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OraChk

DB-configuration-check and -management

#ittage





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- Principal Consultant, Trivadis, Düsseldorf
- Oracle since 1990: Development, Support, DBA
- Focus: RAC, HA, Upgrade + Migration
- Teacher: RAC, New Features, Multitenant, **PostgreSQL**
- Co-Author of the book "Der Oracle DBA" (Hanser, 2016)



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FOUNDED IN 1994

250 SLA'S (SERVICE LEVEL AGREEMENTS)





4000 TRAINING PARTICIPANTS PER YEAR







1900 PER PROJECTS

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- What's OraChk?
- Availability & Installation
- Configuration Check
- MAA Check
- Collection Manager
- Add your own checks
- Summary & Further Information

What's OraChk?





- Available since July 2011
- Current version 19.3.2 (November 2019)
- Formerly known as "RACCheck"
- Supported on Unix, Linux and Windows
- Checks your installation against more than 1.300 Oracle Best Practices
 - Audit_Checks_Report_Orachk.html contains a list of all checks
- Additional user defined checks are possible
- ExaChk is a similar tool for Exadata
- Python based





- Oracle Engineered Systems
- Oracle Database Appliance
- Oracle ASR
- Oracle Database
 - Single-instance Oracle Database
 - Oracle Grid Infrastructure and Oracle RAC
 - Maximum Availability Architecture (MAA) validation
 - Upgrade Readiness validation
 - Oracle GoldenGate
 - Application Continuity
- Enterprise Manager Cloud Control (12c only)
- Oracle Identity and Access Management
- Oracle Hardware Systems
- Oracle Siebel
- Oracle PeopleSoft

Demo

(show list of predefined checks)
ORAchk_Health_Check_Catalog.html





Oracle ORAchk Assessment Report

System Health Score is 88 out of 100 (detail)

Summary

OS/Kernel Version	LINUX X86-64 OELRHEL 7 4.14.35-1902.7.3.1.el7uek.x86_64
DB Home - Version - Names	/u00/app/oracle/product/19.0.0.0 - 19.0.0.0.0 - <u>3</u> databases
Database Server	ittage
ORAchk Version	19.2.0_20190717
Collection	orachk ittage PITTAGE2 112719 224034

Duration

Executed by

Arguments

Collection Date

Database Server

	Status	Type	Message	Status On	Deta ils
(CRITICAL	OS Check	Operating system hugepages count does not satisfy total SGA requirements	All Database Servers	<u>View</u>
	CRITICAL	OS Check	Temporary location is not configured for auto cleanup	All Database Servers	View
	FAIL	SQL Check	Table AUD\$[FGA_LOG\$] should use Automatic Segment Space Management	All Databases	<u>View</u>





Status	Type	Message	Status On	Details		
CRITICAL OS Check		Operating system hugepages count does not satisfy total SGA requirements	All Database Servers	<u>Hide</u>		
		Verify operating system hugepages count satisfies total SGA requirem	ents			
	Prope datak effic The i equal impac	erly configuring operating system hugepages on Linux and using the case initialization parameter "use_large_pages" to "only" results in more reient use of memory and reduced paging. Impact of validating that the total current hugepages are greater than or to estimated requirements for all currently active SGAs is minimal. The corrective actions will vary depending on the specific guration, and may require a reboot of the database server.				
	setti that	risk of not correctly configuring operating system hugepages in advance of the database initialization parameter "use_large_pages" to "only" is if not enough huge pages are configured, some databases will not start you have set the parameter.	f			
Recommen	Actio	on / Repair: requisite: All database instances that are supposed to run concurrently cabase server must be up and running for this check to be accurate.	'n			
NOTE: Please refer to below referenced My Oracle Support notes for additional details on configuring hugepages.						

