope is not set to systemwide

Success Factor	AIXTHREAD_SCOPE=S FOR AIX IN THE ENVIRONMENT BEFORE STARTING ORACLE
----------------	---

Recommendation	The AIXTHREAD_SCOPE environment variable can be used for control if an AIX process runs with process-wide contention scope (the default) or with system-wide contention scope. System-wide contention scope significantly reduces the memory required for each database process. AIX operates most effectively with Oracle Database and Oracle RAC when using system-wide contention scope
Links	<ul style="list-style-type: none"> • AIXTHREAD_SCOPE setting in the install guide
Needs attention on	aixnode01,aixnode02

Status on aixnode01: WARNING => AIX process contention scope is not set to systemwide

Status on aixnode02: WARNING => AIX process contention scope is not set to systemwide

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Virtual memory parameter "minperm%" is not set to Recommended Value of 3

Success Factor	TUNE AIX VMM FILE SYSTEM CACHE TO AVOID NODE REBOOTS
Recommendation	<p>FOR ORACLE WORKLOADS - Per IBM, paging due to incorrect VMM tuning WILL lead to node reboots. the OS default settings are not optimal for database applications in general or Oracle in particular. the recommended baseline LRU tuning for this type of workload is</p> <pre>minperm%=3, maxperm%=90 maxclient%=90 lru_file_repage=0</pre> <p>Also see Joint Oracle/IBM paper referenced below for the following recommendations: (link attached below)</p> <pre>strict_maxperm=0 strict_maxclient=1 page_steal_method=1</pre> <p>Further tuning may be required based on individual customer environment and workloads. Customer should work with IBM to determine if further tuning in their environment is called for but IBM considers these settings to be optimal for the vast majority of customers. It is much better to use these settings than the OS defaults for Oracle workloads.</p> <p>Command for this is</p> <pre>vmo -p -o lru_file_repage=0 vmo -p -o minperm%=3 -o maxperm%=90 -o maxclient%=90</pre> <p>See Tuning IBM AIX 5.3 and 6.1 for Oracle Database (referenced in links) for further tuning recommendations.</p> <p>To ensure that a 6.1 upgrade that may be planned will not be affected by these settings Required hardware Only 64-bit Common Hardware Reference Platform (CHRP) machines running selected PowerPC 970, POWER4, POWER5, and POWER6 processors that implement the POWER architecture Platform Requirements (PAPR) are supported.</p> <p>To see if you have a supported machine, log into the machine as the root user, and run the following command:</p> <pre>prtconf grep 'Processor Type'</pre> <p>Note: RS64, POWER3, and 604 processors, 32-bit kernel, 32-bit kernel extensions, and 32-bit device drivers are no longer supported.</p> <p>Note: Page 8 and page 9 of the referenced document AIX Configuration & Tuning for Oracle DB has a diagram showing how VMM parameters work.</p>
Links	<ul style="list-style-type: none"> • VMM Page Replacement Tuning • Virtual Memory Mgmt -Tuning Parameter: lru_file_repage (PDF) • Optimizing AIX 5L performance: Tuning your memory settings • Note: 811293.1 - RAC Starter Kit (AIX) -
Needs attention on	aixnode01,aixnode02

Status on aixnode01: WARNING => Virtual memory parameter "minperm%" is not set to Recommended Value of 3
 DATA FROM aixnode01 FOR VIRTUAL MEMORY TUNABLE PARAMETERS

Status on aixnode02: WARNING => Virtual memory parameter "minperm%" is not set to Recommended Value of 3
 DATA FROM aixnode02 FOR VIRTUAL MEMORY TUNABLE PARAMETERS

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LMS is not running with correct scheduling policy

