ORAchk & EXAchk Version History

This document provides the history of new features and issues fixed for prior versions of ORAchk & EXAchk.

It contains the following sections:

New Features

Enhanced Elastic Stack integration

The existing ORAchk & EXAchk integration with the Elastic Stack (previously called ELK stack) has been enhanced.

Many new field tags have been added to the ORAchk & EXAchk JSON output.

The extra tags allow dashboard filtering based on facts such as:

- Engineered System type
- Engineered System version
- Hardware type
- Node name
- OS version
- Rack identifier
- Rack type
- Database version
- And more...

The Kibana dashboard can be used to view health check compliance across the data center.

Now with these new field tags results can also be filtered based on any combination of exposed system attributes.

Collection Manager health score filtering

A new filter has been added to the Collection Manager:

Health Score <= | **?** |

This allows results to be filtered to only show collections where the health score is less than or equal to the value specified.

The default value of the filter is 100, so will show all collections initially.

A number of other existing Collection Manager field labels have been renamed for ease of use.

Oracle Platinum Services supports Oracle Auto Service Request for qualified OEM fault events

EXAchk will now check the Oracle Platinum Services monitoring agent, the monitoring user, monitored databases, and their diagnostic directories.

This helps to ensure quality of Oracle Platinum Services monitoring and that relevant diagnostics can be supplied for faster fault resolution.

Fixed issues

As well as new features the following issues have been fixed:

ORAchk

- Bug 24953218 - collection manager bug for analytics link
- Bug 24953197 - collection manager bug for sr 3-12949957451
- Bug 24939171 - collection manager bug for sr 3-13492469611
- Bug 24908065 - overriding temporary directory using rat_tmpdir is not working
- Bug 24731460 - check for invalid registry component check displays removed components
- Bug 23576880 - empty check definition in the exachk_exa_metadata.xml file
- Bug 23567310 - improper categorization of exadatatypes in summary tag - name is empty
- Bug 23566749 - older/lesser check defintion version was provided in the exachk_exa_metadata.xml
- Bug 23339640 - orachk need to verify asm and db cluster_interconnects setting

Oracle Database Appliance:

- Bug 21767879 - lnx64-121-cmt: orachk hit fail: db_unique_name on primary has not been modified
- Bug 25074705 - lnx64-121-cmt: orachk returns warning: pga is more than available memory
- Bug 25208369 - add ability to filter health checks in catalog for oracle database appliance

EXAchk

Exadata Cloud Service/Exadata:

- Bug 25217138 - er: modify "crs_limit_nproc" for pass/fail only, no warning level
- Bug 25181001 - "verify the database server infiniband network" fails on ovm pkey env
- Bug 25144261 - er: add "verify downdelay attributes for bonded client interfaces"
- Bug 25143338 - er: add "verify flex asm cardinality is set to "all"
- Bug 25071779 - er: modify "verify the percent of available celldisk ... griddisks"
- Bug 25063982 - er: add "verify no oracle enterprise linux 5 (el5) rpms exist.."
- Bug 24830563 - er: add "verify installed kernel version matches expected version..."
- Bug 23731535 - exachk compatible.advm check incorrect for linux on sparc
- Bug 23731500 - exachk: parallel_threads_per_cpu setting identified incorrect for los
- Bug 23731272 - required huge page calculation exachk wrong for linux on sparc
- Bug 23702523 - /root/.exachk/root_exachk.sh: line 688: /opt/ipmitool/bin/ipmitool: no such file
- Bug 23702319 - exachk to use exadata.img.hw --get model instead of dmidecode for linux on sparc
- Bug 23702178 - exachk to use /var/opt/oracle/orainst.loc for oracle_home detection
- Bug 25178441 - er: modify two 12.1.0.x db initialization parameters
- Bug 25176966 - er: doc: modify "check for ports disabled due to excessive symbol errors"
- Bug 25171989 - exacs: eth0: error fetching interface information: device not found
- Bug 25171266 - exacs: quorum disk check not run
- Bug 25144079 - er: modify "database initialization parameters" checks/tables for 12.2.1.0
- Bug 25143962 - er: modify "asm initialization parameters" checks/tables for 12.2.1.0

- Bug 25143408 - er: modify "hidden database parameters" check for 12.2.0.1+

- Bug 25116758 - revise check for exadata critical issue ex25 (mos note 1270094.1)

- Bug 25116677 - revise check for exadata critical issue ex29 (mos note 1270094.1)

- Bug 25106320 - add to infrastructure software and configuration summary

- Bug 25079669 - add check for exadata critical issue ex30 (mos note 1270094.1)

- Bug 25073503 - add check for exadata critical issue ex22 (mos note 1270094.1)

- Bug 25049405 - ecc memory check incorrectly picks up temperature sensor

- Bug 25036719 - "validate key sysctl.conf parameters..." false fail in user domain

- Bug 25036461 - add check for exadata critical issue ex32 (mos note 1270094.1)

- Bug 24965316 - add check for exadata critical issue ex31 (mos note 1270094.1)

- Bug 24958292 - er: add "verify storage server user "celldiag" exists"

- Bug 24835440 - er: add ""localhost" alias is pingable" for ssc switches, cells

- Bug 24835418 - er: stop "percent of available celldisk space used..." on ssc

- Bug 24804479 - er: add check /exavmimages on dom0s for possible over allocation by sparse files

- Bug 24752658 - latest exachk_12_2_0_1_1_20160916 giving errors when run on paas exadata

- Bug 24744063 - er: doc: add "-nolog" qualifier to all megacli64 check rationales/ wiki entries

- Bug 24744019 - er: add "-nolog" to any megacli command in the exachk framework / scripts

- Bug 23308685 - add check for exadata critical issue db36 (mos note 1270094.1)

- Bug 21051745 - add platinum monitoring automation checks for oracle agent and diag directories

Oracle Cloud Machine/Exalogic:

- Bug 24683236 - exachk stale vnics check report missing

- Bug 25129237 - exachk nm2 switch space check accommodate for fw v2.2.2-7

- Bug 24942732 - exachk reporting ibrt related errors for compute node 1

- Bug 24533101 - zfssa space usage check report error

- Bug 24807714 - exachk reports ib card is not installed in the correct slot

SuperCluster/MiniCluster:

- Bug 25131860 - o_root_clusterwide_check_master_serial_number file not generated by exachk

- Bug 24791790 - exachk on minicluster opens a sudo account which breaks integrity of minicluster

- Bug 20441520 - please add "uid length of gi owner" for supercluster as well

- Bug 20441146 - please add "session failover configuration" check for supercluster

- Bug 20441040 - please add "verify all redo log files are of same size" for supercluster

- Bug 20165423 - please add "verify service exachkcfg autostart status on storage server" for ssc

Exalytics:

- None

Big Data Cloud Services:

- Bug 25030478 - add exachk support for big data cloud service

Zero Data Loss Recovery Appliance:

- Bug 25254512 - please remove database parameter _parallel_adaptive_max_users from zdlra checks

New Features for both ORAchk and EXAchk

Easier to Use & Upgrade Oracle Health Checks Collection Manager

The Oracle Health Checks Collection Manager has a new easier to navigate interface, based on the Oracle Application Express (APEX) 5 theme. This new interface is only available if you have APEX 5 installed on your database. ORAchk and EXAchk continue to include the APEX 4 based Collection Manager app, however all new functionality in new releases will only go into the APEX 5 Collection Manager app.

The Collection Manager can now be upgraded from the ORAchk or EXAchk tool. It will be upgraded to the latest version of whichever app your database can support. If you have APEX 5, you will get the new theme interface.

Run the following command to upgrade Oracle Health Checks Collection Manager:

```
./orachk –cmupgrade
```

or

```
./exachk –cmupgrade
```

If the Collection Manager schema changes in the future and ORAchk/EXAchk requires a Collection Manager upgrade, it will automatically prompt you to upgrade.

During upgrade the Collection Manager is offline and unavailable to receive new collections. Any collections which failed to upload during upgrade can be re-uploaded by viewing and reattempting failed uploads.

If you are installing the Collection Manager for the first time this has to be done via the APEX workspace. Use whichever Collection Manager sql script is applicable for the version of APEX you are using:

- APEX 4.x: *CollectionManager_App.sql*
- APEX 5.x: *Apex5_CollectionManager_App.sql*

All collection reports can now be sorted by any column, no matter which APEX version you have, making it easier to analyze results.

The Purge job feature has been improved to help housekeeping of old collection data. Purge now runs daily, removing data older than three months, where previously it only used to purge every 3 months.

Bulk mapping of business units is now easier as Collection Manager will automatically create any new business units found in the uploaded XML mapping file, which don't already exist.

More Flexibility for Running Root Privileged Checks

A large number of the Oracle Stack Health Checks don't require root access, however a subset need to run with root privileges.

The script used to execute these root privilege checks is *root_orachk.sh* or *root_exachk.sh*, depending on the tool you're using. This root script will be created in the temporary directory used by ORAchk/EXAchk, which is $HOME by default and can be changed by setting exporting *RAT_TMPDIR*.

There may be times when you want to place the root script in a different location from the temporary directory, for either security or convenience reasons.

You can now choose to have the root script created outside of the standard temporary directory, in a custom directory you set via the *RAT_ROOT_SH_DIR* environment variable:

```
export RAT_ROOT_SH_DIR=/orahome/oradb/
```

You can use a specific location for sudo remote access, like this:

```
export RAT_ROOT_SH_DIR=/mylocation
```
Then the entry in the /etc/sudoers:

```
oracle ALL=(root) NOPASSWD:/mylocation/root_orachk.sh
```

New ORAchk Specific Features

Support for AIX 7.2
With this release, ORAchk adds support for the latest version of IBM AIX 7.2 (in addition to existing support for versions 5.2, 5.3, 6.1 and 7.1)

Support for New Oracle Database Appliances
ORAchk already has support for the existing Oracle Database Appliance HA; this release adds support for new Oracle Database Appliances Small and Medium.

New EXAchk Specific Features

Support for Newest Engineered Systems
EXAchk now extends support to include some of the newest Oracle Engineered Systems and their Software:

- Oracle MiniCluster – The latest addition to the Oracle Super Cluster family of Engineered Systems
- Oracle Exalytics Software release 2.0 – The latest software release for the Oracle Exalytics In-Memory Machine

EXAchk on SuperCluster - Support for Role Based Access Control
When running EXAchk on Oracle SuperCluster you can now use Role Based Access Control (RBAC) to execute root privileged checks without requiring a root user.

Simply ensure you run the root checks as a user with a root equivalent access role.

EXAchk on Exadata – Still Send Email When Unable to Send from Storage Cells
If the Exadata storage cells are unable to send email, you can use the *-usecompute* option to send the email from the database server instead.

For example:

```
./exachk -testemail
"NOTIFICATION_EMAIL=some.person@acompany.com,another.person@acompany.com" -usecompute
```

or

```
./exachk -sendemail
"NOTIFICATION_EMAIL=some.person@acompany.com,another.person@acompany.com" -usecompute
```

New Oracle Stack Health Checks

New Health Checks have been added across the Oracle stack, including checks for Database & RAC for both existing versions and 12.2 upgrade readiness, Oracle Exadata and Oracle Exalogic.

To see new checks for specific systems see the ORAchk Health Check Catalog and EXAchk Health Check Catalog.

Fixed Issues

As well as new features and Health Checks, the following issues have been fixed:

ORAchk

- bug 17210454 [11204-lin64-130721]nls:raccheck fails when check tmp space of remote node
- bug 17227174 aix-11204: raccheck 2.2.2 not well formatted text in readme.txt
- bug 17227325 aix-11204: raccheck 2.2.2 should change all txt files to unix format
- bug 17227451 [11204-lin64-130721]doc:raccheck readme maa usage is wrong
- bug 17280745 [11204-lin64-130802]raccheck:illegal octal digit '8' at -e line 1
- bug 17882151 lnx64-12.1-raccheck:misjudge number of scan listeners
- bug 17882201 lnx64-12.1-raccheck:failed to check multiple databases
- bug 18402802 tracking bug for merging transaction into 12102
- bug 18437620 tracking bug for orachk 12102 checkin
- bug 18493883 solsp-12.1-racchck: asm home is around but show "no"
- bug 18618697 lnx64-12102-orachk: incorrect ocr is not being backed up daily
- bug 18618703 lnx64-12.1-utl-orachk: er to move orachk result log location under adrbase
- bug 18618840 lnx64-12102-orachk: hit 'rm: cannot remove `/dev/null': permission denied'
- bug 18619026 lnx64-12.1-utl-orachk: incorrect path location for detailed orachk output log
- bug 18675977 lnx64-12.1-orachk: add suport for 12.1.0.2 as target version
- bug 18788862 solsp-12.1-utl-orachk: 'awk...too long' warning message from orachk check output
- bug 18841436 lnx64-12.1-orachk:no info in the report when orachk use asm profile
- bug 18945565 lnx64-12.1-orachk:failed to run orachk after delete instance from a node
- bug 19000928 lnx64-12.1-orachk:failed to run orachk profile asm w/o rdbms binaries
- bug 19074361 solsp-12.1-utl-orachk:orachk use an illegal option '-e' for grep in solaris
- bug 19435672 lnx64-12.2-orachk: some criteria of checking items are inconsistent
- bug 21674005 orachk reporting duplicate objects were found
- bug 22267177 change cell configurations title to zfs appliance configurations
- bug 22394493 warning => system disk group does not have enough free space to create mgmt db

- bug 23037174 need ability to create health check catalog for exachk interim releases
- bug 23289373 lnx64-12.2-orachk:no collections.dat in has shiphome
- bug 23290375 lnx64-12.2-orachk:hit unrelated steps after -fileattr check finished
- bug 23511917 lnx64-12.2-orachk:orachk not check pre-upgrade to 12.2
- bug 23515367 lnx64-12.2-orachk:retry doesn't work after fix space issue on rat_tmpdir
- bug 23534818 integration of dbsat into orachk
- bug 23558132 orachk for upgrade to check whether 12382627 is applied
- bug 23568307 12.2linx64: zero byte size files in grid home suptools component
- bug 23585932 provide way to specify static location for root_orachk.sh outside of rat_tmpdir
- bug 23594932 alvl environment variable not working as intended
- bug 23759919 provide orachk support for aix 7.2
- bug 23857517 add check for log writer parameter setting for 12.1.0.2 aix customers
- bug 24450768 validate number of user assigned to oinstall group
- bug 24491523 orachk aborts when posixly_correct is set
- bug 24514882 orachk for upgrade to check length of asm diskgroup name
- bug 24523330 running 12.2 pre upgrade utility for 12.1.0.2 target version
- bug 24563675 orachk false warning: hugepages are not being used by database
- bug 24563681 reference to plain-text password "welcome1" in few of the files owned by tfa
- bug 24582031 orachk not handling patch recommendations correctly

EXAchk

Exadata:

- bug 18468843 x2-2 wrong or misleading (arp) is not configured properly failure
- bug 22070217 exachk run does not send mail
- bug 22758290 x6 memory size incorrect in infrastructure software and configuration summary
- bug 23023076 exachk daemon does not send email
- bug 23058166 the exachk daemon email notification functionality does not send the final html
- bug 23594014 er: modify 12.1.0.x "processes" parameter check
- bug 23607297 er: time total in collections summary should match watchdog.log if killed
- bug 23642701 cleanup routine from second exachk launch destroys first running exachk
- bug 23745416 many checks not executed due to "components mismatch"
- bug 23755150 er: modify control_files check to reflect altered 12.1.0.x bp guidance
- bug 24341954 add check for exadata critical issue ex29 (mos note 1270094.1)
- bug 24349988 exachk: numerous skipped checks running 12.1.0.2.7_20160526
- bug 24410193 [exa-exachk 121027]exachk reports error during execution - line 43268
- bug 24448326 add check for exadata critical issue ib5 (mos note 1270094.1)
- bug 24514400 er: update verify celldisk configuration on flash memory devices
- bug 24514430 er: update verify exadata smart flash cache is created
- bug 24533088 er: modify "database server disk controller configuration"for disk expansion kit

- bug 24533222 er: modify "database server virtual drive configuration" for disk expansion kit
- bug 24533293 er: modify "database server physical drive configuration" for disk expansion kit
- bug 24574637 er: doc: update "flash log is created" with all new flash smart cache behavior
- bug 24575793 failure: the sdp over ib option sdp_apm_enable should be set to 0
- bug 24674019 er: modify verify key infiniband fabric error counters focus

Exalogic:

- bug 23705995 false negative on zfs ipmp
- bug 23706043 false negative on zfs firmware version
- bug 24455238 exachk 12.1.0.2.7 skipping several zfs checks
- bug 24654068 ak version health check is incorrect

SuperCluster:

- bug 22655300 exachk reporting false positive for ib switch firmware version
- bug 22655361 exachk reporting false positive for ib switch localtime
- bug 23629846 please add memory capping check for supercluster
- bug 24006828 exachk reporting false positive for ipmp groups on infiniband adapters

Exalytics:

- bug 24339201 enh: add exachk for exalytics linux 6 - release 2.0.0.0.0 and later
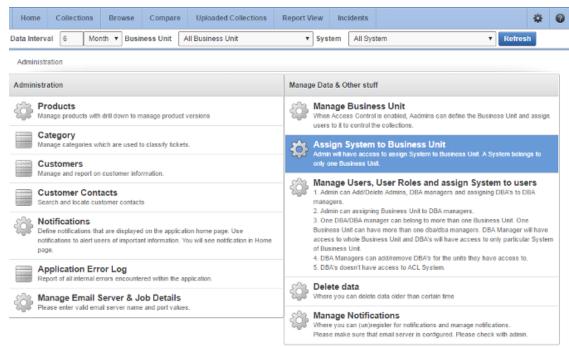
Big Data

- None

Zero Data Loss Recovery Appliance:

- bug 22717309 add check for zdlra critical issue ra9 (mos note 2101817.1)

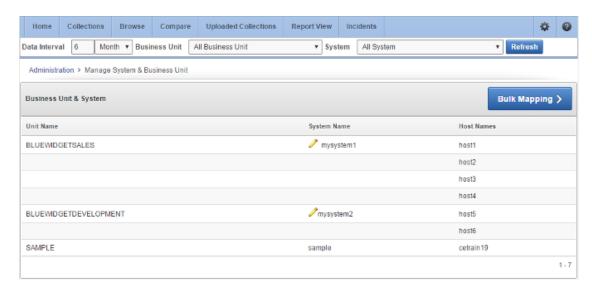# Easier to Configure and Maintain Large Enterprise-Wide Collection Data

Bulk Map Systems to Business Units

If you have a large number of systems, these can be mapped quickly to business units in Collection Manager via an XML bulk upload.
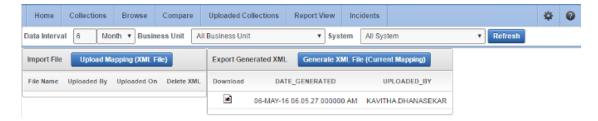

1. Select the *Administration* icon then choose *Assign System to Business Unit*
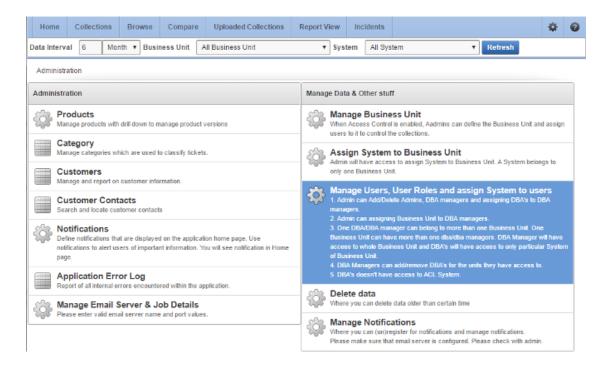
2. Press the *Bulk Mapping* button

3. Upload a mapping XML
    a. Press the ***Generate XML File (Current Mapping)*** button
    b. Download the resulting XML file underneath, which will contain your current system to business unit mappings
    c. Amend the XML to show mappings you desire
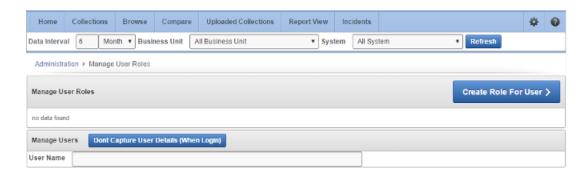   d. Upload new Mapping XML via ***Upload Mapping (XML File)*** button

Selectively Capture Users During Login

By default users logging in via LDAP authentication are captured and provided the DBA role, however you can choose to disable this automatic capture. This means you will need to manually create users instead and assign the necessary role.
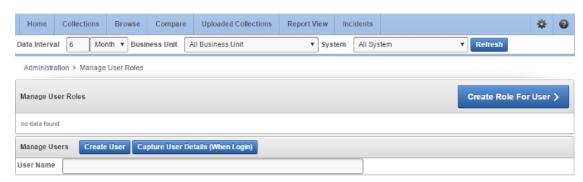
1. Select the ***Administration*** icon then choose ***Manage Users, User Roles and assign System to users***

2. To disable the automatic capture of users details press the button ***Don't Capture User Details (When Login)***

3. If you want to reenable the automatic capture of user details press the button *Capture User Details (When Login)*

Configure Details for Upload of Collection Results

Collection Manager upload configuration only requires two details; the connection string and the password to connect to the database where the collection results are to be uploaded to.

The required connection details can be specified using the *–setdbupload* option. For default options use *–setdbupload all*

```
./orachk -setdbupload all
```
Or

```
./exachk -setdbupload all
```

You will then be prompted to enter the values for the connection string and password, these values will be stored in the encrypted wallet file.

Example:

```
$ ./orachk -setdbupload all
Enter value for
RAT_UPLOAD_CONNECT_STRING:(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=myserver44.acompan
y.com)(PORT=1521))(CONNECT_DATA=(SERVER=DEDICATED)(SERVICE_NAME=orachkcm.acompany.com)
))

Enter value for RAT_UPLOAD_PASSWORD:******

Database upload parameters successfully stored in orachk_wallet. orachk run will keep
uploading the collections in database until it is unset using ./orachk -unsetdbupload
all/<env variable name>
```

> Note:
>
> Use the fully qualified address (as in the example above) for the connect string rather than an alias from the tnsnames.ora file so that it is not necessary to rely on tnsnames.ora file name resolution on all the servers where the tool might be run

To see the values which have been set in the wallet use *–getdbupload* option:

```
$ ./orachk -getdbupload
```

Or

```
$ ./exachk -getdbupload
```

ORAchk/EXAchk will have automatically used default values for the RAT_UPLOAD_USER and RAT_ZIP_UPLOAD_TABLE:

Example:

```
$ ./orachk -getdbupload

RAT_UPLOAD_CONNECT_STRING =
(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=myserver44.acompany.com)(PORT=1521))(CONNECT
_DATA=(SERVER=DEDICATED)(SERVICE_NAME=orachkcm.acompany.com)))

RAT_UPLOAD_PASSWORD = ******

RAT_UPLOAD_USER = ORACHKCM

RAT_ZIP_UPLOAD_TABLE = RCA13_DOCS
```

Verify ORAchk/EXAchk can make successful connection to the database to upload your collection using the *–checkdbupload* option:

```
$ ./orachk -checkdbupload
```

Or

```
$ ./exachk -checkdbupload
```

Example:

```
$ ./orachk -checkdbupload

Configuration is good to upload result to database.
```

At the end of Health Check collection ORAchk/EXAchk will check if the required connection details are set (in the wallet or via environment variable) and if so will attempt to upload the collection results.