Availability & Installation

Availability



- OraChk is available
 - As part of an RDBMS software installation (\$ORACLE_HOME/suptools/orachk)
 - As part of an GI software installation (\$GI_HOME/suptools/orachk)
 - As part of the "Autonomous Health Framework" (AHF) since October 2019
- OraChk was available
 - As standalone download
 - As part of the "Support Tools Bundle" (delivered with TFA)

Now included in AHF

- Current version:
 - 19.3.2 (as part of AHF)
 - 19.2.0_20190717 (when upgrading the "RDBMS orachk")
 no higher version available





Upgrade (when part of the RDBMS-SW)

When started, OraChk checks its age and can install (and even download) a new version

```
oracle@ittage:/u00/app/oracle/product/19.0.0.0/suptools/orachk/ [rdbms19000] ./orachk Running orachk [..]

This version of orachk was released on 29-Nov-2018 and its older than 180 days. No new version of orachk is available in RAT_UPGRADE_LOC. It is highly recommended that you download the latest version of orachk from my oracle support to ensure the highest level of accuracy of the data contained within the report.

Do you want to download latest version from my oracle support? [y/n] [y] y

Enter your my oracle support username:- markus.flechtner@trivadis.com
Enter your my oracle support password:-
Started downloading...

orachk.zip is successfully downloaded to /u00/app/oracle/orachk//orachk_112719_224034/location!

Do you want to upgrade to the latest version of orachk? [y/n][y]

[...]
```

Installation (AHF) (1)



Separate talk

- Autonomous Health Framework (AHF) consists of
 - OraChk
 - TFA + Support Tools Bundle
 - Its own JRE (for TFA)

Why?

- Install complete Autonomous Health Framework (about 1 GB diskspace required)
 - Installation as root recommended

```
root# ./ahf_setup
```

Install OraChk only

Oracle> ./ahf_setup -extract orachk





- During the installation you have to specify
 - The location of the AHF software (\$AHF_HOME, default /opt/oracle.ahf)
 - The location of the results (reports etc.) 5 GB free disk space required
- Executables in \$AHF_HOME/bin:

```
root@ittage:/opt/oracle.ahf/bin/ [rdbms19000] ls -al
total 8
drwxr-xr-x. 2 root root 34 Nov 27 23:46 .
drwxr-xr-x. 11 root root 4096 Nov 27 23:46 ..
lrwxrwxrwx. 1 root root 29 Nov 27 23:46 orachk ->
/opt/oracle.ahf/orachk/orachk
-rwxr-xr-x. 1 root root 3296 Nov 27 23:46 tfactl
```



Daemon Mode (1)

Orachk can run in "daemon mode" and can perform regular checks automatically

```
root@ittage:/opt/oracle.ahf/bin/ [rdbms19000] ./orachk -d -h
        -\mathbf{d}
                    Used for daemon related options.
                 Eq:
                   ./orachk -d start
                                            : Starts the daemon
                   ./orachk -d stop
                                           : Stops the daemon
                  ./orachk -d info
                                            : Displays details about the
daemon. [...]
                   ./orachk -d stop client : Forces a running daemon
client to stop.
                   ./orachk -d nextautorun
                                           : Displays details about when
the next scheduled automatic run occurs.
                   ./orachk -d status
                                            : Checks the current status
[\ldots]
```



Daemon Mode (2) - Example

```
root@ittage:/opt/oracle.ahf/bin/ [rdbms19000] ./orachk -d start
This computer is for [S]ingle instance database or part of a [C]luster to
run RAC database [S|C] [C]: S
[ ... perform a "manual run" for daemon configuration]
orachk daemon is started with PID: 4104
Daemon log file location is :
/opt/oracle.ahf/data/ittage/orachk/orachk daemon.log
root@ittage:/opt/oracle.ahf/bin/ [rdbms19000] ./orachk -d status
orachk daemon is running. Daemon PID: 4104
root@ittage:/opt/oracle.ahf/bin/ [rdbms19000] ps -af |grep 4104
root
          4104
                   1 1 08:24 pts/0
                                       00:00:08
/opt/oracle.ahf/python/bin/python /opt/oracle.ahf/orachk/orachk.pyc -
start scheduler -scheduler daemon 1
```



