

Oracle® ORAchk and EXAchk User's Guide



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Oracle ORAchk and EXAchk User's Guide, 12c Release 2 (12.2)

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Preface

This guide explains how to use Oracle ORAchk and Oracle Exachk diagnostic tools on Oracle Database Engineered Systems.

It also explains the prerequisites to install and configure Oracle ORAchk and Oracle EXAchk diagnostic tools.

- [Audience](#) (page xix)
- [Documentation Accessibility](#) (page xix)
- [Conventions](#) (page xix)
- [Third-Party License Information](#) (page xx)

Audience

Oracle® Database ORAchk and EXAchk User's Guide provides conceptual and usage information about the diagnostic tools for the database administrators.

This guide assumes that you are familiar with Oracle Database concepts.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc>.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

Conventions

The following text conventions are used in this document:

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
<i>italic</i>	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.

Convention	Meaning
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

Third-Party License Information

Oracle ORAck and Oracle EXAck consume third-party code. Oracle is required to provide the following notices. Note, however, that the Oracle program license that accompanied this product determines your right to use the Oracle program, including the third-party software, and the terms contained in the following notices do not change those rights.

Python

Python version 2.7 license, <https://www.python.org/download/releases/2.7/license/>

pexpect

pexpect version 3.3 license, <https://pexpect.readthedocs.io/en/3.x/api/pexpect.html?highlight=license>

Changes in this Release for Oracle ORAchk and EXAchk User's Guide 12c Release 2 (12.2.0.1.4)

This preface lists changes in Oracle® ORAchk and EXAchk User's Guide 12c Release 2 (12.2.0.1.4).

- [Three Times Faster Performance](#) (page xxi)
Oracle ORAchk and Oracle EXAchk have been rewritten with a focus on performance and extensibility.
- [Option to Run Only the Failed Checks](#) (page xxi)
New option allows Oracle ORAchk and Oracle EXAchk to run only the checks that failed previously.
- [Microsoft Windows Support Without Requiring Cygwin](#) (page xxii)
Since Oracle ORAchk has been rewritten in Python, Cygwin on Microsoft Windows is no more a requirement.
- [Run Multiple Instances at the Same Time](#) (page xxii)
It is now possible to run multiple instances of Oracle ORAchk and Oracle EXAchk at the same time on the same machine.
- [Oracle ORAchk Support for Oracle Grid Infrastructure with no Database](#) (page xxii)
Oracle ORAchk now supports Oracle Grid Infrastructure stand-alone checks where no database is installed.
- [New Oracle Stack Health Checks](#) (page xxii)
This release of Oracle ORAchk and Oracle EXAchk includes many new Oracle Stack Health Checks.

Three Times Faster Performance

Oracle ORAchk and Oracle EXAchk have been rewritten with a focus on performance and extensibility.

Internal testing results show that this version runs up to 3 times faster than 12.2.0.1.3. Performance has improved in low-resource environments.

Option to Run Only the Failed Checks

New option allows Oracle ORAchk and Oracle EXAchk to run only the checks that failed previously.

Related Topics

- [Option to Run Only the Failed Checks](#) (page 1-76)
New option allows Oracle ORAchk and Oracle EXAchk to run only the checks that failed previously.

Microsoft Windows Support Without Requiring Cygwin

Since Oracle ORAchk has been rewritten in Python, Cygwin on Microsoft Windows is no more a requirement.

Oracle ORAchk needs Python 2.7 software and libraries. The runtime provides details of what exactly the libraries it needs.

Run Multiple Instances at the Same Time

It is now possible to run multiple instances of Oracle ORAchk and Oracle EXAchk at the same time on the same machine.

Related Topics

- [Run Multiple Instances at the Same Time](#) (page 1-9)
It is now possible to run multiple instances of Oracle ORAchk and Oracle EXAchk at the same time on the same machine.

Oracle ORAchk Support for Oracle Grid Infrastructure with no Database

Oracle ORAchk now supports Oracle Grid Infrastructure stand-alone checks where no database is installed.

Related Topics

- [Oracle ORAchk Support for Oracle Grid Infrastructure with no Database](#) (page 1-70)
Oracle ORAchk now supports Oracle Grid Infrastructure stand-alone checks where no database is installed.