Tip: To configure many ORAchk/EXAchk instances

> 1. Create wallet once with: *-setdbupload all* then enter values when prompted
>
> 2. Copy resulting wallet to each ORAchk/EXAchk location
>
> The environment variable RAT_WALLET_LOC can also be used to point to the location of the wallet directory.

Other configurable upload values are:

- RAT_UPLOAD_USER which controls which user to connect as (default is ORACHKCM)
- RAT_UPLOAD_TABLE which controls the table name to store non-zipped collection results in (not used by default)
- RAT_PATCH_UPLOAD_TABLE which controls the table name to store non-zipped patch results in (not used by default)
- RAT_UPLOAD_ORACLE_HOME which controls the ORACLE_HOME used during establishing connection and uploading. By default ORACLE_HOME will be set to GI HOME discovered by ORAchk/EXAchk.

RCA13_DOCS is not configurable if you wish to use Collection Manager, as this is the table Collection Manager looks for.

RAT_UPLOAD_TABLE & RAT_PATCH_UPLOAD_TABLE are not used by default because the zipped collection details are stored in RCA13_DOCS. You only need to configure RAT_UPLOAD_TABLE and RAT_PATCH_UPLOAD_TABLE if you are using your own custom application to view collection results, rather than Collection Manager. In which case these values can also be set in the wallet, as follows:

```
$ ./orachk -setdbupload all
```
Or

```
$ ./exachk -setdbupload all
```
This will prompt you for and set the RAT_UPLOAD_CONNECT_STRING & RAT_UPLOAD_PASSWORD, then use

```
$ ./orachk -setdbupload RAT_UPLOAD_TABLE,RAT_PATCH_UPLOAD_TABLE
```
Or

```
$ ./exachk -setdbupload RAT_UPLOAD_TABLE,RAT_PATCH_UPLOAD_TABLE
```
This will prompt you for and set these values in the wallet.

```
Note: All values set via the wallet can alternatively be set as environment variables.
If setting RAT_UPLOAD_CONNECT_STRING via environment variable it should be enclosed in
doublequotes like this:
export
RAT_UPLOAD_CONNECT_STRING="(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)(HOST=myserver.acompnay
.com)(PORT=1521))(CONNECT_DATA=(SERVER=DEDICATED)(SERVICE_NAME=myservice.acompany.com)
))"
```

Viewing & Reattempting Failed Uploads

Values are stored in <collection_dir>/outfiles/check_env.out to record if the previous database upload was successful or not.

For example, this shows database upload has been setup, but the last upload was unsuccessful:

```
DATABASE_UPLOAD_SETUP=1
```

```
DATABASE_UPLOAD_STATUS=0
```

If you want to see failed collections you can use the *-checkfaileduploads* option:

```
./orachk -checkfaileduploads
```
or
```
./exachk -checkfaileduploads
```
Example:

```
$ ./orachk -checkfaileduploads

List of failed upload collections
/home/oracle/orachk_myserver_042016_232011.zip
/home/oracle/orachk_myserver_042016_231732.zip
/home/oracle/orachk_myserver_042016_230811.zip
/home/oracle/orachk_myserver_042016_222227.zip
/home/oracle/orachk_myserver_042016_222043.zip
```

If you want to reattempt collection upload you can use the *-uploadfailed* option, specifying either all to upload all or a comma separated list of collections:

```
./orachk -uploadfailed all|<list of failed collections>
```
Or
```
./exachk -uploadfailed all|<list of failed collections>
```
Example:

```
./orachk -uploadfailed
"/home/oracle/orachk_myserver_042016_232011.zip,/home/oracle/orachk_myserver_042016_23
1732.zip"
```

Note: You can not upload previsouly uploaded collections because of the SQL unique constraint.
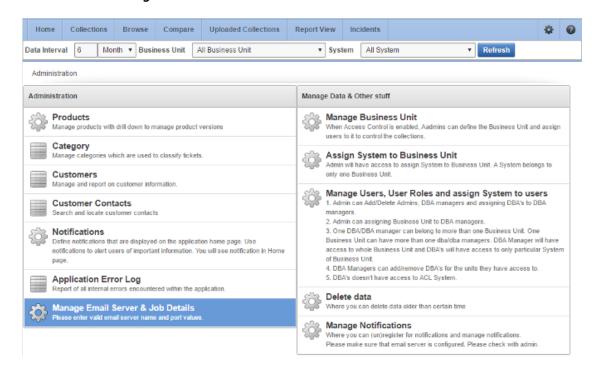
Purging Old Collections

Uploaded collections are now purged from Collection Manager. By default collections older than 3 months are purged.

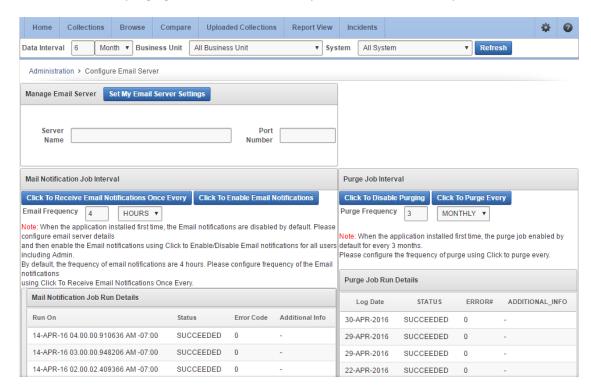To adjust or disable the collection purging frequency:

1. Select the *Administration* icon then choose *Manage Users, User Roles and assign System to users*

2. Select *Manage Email Server & Job Details*

3. Select the appropriate option:

- Change the frequency of purges by setting different values in the *Purge Frequency* box are duration drop down, then press the *Click To Purge Every* button
- To Disable purging altogether press the *Click To Disable Purging* button
- If purging has been disabled and you want to reenable it press the *Click To Enable Purging* button.

Keep Track of Changes to the Attributes of Important Files

Track changes to the attributes of important files with the *–fileattr* option, which looks at all files within Grid Infrastructure and Database homes by default. The list of directories and their contents to be monitored can be configured to your specific requirements.

Use *–fileattr start* to start the first snapshot. Directories included in the snapshots by default are GI Home all installed database homes.

```
./orachk –fileattr start
```

Or

```
./exachk –fileattr start
```

Example:

```
$ ./orachk -fileattr start
CRS stack is running and CRS_HOME is not set. Do you want to set CRS_HOME to
/u01/app/11.2.0.4/grid?[y/n][y]
Checking ssh user equivalency settings on all nodes in cluster
Node mysrv22 is configured for ssh user equivalency for oradb user
Node mysrv23 is configured for ssh user equivalency for oradb user

List of directories(recursive) for checking file attributes:
/u01/app/oradb/product/11.2.0/dbhome_11202
/u01/app/oradb/product/11.2.0/dbhome_11203
/u01/app/oradb/product/11.2.0/dbhome_11204
orachk has taken snapshot of file attributes for above directories at:
/orahome/oradb/orachk/orachk_mysrv21_20160504_041214
```

Other directories can be included using the *–includedir <directories>* option, where directory is a comma separated list of directories to include:

```
./orachk –fileattr start -includedir "/home/oradb,/etc/oatab"
```

or

```
./exachk –fileattr start -includedir "/home/oradb,/etc/oatab"
```

Example:

```
$ ./orachk -fileattr start -includedir "/root/myapp/config/"
CRS stack is running and CRS_HOME is not set. Do you want to set CRS_HOME to
/u01/app/12.2.0/grid?[y/n][y]
Checking for prompts on myserver18 for oragrid user...
Checking ssh user equivalency settings on all nodes in cluster
Node myserver17 is configured for ssh user equivalency for root user
List of directories(recursive) for checking file attributes:
/u01/app/12.2.0/grid
/u01/app/oradb/product/12.2.0/dbhome_1
/u01/app/oradb2/product/12.2.0/dbhome_1
```

```
/root/myapp/config/
orachk has taken snapshot of file attributes for above directories at:
/root/orachk/orachk_ myserver18_20160511_032034
```

The default discovered directories can be excluded using the *–excludediscovery* option:

```
./orachk -fileattr start -excludediscovery
```
or

```
./exachk -fileattr start -excludediscovery
```
Example:

```
$ ./orachk -fileattr start -includedir "/root/myapp/config/" -excludediscovery
CRS stack is running and CRS_HOME is not set. Do you want to set CRS_HOME to
/u01/app/12.2.0/grid?[y/n][y]
Checking for prompts on myserver18 for oragrid user...
Checking ssh user equivalency settings on all nodes in cluster
Node myserver17 is configured for ssh user equivalency for root user
List of directories(recursive) for checking file attributes:
/root/myapp/config/
orachk has taken snapshot of file attributes for above directories at:
/root/orachk/orachk_myserver18_20160511_032209
```

Use –fileattr check to take another snapshot and compare it to the previous snapshot, as well as run a normal Health Check collection:

```
./orachk –fileattr check
```
or

```
./exachk –fileattr check
```

Example:

```
$ ./orachk -fileattr check -includedir "/root/myapp/config" -excludediscovery
CRS stack is running and CRS_HOME is not set. Do you want to set CRS_HOME to
/u01/app/12.2.0/grid?[y/n][y]
Checking for prompts on myserver18 for oragrid user...
Checking ssh user equivalency settings on all nodes in cluster
Node myserver17 is configured for ssh user equivalency for root user
 List of directories(recursive) for checking file attributes:
/root/myapp/config
Checking file attribute changes...
.
```

```
"/root/myapp/config/myappconfig.xml" is different:
Baseline :       0644      oracle        root /root/myapp/config/myappconfig.xml
Current  :       0644      root          root /root/myapp/config/myappconfig.xml
…etc
…etc
```

The results of the File Attribute Changes are reflecting the HTML output report File Attribute Changes section.

If you have multiple different baselines you want to check, you can provide a specific baseline snapshot to compare against using the *–baseline <path>* option:

```
./orachk –fileattr check –baseline <snapshot>
```

or

```
./exachk –fileattr check –baseline <snapshot>
```

By default *–fileattr check* will also perform a full Health Check execution, to perform file attribute checking only and not precede with other Health Checks use the *–fileattronly* option:

```
./orachk -fileattr check -fileattronly
```

or

```
./exachk -fileattr check -fileattronly
```

If you want to remove snapshots this can be done with *–fileattr remove*:

```
./orachk –fileattr remove
```

or

```
./exachk –fileattr remove
```

Example:

```
$ ./orachk -fileattr remove
CRS stack is running and CRS_HOME is not set. Do you want to set CRS_HOME to
/u01/app/12.2.0/grid?[y/n][y]y
Checking for prompts on myserver18 for oragrid user...
Checking ssh user equivalency settings on all nodes in cluster
Node myserver17 is configured for ssh user equivalency for root user

List of directories(recursive) for checking file attributes:
/u01/app/12.2.0/grid
```

```
/u01/app/oradb/product/12.2.0/dbhome_1
/u01/app/oradb2/product/12.2.0/dbhome_1
Removing file attribute related files...
…etc
```

Full List of File Attribute Tracking Options

Option	Description
-fileattr start	Takes file attributes snapshot of discovered directories and stores the snapshot in the output directory. By default it takes snapshot of GI Home and all the installed database homes. If the user doesn't own a particular directory then it does not take snapshot of the directory
-fileattr check	Takes a recent snapshot of discovered directories and compares with the previous snapshot
-fileattr remove	Removes file attribute snapshots and related files.
-fileattr [start|check] -includedir <directories>	Includes directories given by user at command-line to check file attributes. eg: ./orachk -fileattr start -includedir "/root/home,/etc" eg: ./orachk -fileattr check -includedir "/root/home,/etc"
-fileattr [start|check] –excludediscovery	Excludes the discovered directories. eg: ./orachk -fileattr start -includedir "/root/home,/etc" -excludediscovery
-fileattr check -baseline <baseline snapshot path>	eg: ./orachk -fileattr check -baseline "/tmp/Snapshot"
-fileattr check –fileattronly	This option performs file attributes check only and exits orachk eg: ./orachk -fileattr check -fileattronly

Note: -fileattr requires Clusterware Software to be installed and running.

Tip:

To use with the daemon:

start the daemon

 ./orachk -d start

Then start client run by using -fileattr commands

./orachk -fileattr start -includedir "/root/myapp,/etc/oratab" -excludediscovery
./orachk -fileattr check -includedir "/root/myapp,/etc/oratab" -excludediscovery
You can specify the output directory to store the snapshot in using **–output**:

./orachk -fileattr start -output "/tmp/mysnapshots"

You can use –tag to help identify your snapshots:

```
./orachk -fileattr start -tag "BeforeXYZChange"
 Generated snapshot directory-
  orachk_myserver65_20160329_052056_ BeforeXYZChange
```

Quickly Find Which Checks Require Privileged Users

The Health Check Catalogs have a filter for *Privileged User*, allowing you to quickly find Health Checks, which need to be run by a specific privileged user, such as root.
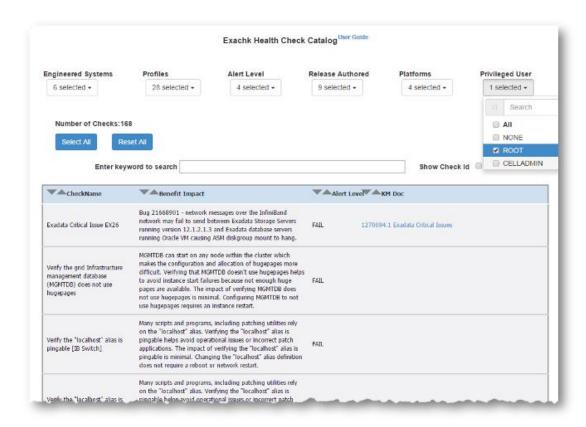
Example ORAchk Health Check Catalog:

See: ORAchk Health Check Catalog

Example EXAchk Health Check Catalog:

See EXAchk Health Check Catalog

Broader Stack Support

Health Check support has been broadened to include Linux Operating System Health Checks (ORAchk only), External ZFS Storage Appliance Health Checks (EXAchk on Exalogic only) and Oracle Enterprise Manager Cloud Control 13.1.

Checks for Oracle Enterprise Manager Cloud Control 13.1 appear in the existing *Enterprise Manager* section of the report.

For ORAchk only a VMPScan report is included with Health Checks on linux systems. A summary of the VMPScan report is shown in the *Clusterwide Linux Operating System Health Check(VMPScan)* section of the report.

The full VMPScan report is also available within the <collection>/reports and <collection>/outfiles/vmpscan directory.

Clusterwide Linux Operating system health check(VMPScan)

Note! This is summary of the VMPScan report. To browse full report, please open orachk report present under the 'reports' folder of orachk collection zip file

3 node report generated on: 2016-05-10 04:38:38   Report Name: vmpscan-2016-05-10 04:38:38

HostView (Click hostname for all node parameters)

myserver69-2016-05-10-040434	Health (1)	Errors (0)	Warnings (10)
myserver70-2016-05-10-040343	Health (1)	Errors (0)	Warnings (10)
myserver71-2016-05-10-040341	Health (1)	Errors (0)	Warnings (10)

ClusterView (Key Parameters)   Clusterview Root

net	os	storage
conf.dns.hostname_fwd_ns0	conf.packages.pkg_count	dev.vols.df_-h
conf.dns.hostname_fwd_ns1	conf.sysid.hostname	dev.vols.fdisk_-l
conf.dns.hostname_fwd_ns2	conf.sysid.uname_-r	dev.vols.lunpath_count
conf.dns.hostname_ip	conf.sysvinit.active	dev.vols.mount
conf.dns.hostname_rev_ns0	conf.sysvinit.runlevel	dev.vols.proc_partitions
conf.dns.hostname_rev_ns1	hw.cpuinfo.cpuinfo_summary	devmapper.dm_mpath.multipathd_sysv_status
conf.dns.hostname_rev_ns2	hw.cpuinfo.hyperthreading	fs.conf.fstab
conf.dns.ns_redundancy	hw.cpuinfo.num_cores	fs.nfs.exports
conf.dns.pingns0	hw.cpuinfo.num_sockets	ocfs2.cluster.mounted_ocfs2_-d
conf.dns.pingns1	kernel.conf.etc/sysctl_conf	ocfs2.cluster.mounted_ocfs2_-f
conf.dns.pingns2	kernel.conf.kernel_sysrq	ocfs2.conf.cluster_conf
conf.dns.resolv_conf	kernel.conf.ulimit_-a	ocfs2.conf.o2cb_conf
conf.gateway.default_gw	logs.system.last_reboots	ocfs2.net.connections
conf.gateway.default_gwintf	logs.system.log_access	ocfs2.service.o2cb_enabled
conf.gateway.route_-n	logs.system.warnerrors	ocfs2.service.o2cb_status
conf.ntp.active_peers	mem.conf.kernel_sem	ocfs2.service.o2cb_sysv
conf.ntp.ntp_redundancy	mem.conf.kernel_shmall	ocfs2.service.ocfs2_sysv_status
conf.ntp.ntpd_sysv_status	mem.conf.kernel_shmmax	
conf.ntp.ntpdrift	mem.conf.kernel_shmmni	
conf.ntp.ntpstat	mem.numa.numa_active	
conf.ntp.ping_ntp0	mem.perf.memfree	
conf.ntp.servers	mem.perf.meminfo	
conf.settings.etc_hosts	mem.perf.memtotal	
conf.settings.hostname_cmd	perf.process.num_dstates	
conf.settings.hosts_localhost	perf.process.uptime	
conf.settings.ping_localhost	perf.process.vmstat_-SMs	
dev.conf.brctl_show	role.user.id	
dev.conf.fullduplex	role.vmpscan.precheck	
dev.conf.linkactive	role.vmpscan.rootuser	
perf.connectivity.arpinggw	time.cron.crond_status	
perf.connectivity.pinggw	time.wallclock.clock	
perf.netstat.iface_errors	time.wallclock.timedatetz	

For Exalogic systems, support has been added to run Health Checks on External ZFS Storage appliances. The results of these checks will show in their own section of the report: ***External ZFS Storage Appliance***

External ZFS Storage Appliance

Status	Type	Message	Status On	Details
WARNING	External ZFS Storage Appliance Check	L2ARC Header Size exceeds the recommended 12.5% of the total memory limit.	myserver3, myserver4	View
WARNING	External ZFS Storage Appliance Check	Datasets Check failed.	myserver3	View
WARNING	External ZFS Storage Appliance Check	NFS v4 Delegation is enabled	myserver3, myserver4	View

Easier to Run EXAchk on Exadata Storage Servers

EXAchk now can be run from Exadata storage server if there is no ssh connectivity from database server to storage server.

If a cell is locked EXAchk has the ability to unlock it, EXAchk provides the convenience options of ***–unlockcells*** and ***–lockcells*** which can be used with Exadata, SuperCluster and Zero Data Loss Recovery Appliance.

```
./exachk -unlockcells <all | -cells [cell names or cell IPs separated by comma]>
```

```
./exachk -lockcells <all | -cells [cell names or cell IPs separated by comma]>
```

New Health Checks

New Health Checks have been added across the stack, including checks for Oracle Exadata, Oracle SuperCluster, Oracle Exalogic, Oracle ZFS Storage, Linux, Oracle Solaris Cluster, Oracle Database & Grid Infrastructure, Oracle Enterprise Manager Cloud Control OMS & Repository.

To see new checks for specific systems see the ORAchk Health Check Catalog and EXAchk Health Check Catalog.