Daemon Mode (3) – Define Schedule

- Among other settings, the schedule for the automated checks can be specified with a crontab-like syntax
- Format:
 - Minute
 - Hour
 - Day
 - Month
 - Day of Week
- Example: (2 AM every Saturday)

```
root@ittage:/ ./orachk -set "AUTORUN SCHEDULE=0 2 * * 6"
```

Configuration Check





- Running as "root" recommended,
- "oracle" cannot perform all checks

root@ittage:/ho	me/oracle/ [rdbms19000	/opt/ora	cle.ah	f/bin/orach	k			
This computer i	s for [S]ing	le instance	e database	or pa	rt of a [C]	luster to ru	ın RAC da	tabase [S C	[C]: s
List of running 1. CITTAGE 2. None of above									
Select databases from list for checking best practices. For multiple databases, select 1 for All or comma separated number like 1,2 etc [1-2][1]. 1						l or			
Checking Status									
				Orac	le Stack Sta	atus			
Host Name Instance Name	CRS Insta				Installed	CRS UP	ASM UP		DB
ittage CITTAGE		No	No		Yes	No	No	Yes	



Run a Manual Check (2)

```
ſ...1
Collecting - Database Parameters for CITTAGE database
Collecting - Database Undocumented Parameters for CITTAGE database
Collecting - RDBMS Feature Usage for CITTAGE database
Collecting - CPU Information
Collecting - Disk I/O Scheduler on Linux
Collecting - DiskMount Information
Collecting - Kernel parameters
Collecting - Maximum number of semaphore sets on system
Collecting - Maximum number of semaphores on system
Collecting - Maximum number of semaphores per semaphore set
Collecting - Memory Information
Collecting - OS Packages
Collecting - Operating system release information and kernel version
Collecting - Patches for RDBMS Home
Collecting - Table of file system defaults
Collecting - number of semaphore operations per semop system call
Collecting - Disk Information
Collecting - ORAchk Daemon/Scheduler configuration
Collecting - Root user limits
Collecting - Verify no database server kernel out of memory errors
ſ...1
```

Run a Manual Check (3)



```
Data collections completed. Checking best practices on ittage.
_____
INFO =>
            Most recent ADR incidents for /u00/app/oracle/product/19.0.0.0
INFO =>
            Oracle GoldenGate failure prevention best practices
            ORAchk Daemon/Scheduler is not configured correctly
            Temporary location is not configured for auto cleanup
            One or more redo log groups are not multiplexed for CITTAGE
            Primary database is not protected with Data Guard (standby database) for real-time data protection and
availability for CITTAGE
            Important Storage Minimum Requirements for Grid & Database Homes
CRITICAL => Operating system hugepages count does not satisfy total SGA requirements
            Database parameter DB_LOST_WRITE_PROTECT is not set to recommended value on CITTAGE instance
            umask for RDBMS owner is not set to 0022
 INF0 \Rightarrow
 WARNING =>
            Database parameter DB_BLOCK_CHECKING on PRIMARY is NOT set to the recommended value. for CITTAGE
 INFO =>
            Operational Best Practices
INFO =>
            Database Consolidation Best Practices
INFO =>
            Computer failure prevention best practices
INFO =>
            Data corruption prevention best practices
INFO =>
            Logical corruption prevention best practices
INFO =>
            Database/Cluster/Site failure prevention best practices
INFO =>
            Client failover operational best practices
            Oracle clusterware is not being used
            RAC Application Cluster is not being used for database high availability on CITTAGE instance
 /ARNING =>
            DISK_ASYNCH_IO is NOT set to recommended value for CITTAGE
            Table AUD$[FGA_LOG$] should use Automatic Seament Space Management for CITTAGE
            Table AUD$[FGA_LOG$] should use Automatic Segment Space Management for PITTAGE1
            Table AUD$[FGA_LOG$] should use Automatic Segment Space Management for PITTAGE2
```