New Oracle Stack Health Checks

This release of Oracle ORAchk and Oracle EXAchk includes many new Oracle Stack Health Checks.

- [Oracle ORAchk Health Check Catalog](#)
- [Oracle EXAchk Health Check Catalog](#)

The Health Check Catalog is also contained within the download.

1

Oracle ORAchk and Oracle EXAchk Common Features and Tasks

Oracle ORAchk and Oracle EXAchk share a common health check framework and a large portion of their features and tasks are common.

This chapter describes Oracle ORAchk and Oracle EXAchk common features and tasks.

- [Quick Start Guide](#) (page 1-2)
This section explains how to install and configure Oracle ORAchk and Oracle EXAchk. Review other topics in this section for additional information.
- [Using Oracle ORAchk and Oracle EXAchk to Automatically Check for Risks and System Health](#) (page 1-16)
Oracle recommends that you use the daemon process to schedule recurring health checks at regular intervals.
- [Running Health Checks On-Demand](#) (page 1-27)
Usually, health checks run at scheduled intervals. However, Oracle recommends that you run health checks on-demand when needed.
- [Running Health Checks in Silent Mode](#) (page 1-30)
Run health checks automatically by scheduling them with the Automated Daemon Mode operation.
- [Understanding and Managing Reports and Output](#) (page 1-32)
Oracle ORAchk and Oracle EXAchk generate a detailed HTML report with findings and recommendations.
- [Health Check Catalog](#) (page 1-61)
The Health Check Catalogs list the health checks that are included within Oracle ORAchk or Oracle EXAchk.
- [Running Subsets of Checks](#) (page 1-64)
Where necessary, you can run a subset of health checks.
- [Oracle ORAchk and Oracle EXAchk Command-Line Options](#) (page 1-76)
Most command-line options apply to both Oracle ORAchk and Oracle EXAchk.
- [Oracle Health Check Collections Manager for Oracle Application Express 5.0](#) (page 1-86)
Oracle Health Check Collections Manager is a companion application to Oracle ORAchk and Oracle EXAchk that gives you an enterprise-wide view of your health check collection data.
- [Oracle Health Check Collections Manager for Oracle Application Express 4.2](#) (page 1-144)
Oracle Health Check Collections Manager for Oracle Application Express 4.2 provides you an enterprise-wide view of your health check collection data.
- [Integrating Health Check Results with Other Tools](#) (page 1-192)
Integrate health check results from Oracle ORAchk and Oracle EXAchk into Enterprise Manager and other third-party tools.

- [Troubleshooting Oracle ORAchk and Oracle EXAchk](#) (page 1-198)
Follow the steps explained in this section to troubleshoot and fix Oracle ORAchk and Oracle EXAchk related issues.
- [Uninstalling Oracle ORAchk and Oracle EXAchk](#) (page 1-213)

1.1 Quick Start Guide

This section explains how to install and configure Oracle ORAchk and Oracle EXAchk. Review other topics in this section for additional information.

- [Overview of Oracle ORAchk and Oracle EXAchk](#) (page 1-2)
Oracle ORAchk and Oracle EXAchk provide a lightweight and non-intrusive health check framework for the Oracle stack of software and hardware components.
- [Installing Oracle ORAchk and Oracle EXAchk](#) (page 1-3)
Follow these procedures to install Oracle ORAchk and Oracle EXAchk.
- [Prerequisites](#) (page 1-4)
Review the checklist for Bash requirements, SSH connectivity, and required user privileges to run health checks.
- [Configuring the Daemon Mode](#) (page 1-8)
Use the daemon to configure automatic health check runs at scheduled intervals.
- [Run Multiple Instances at the Same Time](#) (page 1-9)
It is now possible to run multiple instances of Oracle ORAchk and Oracle EXAchk at the same time on the same machine.
- [Email Notification and Health Check Report Overview](#) (page 1-10)
The following sections provide a brief overview about email notifications and sections of the HTML report output.
- [Recommended On-Demand Usage](#) (page 1-13)
This section summarizes the scenarios that Oracle recommends running health checks on-demand.
- [Updating to the Latest Version of Oracle ORAchk and Oracle EXAchk](#) (page 1-14)
There are several methods for maintaining Oracle ORAchk and Oracle EXAchk.