Fixed Issues

As well as new features and Health Checks the following issues have been fixed:

ORAchk

- 23041776 lnx64-12.2-orachk: failed to use psqlplus
- 23193819 request orachk to check udev best practice on network configuration hotplug="n"
- 23147689 orachk 12.1.0.2.6 resource discovery fails for 10.2 databases
- 23144636 support anonymous pl/sql block in sql checks
- 23140046 check if compatible.asm and compatible.dbms should be advanced
- 23074512 problems parsing the values for autorun_schedule
- 23074163 daemon does not send diff report as email attachment
- 23071612 orachk to check that service_names parameter is not set in the spfile
- 23041743 lnx64-12.2-orachk:output not under oracle_base when run orachk not in its home
- 23014620 can not run orachk from stage directory due to permission issues
- 23012747 ac: application continuity - filter acchk output
- 23007768 orachk execution appends discovery name on path
- 22861038 orachk db discovery fails on linux 7
- 22746951 password visible in -setupload and -getupload
- 22721891 testemail does not validate address
- 22642844 orachk to warn if large amount of hugepage is free
- 22642302 provide centralized wallet for orachk cm uploads
- 21947833 orachk 12.1.0.2.4 - database prompt mismatch on standalone server
- 21773769 lnx64-12.2-oracheck: implement the filechecker component for oracheck module
- 19161674 lnx64-12.1-orachk:orachk hit syntax error
- 18956483 lnx64-121-cmt: oakcli orachk hit warning sys.audses$ sequence cache size < 10000
- 18944821 solsp-12.1-utl-orachk:orachk give a wrong information about stack status
- 18944432 solsp-12.1-utl-orachk:tabular information isn't well aligned in orachk output
- 18789186 solsp-12.1-utl-orachk: remove/update log ownership check for orachk
- 18748527 solsp-12.1-utl-orachk:no need to ask non-gi user to set rat_output for -h option

EXAchk

Exadata:

- 23325850 verify os hugepages count satisfies total sga requirements never fails
- 23308817 add check for quorum disk feature support
- 23298838 exachk report failing with "mineocr.pm line 495"
- 23293404 revise check for exadata critical issue ex25 (mos note 1270094.1)
- 23250174 exachk only collecting info from database servers...
- 23065735 add: verify database server quorum disks are used, if applicable
- 23237987 doc: update rationales for "cluster_interconnects" parameter checks
- 23100109 flashcache missing should be listed as "error"
- 23099891 er: add more context and corrective action details to new security messages
- 23093869 er: extend prompt checks to target userids of su command
- 23071261 exachk discovery for eighth configuration should not use cpu core count
- 23063691 doc: update "flashcache size" check rationales for x6 hardware
- 23034068 incorrect output for: verify bundle patch version installed matches bundle patch
- 23018305 change alert level to "fail" for dst_upgrade_state check
- 22973932 detect duplicate files in /etc/*init* directories
- 22911250 add: cachevault capacitor check with new rationale
- 22889317 direct nfs client is not enabled but it is enabled.
- 22889174 control_file_record_keep_time is set to zero is reported but it is set to 7
- 22822055 two issues with checkdiskfgmapping.sh
- 22819515 doc: update "verify db_unique_name is used in i/o resource ma..." for 12.1.2.3.0
- 22814866 two issues with excluded_check_ids.txt
- 22736419 doc: validate check asm griddisk,diskgroup and failure group mapping is not...
- 22736359 modify check griddisks with unset cachedby attribute
- 22691154 er: add instructions to top of exachk health check catalog
- 22619220 er: improve consistency of ssh / remote messages on screen and in log file
- 22122287 er: check interval throws "bad magic", "unsupported feature"
- 22122236 er: maximum mount count throws "bad magic", "unsupported feature"
- 21321667 er: request to run exachk on db nodes and cell nodes separately
- 21186080 doc: add *how* to run exachk in supercluster
- 20018893 er: modify behavior when default db server access is on client interface.
- 19466772 er: add html report section "component elapsed times"
- 14128298 check "ambient temperature" skipped with non-oracle-standard storage server name

Exalogic:

- 22751582 exachk initsetup configure ssh failed on switch

Supercluster:

- 23273609 exachk failing for clusterwide checks with error "argument "" isn't numeric"
- 23204751 please add whole core check for supercluster
- 17308279 role based access support in exachk for super cluster

Zero Data Loss Recovery Appliance:

- 23176016 add check for zdlra critical issue ra7 (mos note 2054638.1)
- 23175982 add check for zdlra critical issue ra8 (mos note 2093984.1)
- 23175967 add check for zdlra critical issue ra10 (mos note 2112880.1)
- 23175951 add check for zdlra critical issue ra11 (mos note 2119924.1)
- 23175928 add check for zdlra critical issue ra12 (mos note 2124925.1)
- 22935675 er: add "verify ra status"

ORAchk

Faster Execution

Significant performance improvements have been implemented in ORAchk's discovery, execution, and report generation. Testing shows this release of ORAchk runs up to 45% faster than the previous release.
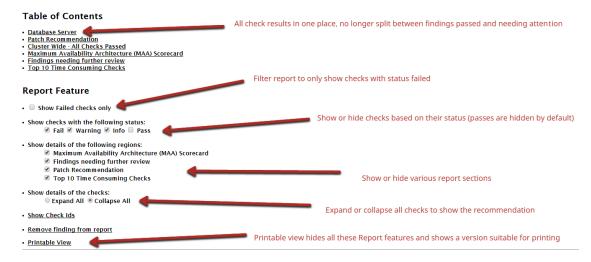
Easier to quickly see the problems you need to fix

The report format has been enhanced:

All related checks are listed in the same section. For example, all Database Server checks (passed or failed) are now shown together under the Database Server section.
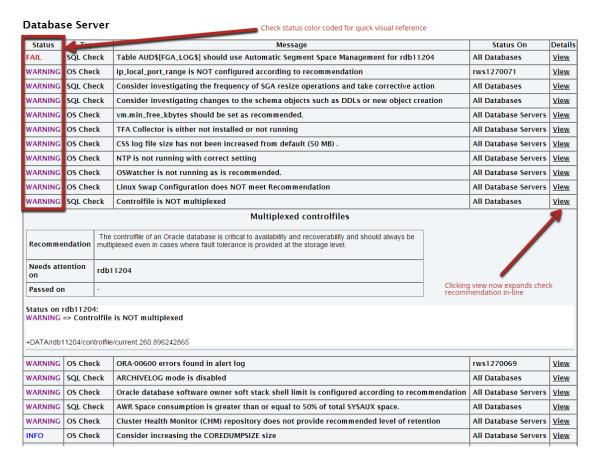
There are new check boxes at the top of the report to allow you to selectively show or hide checks based on their result status.

All checks which have passed are hidden by default, allowing you to focus on what you need to fix.

Table of Contents

- Database Server ← All check results in one place, no longer split between findings passed and needing attention
- Patch Recommendation
- Cluster Wide - All Checks Passed
- Maximum Availability Architecture (MAA) Scorecard
- Findings needing further review
- Top 10 Time Consuming Checks

Filter report to only show checks with status failed

Report Feature

- ☐ Show Failed checks only
- Show checks with the following status:
  ☑ Fail ☑ Warning ☑ Info ☐ Pass ← Show or hide checks based on their status (passes are hidden by default)
- Show details of the following regions:
  ☑ Maximum Availability Architecture (MAA) Scorecard
  ☑ Findings needing further review
  ☑ Patch Recommendation
  ☑ Top 10 Time Consuming Checks ← Show or hide various report sections
- Show details of the checks:
  ○ Expand All ● Collapse All ← Expand or collapse all checks to show the recommendation
- Show Check Ids
- Remove finding from report
- Printable View ← Printable view hides all these Report features and shows a version suitable for printing
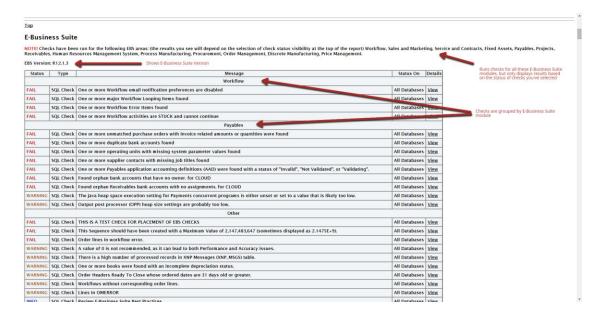
Each check now expands in place when you click on the "View" link allowing you to easily see the recommendations and details in-line without the need to jump around to different areas of the report.

Check status is color coded for quick visual reference.

Database Server

Status	Type	Message	Status On	Details
FAIL	SQL Check	Table AUD$[FGA_LOG$] should use Automatic Segment Space Management for rdb11204	All Databases	View
WARNING	OS Check	ip_local_port_range is NOT configured according to recommendation	rws1270071	View
WARNING	SQL Check	Consider investigating the frequency of SGA resize operations and take corrective action	All Databases	View
WARNING	SQL Check	Consider investigating changes to the schema objects such as DDLs or new object creation	All Databases	View
WARNING	OS Check	vm.min_free_kbytes should be set as recommended.	All Database Servers	View
WARNING	OS Check	TFA Collector is either not installed or not running	All Database Servers	View
WARNING	OS Check	CSS log file size has not been increased from default (50 MB) .	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	Linux Swap Configuration does NOT meet Recommendation	All Database Servers	View
WARNING	SQL Check	Controlfile is NOT multiplexed	All Databases	View

Multiplexed controlfiles

Recommendation	The controlfile of an Oracle database is 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	rdb11204
Passed on	-

Status on rdb11204:
WARNING => Controlfile is NOT multiplexed

+DATA/rdb11204/controlfile/current.260.896242865

WARNING	OS Check	ORA-00600 errors found in alert log	rws1270069	View
WARNING	SQL Check	ARCHIVELOG mode is disabled	All Databases	View
WARNING	OS Check	Oracle database software owner soft stack shell limit is configured according to recommendation	All Database Servers	View
WARNING	SQL Check	AWR Space consumption is greater than or equal to 50% of total SYSAUX space.	All Databases	View
WARNING	OS Check	Cluster Health Monitor (CHM) repository does not provide recommended level of retention	All Database Servers	View
INFO	OS Check	Consider increasing the COREDUMPSIZE size	All Database Servers	View

E-Business Suite checks are now grouped by the module they apply to and the E-Business Suite version number is shown in the report summary as well as at the top of the E-Business Suite section.

Top

E-Business Suite

NOTE! Checks have been run for the following EBS areas: (the results you see will depend on the selection of check status visibility at the top of the report) Workflow, Sales and Marketing, Service and Contracts, Fixed Assets, Payables, Projects, Receivables, Human Resources Management System, Process Manufacturing, Procurement, Order Management, Discrete Manufacturing, Price Management.

EBS Version: R12.1.3 — Shows E-Business Suite Version

Runs checks for all these E-Business Suite modules, but only displays results based on the status of checks you've selected

Status	Type	Message	Status On	Details
		Workflow		
FAIL	SQL Check	One or more Workflow email notification preferences are disabled	All Databases	View
FAIL	SQL Check	One or more major Workflow Looping Items found	All Databases	View
FAIL	SQL Check	One or more Workflow Error Items found	All Databases	View
FAIL	SQL Check	One or more Workflow activities are STUCK and cannot continue	All Databases	View
		Payables		
FAIL	SQL Check	One or more unmatched purchase orders with invoice related amounts or quantities were found	All Databases	View
FAIL	SQL Check	One or more duplicate bank accounts found	All Databases	View
FAIL	SQL Check	One or more operating units with missing system parameter values found	All Databases	View
FAIL	SQL Check	One or more supplier contacts with missing job titles found	All Databases	View
FAIL	SQL Check	One or more Payables application accounting definitions (AAD) were found with a status of "Invalid", "Not Validated", or "Validating".	All Databases	View
FAIL	SQL Check	Found orphan bank accounts that have no owner. for CLOUD	All Databases	View
FAIL	SQL Check	Found orphan Receivables bank accounts with no assignments. for CLOUD	All Databases	View
WARNING	SQL Check	The java heap space execution setting for Payments concurrent programs is either unset or set to a value that is likely too low.	All Databases	View
WARNING	SQL Check	Output post processor (OPP) heap size settings are probably too low.	All Databases	View
		Other		
FAIL	SQL Check	THIS IS A TEST CHECK FOR PLACEMENT OF EBS CHECKS	All Databases	View
FAIL	SQL Check	This Sequence should have been created with a Maximum Value of 2,147,483,647 (sometimes displayed as 2.1475E+9).	All Databases	View
FAIL	SQL Check	Order lines in workflow error.	All Databases	View
WARNING	SQL Check	A value of 0 is not recommended, as it can lead to both Performance and Accuracy issues.	All Databases	View
WARNING	SQL Check	There is a high number of processed records in XNP Messages (XNP_MSGS) table.	All Databases	View
WARNING	SQL Check	One or more books were found with an incomplete depreciation status.	All Databases	View
WARNING	SQL Check	Order Headers Ready To Close whose ordered dates are 31 days old or greater.	All Databases	View
WARNING	SQL Check	Workflows without corresponding order lines.	All Databases	View
WARNING	SQL Check	Lines In OMERROR	All Databases	View
INFO	SQL Check	Review E-Business Suite Best Practices	All Databases	View

Checks are grouped by E-Business Suite module

Improved Security

Security of ORAchk files and directories has been enhanced and Connection Manager Database connection details are now stored in an encrypted wallet.

Health Check Catalog

ORAchk now has a searchable Health Check Catalog, which lets you quickly view and filter available checks by Product, Profile, Alert Level, Release Authored, and Platform.

The Health Check Catalog is available via the "Health Check Catalog" tab of [Document 1268927.2](#) and also bundled within the ORAchk distribution.

The Health Check Catalog will look like this:

Support for Oracle Solaris Clusters

Initial support has been implemented in this release for some Oracle Solaris Cluster Checks, which verify best practice for configuration and runtime Oracle Solaris Cluster details.

Solaris Cluster Checks have been added to their own profile, so can be run individually with the command:

```
./orachk -profile solaris_cluster
```

Save Setup Time

ORAchk allows you to verify Collection Manager database configuration before ORAchk automated execution, ensuring results can be stored correctly the first time.

-setdbupload

sets the Environment variables in the wallet to upload orachk run result in the database.

options-

all: sets all the variables in the wallet.

```
./orachk -setdbupload all
```

<variable names separated by comma>: sets only those variables given on command line.

```
./orachk -setdbupload RAT_UPLOAD_CONNECT_STRING,RAT_UPLOAD_PASSWORD
```

-unsetdbupload

unsets the Environment variables in the wallet used to upload orachk run result in the database.

options-

all: unsets all the variables in the wallet.

```
./orachk -unsetdbupload all
```

<variable names separated by comma>: unsets only those variables given on command line.

```
./orachk -unsetdbupload RAT_UPLOAD_CONNECT_STRING,RAT_UPLOAD_PASSWORD
```

-checkdbupload

Checks the status if variables are set correctly for uploading orachk run results in the database.

-getdbupload

Prints the environment variables with their values from wallet for uploading orachk run result in the database.

You can receive an email html report when running ORAchk in adhoc mode, meaning you no longer need the extra step of transferring the report to your local machine for viewing.

-sendemail

Emails the orachk run report.

Options-

NOTIFICATION_EMAIL : Comma separated list of email addresses used for sending report

```
./orachk -sendemail "NOTIFICATION_EMAIL=abc@company.com,xyz@company.com"
```

Verify email configuration by using ORAchk to send a test email ensuring the ORAchk report will be received correctly the first time.

-testemail <all | "NOTIFICATION_EMAIL=email addresses separated by comma">

Sends a test email to validate email configuration.

all: This option is used to validate daemon email configuration.

Quickly subscribe or unsubscribe to email notifications of automated collection results, comparisons and ORAchk Collection Manager tablespace free space warnings.

The ORAchk Collection Manager application provides an Email Notification system that users can subscribe to. The setup involves (i) configuring Email Server, its port, and frequency of email notifications and (ii) Registering the email address.

Note: Only Admin role users can have the privilege to manage "Email Notification Server and Job details".

JSON Output

ORAchk output is now also available in JSON format, allowing it to be consumed by many different log monitoring and analytics tools.

JSON output will be created in the output upload directory, for example:

<Report_Output>/upload/mymachine_orachk_results.json

<Report_Output>/upload/mymachine_orachk_exceptions.json

Issues Fixed in 12.1.0.2.6

- 22280001 :ebs checks not running when when in -dbparallel (default)
- 22534825 :incorrect hard stack/nproc shell warnings when db instances are not running
- 22327885 :orachk shows fail for java-based users existence check
- 22264326 :zfssa_checks.aksh should check that the memory component exists
- 22159867 :zfssa check dns configuration cuts wrong column and does not need shell
- 22097185 :orachk 12.1.0.2.5 still fails when run using root user on sidb host
- 22083589 :pickup sid from process first instead of oracle_sid
- 22330880 :the html report mentions "exalogic" in some of the descriptions
- 22264358 :zfssa_checks.aksh retention policy check should not fail ak own recommendation
- 22159335 :chckcluster.aksh runs into exception if the target system is single head
- 22150715 :zfssa_checks should be prevented to run on solaris 10
- 22444387 :lnx64-121-cmt: ol6 support on oda: different report and errors on remote node
- 22159274 :confirm shell in script is unnecessary for parsing
- 22159236 :script inefficiencies (safeget and gethostname)
- 21769307 :orachk daemon debug log grows enormously and does not use rotation policy

EXAchk

General

- Revised report format
  - All related checks are in the same place. For example, all Database Server checks (passed and failed) are shown together in the same place.
  - There are new check boxes at the top of the report to enable you to selectively show or hide checks based on their status.
  - All checks that have passed are hidden by default, allowing you to focus on what you need to fix.
  - Check status is color-coded for quick visual reference.
  - Each check now expands in place when you click on the details allowing you to easily see the recommendation in-line without needing to move to a different area of the report.

- E-Business Suite checks are now grouped by the module they apply to, and the E-Business Suite version number is shown in the report summary as well as at the top of the E-Business Suite section.
- Reduced execution time
- Improved security for files and connection details
- Verify Collection Manager database configuration function
- Receive HTML report via email from ad hoc exachk run
- Verify email configuration function
- New subscribe/unsubscribe email function
- asrexacheck 4.0 released and integrated
- exachk output now also available in JSON format which can be utilized by non-Oracle monitoring and analytics tools

Big Data Appliance

None

Exadata

None

Exalogic

None

Exalytics

None

SuperCluster

None

Zero Data Loss Recovery Appliance

None

Checks Added

- Big Data Appliance

  None

- Exadata
  - Critical Issues EX25, EX26, DB35
  - verify the gi management database (mgmtdb) does not use hugepages
  - add database dst_upgrade_state check to avoid smart scan issue
  - verify the "localhost" alias is pingable [database server]
  - add "verify there are no active or failed diskgroup rebalance operations"
  - verify the crs_home is properly locked

- verify db_unique_name is used in i/o resource management (iorm)
- add detect_custom_rpms.sh summary output to configuration summary screen
- verify the "localhost" alias is pingable [storage server]
- verify the "localhost" alias is pingable [ib switch]
- verify key sysctl.conf parameters on database servers
- verify storage server data (non-system) disks have no partitions
- Verify Datafiles are Placed on Diskgroups consisting of griddisks with cachingPolicy = DEFAULT
- Verify Datafiles are Placed on Diskgroups consisting of griddisks with unset cachedBy attribute

- Exalogic

  None

- Exalytics

  None

- SuperCluster
  - "check audit_file_dest" for supercluster as well
  - "old trace files in background dump destination" for ssc as well
  - ssctuner email address should be set (must not be: default root@localhost)
  - zfs root rpool and zone roots capacity should not exceed recommended utilization
  - zfs pool /u01 should not exceed recommended utilization
- Zero Data Loss Recovery Appliance

  None

Checks Removed

- Exadata

  Verify active system values match those defined in configuration file "cell.conf" [Database Server]

NOTE: "Checks Removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

Issues Fixed

- Big Data Appliance

  None

- Exadata

```
Bug Num    Fixed        Subject
21135807   12.1.0.2.6   exachk daemon fails with md5sum: /root/exachk: no such file or directory
21440447   12.1.0.2.6   false fail - _file_size_increase_increment is not set to the recommended value
21526043   12.1.0.2.6   switch at 1.3.3-2 with fqdn results in "invalid arithmetic operator"
22092754   12.1.0.2.6   doc: correct "verify operating system hagepages count.." text
```

- 22137985 12.1.0.2.6 er: verify the gi management database (mgmtdb) does not use hugepages
- 22146206 12.1.0.2.6 er: add database dst_upgrade_state check to avoid smart scan issue
- 22151579 12.1.0.2.6 er: add "verify the "localhost" alias is pingable [database server]"
- 22152369 12.1.0.2.6 add check for exadata critical issue ex25 (mos note 1270094.1)
- 22153523 12.1.0.2.6 add check for exadata critical issue db35 (mos note 1270094.1)
- 22158489 12.1.0.2.6 remove "verify active system values ... file "cell.conf" [database server]"
- 22178086 12.1.0.2.6 exachk default password check functionality issue
- 22184864 12.1.0.2.6 er: add "verify there are no active or failed diskgroup rebalance operations"
- 22187889 12.1.0.2.6 doc: update "verify active systme values... "cell.conf""
- 22235609 12.1.0.2.6 er: add "verify the crs_home is properly locked"
- 22240519 12.1.0.2.6 platinum: daemon hangs when exachk 120 days
- 22241751 12.1.0.2.6 exachk should not recommend entering hostname in /etc/hosts file of ib switch
- 22242829 12.1.0.2.6 er: add option to validate daemon email configuration and function
- 22253121 12.1.0.2.6 [em13.1-exa]orachk:provision orachk will hang if current orachk version is old
- 22301954 12.1.0.2.6 ada: exachk doc section 16.6 using a vnc is not an accessible approach
- 22302061 12.1.0.2.6 ada: exachk html report has missing table summary and empty row/column headers
- 22331852 12.1.0.2.6 doc: update "verify there are no griddisks configured on flash memory devices"
- 22378459 12.1.0.2.6 er: add "verify key sysctl.conf parameters on database servers"
- 22385366 12.1.0.2.6 er: integrate asrexacheck version 4.0
- 22392812 12.1.0.2.6 doc: clarify how critical issues are handled in the html report
- 22541362 12.1.0.2.6 er: add "verify db_unique_name is used in i/o resource management (iorm) ..."
- 22543052 12.1.0.2.6 add detect_custom_rpms.sh summary output to configuration summary screen
- 22574548 12.1.0.2.6 er: add "verify storage server data (non-system) disks have no partitions
- 22583453 12.1.0.2.6 er: add "verify the "localhost" alias is pingable [storage server]"
- 22583465 12.1.0.2.6 er: add "verify the "localhost" alias is pingable [ib switch]"
- 22610044 12.1.0.2.6 add check for exadata critical issue ex26 (mos note 1270094.1)
- 22658755 12.1.0.2.6 er: add "verify datafiles are placed on diskgroups consisting of griddisks..."
- 22658816 12.1.0.2.6 er: "verify datafiles are placed on diskgroups consisting of griddisks with..."

Exalogic

- Bug Num   Fixed   Subject
- 22247778 12.1.0.2.6 mark a check run once on a single component category
- 22372252 12.1.0.2.6 exachk 12.1.0.2.5: x4-2 zfs checks skipped -"not valid sun zfs storage"
- 22609850 12.1.0.2.6 exachk_12.1.0.2.5: report html is incomplete

Exalytics:

None

SuperCluster:

- Bug Num   Fixed   Subject
- 22510340 12.1.0.2.6 em checks not done by exachk on ssc node

Zero Data Loss Recovery Appliance:

- Bug Num   Fixed   Subject
- 20441589 12.1.0.2.6 please add "check audit_file_dest" for supercluster as well
- 20441706 12.1.0.2.6 please add "old trace files in background dump destination" for ssc as well
- 20448502 12.1.0.2.6 ssctuner email address should be set (must not be: default root@localhost)
- 20448819 12.1.0.2.6 zfs root rpool and zone roots capacity should not exceed recommended utilization
- 20449017 12.1.0.2.6 zfs pool /u01 should not exceed recommended utilization
  22129863 12.1.0.2.6 xml_start issue on zdlra machine

ORAchk

Create Your Own Checks

Now you can use ORAchk to write, execute and report on your own custom user defined checks

1. Use the Collection Manager interface to write your checks
2. Use ORAchk's built-in email notification and diff reporting
3. View the results of your checks in the new "User Defined Checks" section in the ORAchk html report
4. Collect and easily view all results enterprise wide using the ORAchk Collection Manager

Navigate to the User Defined Checks tab and define your own checks using this screen

User defined checks have their own profile of "user_defined_checks" so can be run on their own with:

```
./orachk -profile user_defined_checks
```

Or can be excluded from running with:

```
./orachk -excludeprofile user_defined_checks
```

User defined checks will show up in their own section of the report

Table of Contents

User Defined Checks

Status	Type	Message	Status On	Details
FAIL	SQL Check	Database FORCE LOGGING mode is NOT enabled as recommended	All Databases	View
FAIL	SQL Check	Table AUD0FGA_LOG5.008003 should use Automatic Segment Space Management	All Databases	View
WARNING	OS Check	OSWatcher retention period is NOT configured according to recommendation	All Database Servers	View
WARNING	OS Check	OSWatcher interval is NOT configured according to recommendation	All Database Servers	View
WARNING	OS Check	OSWatcher is NOT running	All Database Servers	View

Expanded Oracle Product Support

ORAchk 12.1.0.2.5 further extends support across the Oracle Product stack, with the following newly supported Oracle products:

Oracle Identity and Access Management suite

ORAchk adds support for Oracle Identity and Access Management suite (Oracle IAM).