Success Factor	MAKE SURE LMS , OCSSD AND VKTM PROCESSES GET SUFFICIENT CPU
Recommendation	<p>Make sure LMS and OCSSD processes get sufficient CPU resources. "Do not run system at 100% CPU utilization for extended time. Change OS scheduling priorities, if required. Linux: renice or sched_setscheduler()" "Performance and stability - avoid 'false node evictions'." Also from version 10.2.0.2 LMS's are automatically reniced and for CSS one can use "realtime" set using crsctl. Also from 11g , 11.1.0.6 there is another process called VKTM which is also realtime and so is oproc'd by default. The bottom line is ensure the system is not bottlenecked on CPU otherwise the system might reboot for lack of resources . VKTM is a timekeeper process to ensure a more reliable implementation for gettimeofday(). Systems with CPU bottlenecks are known to perform bad and cause possible evictions. The processes need to run in realtime to allow for the proper functioning of the cluster</p> <p>In order to run CSSD in real time mode:</p> <p>Update to 10.2.0.3, with 10.2.0.3 CRS Bundle Patch #1, and run the CSSD in realtime by executing: (as root on a node with the clusterware stack running)</p> <pre>crsctl set css priority 4</pre> <p>When the stack is restarted after this command is executed, the CSSD will be running realtime and the scheduling problem will not occur. Note that realtime for the CSSD is not supported in 10.2.0.2.</p> <p>For case study of why this recommendation is important see Bug 6817824 and SR 6932352.993</p>
Needs attention on	aixnode01

Status on aixnode01: WARNING => LMS is not running with correct scheduling policy

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One or more disks found which are not part of any disk group.

Success Factor	SQL DATA COLLECTIONS AND CHECKS
Recommendation	<p>The GROUP_NUMBER and DISK_NUMBER columns in V\$ASM_DISK will only be valid if the disk is part of a disk group which is currently mounted by the instance. Otherwise, GROUP_NUMBER will be 0, and DISK_NUMBER will be a unique value with respect to the other disks that also have a group number of 0. Run following query to find out the disks which are not part of any disk group.</p> <pre>select name,path,HEADER_STATUS,GROUP_NUMBER from v\$asm_disk where group_number=0;</pre>
Needs attention on	DB11G

Status on DB11G: INFO => One or more disks found which are not part of any disk group.
 DATA FOR DB11G FOR DISKS WITHOUT DISK_GROUP

```

/dev/ASM_DSK07_STG_DS8000
/dev/ASM_DSK06_STG_DS8000
/dev/ASM_DSK05_STG_DS8000
/dev/ASM_DSK04_STG_DS8000
/dev/ASM_DSK03_STG_DS8000
/dev/ASM_DSK02_STG_DS8000
/dev/ASM_DSK01_STG_DS8000
/dev/OCR_VOTE_STG_DS8000
/dev/OCR_VOTE_DS5020
/dev/OCR_TMP01
/dev/OCR_TMP02
/dev/OCR_MIRROR_TMP02
/dev/OCR_MIRROR_TMP01

```

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Some tablespaces do not have allocation type as SYSTEM

Success Factor	SQL DATA COLLECTIONS AND CHECKS
Recommendation	It is recommended that for all locally managed tablespaces the allocation type specified be SYSTEM to allow Oracle to automatically determine extent size based on the data profile.
Links	<ul style="list-style-type: none"> Note: 847951.1 - How to Change Extent Management of a Tablespace from Uniform Size to Autoallocate -
Needs attention on	DB11G

Status on DB11G: INFO => Some tablespaces do not have allocation type as SYSTEM

```
DATA FOR DB11G FOR TABLESPACE ALLOCATION TYPE
```

```

NFETAB UNIFORM
NFEINDX UNIFORM

```

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\$CRS_HOME/log/hostname/client directory has too many older log files.

Success Factor	LINUX DATA COLLECTIONS AND AUDIT CHECKS
Recommendation	Having many old log files in \$CRS_HOME/log/hostname/client directory can cause CRS performance issue. So please delete log files older than 15 days.
Needs attention on	aixnode01,aixnode02

Status on aixnode01: INFO => \$CRS_HOME/log/hostname/client directory has too many older log files.

```
DATA FROM aixnode01 FOR OLD LOG FILES IN CLIENT DIRECTORY IN CRS_HOME
```

```
16
```

Status on aixnode02: INFO => \$CRS_HOME/log/hostname/client directory has too many older log files.

```
DATA FROM aixnode02 FOR OLD LOG FILES IN CLIENT DIRECTORY IN CRS_HOME
```

```
0
```