1.1.1 Overview of Oracle ORAchk and Oracle EXAchk

Oracle ORAchk and Oracle EXAchk provide a lightweight and non-intrusive health check framework for the Oracle stack of software and hardware components.

If you have an Oracle Engineered System other than Oracle Database Appliance, then use Oracle EXAchk. For all other systems, use Oracle ORAchk.

You have access to Oracle ORAchk and Oracle EXAchk as a value add-on to your existing support contract. There is no additional fee or license required to run Oracle ORAchk and Oracle EXAchk.

Features of Oracle ORAchk and Oracle EXAchk

- Automates risk identification and proactive notification before business is impacted
- Runs health checks based on critical and reoccurring problems
- Runs in your environment with no need to send anything to Oracle

- Enables you to schedule email health check reports
- Integrates the findings into other tools of your choice

1.1.2 Installing Oracle ORAchk and Oracle EXAchk

Follow these procedures to install Oracle ORAchk and Oracle EXAchk.

Note:

If your Oracle Exadata Database machine is enrolled in the Oracle Platinum Services: Exadata Exachk Automation Project, then there is a separate installation method described in My Oracle Support Note 2043991.1.

1. Download the latest version of the health check tool zip file.

Note:

Oracle ORAchk is pre-installed with the database in the `$ORACLE_HOME/suptools/orachk` directory.

To update to the latest version, see “Updating to the Latest Version of Oracle ORAchk and Oracle EXAchk”.

- For Oracle ORAchk, download `orachk.zip` or `orachk_idm.zip` for Oracle ORAchk with IAM support.
 - For Oracle EXAchk, download `exachk.zip`.
2. Copy the `zip` file to the installation directory on the systems that you want to check.

Note:

Oracle ORAchk and Oracle EXAchk are Oracle RAC database cluster aware. Install Oracle ORAchk and Oracle EXAchk on one node of the cluster to check all nodes in the cluster.

3. If Oracle Clusterware is installed, then:
 - Install Oracle EXAchk in `/opt/oracle.SupportTools/exachk` as the Oracle Grid Infrastructure home owner
 - Install Oracle ORAchk in `CRS_HOME/suptools/orachk` as the Oracle Grid Infrastructure home owner
 4. If Oracle Clusterware is not installed, then:
 - Install Oracle EXAchk in `/opt/oracle.SupportTools/exachk` as `root`
 - Install Oracle ORAchk in a convenient location as `root` (if possible)
- Or

Install Oracle ORAchk in a convenient location as Oracle software install user or Oracle Database home owner

 **Note:**

If the performance is acceptable, then stage Oracle ORAchk and Oracle EXAchk on a shared network drive.
To run Oracle ORAchk and Oracle EXAchk on a read-only NFS server, modify the permissions of the `.cgrep` directory and the scripts within it at least to 555.

```
chmod -R 555 .cgrep
```

Related Topics

- [Updating to the Latest Version of Oracle ORAchk and Oracle EXAchk](#) (page 1-14)
There are several methods for maintaining Oracle ORAchk and Oracle EXAchk.
- <https://support.oracle.com/rs?type=doc&id=2043991.1>
- <https://support.oracle.com/rs?type=doc&id=1268927.2>
- <https://support.oracle.com/rs?type=doc&id=1070954.1>

1.1.3 Prerequisites

Review the checklist for Bash requirements, SSH connectivity, and required user privileges to run health checks.

- [SSH Connectivity and Access](#) (page 1-4)
In a clustered database environment, Oracle ORAchk and Oracle EXAchk run health checks on a single node and remotely run on all other cluster nodes.
- [Handling of root Passwords](#) (page 1-5)
Handling of `root` passwords depends on whether you have installed the Expect utility.
- [Deciding Which User Should Run Oracle ORAchk or Oracle EXAchk](#) (page 1-6)
Run health checks as `root`. Also, run health checks as the Oracle Database home owner or the Oracle Grid Infrastructure home owner.
- [Prerequisites for Running Oracle ORAchk and Oracle EXAchk](#) (page 1-7)
Review Oracle ORAchk and Oracle EXAchk specific prerequisites.
- [Data Entry Terminal Considerations](#) (page 1-8)
Use any supported UNIX and Linux terminal type (character mode terminal, ILOM, VNC server) to run Oracle ORAchk and Oracle EXAchk.