Oracle IAM requires a separate orachk download, use the "ORAchk for Oracle IAM" download, which includes both ORAchk and the Oracle Identify and Access Management suite extension module.

Oracle Identity Manager checks reside in the oim profile so can be executed individually using this command

```
./orachk -profile oim
```

Other Oracle Identity and Access Management Suite options available:

```
Identity Management Options:
            -idm -h: Prints help for Identity Management
            - [<idmpreinstall|idmpostinstall|idmruntime>] [-idm_config <IDMCONFIG>] [-
idmdiscargs <IDMDISCARGS>] [-idmhcargs <IDMHCARGS>]
            idmpreinstall   : Run preinstall checks on Identity Management System
            idmpostinstall : Run postinstall checks on Identity Management System
            idmruntime      : Run runtime checks on Identity Management System
            idm_config     : Pass OAM, OIM and one of the OUD host from clusters.
```

```
              idmdiscargs      : Pass arguments to Identity Management Discovery Tool.
              idmhcargs        : Pass arguments to Identity Management Healthcheck Tool.

                   example     :
                                Run preinstall checks
                                orachk -idmpreinstall -idm_config
"OUD_HOST=h1,h2;OIM_HOST=h3,h4;OAM_HOST=h5,h6,h7;OHS_HOST=h8,h9"

                                Run postinstall checks on single node Identity Management
setup
                                orachk -idmpostinstall -idm_config "singlenode"

                                Run runtime checks on multinode Identity Management setup
                                orachk -idmruntime -idm_config
"OUD_HOST=host1,host2;OAM_HOST=host3;OIM_HOST=host4"

                                Run OIM runtime checks on multinode Identity Management setup
                                orachk -idmruntime -idm_config
"OUD_HOST=host1,host2;OAM_HOST=host3;OIM_HOST=host4" -profile "OIM"

                                Run OIM & OAM postinstall checks on single node Identity
Management setup
                                orachk -idmpostinstall -idm_config "singlenode" -profile
"OIM,OAM"

                                Run runtime checks with loglevel specified for Identity
Management Discovery and Healthcheck tool.
                                orachk -idmruntime -idmdiscargs "-DlogLevel=FINEST" -idmhcargs
"-DlogLevel=FINEST"

                   -<idmpreinstall|idmpostinstall|idmruntime> -topology <topology.xml> -credconfig
<credconfig>
                   Run checks directly passing topology.xml and credconfig location
```

Oracle IAM checks will appear in the report output in the following sections

- Findings Needing Attention
    o On Node
- Findings Passed
    o On Node

Show Check Ids

Remove finding from report

Findings Needing Attention

FAIL, WARNING, ERROR and INFO finding details should be reviewed in the context of your environment.

NOTE: Any recommended change should be applied to and thoroughly tested (functionality and load) in one or more non-production environments before applying the change to a production environme

Node

Status	Type	Message	Status On	Details
FAIL	OAM Check	net.core.rmem_max value is greater than recommended range.	slc05blw	View
FAIL	OUD Check	OUD configuration consistency check has reported mismatches in configuration parameters of replicated servers.	All OUD Servers	View
FAIL	OUD Check	Indexes are not consistent and not in valid state.	All OUD Servers	View
FAIL	OUD Check	OUD Log check has found errors/warnings.	All OUD Servers	View
FAIL	OUD Check	OUD Replication check has failed.	All OUD Servers	View
FAIL	IDMHC Check	IDSTORE Configuration check has failed.	All IDMHC Servers	View
FAIL	OAM Check	Verify Webgate Profile failed	All OAM Servers	View
FAIL	OAM Check	Verify Webgate wiring to OAM failed	All OAM Servers	View
FAIL	OIM Check	Problem in OIM and OAM integration.	All OIM Servers	View
FAIL	OIM Check	Validation of Plugin and Adapter configuration failed.	All OIM Servers	View
FAIL	OS Check	Processor don't have the required configuration.	All Nodes	View

Hardware Systems

Oracle ZFS Storage Appliance

ZFS Storage Appliances are now included within the scope of ORAchk and a number of new Health Checks have been written to to advice on best practice configuration for performance and resilience.

ZFS checks reside under a new profile of zfs so can be run using the profile argument:

```
./orachk -profile zfs
```

You can pass a comma separated list of ZFS storage appliance names for ORAchk to use with the zfssa argument, like this:

```
./orachk -zfssa viperfish,fangtooth
```

The ZFS findings will be shown in the ORAchk report under:

- Findings Needing Attention
    - On ZFS Storage Appliance
- Findings Passed
    - On ZFS Storage Appliance
- Like this example:

Oracle Virtual Networking

Check for Oracle Virtual Networking best practice configuration settings are now included in ORAchk and come with a new profile of ovn, which can be used as:

```
./orachk -profile ovn
```

E-Business Suite

ORAchk 12.1.0.2.5 extends the E-Business Suite modules supported, adding new support for:

E-Business Suite Customer Relationship Management

Checking best practice configuration settings for forecast, payment worksheets and service contracts

E-Business Suite Project Billing

Providing early detection warning of data corruption.

New E-Business Suite checks will appear in the report output section as previous checks under the "E-Business Suite" heading

The brings the full list of E-Business Suite modules supported by ORAchk 12.1.0.2.5 to:

- Oracle Payables (R12 only)
- Oracle Workflow
- Oracle Purchasing (R12 only)
- Oracle Order Management (R12 only)
- Oracle Process Manufacturing (R12 only)
- Oracle Fixed Assets (R12 only)
- Oracle Human Resources (R12 only)
- Oracle Receivables (R12 only)
- Oracle Customer Relationship Management
- Oracle Project Billing

All E-Business Suite checks are within the ebs profile so can be executed individually using this command

```
./orachk -profile ebs
```

PeopleSoft

Also included in ORAchk 12.1.0.2.5 is the first support for PeopleSoft.

ORAchk will verify your PeopleSoft database for best practice configuration.

The PeopleSoft checks run against the database, so in order to run them they should either be run as the oracle install user or root.

All PeopleSoft checks are within the peoplesoft profile so can be executed individually using this command

```
./orachk -profile peoplesoft
```

Application Continuity

As of version 12.1.0.2.5 support for Application Continuity has been added.

There are three values that control the AC checking (called acchk in orachk) for Oracle concrete classes. They can be set either on the command line or via shell environment variable (or mixed). They are the following.

Command Line Argument	Shell Environment Variable	Usage
–asmhome jarfilename	RAT_AC_ASMJAR	This must point to a version of asm-all-5.0.3.jar that you download from http://asm.ow2.org/.
-javahome JDK8dirname	RAT_JAVA_HOME	This must point to the JAVA_HOME directory for a JDK8 installation.
-appjar dirname	RAT_AC_JARDIR	To analyze the application code for references to Oracle concrete classes like oracle.sql.BLOB, this must point to the parent directory name for the code. The program will analyze .class files, and recursively .jar files and directories. If you have J2EE .ear or .war files, you must recursively explode these into a directory structure with .class files exposed. This test works with software classes compiled for Oracle JDBC 11 or 12.

When you run the AC checking, the additional checking about database server, etc. is turned off. It would be common to run the concrete class checking on the mid-tier to analyze software that accesses the Oracle driver.

See the following article for more details - Using Orachk to Clean Up Concrete Classes for Application Continuity

Run or Exclude Individual Checks

New command line switches have been added so you can easily exclude or run only specific checks.

To run only one specific check use:

```
./orachk -check <check_id>
```

To exclude a specific check use:

```
./orachk -excludecheck <check_id>
```

To find the id of a check look in the ORAchk report and choose the "Show Check Ids" link then view the ID next to the relevant check:

Table of Contents

Show Check Ids

Findings needing further review

NOTE: This section contains best practices that orachk can only do a partial check for because a complete check requires information it cannot gather (ex: data outside of orachk run scope, requires customer knowledge, etc). Please investigate the partial finding that orachk reports in this section, paying particular attention to the details, to determine if any action is required.

Check Id	Status	Type	Message	Status On	Details
0829D67E8B1549AFE05312C0E50AD04F	FAIL	SQL Check	DB_UNIQUE_NAME on primary has not been modified from the default, confirm enterprise wide uniqueness for database name.	All Databases	View

Custom EBS Apps User

In previous releases of ORAchk the E-Business Suite checks looked at application tables using the schema of APPS.<table_name>.

This meant that if you use a custom APPS user id none of the EBS checks would have run.

As of ORAchk 12.1.0.2.5, EBS looks up the name for the APPS user and all checks dynamically refer to this user, meaning you can now run the EBS checks no mater what your APPS user is called.

Shorter Run Time

Discovery of databases is a time consuming section of the ORAchk execution. From version 12.1.0.2.5 you can choose to cache the discovered databases, meaning subsequent runs will not need to rediscover databases again.

If anything changes simply refresh the cache again.

To create the database cache:

```
./orachk –create_cache
```

To use the database cache:

```
./orachk –use_cache
```

To refresh the database cache:

```
./orachk –refresh_cache
```

If running ORAchk in automated mode using the daemon you can run -create_cache while starting the daemon and future client runs can use -use_cache.

Over 100 New Health Checks

The new release of ORAchk brings over 100 new checks, covering some of the most impactful problems known to Oracle Customer Support in the areas of:

- Database best practices for patching, performance, scalability and high availability
- Oracle Identity Management pre-install settings, post-install configuration and runtime environment
- E-Business Suite best practice configuration settings for Human Resources and CRM (forecast, payment worksheets and service contracts)
- E-Business Suite early detection of data corruption within Project Billing
- Oracle ZFS Storage Application best practice configuration for performance and resilience
- Oracle Virtual Networking best practice configuration settings
- PeopleSoft Applications database best practices

EXAchk

Major New Functionality

Big Data Appliance

None

Exadata

- Ability to execute with storage servers in lockdown mode (12.1.2.2.0 feature)
- Profile to check that exadata default passwords have been changed
- Profile for hardware only checks
- Support for 1/8 virtualized Exadata Database Machine
- Support for caching of exachk environment discovery information
- Support for SAP
- Support for User-Defined Checks
- Support for Oracle GoldenGate in MAA scorecard
- Command line option to execute or exclude one or more checks

Exalogic

None

Exalytics

None

SuperCluster

Support for ZFS

Zero Data Loss Recovery Appliance

None

1.2 Checks Added

- Critical Issues EX23, EX24, DB18 (revised), DB29 (revised), DB30, DB31, DB32, DB33, DB34
- Verify clusterware state is "normal"
- Verify Exadata Smart Flash Cache Status is "normal"
- Verify one or more non-default AWR baselines were created
- Update asm disk group attribute checks
- asm disk group attribute disk_repair_time = 3.6h
- asm disk group attribute failgroup_repair_time = 24.0h

1.3 Checks Removed

None

NOTE: "Checks Removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

1.4 Issues Fixed

Big Data Appliance

```
Bug Num      Fixed        Subject
21889886     12.1.0.2.5   exachk output is empty with version exachk_bda_12.1.0.2.3 with bda 4.2
```

Exadata

```
Bug Num      Fixed        Subject
18746698     12.1.0.2.5   add profile "verify that passwords have been changed from defaults"
20772569     12.1.0.2.5   review "verify exadata smart flash cache is actually in use"
21164959     12.1.0.2.5   "user open file limit" check runs against root user not oracle
21299782     12.1.0.2.5   er: add "scan alerthistory for stateful alerts not cleared [database server]"
21299794     12.1.0.2.5   er: add "scan alerthistory for non-test open alerts [database server]
21299854     12.1.0.2.5   er: add "scan alerthistory for test open alerts [database server]"
21416740     12.1.0.2.5   bundle patch check (dba_registry_sqlpatch) does not handle multiple events
21438705     12.1.0.2.5   exachk documentation should be html for better accessibility oag2.0 compliance
21444188     12.1.0.2.5   er: create profile option for asrexacheck
21464467     12.1.0.2.5   improve "exadata critical issues" info message
21466298     12.1.0.2.5   add check for exadata critical issue ex23 (mos note 1270094.1)
21466308     12.1.0.2.5   add check for exadata critical issue ex24 (mos note 1270094.1)
21481466     12.1.0.2.5   revise check for exadata critical issue db18 (mos note 1270094.1)
21487778     12.1.0.2.5   remove incorrect mos reference from tso check
21496682     12.1.0.2.5   add check for exadata critical issue db31 (mos note 1270094.1)
21496703     12.1.0.2.5   add check for exadata critical issue db30 (mos note 1270094.1)
21539582     12.1.0.2.5   doc: modify exachk readme to claify exachk is for use on all engineered systems
21608977     12.1.0.2.5   checklocaldisks.sh returns null "actual value= " in exachk.log
21609682     12.1.0.2.5   ./exachk: line 11274: [: 0123456789xyz: integer expression expected
21620867     12.1.0.2.5   er: add "verify clusterware state is "normal"
21636783     12.1.0.2.5   two x2 series checks executed against x5-2 storage servers
21659260     12.1.0.2.5   er: modify "cluster summary" to show exact version level, including bundle patch
21660841     12.1.0.2.5   er: add "capture performance baselines"
21666820     12.1.0.2.5   er: add exachk ability to run with storage servers in lock down mode
21692481     12.1.0.2.5   /tmp/.exachk/checkhiddenparams.sh: line 147: sqlplus: command not found
21775407     12.1.0.2.5   [em13.1-exa]orachk:provision orachk will hang if nm2user has wrong pwd
21778179     12.1.0.2.5   /tmp/.exachk/checkhiddenparams.sh: line 231: readarray: command not found
21792916     12.1.0.2.5   doc: add overview of how exachk discovers databases and relevant homes
21794597     12.1.0.2.5   hugepages count does not satisfy total sga requirements with mgmt db
21805712     12.1.0.2.5   correct profile for 19da5169713da63be0530a98eb0aae45 - db hidden params
21811194     12.1.0.2.5   verify hidden database initialization parameter usage - display incorrect
21820358     12.1.0.2.5   er: add support for 1/8 virtualized exadata database machine
21832896     12.1.0.2.5   er: add check for exadata critical issue db32 (mos note 1270094.1)
21861396     12.1.0.2.5   er: modify "mtu size" check for = 12.1.2.2.0 pass at 65520
21889463     12.1.0.2.5   er for new hw profile - for exachk tool
21892721     12.1.0.2.5   exachk version 12.1.0.2.4 reporting far less information than version 12.1.0.2.3
21901068     12.1.0.2.5   exachk reports parameter check failure against one instance, should be all inst
21901970     12.1.0.2.5   er: update asm diskgroup attribute checks
```

```
21902963     12.1.0.2.5     er: add "verify non-default database services were created for each database"
21903715     12.1.0.2.5     er: add check for asm diskgroup attribute disk_repair_time = 3.6h
21903735     12.1.0.2.5     er: add check for asm diskgroup attribute failgroup_repair_time = 24.0h
21918674     12.1.0.2.5     add check for exadata critical issue db33 (mos note 1270094.1)
22011360     12.1.0.2.5     amend check for exadata critical issue db29 (mos note 1270094.1)
22011573     12.1.0.2.5     er: add "verify exadata smart flash cache status is "normal""
22072474     12.1.0.2.5     er: add "check that local archive destination has an alternate" to maa scorecard
22087164     12.1.0.2.5     add check to detect situation in bug 21620471 (critical issue db34)
```

Exalogic

```
Bug Num      Fixed          Subject
21694630     12.1.0.2.5     incorrect question type
21949370     12.1.0.2.5     incorrect question for nls id - orhc_exadata_n79_nlsid
22077510     12.1.0.2.5     probe xml wraps each token element into tokens
```

Exalytics

```
Bug Num      Fixed          Subject
19807112     12.1.0.2.5     enh:collect product versions during exachk execution
```

SuperCluster

```
Bug Num      Fixed          Subject
21265436     12.1.0.2.5     parallel_threads_per_cpu check should be 2 on supercluster
21330238     12.1.0.2.5     please ad zfs sa checks from exalogic into supercluster exachk dev build
21795304     12.1.0.2.5     jul 2015 release of exachk fails on supercluster
```

Zero Data Loss Recovery Appliance

```
Bug Num      Fixed          Subject
21570275     12.1.0.2.5     AM remove "system is exposed to exadata critical issue db29" from zdlra checks
21570286     12.1.0.2.5     AM run ulimit check as oracle user "open files limit (ulimit -n) for current user "
21570316     12.1.0.2.5     AM db shell limits hard nofile - test should succeed based on zdlra configurations
21861724     12.1.0.2.5     AM please edit exachk test to reflect recommended mtu size on the zdlra as 65520
```

Version 12.1.0.2.4_20150723

EXAchk

Major New Functionality

None

Checks Added

Exadata

- Critical Issues: DB18(revised), DB30, DB31, EX23, EX24
- Updated version recommendations for the "Software Maintenance Best Practices" section of the "MAA Scorecard"

Exalogic

None

Exalytics

None

Supercluster

None

Zero Data Loss Recovery Appliance

None

Checks Removed

None

Issues Fixed

Exadata

```
Bug Num     Fixed       Subject
21496703    12.1.0.2.4  add check for exadata critical issue db30 (mos note 1270094.1)
21496682    12.1.0.2.4  add check for exadata critical issue db31 (mos note 1270094.1)
21481466    12.1.0.2.4  revise check for exadata critical issue db18 (mos note 1270094.1)
21466308    12.1.0.2.4  add check for exadata critical issue ex24 (mos note 1270094.1)
21466298    12.1.0.2.4  add check for exadata critical issue ex23 (mos note 1270094.1)
```

Version 12.1.0.2.4_20150702

ORAchk

Auto update ORAchk

New in this release, if ORAchk is older than 120 days and a newer version is not available locally it will check to see if a newer version is available on My Oracle Support and automatically download and upgrade.

Download of latest version directly from My Oracle Support can also be specifically triggered with

```
./orachk -download
```

```
$ ./orachk -download

Enter your my oracle support username:- gareth.chapman@oracle.com

Enter your my oracle support password:-

Started downloading....

orachk.zip successfully downloaded to /home/oracle/orackk/
```

If ORAchk is running in automated mode the daemon will automatically upgrade from local location defined by **RAT_UPGRADE_LOC** just before the next scheduled run.

Email notification will be sent about the upgrade then ORAchk will continue with the scheduled run using the upgraded version, all without requiring you to restart the ORAchk daemon.

Expanded Oracle Product Support

ORAchk 12.1.0.2.4 now brings wider and deeper support throughout the Oracle product stack, with newly added support for the following product areas:

Enterprise Manager OMS

ORAchk now adds support for Enterprise Manager OMS version 12.1.0.2 and above on Linux. In this release support is restricted to Linux, support for other platforms is intended in future releases of ORAchk.

The OMS checks focus on High impact problems that cause functional failure or difficulty with configuration, security, patching or upgrade.

In order to run the OMS checks, you can either run ORAchk as the OMS owner or as root

Enterprise Manager OMS checks reside in the emoms profile so can be executed individually using this command

```
./orachk -profile emoms
```

OMS checks will appear in the report output in the same section as the EM Agent and Repository checks

Enterprise Manager

Status	Type	Message	Status On	Details
FAIL	OS Check	The PSUApr2015 patch has not been applied to the 12c OMS.	All Database Servers	View
FAIL	OS Check	Agent is installed but not running or is unable to upload files to the OMS.	All Database Servers	View
PASS	OS Check	The host name used for the OMS is in the correct format and agrees with the host network configuration.	All Database Servers	View
PASS	OS Check	Upload to the OMS is locked.	All Database Servers	View
PASS	OS Check	DEBUG tracing is not set for the OMS.	All Database Servers	View
PASS	OS Check	The EMConsoleServerHTTPSPort value from the emctl List properties output matches the port configured in ssl.conf.	All Database Servers	View
PASS	OS Check	The EMConsoleServerPort value from the emctl List properties output matches the port configured in httpd.conf.	All Database Servers	View
PASS	OS Check	The EM_CONSOLE_HTTPS_PORT number is greater than 1023.	All Database Servers	View
PASS	OS Check	The EM_UPLOAD_HTTP_PORT number is greater than 1023.	All Database Servers	View
PASS	OS Check	The AS_HTTPS_PORT has not expired.	All Database Servers	View
PASS	OS Check	The MS_HTTPS_PORT has not expired.	All Database Servers	View

E-Business Suite

ORAchk 12.1.0.2.4 extends the E-Business Suite modules supported, adding new support for:

E-Business Suite Oracle Fixed Assets

Checking for any books with an errored or incomplete depreciation run, to allow for resolution prior to month end close.

E-Business Suite Oracle Human Resources

Ensuring verification of Setup Business Group configuration.

E-Business Suite Oracle Receivables

Providing detection of non-validated Receivables Accounting Definitions, which might prevent the Create Accounting process from functioning.

New EBS checks will appear in the report output in the same section as the existing EBS checks

E-Business Suite

Status	Type	Message	Status On	Details
FAIL	SQL Check	One or more books were found with a depreciation status of "Error".	All Databases	View
FAIL	SQL Check	One or more Receivables application accounting definitions (AAD) were found with a status of "Invalid", "Not Validated", or "Validating".	All Databases	View
FAIL	SQL Check	Found orphan Receivables bank accounts with no assignments. for VISBDE07	All Databases	View
WARNING	SQL Check	Setup Business Group Name should not be changed	All Databases	View
WARNING	SQL Check	The java heap space execution setting for Payments concurrent programs is either unset or set to a value that is likely too low.	All Databases	View
WARNING	SQL Check	Output post processor (OPP) heap size settings are probably too low.	All Databases	View
WARNING	SQL Check	Order Headers Ready To Close whose ordered dates are 31 days old or greater.	All Databases	View

The brings the full list of E-Business Suite modules supported by ORAchk 12.1.0.2.4 to:

- Oracle Payables (R12 only)
- Oracle Workflow
- Oracle Purchasing (R12 only)
- Oracle Order Management (R12 only)
- Oracle Process Manufacturing (R12 only)
- Oracle Fixed Assets (R12 only)
- Oracle Human Resources (R12 only)
- Oracle Oracle Receivables (R12 only)

All E-Business Suite checks are within the ebs profile so can be executed individually using this command

```
./orachk –profile ebs
```

Siebel

Also included in ORAchk 12.1.0.2.4 is the first support for Siebel.