Demo

(show result of OraChk) orachk_ittage_PITTAGE2_112719_224034.html



Parameter	meaning
-a	run all checks
-m	Disable MAA checks
-preupgrade / -postupgrade	Run pre-/post upgrade checks (use additional "-t" to specify the target version)
-b	Best-Practices Checks only, no patch recommendations
-р	Patch recommendations only
-dball -dbnames	run checks for all databases run check for a specific database
-diff	compare two orachk reports
-profile	choose the component you want to check "asm, dba, goldengate," and more

Collection Manager





- ORAchk results can be stored in a repository database
- Collection Manager is a GUI for the repository database
- APEX 5 (or higher) application
- "Apex5_CollectionManager_App.sql" is included with OraChk to install the APEX application
- The database running Collection Manager must be licensed
- But you can use Oracle XE (Oracle Database 18c Express Edition)





- Status Overview for all databases
- Compare different databases
- Compare different OraChk runs of a single database
- Create additional checks
- Define profiles (= customized set of checks)
- Create incidents (i.e. tasks resulting on OraChk results)

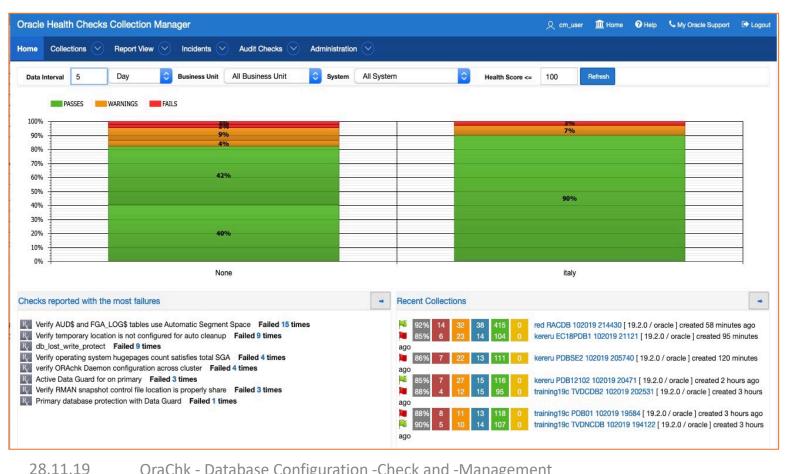


Configure Database Upload for OraChk

```
oracle@ittage:/u00/app/oracle/ ./orachk -setdbupload all
Running orachk
                            : /u00/app/oracle/product/19.0.0.0/suptools/orachk
PATH
                          : 19.2.0_20190717
VERSION
COLLECTIONS DATA LOCATION : /u00/app/oracle/orachk/
Enter value for RAT UPLOAD CONNECT STRING: 192.168.1.113:1521/apexpdb
Enter value for RAT UPLOAD PASSWORD: *****
Database upload parameters successfully stored in orachk wallet. Run will keep
uploading the collections in database until it is unset using ./orachk -unsetdbupload
all/<env variable name>
oracle@ittage:/u00/app/oracle/ [CITTAGE] ./orachk -checkdbupload
Running orachk
                            : /u00/app/oracle/product/19.0.0.0/suptools/orachk
PATH
VERSION
                          : 19.2.0 20190717
COLLECTIONS DATA LOCATION : /u00/app/oracle/orachk/
Configuration is good to upload result to database.
```