1.1.3.1 SSH Connectivity and Access

In a clustered database environment, Oracle ORAchk and Oracle EXAchk run health checks on a single node and remotely run on all other cluster nodes.

Remotely running health checks on cluster nodes involves remotely copying files to and from the targets and running commands without providing the passwords.

If security restrictions block, then some commands fail to run. To run those commands successfully, develop alternate plans.

To run health checks remotely on all other cluster nodes from the database server:

- Configure passwordless SSH equivalency for the same user on each cluster node that runs Oracle ORAchk and Oracle EXAchk on the database server

If you have not already configured passwordless SSH, then Oracle ORAchk and Oracle EXAchk automatically configure passwordless SSH. You can specify whether passwordless SSH is configured temporarily or permanently.

You cannot perform remote operations without passwordless SSH configuration in place. If passwordless SSH is not present:

- Run health checks on each database server in the cluster using the `-localonly` command-line option
- Merge the results

Related Topics

- [Understanding and Managing Reports and Output](#) (page 1-32)
Oracle ORAchk and Oracle EXAchk generate a detailed HTML report with findings and recommendations.
- <https://support.oracle.com/rs?type=doc&id=372795.1>

1.1.3.2 Handling of root Passwords

Handling of `root` passwords depends on whether you have installed the Expect utility.

Expect automates interactive applications such as Telnet, FTP, `passwd`, `fsck`, `rlogin`, `tip`, and so on.

- If you have installed the Expect utility, then specify the `root` password when you run the health checks for the first time.

The Expect utility stores the password and uses the stored password for subsequent sessions.

The Expect utility prompts you to check if the `root` password is same for all the remote components such as databases, switches, and so on.

- Specify the password only once if you have configured the same `root` password for all the components.

If `root` password is not the same for all the components, then the Expect utility prompts you to validate the `root` password every time you run the health checks.

- If you enter the password incorrectly or the password is changed between the time it is entered and used, then Oracle ORAchk and Oracle EXAchk,
 - Notify you
 - Skip relevant checks
- Run the health checks after resolving the issues.

If Oracle ORAchk and Oracle EXAchk skip any of the health checks, then the tools log details about the skipped checks in the report output.

Related Topics

- [Expect - Expect - Home Page](#)

1.1.3.3 Deciding Which User Should Run Oracle ORAchk or Oracle EXAchk

Run health checks as `root`. Also, run health checks as the Oracle Database home owner or the Oracle Grid Infrastructure home owner.

Many of the health checks do not require `root` access. However, you need `root` privileges to run a subset of health checks.

To run `root` privilege checks, Oracle ORAchk uses the script `root_orachk.sh` and Oracle EXAchk uses the script `root_exachk.sh`.

By default, the `root_orachk.sh` and `root_exachk.sh` scripts are created in the `$HOME` directory used by Oracle ORAchk and Oracle EXAchk. Change the directory by setting the environment variable `RAT_ROOT_SH_DIR`.

Specify a location for `sudo` remote access as follows:

```
export RAT_ROOT_SH_DIR=/mylocation
```

Add an entry in the `/etc/sudoers` as follows:

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

For security reasons, create the `root` scripts outside of the standard temporary directory in a custom directory. Specify the custom directory using the environment variable `RAT_ROOT_SH_DIR`:

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

Specify a location for `sudo` remote access as follows:

```
export RAT_ROOT_SH_DIR=/mylocation
```

Add an entry in the `/etc/sudoers` as follows:

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



Note:

Specify full paths for the entries in the `/etc/sudoers` file. Do not use environment variables.

- **(recommended) Run as root:** Use `root` user credentials to run Oracle ORAchk and Oracle EXAchk.

The Oracle ORAchk and Oracle EXAchk processes that run as `root`, perform user lookups for the users who own the Oracle Database home and Oracle Grid Infrastructure home. If `root` access is not required, then the Oracle ORAchk and Oracle EXAchk processes use the `su` command to run health checks as the applicable Oracle Database home user or Oracle Grid Infrastructure home user. Accounts with lower privileges cannot have elevated access to run health checks that require `root` access.