ORAchk will verify your Siebel database configuration for stability, best practices and performance optimization.

In this release support is limited to Siebel 8.1.1.11 connecting to Oracle Database 11.2.0.4. Support for futher versions is intended in future release.

The Siebel checks run against the database, so in order to run them they should either be run as the oracle install user or root.

All Siebel checks are within the siebel profile so can be executed individually using this command

```
./orachk -profile siebel
```

Siebel checks will appear in the report output in the new Siebel section like this:

Siebel Checks

Status	Type	Message	Status On	Details
WARNING	SQL Check	Database Parameter nls_sort is NOT set to the recommended value	All Databases	View
PASS	OS Check	Database Parameter open_cursors is set to the recommended value	All Database Servers	View
PASS	OS Check	Database Parameter optimizer_features_enable is set to the recommended value	All Database Servers	View
PASS	SQL Check	Database Parameter _optimizer_max_permutations is set to the recommended value	All Databases	View
PASS	SQL Check	Database Parameter db_file_multiblock_read_count is set to the recommended value	All Databases	View

Over 60 New Health Checks

This release of ORAchk adds new checks for some of the most impactful problems seen to Oracle Customer Support specifically in the areas of:

- Systems hardware settings to optimize encryption performance for the Database and E-Business Suite.
- Solaris & Siebel CRM Object Manager to ensure page sizes are set appropriately for Siebel CRM to handle large numbers of users.
- Database optimization of memory and resource related configurations and Application Continuity checks.
- Enterprise Manager OMS High impact problems that cause functional failure or difficulty with patching or upgrade.
- E-Business Suite Receivables detection of non-validated Receivables Accounting Definitions, which might prevent the Create Accounting process from functioning.
- E-Business Suite Fixed Assets checks for any books with an errored or incomplete depreciation run, to allow for resolution prior to month end close.
- E-Business Suite Human Resources verification of Setup Business Group configuration.
- Siebel Applications verification of the database configuration for stability, best practices and performance optimization.

EXAchk

Major New Functionality

- Auto-update when in daemon mode without user intervention
- Automatic download from My Oracle Support
- Initial GoldenGate support
- Initial Siebel support

Checks Added

Exadata

- Critical Issues EX18, EX19, EX20, EX21, DB27, DB28, DB29
- ASM Parameters: AUDIT_SYS_OPERATIONS, AUDIT_SYSLOG_LEVEL, ASM_POWER_LIMIT
- Database Parameters: _SMM_AUTO_MAX_IO_SIZE, DB_BLOCK_SIZE, DIAGNOSTIC_DEST, AUDIT_SYS_OPERATIONS, AUDIT_TRAIL, SGA_TARGET
- Additional EBS checks

- verify database memory allocation is not greater than physical memory installed
- verify active system values match those defined in configuration file "cell.conf"
- verify cluster verification utility (cvu) output directory contents < 500MB
- verify that the sdp over ib option "sdp_apm_enable" is set to "0" - el6
- verify that crs_limit_nproc is greater than 65535 and not "unlimited"
- verify tcp segmentation offload (tso) is set to off

Exalogic

None

Exalytics

None

Supercluster

- standby database log_archive_config
- standby open mode
- standby recovery mode
- standby recovery process status
- standby redo apply lag
- verify standby redo logs are configured on the primary
- verify standby redo logs are configured on the standby
- check ora-00600 errors
- database init parameter db_block_checking on standby
- dataguard broker configuration
- flashback database on standby
- local listener set to node vip
- logical standby unsupported data types
- managed recovery processes status

Zero Data Loss Recovery Appliance

- please modify exachk to expect zdlra - db_files & db_block_checksum values
- zdlra exachk file system threshold should be 70%

Checks Removed

- Turn NUMA On [Operating System] for eight socket systems
- Turn NUMA Off [Operating System] for 2 socket systems

NOTE: "Checks removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

Issues Fixed

Exadata

```
Bug Num     Fixed        Subject
18155963    12.1.0.2.4   add checks to verify some basic sap prereqs are met
19572398    12.1.0.2.4   exachk thinks a different node is localnode other than where it is running
19846731    12.1.0.2.4   enhance exachk to recognize sap exadata database bundle patches (sapexadbbp)
20063471    12.1.0.2.4   modify: verify no infiniband network errors (ibqueryerrors)
20238593    12.1.0.2.4   add "verify database memory allocation is not greater than physical memory inst"
20532303    12.1.0.2.4   auto update when exachk runs in daemon mode without user intervention
20557656    12.1.0.2.4   x4-8 - exachk reports incorrect number of physical drives
20657847    12.1.0.2.4   memory size incorrect in infrastructure software and configuration summary
20673252    12.1.0.2.4   add check for exadata critical issue ex18 (mos note 1270094.1)
20680081    12.1.0.2.4   er: block orachk from executing on exadata hardware (and vice versa)
20686530    12.1.0.2.4   er: modify checkdiskfgmapping.sh to be check only, no corrective capability
20711235    12.1.0.2.4   exachk fails with "there are prompts, traps or calling oraenv in .bash_profile"
20729458    12.1.0.2.4   modify rationale for "verify storage server metric cd_io_st_rq"
20816465    12.1.0.2.4   "verify exadata smart flash cache is actually in use" missing in html file
20857994    12.1.0.2.4   exachk is throwing: -bash: line 2: /home/xxx: is a directory
20859718    12.1.0.2.4   long running daemon sets nextautorun months into the future, not per schedule
20883102    12.1.0.2.4   false fail (x3 only): system is exposed to exadata critical issue ex17
20884946    12.1.0.2.4   -profile debug_check does not work
20904813    12.1.0.2.4   doc: fix action repair text for the 3 ex17 os file checks
20907286    12.1.0.2.4   skipping exadata database server rolling switch patching minimum
20955276    12.1.0.2.4   er: verify active system values match those defined in configuration file...
20958320    12.1.0.2.4   add check for exadata critical issue ex19 (mos note 1270094.1)
20981568    12.1.0.2.4   em12c es healthchecks plug-in 12.1.0.5 erroring with exadata exachk 12.1.0.2.3_2
20983254    12.1.0.2.4   er: log all user input to the exachk.log file
21033617    12.1.0.2.4   add: verify cluster verification utility(cvu) output directory contents...
21041861    12.1.0.2.4   modify: verify that the sdp over ib option "sdp_apm_enable" is set to "0" - el6
21044273    12.1.0.2.4   add check for exadata critical issue db27 (mos note 1270094.1)
21059118    12.1.0.2.4   er: add "verify that crs_limit_nproc is greater than 65535 and not "unlimited" "
21094550    12.1.0.2.4   add check for exadata critical issue ex20 (mos note 1270094.1)
21115838    12.1.0.2.4   add check for exadata critical issue ex21 (mos note 1270094.1)
21150350    12.1.0.2.4   er: deliver exachk as a linux rpm
21162667    12.1.0.2.4   add check for exadata critical issue db28 (mos note 1270094.1)
21164816    12.1.0.2.4   maa scorecard version table contains duplicate, misaligned rows
21165214    12.1.0.2.4   false fail - config infiniband listener - duplicate param spfile.ora
21186387    12.1.0.2.4   doc: align use of "zero data loss recovery appliance".
21219252    12.1.0.2.4   modify _enable_numa_support
21219356    12.1.0.2.4   er: add audit_sys_operations = true for asm
21233775    12.1.0.2.4   raid controller battery condition - needs update for x5-8 compute nodes
21239896    12.1.0.2.4   er: add _smm_auto_max_io_size=1024 for database instances
21240259    12.1.0.2.4   modify "verify hidden database initialization parameter usage"
21257888    12.1.0.2.4   5 checks wrong with "user is root. opatch cannot continue..."
21258372    12.1.0.2.4   er: add audit_syslog_level = local0.info for asm
21258893    12.1.0.2.4   er: add sga_target 0 for common database parameters
21264918    12.1.0.2.4   er: add audit_trail = db for database parameters
21264934    12.1.0.2.4   er: add audit_sys_operations = true for database parameters
21264958    12.1.0.2.4   er: add diagnotic_dest = not null for database parameters
21264977    12.1.0.2.4   er: add db_block_size = 8192 for database parameters
21315175    12.1.0.2.4   er: add "verify tcp segmentation offload (tso) is set to off "
21316010    12.1.0.2.4   add exachk check for asm_power_limit=4
21320650    12.1.0.2.4   modify: recovery and create file destinations
21323553    12.1.0.2.4   add check for exadata critical issue db29 (mos note 1270094.1)
```

Exalogic

```
Bug Num     Fixed        Subject
21066466    12.1.0.2.4   change database server root credential question
21147920    12.1.0.2.4   change type for question "crs stack is running but crs_home is not set?"
21153092    12.1.0.2.4   error message for unsupported exalytics version is not provided in xml payload
21159643    12.1.0.2.4   issue in starting daemon
21198870    12.1.0.2.4   ip address missing for ib switch
21216659    12.1.0.2.4   probe messages changes
21245589    12.1.0.2.4   orachk_results does not have read permissions for world
21302601    12.1.0.2.4   change question type for exalogic ssh user equivalence b/w nodes
21339671    12.1.0.2.4   rat_passwordcheck_timeout not working with zfs checking on exalogic
```

Exalytics

```
Bug Num     Fixed        Subject
20481299    12.1.0.2.4   beta: extraneous characters jumbled in the status and info messages
```

Supercluster

```
Bug Num     Fixed        Subject
20441154    12.1.0.2.4   please add "standby database log_archive_config" check for supercluster
20441189    12.1.0.2.4   please add "standby open mode" check for supercluster
20441219    12.1.0.2.4   please add "standby recovery mode" check for supercluster
20441242    12.1.0.2.4   please add "standby recovery process status" check for supercluster
```

```
20441263   12.1.0.2.4   please add "standby redo apply lag" check for supercluster
20441287   12.1.0.2.4   please add "verify standby redo logs are configured on the primary" for ssc
20441296   12.1.0.2.4   please add "verify standby redo logs are configured on the standby" for ssc
20441596   12.1.0.2.4   please add "check ora-00600 errors" for supercluster as well
20441609   12.1.0.2.4   please add "database init parameter db_block_checking on standby" for ssc
20441644   12.1.0.2.4   please add "dataguard broker configuration" for supercluster as well
20441660   12.1.0.2.4   please add "flashback database on standby" for supercluster as well
20441683   12.1.0.2.4   please add "local listener set to node vip" for supercluster as well
20441693   12.1.0.2.4   please add "logical standby unsupported data types" for supercluster as well
20441700   12.1.0.2.4   please add "managed recovery processes status" for supercluster as well
```

Zero Data Loss Recovery Appliance

```
Bug Num     Fixed        Subject
21289508   12.1.0.2.4   please modify exachk to expect zdlra - db_files & db_block_checksum values
21365022   12.1.0.2.4   zdlra exachk file system threshold should be 70%
```

ORAchk

What Happened To 12.1.0.2.2?

Normally ORAchk has a quarterly release cycle, with a new version coming out every 3 months. However during the 12.1.0.2.2 release cycle, the majority of development time was spent incorporating support for new Oracle Exadata Systems into the exachk script. As such we did not release a version 12.1.0.2.2 of ORAchk (only exachk).

This skip of version is not normal.

Broader Linux Support

ORAchk 12.1.0.2.3 now includes new support for both Linux on System Z and Oracle Enterprise Linux 7.

Deeper Product Support

Pre & Post upgrade check support for 12.2.0.1.0

ORAchk now supports upgrade checks for 12.2.0.1.0, enabling you to do pre and post upgrade checking for Oracle Database 12.2.0.1.0 to avoid the most common upgrade problems.

Pre Upgrade to 12.2.0.1.0

To run pre upgrade health checks against your database run:

```
./orachk -u -o pre
```

When prompted you can now select the intended upgrade version of 12.2.0.1.0

Post Upgrade to 12.2.0.1.0

Once you have performed your upgrade to 12.2.0.1.0 run orachk against it again with:

```
./orachk -u -o post
```

ASM Single Instance Support

ORAchk now supports ASM checks and patch recommendations for single instance databases as well as the already supported RAC instances.

Deeper GoldenGate Support

ORAchk can now query details related to the OS resource consumption of different GoldenGate processes, identifying any components using excessive resources. It also identifies if GoldenGate is configured to avoid known performance problems.

Enterprise Manager Agent Support

Oracle Enterprise Manager Agent support has now been added to the existing support for Enterprise Manager Repository checks. The agent checks now appear in a new "Enterprise Manager" section of the report. With the new EM 12c Agent checks, you will quickly identify common EM Agent configuration mistakes that if undetected can result in poor performance or a failure to run the Agent process.

Note: EM Agent checks are not supported on Windows yet - we plan to add EM Agent support on Windows in an upcoming release

New Report Section "Findings Needing Further Review"

There are certain things ORAchk can only do a partial check for, where a complete check requires information outside the scope of the machine or that require other customer specific knowledge. These partially identified checks now appear in the new section marked "Findings needing further review"

How to Exclude Findings Which Need Further Review

If you review these checks and verify they are not problematic you can choose to exclude them in the same way as any other checks:

Best Practice

Future versions of orachk may add further checks that need further review, so if making changes to your script ensure to only exclude on a check by check basis.

1) Find the ids of the check(s) you wish to exclude:

Table of Contents

Show Check Ids

Findings needing further review

NOTE: This section contains best practices that orachk can only do a partial check for because a complete check requires information it cannot gather (ex: data outside of orachk run scope, requires customer knowledge, etc). Please investigate the partial finding that orachk reports in this section, paying particular attention to the details, to determine if any action is required.

Check Id	Status	Type	Message	Status On	Details
0829D67E8B1549AFE05312C0E50AD04F	FAIL	SQL Check	DB_UNIQUE_NAME on primary has not been modified from the default, confirm enterprise wide uniqueness for database name.	All Databases	View

2) Add check id(s) to excluded_check_ids.txt, which should be in the same directory as the orachk script, one check per line (create the file if it does not already exist)

When orachk starts it will check the contents of the excluded_check_ids.txt and not run any checks listed in there

Exclude the corroborate profile - for adhoc usage

All checks that show as needing further review are under the "corroborate" profile, so can also quickly be excluded when running adhok using the -excludeprofile option:

```
./orachk -excludeprofile corroborate
```

Do not code this exclusion into scripts used to run orachk, as future releases may add new checks to this profile, which should be reviewed to determine their relevance

Improved Health Score Calculation

The ORAchk Health Score calculation has been improved with version 12.1.0.2.3.

Certain INFO level checks, which only communicate best practice and do not confirm a problem in your environment, no longer deduct points from your health score.

If you follow the recommended advice for excluding any non relevant "Findings needing further review" then a health score of 100 is now obtainable.

Over 60 New Health Checks

This release of ORAchk adds new checks for some of the most impactful problems seen to Oracle Customer Support specifically in the following areas:

- Database performance, install, scalability & ASM
- Cross stack checks for Oracle Applications running on Solaris & Oracle Hardware
- Enterprise Manager Agents performance and failure to run
- Oracle EBS Accounts Payables

EXAchk

Major New Functionality

None

Checks Added

- Critical Issue EX17
- Check for partitions on exachk

4.3 Checks Removed

None

NOTE: "Checks removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

4.4 Issues Fixed

Exadata

```
Bug Num    Fixed        Subject
20647257   12.1.0.2.3   "verify total size of all griddisks..." fails on x5 extreme flash
20619925   12.1.0.2.3   mgmt network is not separate from data network on all storage servers fail
20614832   12.1.0.2.3   provide ip addresses instead of names in result xml file
20610033   12.1.0.2.3   issues with flash detection on 1/8th rack.
20602130   12.1.0.2.3   modify: ensure db_unique_name is unique across the enterprise
20594780   12.1.0.2.3   database 12.1.0.2 check for installed bundle patch sql needs updated
20532311   12.1.0.2.3   add check for partitions on exachk
20523483   12.1.0.2.3   exacheck fails with "exachk is not able to determine exadata hardware type"
20508400   12.1.0.2.3   "verify exadata smart flash cache is created" requires different text 11.3 vs 12
20493992   12.1.0.2.3   add check for exadata critical issue ex17 (mos note 1270094.1)
20493522   12.1.0.2.3   review "control files" initialization parameter check, rationale and logic
20457903   12.1.0.2.3   /root/exachk_cells.sh: line 85: /home/oracle/checkflashcache.sh: no such file
20457680   12.1.0.2.3   need to add cpu model x5675 for x2-2 db in exachk
20412517   12.1.0.2.3   recovery appliance probe returns incorrect es type
20368743   12.1.0.2.3   probe xml question text changes
20361647   12.1.0.2.3   exachk merge report missing some data
20309235   12.1.0.2.3   provide system information in probe mode
18530656   12.1.0.2.3   merge of three runs missing component types and names for storage, switches
18022854   12.1.0.2.3   s006-em enhancements for copying results file
```

Exalogic

```
Bug Num    Fixed        Subject
20441625   12.1.0.2.3   add an exachk output file with number of checks (total/warn/fail/error/info..)
20024122   12.1.0.2.3   issue in running exachk with root as effective user
```

Exalytics

```
Bug Num    Fixed        Subject
20481299   12.1.0.2.3   beta: extraneous characters jumbled in the status and info messages
20425359   12.1.0.2.3   beta: erroneous warning that "timesten is not installed properly on this host"
20418407   12.1.0.2.3   use exalytics edmu config file to discover obiee installations
```

Supercluster

```
Bug Num    Fixed        Subject
20312827   12.1.0.2.3   add "verify no external solaris nor exa-family repository is connected" for ssc
```

Zero Data Loss Recovery Appliance

```
Bug Num     Fixed        Subject
20417953    12.1.0.2.3   adjust exachk tests for the x5 hardware on the Zero Data Loss Recovery Appliance
```

Version 12.1.0.2.2_20150122

EXAchk

Major New Functionality

- Support for X5 hardware and Exadata software version 12.1.2.1
- Support for Virtual Machines on Exadata
- Support for asymmetrically distributed RDBMS homes
    - Exadata, Supercluster, Zero Data Loss Recovery Appliance
- Support for Single Instance using Oracle Restart
- New report section: "Infrastructure Software and Configuration Summary"
    - Exadata, Supercluster, Zero Data Loss Recovery Appliance
- New report section: "Findings needing further review"
- New report section: "Platinum"
    - Exadata, Supercluster
- Functionality for pre-patching subset of checks "-prepatch"
    - All

Checks Added

- Exadata
    - Critical Issue EX16
    - "ensure db_unique_name is unique across the enterprise"
- Exalytics
    - None
- Supercluster
    - Enhanced support for global and local zones
    - See "Issues Fixed"
- Zero Data Loss Recovery Appliance
    - None

Checks Removed

None

NOTE: "Checks removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

Issues Fixed

Exadata

```
Bug Num     Fixed        Subject
20387953    12.1.0.2.2   -profile sysadmin prompts for database selection(s)
20347453    12.1.0.2.2   modify dns server ping time: raise threshold to 3ms, remove "2 seconds" typo
20225117    12.1.0.2.2   exachk -initsetup fails not able to determine hardware type on x2-2
20175570    12.1.0.2.2   warning on asm process count when recommended equals setting
20174824    12.1.0.2.2   flash cash size wants gigs while error because it in terabytes
20162223    12.1.0.2.2   checks dependent upon "o_asr_minver_db_server_name.out" fail
20147177    12.1.0.2.2   er: add ssh flag "-v" to default "-debug" output
```

```
20095981   12.1.0.2.2   exadata exachk recommended ib switch settings cause loss of exalogic ovmm db
20046296   12.1.0.2.2   doc: remove references to "213" from 1070954.1
20007280   12.1.0.2.2   readonly env variable qualifier results in "there are prompts..."
20004224   12.1.0.2.2   error ora-12162 while running exachk
19987780   12.1.0.2.2   er: -initpresetup not able to configure ib switches due to passphrase configured
19970494   12.1.0.2.2   duplicate ip addresses in /etc/hosts disrupts check for client interface
19943964   12.1.0.2.2   false fail "scan storage server alerthistory for stateful alerts not cleared"
19933392   12.1.0.2.2   add "ensure db_unique_name is unique across the enterprise"
19884182   12.1.0.2.2   four checks have "elapsed...." from sql timing in view detail
19857872   12.1.0.2.2   add check for exadata critical issue ex16 (mos note 1270094.1)
19857625   12.1.0.2.2   "asm disk group compatible.asm parameter" check fails after gi 12.1.0.2 upgrade
19782430   12.1.0.2.2   infiniband switch is not reachable in exachk
19682422   12.1.0.2.2   exachk fails to run checks in oel 6 based exadata images.
19554511   12.1.0.2.2   er: review verify-topology check
19063799   12.1.0.2.2   enhance exachk framework to handle asymmetric rdbms homes in cluster
18916816   12.1.0.2.2   check for platinum compliance
17981369   12.1.0.2.2   add functionality for pre-patching subset of checks
```

Exalytics

None

Supercluster

```
Bug Num    Fixed        Subject
20170690   12.1.0.2.2   exachk - no database info listed when the exachk is run for single node configur
19943709   12.1.0.2.2   ssc "verify ilom power up configuration for host_last_power_state on db server"
19943700   12.1.0.2.2   "verify ilom power up configuration for host_auto_power_on on db server" for ssc
19943672   12.1.0.2.2   please add "older cvu trace files needing deletion" for supercluster as well
19943652   12.1.0.2.2   please add "old log files in client directory in crs_home" for supercluster as w
19943644   12.1.0.2.2   please add "ocr mirroring" for supercluster as well
19943631   12.1.0.2.2   please add "ocr backup" for supercluster as well
19800997   12.1.0.2.2   clusterware software version matches across cluster while exachk thinks not
19800989   12.1.0.2.2   exachk should not expect ntp server match across zone db and storage servers
19800962   12.1.0.2.2   ip address in cellinit.ora file should not match across database servers
19556333   12.1.0.2.2   please add "gi shell limits" for supercluster as well
19556290   12.1.0.2.2   please add "css log file size" for supercluster as well
19556282   12.1.0.2.2   please add "startup sequence in asm alert log for rds" for supercluster as well
19556257   12.1.0.2.2   please add "crs and asm version comparison" for supercluster as well
19495766   12.1.0.2.2   exachk needs to be more zone aware/friendly on supercluster
19441130   12.1.0.2.2   please add "grid_home crs opatch version" for supercluster as well
19441112   12.1.0.2.2   please add "/tmp directory free space" for supercluster as well
19441071   12.1.0.2.2   add "exadata software version compatibility with ib software version" for ssc
19440977   12.1.0.2.2   please add "vip nic bonding config" check for supercluster as well
19385724   12.1.0.2.2   each database accessed even though no checks are to be run
19327937   12.1.0.2.2   please add ora_crs_home env variable check for supercluster as well
19316579   12.1.0.2.2   please add "rdbms_home opatch version" check for supercluster as well
19316568   12.1.0.2.2   please add oswatcher status check for supercluster as well
19316564   12.1.0.2.2   please add oracle_home env variable check for supercluster as well
19316477   12.1.0.2.2   please add minimum operating system version check for supercluster as well
19273188   12.1.0.2.2   please add maxstartups check for supercluster as well
```

Zero Data Loss Recovery Appliance

None

ORAchk

Easier to stay up to date

ORAchk release versioning now aligns with and follows the same format used by the Oracle 12c Database Patch Set Updates (PSUs); this version is 12.1.0.2.1, the next will be 12.1.0.2.2.