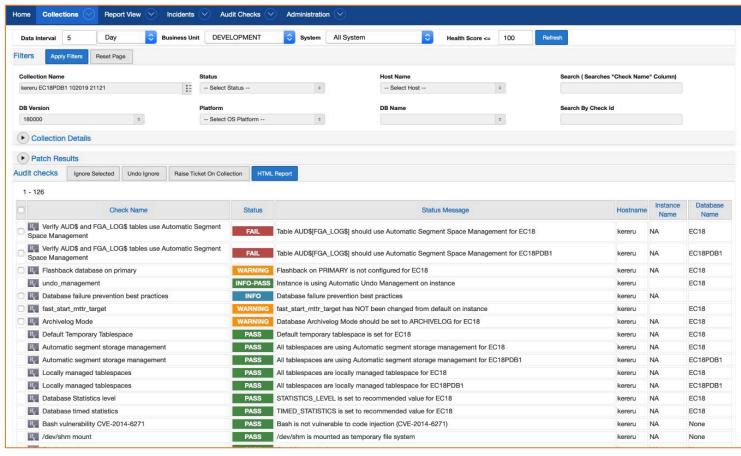
Collection Manager – Screenshots (1)



OraChk - Database Configuration - Check and - Management



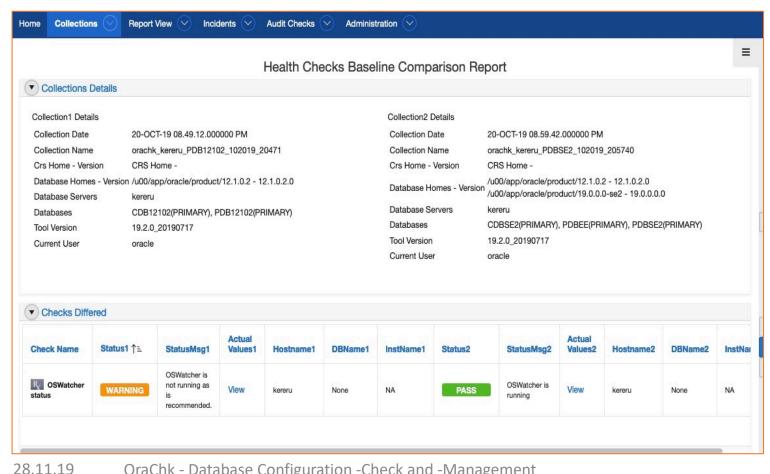
Collection Manager - Screenshots (2)



OraChk - Database Configuration -Check and -Management



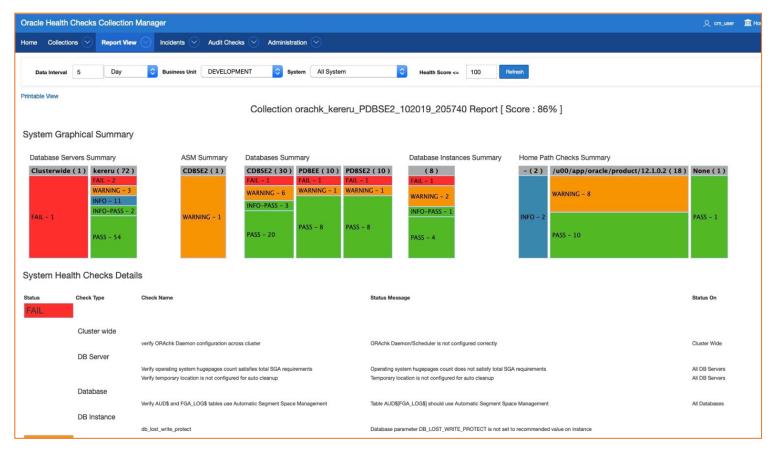
Collection Manager – Screenshots (3)