It's also now even easier to update ORAchk across multiple machines.

1. Download the latest release of orachk.zip into a shared network staging directory
2. Set the environment variable $RAT_UPGRADE_LOC to the staging directory
3. The next time ORAchk is run it will prompt you to auto update

ORAchk Auto Upgrade

By default when ORAchk starts it will look for a newer version in the *$ORACLE_HOME/*suptools directory, if a newer version is found it will prompt you to upgrade.

A different upgrade staging directory can be specified using the *$RAT_UPGRADE_LOC* environment variable

Best practice recommendation is to set *$RAT_UPGRADE_LOC* to point to a directory mounted on a shared network drive, accessible from all ORAchk installations.

Disabling ORAchk Auto Upgrade

Upgrade prompting can be disabled by running "*./orachk -noupgrade*" or by setting the environment variable *RAT_NOUPGRADE=1*

Both "–noupgrade" and $RAT_NOUPGRADE will not be effective if the version being run is older than 120 days, in which case a warning will be displayed and if a newer version can be found you will be prompted to upgrade.

ORAchk Manual Upgrade

A manual upgrade can be initiated by running "*./orachk -upgrade*", this will check the *$RAT_UPGRADE_LOC* location first then failing that the *$ORACLE_HOME/*suptools directory and upgrade if a newer version is found.

Upgrade When ORAchk Running as Daemon

If ORAchk is being run in daemon mode all above apply when starting the daemon, so auto upgrade will only be initiated when the daemon is next restarted.

Windows Support

As of ORAchk release 12.1.0.2.1 the tool is now supported on Windows when run within a Cygwin environment.

ORAchk includes hundreds of database and application checks which will run on Windows. There are even more Windows specific checks in the pipeline.

Run as Root

Easier execution for environments with role separation

You no longer need to have different users execute different ORAchk profiles to workaround your company's implementation of role separation. ORAchk can now be run once as root to execute all checks. Prior to executing checks that do not require root access, ORAchk will switch user to the lower level accounts.

Faster

When running against multiple databases, ORAchk now runs database checks in parallel by default. Parallel execution allows database checks to complete in a fraction of the time as previously.

By default the number of child processes ORAchk uses for parallel database execution will be 25% of the number of CPUs. This can be tuned using the -dbparallel[n] switch, where n is the number of child processes to use:

```
-dbparallel [n]

Run SQL, SQL_COLLECT and OS Checks in parallel.

n : Specified number of Child processes.
```

If you prefer to run checks in serial as per the previous behaviour you can use the -dbserial switch

```
-dbserialRun

SQL, SQL_COLLECT and OS Checks in serial
```

Enhanced Comparison of Results

When ORAchk is run with the –diff command on a RAC system, it will now not only compare check results but collection data too.

Quickly compare and understand differences in kernel parameters or database initialization parameters.

```
./orachk -diff orachk_rws3060021_RDB1107_091714_175711 orachk_rws3060021_RDB1107_091714_185702
```

Report 1	orachk_rws3060021_RDB1107_091714_175711
Collection Date	17-Sep-2014 18:10:12
orachk Version	12.1.0.2.1(BETA)_20140917
Executed by	oradb
Report 2	orachk_rws3060021_RDB1107_091714_185702
Collection Date	17-Sep-2014 19:10:33
orachk Version	12.1.0.2.1(BETA)_20140917
Executed by	root
Total Checks Reported	218
Differences between Report 1 and Report 2	8
Unique findings in Report 1	0
Unique findings in Report 2	1
Common Findings in Both Reports	209

Table of Contents

Click on
Health Check Collection
Comparison Summary

There is a new element in the diff report table of contents:

Health Check Collection Comparison summary

Selecting this takes you down to the **Collection Comparison Details** section

Collections Comparison Details

Expand All   Collapse All

HOST - rws3060022

Patches for RDBMS Home

Kernel parameters

Collection results are organized by the host

HOST - rws3060023

Patches for RDBMS Home

Kernel parameters

HOST - rws3060021

Clusterware Resource Status

Patches for RDBMS Home

Kernel parameters

ASM - GENERIC

ASM Disk I/O stats

ASM initialization parameters

ASM diskgroup usable free space

HOST - rws3060024

Patches for RDBMS Home

Kernel parameters

In the **Collection Comparison Details** section you find the details organized by each of the hosts ORAchk was run against.

Collections Comparison Details

Expand All | Collapse All

HOST - rws3060022

Patches for RDBMS Home

Kernel parameters

Click one of the links to expand & view the collection differences

Parameter	orachk_rws3060021_RDB1107_091714_175711	orachk_rws3060021_RDB1107_091714_185702
kernel.cad_pid		1
kernel.random.entropy_avail	189	155
kernel.random.uuid	0e23e6b0-07af-4af6-b0ab-4c3605b858ba	5a236aa5-885e-450b-b745-21a4f72beb41
fs.inode-nr	213298 28313	213779 28312
fs.inode-state	213298 28313 0 0 0 0 0	213779 28312 0 0 0 0 0
fs.file-nr	39552 0 6815744	39680 0 6815744
fs.dentry-state	210674 195615 45 0 0 0	211359 196278 45 0 0 0
fs.aio-nr	103245	103501
dev.cdrom.info		CD-ROM information, Id: cdrom.c 3.20 2003/12/17
dev.cdrom.info		drive name:
dev.cdrom.info		drive speed:
dev.cdrom.info		drive # of slots:
dev.cdrom.info		Can close tray:
dev.cdrom.info		Can open tray:
dev.cdrom.info		Can lock tray:
dev.cdrom.info		Can change speed:

Selecting one of the links will expand the report to show you the differences in individual collection values between the different ORAchk runs.

New Checks

Over 70 new EBS checks

ORAchk support for EBS has been enriched and broadened, with even more checks for Oracle Payables (R12) and Oracle Workflow and now with release 12.1.0.2.1 introduces new support for Oracle Order Management (R12) and Oracle Process Manufacturing (R12).

Custom Naming of Reports

Use tags to add a custom name to any report output

There are times when it is useful to easily differentiate ORAchk results.

Imagine you run ORAchk to perform preupgrade checks and then subsequently run a standard health check execution, looking at the file names can be difficult to tell which is which.

Now you can add custom tags which will be appended to the output file names

```
-tag <tagname>
Appends <tagname> to Report Name. <Tagname> must contain only alphanumeric characters.
eg: ./orachk -tag newtag123 will append 'newtag123' to report name like 'orachk_hostname1_db1_100914_123456_newtag123.html'
```

So given the above example you could now run:

```
./orachk -preupgrade -tag "prepgrade" which would generate output like: orachk_hostname1_db1_300914_123456_preupgrade.html
```

and

```
./orachk -tag "regular" which would generate output like: orachk_hostname1_db1_300914_234567_regular.html
```

Currently tags only accept alphanumeric characters. We plan to add support for non-alphanumeric characters in a future release.

EXAchk

Major New Functionality

- Ability to launch a complete exachk run as the root userid
- Obfuscate provided passwords in "-debug" output
- Option for custom tag in file names: "-tag <numbersandcharactersonly>"
- Improved self-updating feature
- Support for Zero Data Loss Recovery Appliance (Recovery Appliance)

Checks Added

- Exadata
  - Critical Issue DB26
  - Verify basic Logical Volume(LVM) system devices configuration
  - Verify file /.updfrm_exact does not exist
  - Scan storage server alerthistory for stateful alerts not cleared
  - Verify the Name Service Cache Daemon (NSCD) is Running
- Exalytics
  - None
- Supercluster
  - "hostname formating"
  - "hca transfer rate on database server"
  - "fully qualified hostname name length"
  - "non-routable network for interconnect"
  - "clusterware resource status"
  - "verify db shell limits"
- Zero Data Loss Recovery Appliance
  - Initial Support

Checks Removed

None

NOTE: "Checks removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

Issues Fixed by Version

Exadata

```
Bug Num    Fixed        Subject
19774747   12.1.0.2.1   watchdog.log contains unmasked password with -debug
19582427   12.1.0.2.1   -profile dba prompts for root userid password on storage and database servers
19574512   12.1.0.2.1   add check for exadata critical issue db26 (mos note 1270094.1)
```

```
19562232   12.1.0.2.1   exachk skips checks on one of the ib switch.
19561514   12.1.0.2.1   "shell limit hard nofile for db is not configured according to recommendation"
19551854   12.1.0.2.1   ora-15025, ora-15080 - warning: disk locally closed resulting in i/o error [0x2]
19545027   12.1.0.2.1   checks skipped due to file from previous run owned by different user
19532883   12.1.0.2.1   option "-profile sysadmin" is not working on 2.2.5.2
19516597   12.1.0.2.1   action plan for check sdp_apm_enable should be set to 0 fails.
19500844   12.1.0.2.1   exacheck reports wrong values for gi user in limites.conf file
19492031   12.1.0.2.1   fgmap: checkdiskfgmapping.sh executes if not all cells present
19491909   12.1.0.2.1   fgmap: trailing "/" at line 64 leads to odd messages and syntax
19483326   12.1.0.2.1   er: clean up debug output
19462275   12.1.0.2.1   checkids not expanded in maa scorecard
19453256   12.1.0.2.1   risk text of db24 check is incorrect
19451281   12.1.0.2.1   version check should always report in recommended range when it is
19386798   12.1.0.2.1   -excludeprofile storage,switch ignored on default client name configuration
19369589   12.1.0.2.1   exachk fails with : exachk could not determine status of databases registered in
19366492   12.1.0.2.1   fgmap: ls: /home/oracle/.exachk/cells.out: no such file or directory
19346766   12.1.0.2.1   carry forward fix for 2.2.5.1 ex15 into 2.2.6 code line
19325240   12.1.0.2.1   correct typo "sdb_apm_enable" in the sdp apm enabled check
19325154   12.1.0.2.1   db11 fail message wrong in maa scorecard
19311026   12.1.0.2.1   "risk" text for exadata critical issue ex14 is incorrect
19135947   12.1.0.2.1   modify data entry gui not to display "asm home" column if = 11.2
19049790   12.1.0.2.1   fgmap: checkdiskfgmapping.sh does not handle hostnames with hyphens
18953024   12.1.0.2.1   add check: verify basic logical volume(lvm) system devices configuration
18861189   12.1.0.2.1   exachk hangs if $home is not same on remote node and localnode
18857035   12.1.0.2.1   nscd service should be enabled on all exadata systems and validated by exachk
18808667   12.1.0.2.1   fgmap: exachk fails on solaris using checkdiskfgmapping.sh
18808596   12.1.0.2.1   exachk unable to run opatch in role separated exadata environments
18746642   12.1.0.2.1   add check "verify file /.updfrm_exact does not exist"
18690575   2.2.5.2      exachk does not generate any report
18521208   12.1.0.2.1   false fails in "cluster wide" section "spfile/init.ora files not consistent"
18477576   2.2.5       mixed hardware: fail: storage server flash memory is not ....cache
18428011   12.1.0.2.1   assistance requested running exachk in customized security
18406453   2.2.4       many skipped storage server checks
18353561   12.1.0.2.1   modify "... "sdb_apm_enable(d)" is set to "0" to check active kernel setting
17782832   12.1.0.2.1   add check for open stateful alerts on cells
17565076   12.1.0.2.1   exachk not running completely in customized security configuration
```

Exalytics

```
Bug Num     Fixed        Subject
19548377   12.1.0.2.1   exacheck failed to check bi home / tt home , even when rat_bi_homes is set
```

Supercluster

```
Bug Num     Fixed        Subject
19556341   12.1.0.2.1   please add "hostname formating" for supercluster as well
19556338   12.1.0.2.1   please add "hca transfer rate on database server" for supercluster as well
19556326   12.1.0.2.1   please add "fully qualified hostname name length" for supercluster as well
19556322   12.1.0.2.1   please add "non-routable network for interconnect" for supercluster as well
19556300   12.1.0.2.1   please add "clusterware resource status" for supercluster as well
19441146   12.1.0.2.1   please add "verify db shell limits" for supercluster as well
19079839   12.1.0.2.1   'cell disk config on flash memory devices' check reports incorrect fail message
19079761   12.1.0.2.1   'cell disk configuration on disk drives' check reports incorrect fail message
```

Zero Data Loss Recovery Appliance

```
Bug Num     Fixed        Subject
19605812   12.1.0.2.1   rename lvbadump to rename lvradump
```

Version 2.2.5.2_20140815

EXAchk

Major New Functionality

- Updates to Software Version Recommendation Matrix

Checks Added

- Exadata critical issue DB25
- Minimum version requirements for InfiniBand switch rolling patching

Checks Removed

None

NOTE: "Checks removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

Issues Fixed

```
Bug Num     Fixed      Subject
19451249    2.2.5.2    bad check "verify cellinit.ora config file consistency across database servers"
19424046    2.2.5.2    add check for exadata critical issue db25 (mos note 1270094.1)
19388882    2.2.5.2    add version checks for exadata infiniband switch rolling patching
19308345    2.2.5.2    exadata : exachk showing duplicates/confilcting entries from some db instances
```

Version 2.2.5_20140730

EXAchk

Major New Functionality

This interim release contains no new major functionality.

Checks Added

- Exadata critical issue EX15

Checks Removed

None

NOTE: "Checks removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

Issues Fixed

```
Bug Num     Fixed      Subject
19262056    2.2.5.1    add check for exadata critical issue ex15 (mos note 1270094.1)
19345317    2.2.5.1    doc: add "prerequisite considerations: section to user guide
19345119    2.2.5.1    doc: asymmetric rdbms homes section 4) and 5) incorrect
19339070    2.2.5.1    doc: add "deprecated" features notes and new appendix to user guide
19338748    2.2.5.1    doc: add discussion of "system health score" to user guide
19012892    2.2.5.1    doc: new default temporary directory of $home not in user guide
```

Version 2.2.5_20140530

ORAchk

ORAchk replaced the popular RACcheck in version 2.2.4 to support a wider range of products. ORAchk version 2.2.5 is now available for download and includes the following key features:

- Running checks for multiple databases in parallel
- Ability to schedule multiple automated runs via ORAchk daemon
- New "scratch area" for ORAchk temporary files moved from /tmp to a configurable $HOME directory location
- System health score calculation now ignores skipped checks
- Checks the health of pluggable databases using OS authentication
- New report section to report top 10 time consuming checks to be used for optimizing runtime in the future
- More readable report output for clusterwide checks
- Includes over 50 new Health Checks for the Oracle Stack
- Provides a single dashboard to view collections across your entire enterprise using the Collection Manager, now pre-bundled
- Expands coverage of pre and post upgrade checks to include standalone databases, with new profile options to run only these checks
- Expands to additional product areas in E-Business Suite of Workflow & Oracle Purchasing and in Enterprise Manager Cloud Control

EXAchk

Major New Functionality

- Running checks in parallel on multiple databases
- Allowing multiple run through exachk daemon
- Move away from /tmp as temporary destination. $HOME directory is new temporary directory and can be overridden using environment variable
- Enhancements in health check score calculation to include skipped checks
- Checking pluggable databases without password
- Enhancement in report to print top 10 resource consuming checks
- Better reporting for cluster wide checks in sync with other checks
- -upgrade command line option to upgrade exachk
- Granular help at the command line option level, for example: ./exachk –profile –h

Checks Added

- Exadata critical issue DB24
- Invalid database objects

Checks Removed

None

NOTE: "Checks removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

Issues Fixed

```
Bug Num     Fixed      Subject
18864899    2.2.5      add check "verify that patch 16618055 is applied"
18857926    2.2.5      add check "verify exadata smart flash cache is actually in use"
18852084    2.2.5      exachk fails with ksh[1]: .[24]: local: not found [no such file or directory]
18820145    2.2.5      add check for exadata critical issue ex14 (mos note 1270094.1)
```

```
18817676    2.2.5    exachk apm check not applicable on solaris 11, 11.1
18817019    2.2.5    exacheck tfa failure
18816970    2.2.5    exachk mtu size not applicable on solaris
18805254    2.2.5    exachk - gi 12.1.0.1.2 (bp2) - not recognized correctly ?
18746347    2.2.5    correct rationale for "verify no infiniband network errors (ibqueryerrors)"
18735585    2.2.5    correct pass/fail messages and rationale for exachkcfg check
18712082    2.2.5    exadata: exachk ntp check fails when ip has domain aliases
18691846    2.2.5    exachk reports incorrect information on flashcache configuration
18687078    2.2.5    asm griddisk,diskgroup and failure group mapping is not as recommended
18665313    2.2.5    /tmp/env.tmpl does not capture rat_copy_em_xml_files=1
18665077    2.2.5    -initrmsetup fails to remove /tmp/env.tmpl
18664811    2.2.5    ./exachk -d nextautorun does not zero fill times, looks funny if not two digits
18616624    2.2.5    exachk error ksh[1]: .[24]: local: not found [no such file or directory]
18601262    2.2.5    exachk fails due to bad sed call in exachk script
18544424    2.2.5    "fail = all database and storage servers are not synchronized with ntp server"
18541816    2.2.5    exachk fails if root password has [
18536989    2.2.5    fail: storage server flash memory is not configured as exadata smart flash cache
18530680    2.2.5    -merge produces onscreen errors re: missing files
18515507    2.2.5    exachk -excludeprofile switch should not ask for infinitand password
18515449    2.2.5    exachk -excludeprofile storage should not ask for storage password
18515349    2.2.5    exachk -excludeprofile sysadmin should not ask for root password
18514932    2.2.5    exachk -profile dba should not ask for database server password
18500614    2.2.5    exachk fails after 60 seconds when started in start_debug mode
18499864    2.2.5    add check for exadata critical issue db24 (mos note 1270094.1)
18492518    2.2.5    exachk has an insert failure
18468845    2.2.5    doc issue: /home/oracle/root_exachk.sh missing from sudo instructions
18456411    2.2.5    add check recommendations info to xml file
18442971    2.2.5    exachk_ibswitch.sh and exachk_cells.sh not preserved in outfiles directory
18442011    2.2.5    exachk -d stop does not stop daemon after exachk binary is replaced at target
18427767    2.2.5    reduce alert level of "processes" checks to "warn"
18414394    2.2.5    at line 13 delimited by end-of-file (wanted `eof') in exachk_error.log
18404977    2.2.5    ./exachk -merge non-existing file shows conflicting msg, too many grep messages
18403757    2.2.5    issue running checkdiskfgmapping.sh from a 12.1 grid home
18399556    2.2.5    ./exachk -merge results differ
18398256    2.2.5    ./exachk -merge hangs on invalid input
18392778    2.2.5    ./exachk -diff hangs on comparing the same zip files
18392717    2.2.5    exachk -diff on two zip files fail when zip file is not at local directory
18392182    2.2.5    mtu size check fail for 7000 on 11.2.3.2.1
18391878    2.2.5    exachk hangs due to elapsed: 00:00:00.01 being reported
18391838    2.2.5    elapsed: 00:00:00.01 being reported in exachk causing failures
18384573    2.2.5    exachk 2.2.4 does not include asrexacheck section in html report
18362476    2.2.5    -debug option hangs at end of run
18361278    2.2.5    -excludeprofile storage,switch prompts for passwords, runs check subset
18355578    2.2.5    root_exachk.sh for the storage servers is not preserved
18350335    2.2.5    exachk client run does not work with passwords that have special characters
18329202    2.2.5    bad magic number in super-block while trying to open device name
18294817    2.2.5    exchk skipped checks on exadata
18195301    2.2.5    enhancement request: request parallel execution of exachk jobs for many db
17976022    2.2.5    add check for invalid database objects
```

Version 2.2.4_20140228

ORAchk

- RACcheck renamed to ORAchk
- ORAchk daemon auto-start mode after node reboot (init integration)
- Merge multiple ORAchk collection reports
- Upload of installed patches to database
- Collection Manager for ORAchk, RACcheck and Exachk
- ORAchk signature file in /tmp on all nodes to verify last ORAchk run
- New checks and bug fixes, including
    - 30 Oracle Ebusiness AP module data integrity checks
    - 12 new Database checks
    - 8 new Solaris system checks

EXAchk

Major New Functionality

- Increased support for mixed hardware environments
- daemon can be configured to auto-start upon reboot
- Increased daemon error logging ability
- Ability to exclude profiles (-excludeprofile)
- Merge function to combine partial reports
- daemon can be configured to purge data
- Critical issues DB22, DB23
- Collection Manager for ORAchk, RACcheck and Exachk (see the Collection Manager tab of Doc ID 1268927.2)

Checks Added

- A number of cross-cluster checks have been added. See "Issues Fixed".
- "verify service exachkcfg autostart status on database " for 11.2.3.3.0 to "on"
- "rolling dbserver patching version checks"
- "rolling cell patching version checks"
- "verify database server disk devices tune2fs check interval = "0""
- "verify database server disk devices tune2fs maximum mount count = "-1""
- "verify processor.max_cstate=1 on database servers"
- "verify there is enough diskgroup freespace for a rebalance operation"

Checks Removed

None

NOTE: "Checks removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

Issues Fixed

```
Bug Num    Fixed    Subject
18300635   2.2.4    false positive for scan listener count
```

```
18276448   2.2.4   modify hugepages check self help text to recommend reboot
18275570   2.2.4   modify ecc memory check to run on both database and storage servers
18261329   2.2.4   conflicting advise for asm sga_target
18248190   2.2.4   user equivavlence check error reports wrong host name
18242337   2.2.4   check for disabled apm on all engineered systems needed
18239810   2.2.4   daemon stops at password check interval when environment configured for sudo
18197795   2.2.4   checkdiskfgmapping.sh hangs leading to timeout on solaris x2-2
18165399   2.2.4   exacheck results not reporting failed cell status as critical
18161063   2.2.4   modify parsing of watchdog.log to filter out "expect: timed out"
18148657   2.2.4   -profile clusterware,asm exits with "you have run exachk as the clusterware..."
18130997   2.2.4   switch type missing in exachk report
18057684   2.2.4   add check for exadata critical issue db23 (mos note 1270094.1)
18057637   2.2.4   add check for exadata critical issue db22 (mos note 1270094.1)
18037500   2.2.4   file left behind results in: /tmp/cprofile.sh: permission denied
18016106   2.2.4   add "verify no ib switch ports disabled due to excessive symbol errors"
17987105   2.2.4   "infiniband network error counters are non-zero" fails on image = 11.2.3.3.0
17982401   2.2.4   exachkbestpracticechecks_v223.pdf was not updated for release 2232?
17944936   2.2.4   add "ibswitch ntp config"
17944925   2.2.4   add "ibswitch version"
17944912   2.2.4   add "timezone config"
17944892   2.2.4   add "dbserver cellinit.ora file"
17944872   2.2.4   add "cell cellinit.ora file"
17944841   2.2.4   add "server dns config"
17944824   2.2.4   add "server ntp config"
17944812   2.2.1   add "gihome/dbhome"
17944800   2.2.2   add "dbhome installed patches"
17944773   2.2.1   add "dbhome installed version"
17944754   2.2.2   add "gihome installed patches"
17944739   2.2.4   add "clusterware activeversion"
17944724   2.2.4   add "clusterware softwareversion"
17944702   2.2.3   add "cell/dbserver exadata version"
17938183   2.2.4   add "verify database and storage servers synchronized with common ntp server"
17938174   2.2.4   bring raccheck for same ntp server throughout cluster into exachk
17936530   2.2.3   add "dbserver exadata version"
17936516   2.2.3   add "cell exadata version"
17936507   2.2.4   add "cellip.ora file"
17928033   2.2.4   need orachk daemon to auto restart on system reboot
17896809   2.2.4   exachk does not properly catch incorrectly installed bundle patch
17896770   2.2.4   "verify service exachkcfg autostart status on database " for 11.2.3.3.0 to "on"
17888527   2.2.4   storage servers skipped on exachk with passwordauthentication
17884656   2.2.4   "verify exadata smart flash cache is created" called twice on x4-2 in iaas mode
17884347   2.2.4   pass / fail messages for "online(hot) patches" are the same
17884309   2.2.4   checkswprofile.sh called on storage servers at version 11.2.3.3.0
17844278   2.2.4   x2-2 database servers mis-classified as v2 when exachk run on v2 db server
17820550   2.2.3.2   2.2.3.1 reports "rc-003" with pre-upgrade option
17767940   2.2.4   modify "verify the fast recovery area (fra) has reclaimable space"
17732598   2.2.3.2   add rolling dbserver patching version checks
17732554   2.2.3.2   add rolling cell patching version checks
17732505   2.2.3.1   11.2.0.4 software requirements for software versions table
17620698   2.2.4   include machine type when component list is expanded in report header
17608810   2.2.3.1   amend check for exadata critical issue db20 (mos note 1270094.1)
17450864   2.2.4   ora-01031, sp2-0306 in check_env.out with "-profile sysadmin"
17369540   2.2.4   two issues with checkdiskfgmapping.sh
17222190   2.2.3   infiniband switch opensm.conf config checks update for firmware 2.1.3
16782441   2.2.4   add: verify database server disk devices tune2fs check interval = "0"
16782424   2.2.4   add: verify database server disk devices tune2fs maximum mount count = "-1"
16486796   2.2.4   permit redirection of root_exachk.sh away from /tmp
16163704   2.2.4   enhancement for exachk script for finding out asm instance name
14153949   2.2.4   add check "verify processor.max_cstate=1 on database servers"
14143483   2.2.4   remove two pass "pass/fail logic followed by report data collection" structure
13951335   2.2.4   add check "verify there is enough diskgroup freespace for a rebalance operation"
```

Version 2.2.3.2_20131213

EXAchk

Major New Functionality

None

Checks Added

- " add rolling dbserver patching version checks"
- " add rolling cell patching version checks"

Checks Removed

None

NOTE: "Checks removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

Issues Fixed

```
Bug Num    Fixed      Description
17732554   2.2.3.2    add rolling cell patching version checks
17732598   2.2.3.2    add rolling dbserver patching version checks
```

Version 2.2.3.1_20131108

EXAchk

Major New Functionality

None

Checks Added

- " amend check for exadata critical issue db20 (mos note 1270094.1)"
- " 11.2.0.4 software requirements for software versions table"

Checks Removed

None

NOTE: "Checks removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

Issues Fixed

```
Bug Num    Fixed      Description
17608810   2.2.3.1    amend check for exadata critical issue db20 (mos note 1270094.1)
17732505   2.2.3.1    11.2.0.4 software requirements for software versions table
```

RACCheck

- GoldenGate Best Practice checks (applicable only for databases running GoldenGate)
- Consolidation Best Practices in MAA Score Card
- RACcheck Daemon enhancement allowing for execution at specific scheduled dates/times in addition to interval option
- RACcheck Daemon diff check of current and current-1 reports and emails if differences are found
- Ability to exclude checks based on the check name
- Excluded checks are listed in html report
- Visual progress indicators have been added to confirm script progression at key points
- New checks and bug fixes

EXAchk

Major New Functionality

- Initial support for 11.2.0.4 and 12.1
- MAA scorecard "SOFTWARE MAINTENANCE BEST PRACTICES" contains list of Critical Issues checked
- MAA scorecard "CONSOLIDATION DATABASE PRACTICES" includes specific consolidation checks
- Critical issues DB18, DB19, DB20, DB21
- Daemon has ability to make runs at specific scheduled dates/times in addition to interval option
- Daemon performs a diff of current and current-1 reports and emails if differences found
- Ability to exclude check based on check name
- Excluded checks listed in html report
- Code to check for interactive prompts in login file paths, exit if found
- Several bug fixes in asrexacheck
- -h flag to explain available release options for pre- and post- upgrade check
- Additional visual progress indicators have been added to confirm script progression at key points
- Revised Feature / Fix history includes timeline and data for each release in one location

Checks Added

- "verify storage server test alerts present"
- "verify vm.min_free_kbytes=4g for x2-8 and x3-8"
- add resource manager plan check for consolidated environments
- add minimum cpu_count setting check to exachk
- add memory peak utilization check to exachk
- "verify rman "controlfile autobackup" is set to "on""
- "verify control_file_record_keep_time value is in recommended range"
- add "verify the flash recovery area (fra) has reclaimable space"
- "verify instances do not use initialization parameter files"
- verify berkeley database location for cloned gi homes
- "verify sys and system userids default tablespace is "system""
- "verify no multiple parameter entries in init.ora"
- "verify consistent asm spfile/init.ora"
- verify ilom power up configuration

Checks Removed

None

NOTE: "Checks removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

Issues Fixed

```
Bug Num    Fixed    Description
17550620   2.2.3    "database server system model number" incorrectly fails on x3-2
17550530   2.2.3    "database server physical drive configuration" both passes and fails on x3-2
17550167   2.2.3    "recommended versions" shows 11.2.0.2.x for a "found version" 11.2.0.3.x
17508977   2.2.3    possible false/incorrect reporting of physical drive config errors/warnings
17457464   2.2.3    add code to check for interactive prompt in login sequence and exit if found
17450627   2.2.3    add release dates in feature / fix history file
17449063   2.2.3    add check for exadata critical issue db21 (mos note 1270094.1)
17449027   2.2.3    add check for exadata critical issue db20 (mos note 1270094.1)
17449006   2.2.3    add check for exadata critical issue db19 (mos note 1270094.1)
17383694   2.2.3    add "verify storage server test alerts present"
17367475   2.2.3    issues with exachk/checkdiskfgmapping when naming convention is not followed.
17363449   2.2.3    "sm_priority configuration ..." fails in interconnected exalogic / exadata
17336193   2.2.3    add check for exadata critical issue db18 (mos note 1270094.1)
17308041   2.2.3    add: verify vm.min_free_kbytes=4g for x2-8 and x3-8
17284547   2.2.3    add resource manager plan check for consolidated environments to exachk
17270594   2.2.3    add info about which exadata critical issues have been evaluated
17270256   2.2.3    add minimum cpu_count setting check to exachk
17256632   2.2.3    illegal octal digit '8' at -e line 1, at end of line
17220748   2.2.3    add visual progress indicator after entry of password.
17206990   2.2.3    underscore "_" in grid owner name (a_grid) causes asm checks to fail
17206819   2.2.3    increase check threshold for consolidated environments
17206768   2.2.3    add memory peak utilization check to exachk
17201730   2.2.3    exachk 2.2.2 daemon does not schedule runs correctly
17200041   2.2.3    exachk reports bogus fail on vm.min_free_kbytes setting
17191167   2.2.3    exadata: exachk ask password for exalogic gateway switch thinks it as ib switch
17061012   2.2.3    exadata: exachk 2.2.2 reporting skipped checks
17046218   2.2.3    add "verify rman "controlfile autobackup" is set to "on""
17045735   2.2.3    false positive "fast_start_mttr_target has not been changed from default"
17043623   2.2.3    add "verify control_file_record_keep_time value is in recommended range"
17038193   2.2.3    add "verify the flash recovery area (fra) has reclaimable space"
17012108   2.2.3    exachk: line 19210: [[: userid@ip address: syntax error:
17001570   2.2.3    special characters in non cdata section checkname of exachk
16992158   2.2.3    exachk_222: on infiniband switch - no checks reported but
16984594   2.2.3    exachk fails vm.min_free_kbytes when prior value commented out in sysctl.conf
16979212   2.2.3    "-profile storage" option missing exachk_collection_timings.out
16928227   2.2.3    exachk -a on slcc08db01 (solaris) has killed processes skipped checks
16920276   2.2.3    add "verify instances do not use initialization parameter files"
16914381   2.2.3    add ability to diff reports on schedule and email alerts if differences found
16914270   2.2.3    add daemon ability to run exachk at specific time and day
16874730   2.2.3    exachk -profile storage (and switch) terminated on scam02db01 in daemon mode
16857664   2.2.3    exachk no longer allows root to run "-p" storage, switch, sysadmin, and dba
16702324   2.2.3    "timed out" on screen after "preparing to run root privileged commands on..."
16684733   2.2.3    exachk: "subnet manager daemon is not running" - mixed firmware configurations
16654205   2.2.3    exachk metadata xml has all messages under recommendation tag
16524391   2.2.3    verify berkeley database location for cloned gi homes
16403032   2.2.3    exachk flags stateless alerts with null "examinedby" for test trap
16371186   2.2.3    verify-topology errors
16339322   2.2.3    -h option to explains the releases we could upgrade to with the -u flag
15955966   2.2.3    add check "verify sys and system userids default tablespace is "system""
14281920   2.2.3    verify ilom power up configuration
13805414   2.2.3    create check "verify no multiple parameter entries in init.ora"
13805350   2.2.3    create check "verify consistent asm spfile/init.ora"
```

Version 2.2.2.1_20130617

EXAchk

./exachk –v: EXACHK VERSION: 2.2.2.1_20130617

Release Date: August 12, 2013

Major New Functionality

None

Checks Added

None

Checks Removed

None

NOTE: "Checks removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

Issues Fixed

```
Bug Num    Fixed      Description
17256632   2.2.2.1    illegal octal digit '8' at -e line 1, at end of line
17206990   2.2.2.1    underscore "_" in grid owner name (a_grid) causes ASM checks to fail
```

RACCheck

- Execution as the root user for sysadmin profile is now possible, e.g. ./raccheck -profile sysadmin
- RACcheck daemon feature to automate execution of RACcheck non-interactively at predefined interval
- Support for Solaris Sparc 11
- Upgrade best practices for 11.2.0.3, 11.2.0.4 and 12c
- RACcheck output directory restructure
- Standard health check is now included in post upgrade
- New checks and bug fixes

EXAchk

./exachk –v: EXACHK VERSION: 2.2.2_20130617

Release Date: June 17, 2013

BETA:

./exachk –v: EXACHK VERSION: 2.2.2(BETA)_20130529

Release Date: May 29, 2013

Major New Functionality

- exachk daemon to support non-interactive execution on storage servers and IB switches
- Ability to run –profile sysadmin under root userid
- Software version recommendation matrix in MAA scorecard
- Ability to run MAA scorecard stand alone
- Identify hardware type of each storage server independently
- Output directory restructure

Checks Added

- Initialization parameter processes
- Initialization parameter db_files=1024
- Verify vm.min_free_kbytes=524288
- Verify no asm corruption is reported
- Verify subnet manager service not running on storage or db servers
- Verify log transport services for enabled redo destinations are functional
- "Verify data files are recoverable" to MAA scorecard
- "Verify data files are recoverable (data guard)" to MAA scorecard
- "Verify log_archive_max_processes parameter is optimally configured" to MAA scorecard
- Verify storage server network configuration with ipconf

Checks Removed

None

NOTE: "Checks removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

Issues Fixed

```
Bug Num    Description
16971269   exacheck does not upload output to database when run in daemon mode
16934205   "exadata storage server system model number" wrong in mixed x2-2 / x3-2
16920954   modify "verify electronic storage module (esm) lifetime is within specification"
16902904   add "verify log_archive_max_processes parameter is optimally configured"
16864328   exachk -m has maa scorecard (version: 2013/05/22)
16822355   ./exachk -u -o pre when run in daemon mode hangs ( 2 hours)
16795936   add: initialization parameter processes
16795868   add: initialization parameter db_files=1024
16795740   add: verify vm.min_free_kbytes=524288
16795681   modify: verify exadata smart flash cache is created
16795675   modify: verify exadata smart flash log is created
16795505   add: verify no asm corruption is reported
16795289   add: verify subnet manager service not running on storage or db servers
16776890   exachk -profile switch has skipped checks (due to *.out not found)
16769762   bp ver installed does not match the bp ver registered - due to other $oh
16754221   exachk: local listener check raises false warning in multiple vip configuration
16693849   add "verify log transport services for enabled redo destinations are functional"
16682436   foreground the .exachk job stopped, that job goes away w/o updating client.pid
16682344   exachk daemon: ./exachk -a process lingers even after exachk is done
16682235   exachk should not terminate the exachk that is already running on xterm 2
16680382   ./exachk -d statt should have returned an error
16672596   add function to execute maa scorecard in stand alone mode
16666386   add "verify data files are recoverable" to maa scorecard
16666256   add check "verify data files are recoverable (data guard)" to maa scorecard
16575973   modify rationale for "exachkcfg autostart status" to match bp wiki
16563882   failed to completely exclude asrexacheck
16562790   add "verify storage server network configuration with ipconf"
16561752   exadata: exachk fail to copy xml files to remote node
16554523   the bundle patch version installed does not match the bundle patch version regis
16546921   modify documentation for "excluded_check_ids.txt" file
16520619   exachk issues with root password having special characters
16519731   exadata: exachk reporting a set of skipped checks
16448891   checkdiskfgmapping.sh griddisk suffix check should be case insensitive
16440031   sm_priority check has "is_spine = 0" in detail view
16320354   run ib switch checks while using silent mode option
16243437   identify storage server hardware types individually, rather than on rack basis
14534296   modify "verify infiniband subnet manager is running on an infiniband switch"
14525696   ada: improve exachk html report for jaws reader compatibility
13986761   exachk should be run regularly via crontab now that we deploy the exachk plugin
12666078   add capability to run exachk as the root user
```

Version 2.2.1_20130506

EXAchk

Major New Functionality

- Database server parallel data collection
- Command line parameters for specifying components
- Command line profiles to run subsets of checks
- Utility to compare two reports and list differences
- Option to omit passed checks
- Counter to 90 day expiration limit to encourage regular updates
- nm2user userid is used for IB switch checks instead of root userid

Version 2.2.1_20130506

./exachk –v: EXACHK VERSION: 2.2.1_20130506

Release Date: May 6, 2013

16.2.1 Checks Added

None

Checks Removed

None

Issues Fixed

```
Bug Num    Fixed    Description
16750919   2.2.1    under certain conditions, an environment variable may be retained
```

Version 2.2.1_20130228

RACCheck

- Execution performed in parallel on all nodes (OS expect utility or SUDO is REQUIRED to enable root checks with this functionality)
- Use of profiles to execute a subset of checks, e.g. DBA, Sysadmin, ASM
- Ability to compare two RACcheck reports
- New checks and bug fixes

EXAchk

./exachk –v: EXACHK VERSION: 2.2.1_20130228

Release Date: March 1, 2013

BETA:

./exachk –v: EXACHK VERSION: 2.2.1(BETA)_20130207

Release Date: February 8, 2013

Checks Added

- Check for Exadata critical issue EX12 (mos note 1270094.1)
- Check for Exadata critical issue EX11 (mos note 1270094.1)
- Check for Exadata critical issue DB16 (mos note 1270094.1)
- Check for Exadata critical issue DB17 (mos note 1270094.1)
- Check for alternate hot spare configuration in 11.2.3.2.1
- Verify database server logical volumes maximum mount count
- Verify service exachkcfg autostart status on database server
- Verify no asm external redundancy diskgroups exist
- Verify no asm unprotected templates exist
- Verify bundle patch version installed matches bundle patch version registered in database
- Verify 11.2.0.3 BP9 or greater if Write Back Flash Cache in use
- Verify hidden database initialization parameter usage
- Verify asm content type attribute in use for standard diskgroups

Checks Removed

None

NOTE: "Checks removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

Issues Fixed

```
Bug Num    Fixed    Description
16423634   2.2.1    modify "verify exadata smart flash cache is created" for 1/8th rack
16411125   2.2.1    add check for alternate hot spare configuration in 11.2.3.2.1
16410261   2.2.1    check_env.out file has exadata_dbm_x2_2 = 1 on a 1/8th rack
```

```
16410114   2.2.1   with iaas enabled, all nodes are exadata_version = x2-3 in checkenv.out
16370332   2.2.1   "ora-01034: oracle not available" in exachk_error.log
16362753   2.2.1   incorrect result in check "verify bundle patch version installed matches..."
16356976   2.2.1   add check for exadata critical issue db17 (mos note 1270094.1)
16356401   2.2.1   html fail message for remote_listener potentially confusing
16345757   2.2.1   oracle net service name to ship redo to the standby is not configured properly
16293125   2.2.1   add check for exadata critical issue db16 (mos note 1270094.1)
16292792   2.2.1   add check for critical issue ex12
16277008   2.2.1   syntax ld_library_path=${...} fails when ld_library_path set
16270674   2.2.1   add function to compare two exachk reports on local linux host
16245035   2.2.1   add "verify database server logical volumes maximum mount count"
16237591   2.2.1   exachk not detecting fix for ex3
16232489   2.2.1   add "verify service exachkcfg autostart status on database server
16219234   2.2.1   add check "verify no asm external redundancy diskgroups exist"
16219226   2.2.1   add check "verify no asm unprotected templates exist"
16219076   2.2.1   add check "verify bundle patch version installed matches bundle patch version.."
16105343   2.2.1   modify "exachkcfg daemon auto start status on storage servers"
16104998   2.2.1   add check for exadata critical issue ex11 (mos note 1270094.1)
16099292   2.2.1   exachk output display # days until version obsolete
16081291   2.2.1   default of "set timing on" in oracle userid profile breaks exachk
16068045   2.2.1   remove "sucess factors" text from html report
16032818   2.2.1   unable to verify root password for ib switch
16025222   2.2.1   modify "number of mounts before a file system check" to include logical volumes
16012455   2.2.1   verify 11.2.0.3 bp 9 or greater if write back flash cache in use
16012241   2.2.1   identify database server hardware types individually, rather than on rack basis
16005836   2.2.1   add suport for iaas
15999335   2.2.1   watcher script does not clean all child processes
15973548   2.2.1   exachk not detecting fix for ex5 (bug 12626126)
15971495   2.2.1   list db/storage servers and ib switches that could not be pinged in html report
15892981   2.2.1   add check "verify hidden database initialization parameter usage "
15889833   2.2.1   exachk report giving false errors
14844904   2.2.1   exachk can not collect storage server information when known_host has old keys
14712331   2.2.1   add 3 checks to verify asm content type attribute in use for standard diskgroups
14699603   2.2.1   exachk is reporting cssmisscount error
14383981   2.2.1   replace root user with nm2user for ib switch checks
14148570   2.2.1   add optional switch to review only a component level, i.e., storage servers
14142007   2.2.1   add database servers to parallel data collection
```

EXAchk

Major New Functionality

- Support for Oracle SPARC SuperCluster (SSC)
- Increased support for X3 series hardware
- Parallel data collection for storage servers and InfiniBand switches
- Automated Service Request (ASR) configuration validation
- Support for mixed hardware in same rack (V2 and X2-2)
- Improved MAA Scorecard

Version 2.2.0_20130109

./exachk –v: EXACHK VERSION: 2.2.0_20130109

Release Date: January 9, 2013

Checks Added

- Check for Exadata critical issue ex9 (mos note 1270094.1)
- Check for Exadata critical issue ex10 (mos note 1270094.1)

Checks Removed

None

NOTE: "Checks removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

Issues Fixed

```
Bug Num     Fixed    Description
15858961    2.2.0    add check for exadata critical issue ex9 (mos note 1270094.1)
15923112    2.2.0    add check for exadata critical issue ex10 (mos note 1270094.1)
13957117    2.2.0    modify check for exadata critical issue db11 (note 1270094.1)
```

Version 2.2.0_20121109

RACCheck

- Support for Single Instance, Oracle Restart and RAC One Configurations
- High Availability (HA) Best Practices using the new -r flag (raccheck -r). This mode of operation includes the standard health checks as well as HA Best Practices. Only HA Best Practices can be validated with the -c flag (raccheck -c).
- New checks and bug fixes

EXAchk

./exachk –v: EXACHK VERSION: 2.2.0_20121109

Release Date: November 9, 2012

BETA:

./exachk –v: EXACHK VERSION: 2.2.0(BETA)_20121102

Release Date: November 2, 2012

Checks Added

- Verify AUD$ and FGA_LOG$ tables use Automatic Segment Space Management
- Verify Shared Servers do not perform serial full table scans
- Verify operating system hugepages count satisfies total SGA requirements