OraChk - Database Configuration - Check and - Management



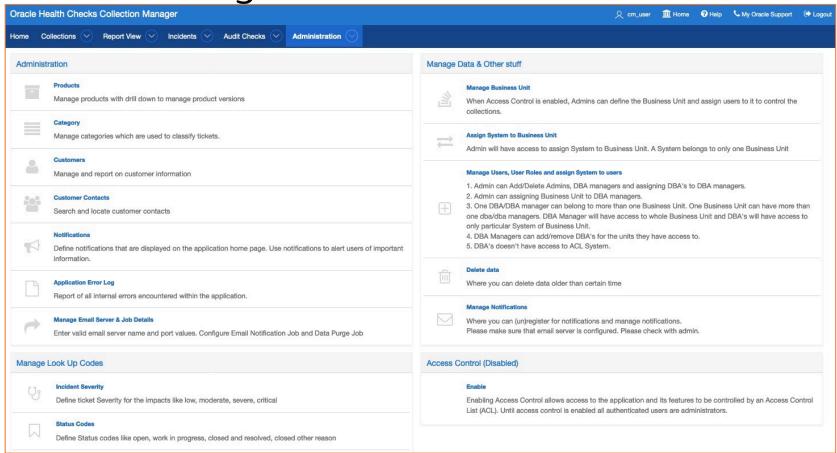
Collection Manager – Screenshots (4)



OraChk - Database Configuration -Check and -Management



Collection Manager – Administration



OraChk - Database Configuration -Check and -Management

Add your own checks

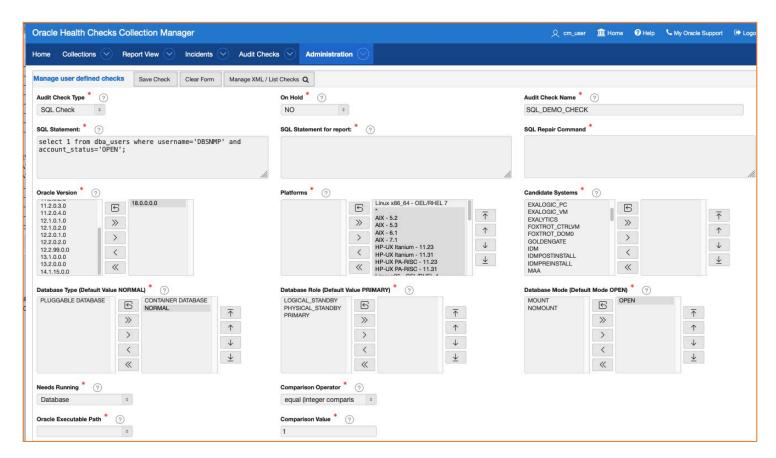


Additional Checks for OraChk (1)

- You can configure the checks
 - Disable Checks
 - Add your own checks to OraChk
- But modifying existing checks (e.g. changing thresholds) is not possible
- Collection Manager is the easiest way to do so
- After defining new checks you have to download ""user_defined_checks.xml" and to distribute it to the servers
- Run "orachk –profile user_defined_checks" to restrict OraChk on your own checks



Additional Checks for OraChk (2)



OraChk - Database Configuration -Check and -Management

Summary & Further Information

Summary



- Helpful tool for checking your Oracle configuration
- + Don't take every check for relevant
- + Don't expect your systems to achieve "100 of 100 points"
- + Collection Manager
 - + Simple configuration management/monitoring
 - + Basic "ticket system"
- Orachk once was a cute, small and efficient tool but, ...
- Very dynamic
 - Between October and December 3 versions (AHF 19.3.0, 19.3.1 and 19.3.2) were released
- Very confusing

- Different ways to install the tool and to keep it up to date
- Orachk is delivered with the RDBMS software but not upgraded with Rus
- "RDBMS OraChk" seems to be a dead end

Further Information



- MOS-Notes
 - ORAchk Health Checks for the Oracle Stack (Doc ID 1268927.2)
 - Oracle Exadata Database Machine EXAchk or HealthCheck (Doc ID 1070954.1)
 - ORAchk Upgrade Readiness Assessment (Doc ID 1457357.1)
 - How to Install ORAchk on Windows (Doc ID 2414394.1)
 - Autonomous Health Framework (AHF) Including TFA and ORAchk/EXAChk (Doc ID 2550798.1)
- Documentation
 - https://docs.oracle.com/en/engineered-systems/health-diagnostics/autonomous-health-framework/
- Article
 - https://www.informatik-aktuell.de/betrieb/datenbanken/oracle-orachkkonfigurationspruefung-und-management.html

Questions & Answers

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