Checks Removed

None

NOTE: "Checks removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

Issues Fixed

```
Bug Num     Fixed    Description
14849668    2.2.0    add new "note:" to html report referring to mos 757552.1
14840691    2.2.0    add check for exadata critical issue db15 (mos note 1270094.1)
14839642    2.2.0    modify maa scorecard not to execute certain checks if no standby exists
14829116    2.2.0    modify "verify raid controller battery condition" for new command
14798994    2.2.0    modify "verify pci bridge is configured for generation ii on storage servers"
14780734    2.2.0    exachk on supercluster. false positive results for storage cell ambient temp
14739680    2.2.0    review logic for list alerthistory and correct rationale
14739503    2.2.0    add additional sentence about qa to the "findings needing attention" section.
14739438    2.2.0    add warning at top of report if killed processes or skipped checks are present
14733019    2.2.0    verify 11.2.0.3 asm processes parameter logic and rationale match wiki
14707498    2.2.0    add "verify aud$ and fga_log$ tables use automatic segment space management"
14707249    2.2.0    add check "verify shared servers do not perform serial full table scans"
14702396    2.2.0    add 11.2.3.2.0 check for "verify database server physical drive configuration"
14702374    2.2.0    add check for 11.2.3.2.0 "verify database server virtual drive configuration"
14702355    2.2.0    add check for 11.2.3.2.0 "verify database server disk controller configuration"
14680693    2.2.0    add support for x3-8
14674627    2.2.0    add new error message when ib switches are not pingable, and they are skipped
14668103    2.2.0    add "no checks failed, see "findings passed" section" to html report
14647366    2.2.0    add discussion of "rat_noclean_dir" to userguide
14647230    2.2.0    add discussion of "/opt/oracle.supporttools/exachk" to userguide
```

```
14630200   2.2.0   retain leading spaces from ibqueryerrors.pl output
14598813   2.2.0   raid battery condition [db server] mistakes 3 failed db servers as "all ..."
14587899   2.2.0   add support for 1/8 rack configuration
14575242   2.2.0   exacheck 2.1.6 solaris, bogus "infiniband network error counters are non-zero"
14552275   2.2.0   add "verify operating system hugepages count satisfies total sga requirements"
14552206   2.2.0   critical issue db13 fails when raw data shows ok
14530034   2.2.0   error "rc-001 - unable to read driver files" when rat_output is not writable
14526155   2.2.0   modify "_kill_diagnostics_timeout" not to execute at 11.2.0.3.0 or higher
14526144   2.2.0   modify "_lm_rcvr_hang_allow_time" not to execute at 11.2.0.3.0 or higher
14383945   2.2.0   exachk ambient temperature check executed on subset of storage servers
14255993   2.2.0   maa scorecard missing checks on x2-2 running solaris without standby present
14255893   2.2.0   maa scorecard missing checks on x2-2(4170) aka "v2"
14138606   2.2.0   parallelize the storage server and ib switch data collection phase
13863245   2.2.0   add functionality to verify asr is correctly deployed
13860795   2.2.0   datacolumn value for "paramname" not available on results and exception file
13568398   2.2.0   exachk in mixed hardware environment - v2 and x2-2 in same rack
13525491   2.2.0   enable exachk for sparc super cluster
```

Version 2.1.6_20120817

EXAchk

./exachk –v: EXACHK VERSION: 2.1.6_20120817

Release Date: August 17, 2012

Major New Functionality

- Enhanced MAA scorecard
- Debug functionality for "expect" command during remote connection
- ADA compatibility improvements in ExachkUserGuide and HTML report

Checks Added

- Exadata Critical Issue DB14
- Exadata Critical Issue DB13
- MAA Scorecard "log_archive_config"
- MAA Scorecard "block corruptions"
- MAA Scorecard "redo log file size"
- MAA Scorecard "database archive mode"
- MAA Scorecard "software maintenance best practices"
- Verify Solaris dynamic shared memory (dism) is not used on x86 systems

Checks Removed

- "exachkcfg" daemon auto start status on storage servers

NOTE: "Checks removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

Issues Fixed

```
Bug Num    Fixed    Description
14496464   2.1.6    add check for exadata critical issue db14 (mos note 1270094.1)
14400390   2.1.6    add ability to debug expect connections
14394063   2.1.6    add language that exachk is not a security tool to mos 1070954.1
14362103   2.1.6    "verify storage server disk controllers use writeback cache" missing on x2-8
14354194   2.1.6    modify mos 1070954.1 to include full bundle file manifest
14319840   2.1.6    add check for exadata critical issue db13 (note 1270094.1)
14319077   2.1.6    exachk reports ambient temperature check failed when raw data shows ok
14262805   2.1.6    classic exachk sees entire ib fabric components in exalogic environment
14227779   2.1.6    maa scorecard "db_block_checking" for standby present when no standby exists
14227025   2.1.6    modify maa scorecard check "oracle net service name.." rationale
14226729   2.1.6    add maa scorecard check "log_archive_config"
14220386   2.1.6    exachk is generating an invalid exceptions xml file
14217183   2.1.6    add maa scorecard check "block corruptions"
14217128   2.1.6    move check "log_buffer" into maa scorecard "computer failure..." section
14217042   2.1.6    remove check "redo log file size for database machine"
14217005   2.1.6    add maa scorecard check "redo log file size"
14216838   2.1.6    add maa scorecard check "database archiving mode"
14216678   2.1.6    modify maa scorecard "storage failures prevention best practices"
14216646   2.1.6    modify maa scorecard "client failover operational best practices"
14216177   2.1.6    modify maa scorecard "network failure prevention best practices"
14216122   2.1.6    modify maa scorecard "database/cluster/site failure prevention best practices"
14215818   2.1.6    move check "recyclebin" into maa scorecard " "logical corruptions..." section
14215696   2.1.6    modify maa scorecard "logical corruption prevention best practices"
14215619   2.1.6    modify maa scorecard "data corruption prevention best practices"
```

```
14211851   2.1.6   modify maa scorecard "computer failure prevention best practices"
14211191   2.1.6   add maa scorecard "software maintenance best practices"
14211158   2.1.6   modify maa scorecard "operational best practices"
14211114   2.1.6   modify maa scorecard "consolidation database best practices"
14198751   2.1.6   setting "root nofiles unlimited" encountered redhat bug 485955
14153828   2.1.6   add check "verify dynamic shared memory (dism) is not used on x86 systems"
14153392   2.1.6   remove check "exachkcfg daemon auto start status on storage servers"
14148335   2.1.6   not all skipped checks are included in "skipped checks" section of html report
14143292   2.1.6   synchronize rationales for checks "asm griddisk,diskgroup and failure group ..."
14118978   2.1.6   modify logic for storage serer "list alerhistory..."
13992833   2.1.6   ada: exachk user guide not fully ada compliant
13992787   2.1.6   ada: exachk html report fails oghag compliance checks
13862446   2.1.6   include "minimal execution interval" in documentation
```

Version 2.1.5_20120524

EXAchk

./exachk –v: EXACHK VERSION: 2.1.5_20120524

Release Date: May 25, 2012

Major New Functionality

- Exalogic support
- Consolidated Documentation – one User Guide

Checks Added

- Verify ambient temperature
- Exadata Critical Issue DB12
- Exadata Critical Issue DB11

Checks Removed

- Cluster Wide Check HCA firmware version does not match across system

NOTE: "Checks removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

Issues Fixed

```
Bug Num    Fixed    Subject
14104401   2.1.5    mixed case server names leads to double checks
14081898   2.1.5    modify rationale for check "verify celldisk configuration on flash memory device
14076465   2.1.5    11.2.0.3 "asm_power_limit" check rationale is off
14027631   2.1.5    modify check db_block_checksum to account for new maa bp guidance
14027618   2.1.5    modify check db_block_checking to account for new maa bp guidance
14027531   2.1.5    modify script to account for new login delay
14027171   2.1.5    exachk reports "system is exposed to exadata critical issue db8" on 11.2.2.3.5
14023304   2.1.5    "physcial drive" check off on 11.2.3.1.0
13979454   2.1.5    exachk fails to find rdbms binaries on exadata machine
13967483   2.1.5    modify "high redundancy controlfile" to match current best practice
13967352   2.1.5    modify "verify hardware and firmware on database..." report command
13957170   2.1.5    add check for exadata critical issue db12 (note 1270094.1)
13957117   2.1.5    add check for exadata critical issue db11 (note 1270094.1)
13957030   2.1.5    check "asm_power limit for quarter rack" using 2 as comparison rather than 1
13952463   2.1.5    modify check "processes parameter for asm instance"
13922580   2.1.5    report component "systemwide firmware and software versions" missing in xck_v2
13888518   2.1.5    esm_lifetime check always fails with f20m2 cards
13888162   2.1.5    "rat_local=1" not working
13872114   2.1.5    consolidate "how to" into userguide
13867926   2.1.5    rat_noclean_dir=1 not leaving directories behind
13862684   2.1.5    modify check "maxstartups setting in sshd_config" rationale
13862391   2.1.5    modify rationale "verify database server physical drive configuration"
13784891   2.1.5    modify check " |__asm disk group compatible.rdbms parameter"
```

Version 2.1.4_20120313

EXAchk

./exachk –v: EXACHK VERSION: 2.1.4_20120313

Release Date: March 13, 2012

Major New Functionality

- Solaris 11 X86-64 support (not Express)
- 11.2.0.3 database upgrade module
- Remote database access
- Improved HTML report
    - "Killed Checks" section

Checks Added

- Verify celldisk configuration on disk drives
- Verify celldisk configuration on flash memory devices
- Verify there are no griddisks configured on flash memory devices
- Verify griddisk count matches across all storage servers where a given prefix name exists
- Verify griddisk ASM status
- Verify total number of griddisks with a given prefix name is evenly divisible by the number of celldisks
- Verify total size of all griddisks fully utilizes celldisk capacity
- Checks from My Oracle Support "exadata critical issues (doc id 1270094.1)"
- Check to implement My Oracle Support "Installing, Executing and Interpreting output from the "scnhealthcheck.sql" script (Doc ID 1393363.1)"
- Verify average ping times to DNS nameserver
- Verify initialization parameter RECYCLEBIN=ON
- ASM 11.2.0.3 parameter "memory_max_target"
- ASM 11.2.0.3 parameter "memory_target"
- ASM 11.2.0.3 parameter "pga_aggregate_target"
- ASM 11.2.0.3 parameter "sga_target"
- Verify "maxstartups 100" in /etc/ssh/sshd_config

Checks Removed

- cells image info version match
- disk firmware version on storage servers

NOTE: "Checks removed" does not typically indicate a loss of functionality, but that there is some other mechanism in base code that has taken over the purpose of this check, or a prior restriction has been lifted.

Issues Fixed

```
Bug Num     Fixed    Subject
13800472    2.1.4    modify check "verify there are no griddisks configured on flash memory devices"
```

```
13790437   2.1.4   "critical issue db09" fails with "10gig_rxusecs0: unrecognized service"
13786242   2.1.4   "client failover" check appears in html report; linkages broken
13784942   2.1.4   modify check "|__asm disk group compatible.asm parameter"
13784701   2.1.4   modify check "compatible" to pass if set to current version in use
13784595   2.1.4   modify check "cluster_interconnects" not to run on 11.2.0.2
13779893   2.1.4   exachk esm lifetime is displaying "n/a" for all thresholds
13775832   2.1.4   modify check "filesystemio_options"
13734166   2.1.4   exachk did not determine correct asm home
13629205   2.1.4   modify "verify cluster synchronization services (css) misscount = 60"
13619696   2.1.4   modify check "asm_power_limit"
13618581   2.1.4   modify check " verify exadata smart flash cache is created"
13608775   2.1.4   cluster_interconnects check appears under different 'type' categories
13592595   2.1.4   modify check "set "mpt_cmd_retry_count=10" in ..." for only 11.2.2.3.1
13582082   2.1.4   skgxpinfo called on versions below 11.2.0.2
13582024   2.1.4   add report component "systemwide firmware and software versions" to xck_v2
13536768   2.1.4   exachk shows esm lifetime fail though the value is under the threashold
13523733   2.1.4   exachk failed with rc-003
13516672   2.1.4   modify rationale text for check name "db_lost_write_protect"
13482172   2.1.3   v2 maa scorecard missing a few items
13482150   2.1.3   smart flash log always passed (even when should fail)
13481693   2.1.3   modify lsi controller battery condition checks for different battery types
13365925   2.1.4   /tmp/exachk_cells.sh: line 180: printf: 09: invalid number
12953734   2.1.3   ./exachk: line 9630: [: too many arguments with "-s" option
12952509   2.1.3   exachk determines database down when db version 11.2.0.1 and grid 11.2.0.2
```

Version 2.1.3_20111212

EXAchk

./exachk –v: EXACHK VERSION: 2.1.3_20111212

Release Date: December 12, 2011

Major New Functionality

- Maximum Availability Architecture Scorecard
- Improved HTML report
  - File name synchronizes with output directory name
  - "Score" block
  - Header Block
  - Ability to remove items from report
- Additional InfiniBand switch checks

Checks Added

- Verify all "BIGFILE" tablespaces have non-default "MAXBYTES" values set
- Verify Exadata Smart Flash Log is Created
- Scan storage server alert log for open critical alerts
- Verify Peripheral Component Interconnect (PCI) Bridges are Configured for Generation II on Storage Servers

Checks Removed

- InfiniBand switch ib_umad driver status
- BIOS firmware version does not match on all storage servers
- Storage servers not accessed when "-s" or "-S" is used

Issues Fixed

```
Bug Num    Fixed    Subject
13415618   2.1.3    verifty-topology fails "only valid value is interconnected_quarterrack"
13366321   2.1.3    add "verify switch name is properly configured in the infiniband switch /etc..."
13366288   2.1.3    add "verify infiniband subnet manager is running on an infiniband switch"
13366143   2.1.3    modify "infiniband switch log_flags configuration"
13366057   2.1.3    modify check " non-autoextensible datafiles"
13365996   2.1.3    add "verify all "bigfile" tablespaces have non-default "maxbytes" values set"
13360357   2.1.3    add report section "maa scorecard"
13356166   2.1.3    remove check "infiniband switch ib_umad driver status"
13336667   2.1.3    "manage asm audit file directory growth with cron" not executing on v2,x2-8
13325764   2.1.3    set check "infiniband switch ntp configuration" alert level to "warn"
13325598   2.1.3    add check "verify infiniband switch software is 1.3.3-2 or greater"
13243681   2.1.3    n/a: integer expression expected during esm lifetime collection
13109481   2.1.3    create check "verify exadata smart flash log is enabled"
13102954   2.1.3    remove check "bios firmware version does not match on all storage servers"
13094849   2.1.3    exachk warning for asm memory_target
13089302   2.1.3    exadata: warning = local listener init parameter is not set to local node vip.
13072804   2.1.3    exachk reports flashcache size of 364.75g
13069101   2.1.3    add ability to "hide" findings on html report
13057104   2.1.3    extend "db_block_checking" check to x2-2, x2-8
13051235   2.1.3    scan storage server alerthistory for open alerts
13051165   2.1.3    disable exachk usage of sudo to root from cellmonitor
13050745   2.1.3    modify "verify raid controller battery condition" for two alert levels
13036578   2.1.3    v2 to x2-2/x2-8 consolidation for checks and collections
13031814   2.1.3    add run identification string to header of exachk.html
13017633   2.1.3    add exadatatype in exachk_results.xml and exachk_exceptions.xml
```

```
13000104   2.1.3   message text wrong for "database parameter db_block_checking is not set to ..."
12999901   2.1.3   rat site generated report differs from exachk local html report
12993594   2.1.3   can't read "...": no such variable when "$" embedded in password
12993429   2.1.3   exachk fails to accept correct password for infiniband switches
12977998   2.1.3   verify master rack serial number matches on all servers
12968765   2.1.3   improve exachk message -infiniband network is not being used for rac communicati
12958550   2.1.3   modify check: "warning kernel parameter rp_filter is set to 1."
12953703   2.1.3   remove comment line about "perl wrapper"
12945073   2.1.3   correct readme for x2-8 as a supported platform
12941667   2.1.3   storage server master serial number check fails when msn is correctly set
12918576   2.1.3   rat site generated report produces incorrect finding
12861937   2.1.3   script to cleanup older runs of exachk
12815752   2.1.3   "exachk -a" exits with "audit script version (11.2.0.2.0) and database vers..."
12779308   2.1.3   exacheck needs to verify interconnect address used by rdbms
12756149   2.1.3   verify pci generation with a new exachk check
```

Version 2.1.2_20110908

EXAchk

./exachk –v: EXACHK VERSION: 2.1.2_20110908

Release Date: September 8, 2011

Major New Functionality

- X2-8 support
- New checks for P1 database parameters
- New HTML based report

Checks Added

- Verify Platform Configuration and Initialization Parameters for Consolidation
- Verify storage server metric CD_IO_ST_RQ
- Verify Ethernet Cable Connection Quality
- Verify Ethernet Cable Connection Quality on storage servers
- Verify ASM griddisk,diskgroup and Failure group mapping

Checks Removed

None

Issues Fixed

```
Bug Num     Fixed     Subject
12933214    2.1.2     refer to consolidation best practice wiki if more than 1 db instance
12889556    2.1.2     create check "verify storage server metric cd_io_st_rq"
12865718    2.1.2     merge: x2-8: bug 12865577 - "disk cache policy" check missing corrective action
12865711    2.1.2     merge bug 12865577 - "disk cache policy" check missing corrective action in fail
12865577    2.1.2     "disk cache policy" check missing corrective action in fail message
12840741    2.1.2     merge bug 12840730 - create check "verify ethernet cable connection quality"
12840730    2.1.2     create check "verify ethernet cable connection quality"
12840721    2.1.2     merge bug 12840683 - modify "verify infiniband cable connection quality [all]"
12840683    2.1.2     modify "verify infiniband cable connection quality [all]"
12814204    2.1.2     db_block_checksum is not evaluated correctly on exachk side
12810666    2.1.2     merge bug 12806565 - modify "verify database server disk controller config
12810646    2.1.2     merge bug 12806599 - modify "verify database server physical drive config
12806599    2.1.2     modify "verify database server physical drive configuration" command
12806565    2.1.2     modify "verify database server disk controller configuration" command
12800318    2.1.2     typo in "sshell=$rat_scopy"
12793814    2.1.2     recommendation text is missing in metadata file in the latest exachk code
12762655    2.1.2     database server physical drive configuration does not meet recommendation
12751550    2.1.2     exachk reporting failed checks but output files missing
12750244    2.1.2     d_check_sid.sql should tuned for faster execution
12746131    2.1.2     exachk reports fail for asm_power_limit = 4 instead of info (or at most warn)
12618142    2.1.2     incorporate priority 1 database initialization parameters from x2-2 bp wiki
12617614    2.1.2     produce html report with links to detailed data files
12614022    2.1.2     create exachk x2-8 (linux) section
12539457    2.1.2     add check for cell griddisks in wrong failgroup (effect of bug 12433293)
```

Version 2.1.1_20110718

EXAchk

./exachk –v: EXACHK VERSION: 2.1.1_20110718

Release Date: July 20, 2011

Major New Functionality

- Ability to run in silent mode (non-interactive for batch execution and cron scheduling)
- Eliminated a number of false positives
- Better handling of missing data and errors with the tool
- Ability to check a subset of database or storage servers or IB Switches

Checks Added

- Verify that "Disk Cache Policy" is set to "Disabled"
- Verify Management Network Interface (eth0) is on a Separate Subnet
- Verify RAID Controller Battery Condition
- Verify RAID Controller Battery Temperature

Checks Removed

- Variable extent size for ASM
- kernel.shmmax parameter is configured according to recommendation
- All nodes are using same NTP server across cluster
- Infiniband switch log_max_size check

Issues Fixed

```
Bug Num    Fixed    Subject
12712260   2.1.1    include list of bug fixes for 2.1.1 in readme file
12707295   2.1.1    modify user guide to include running exachk before go-live
12703053   2.1.1    merge bug 12703047 - place check for kernel.shmmax on hold
12703047   2.1.1    place check for kernel.shmmax on hold
12703033   2.1.1    merge bug 12702949 - exachk does detect incorrect system model number
12702949   2.1.1    exachk does detect incorrect system model number
12698345   2.1.1    merge bug 12583095 - verify raid controller battery temperature
12698330   2.1.1    merge bug 12583086 - verify raid controller battery condition
12684549   2.1.1    remove "fail= all nodes are not using the same ntp server across cluster"
12676287   2.1.1    exachk reports hca firmware output of form "nodename = =="
12670689   2.1.1    merge bug 12582575 - verify disk cache policy is disabled on all servers
12669727   2.1.1    remove check:- warning = asm variable sized extents are enabled [dbmv2]
12658060   2.1.1    merge bug 12658015 - exachk executes ib fabric checks on more than one database
12658015   2.1.1    exachk executes ib fabric checks on more than one database server
12656527   2.1.1    merge bug 12656500 - exachk error: /usr/bin/scp -q: no such file or directory
12656500   2.1.1    exachk error: /usr/bin/scp -q: no such file or directory
12656447   2.1.1    merge bug 12656433 - exachk generates multiple "[: -ne: unary operator expected
12656433   2.1.1    exachk generates multiple "[: -ne: unary operator expected "
12653361   2.1.1    merge bug 12653350 - exachk missing version in check_env.out
12653350   2.1.1    exachk missing version in check_env.out
12653294   2.1.1    merge bug 12653279 - exachk does not evaluate storage server data when typos exi
12653279   2.1.1    exachk does not evaluate storage server data when typos exist in /etc/hosts
12627748   2.1.1    invalid target /sys/mb/riser1/pcie4/f20card/uptime in esm lifetime check
12617498   2.1.1    exachk root checks fail if ssh equiv previously established
12614218   2.1.1    add input file function to permit exachk running in batch unattended
12613555   2.1.1    merge bug 12600905 - exachk fails to account for spine switch
12613514   2.1.1    merge bug 12586196 - verify management network interface (eth0) is on a separate
12600905   2.1.1    exachk fails to account for spine switch
12597030   2.1.1    add upgrade instructions to exachk documentation set
12596890   2.1.1    message: another instance of exachk is running on xxxxxx.
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12596762   2.1.1   merge bug 12583078 - verify database server physical drive configuration
12596677   2.1.1   merge bug 12583064 - verify database server virtual drive configuration
12596656   2.1.1   merge bug 12583012 - verify database server disk controller configuration
12596620   2.1.1   merge bug 12587541 - exachk fails on verify-topology for physical 1/4 rack
12596608   2.1.1   merge bug 12583528 - verify oracle rac databases use rds protocol over infiniban
12587541   2.1.1   exachk fails on verify-topology for physical 1/4 rack
12586196   2.1.1   verify management network interface (eth0) is on a separate subnet
12583528   2.1.1   verify oracle rac databases use rds protocol over infiniband network
12583095   2.1.1   verify raid controller battery temperature
12583086   2.1.1   verify raid controller battery condition
12583078   2.1.1   verify database server physical drive configuration
12583064   2.1.1   verify database server virtual drive configuration
12583012   2.1.1   verify database server disk controller configuration
12582575   2.1.1   verify disk cache policy is disabled on all servers
12747779   2.1.1   remove infiniband switch log_max_size check
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