Running health checks as `root` has advantages in role-separated environments or environments with more restrictive security.

- **Run as Oracle Database home owner or Oracle Grid Infrastructure home owner:** Use Oracle Database home owner or Oracle Grid Infrastructure home owner credentials to run Oracle ORAchk and Oracle EXAchk.

The user who runs Oracle ORAchk and Oracle EXAchk must have elevated access as `root` to run health checks that need `root` access.

Running health checks as Oracle Database home owner or Oracle Grid Infrastructure home owner requires multiple runs in role-separated environments. More restrictive security requirements do not permit elevated access.

There are several other options:

- Skip the checks that require `root` access.
- Specify the `root` user ID and password when prompted.
- Configure `sudo`.

If you are using `sudo`, then add an entry for the root script, located in `$HOME` in the `/etc/sudoers` file that corresponds to the user who is running the health checks.

For example:

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

```
user ALL=(root) NOPASSWD:/root/root_exachk.sh
```

To determine what `$HOME` is set to, run the `echo $HOME` command.

For example:

```
user ALL=(root) NOPASSWD:/root/.orachk/root_orachk.sh
```

Or

```
user ALL=(root) NOPASSWD:/root/.exachk/root_exachk.sh
```

- Pre-configure passwordless SSH connectivity.

1.1.3.4 Prerequisites for Running Oracle ORAchk and Oracle EXAchk

Review Oracle ORAchk and Oracle EXAchk specific prerequisites.

For Oracle ORAchk specific prerequisites, see:

[Oracle ORAchk Scope and Supported Environments](#) (page 2-1)

For Oracle EXAchk specific prerequisites, see:

- [Oracle Exadata and Zero Data Loss Recovery Appliance](#) (page 3-2)
- [Oracle Exalogic](#) (page 3-14)
- [Oracle SuperCluster](#) (page 3-46)
- [Oracle Exalytics](#) (page 3-53)
- [Oracle Big Data Appliance](#) (page 3-58)

1.1.3.5 Data Entry Terminal Considerations

Use any supported UNIX and Linux terminal type (character mode terminal, ILOM, VNC server) to run Oracle ORAchk and Oracle EXAchk.

Respond to the prompts during the interactive run, or while configuring the daemon.

Each terminal type has advantages and disadvantages. The effect of a dropped network connection varies based on the terminal type used.

For example, in an interactive run using a character mode terminal, if all the prompts are answered prior to the network drop, then the running process completes successfully even if the network connection drops. If the network connection drops before all the input prompts are answered, then all the running processes hang. Clean up the hung processes manually when the network connection is restored.

Using a remote connection to a VNC server running on the database where Oracle ORAchk and Oracle EXAchk are running minimizes the network drop interruptions.

If you use accessibility software or devices that prevent the use of a VNC server, and cause network failures, then you must work with your network team and system administrator to determine the root cause and adjust the environment as required.

For example, an accessibility aid might insert a suspension and restart the interactive process that runs Oracle ORAchk or Oracle EXAchk. If this causes an operating system timeout due to terminal inactivity, then increase the inactivity timeouts of the environment before running the commands.

The timeout caused by an assistive tool at the operating system level due to terminal inactivity is not specific to Oracle ORAchk and Oracle EXAchk. The timeout could happen to any process that assistive technology manages.

1.1.4 Configuring the Daemon Mode

Use the daemon to configure automatic health check runs at scheduled intervals.

 **Note:**

Daemon mode is supported only on the Linux and Solaris operating systems.

 **Note:**

If you have an Oracle Engineered System, then in addition to the following usage steps, follow the system-specific instructions.

1. Set the daemon properties.

At a minimum, set `AUTORUN_SCHEDULE` and `NOTIFICATION_EMAIL`.

For example, to set the tool to run at 3 AM every Sunday and email the results to `some.body@example.com`, run the following command:

```
$ ./orachk -set "AUTORUN_SCHEDULE=3 * *  
0 ;NOTIFICATION_EMAIL=some.body@example.com"
```

```
$ ./exachk -set "AUTORUN_SCHEDULE=3 * *  
0 ;NOTIFICATION_EMAIL=some.body@example.com"
```

2. Configure the health check daemon as described in "Automated Daemon Mode Operation".

3. Start the daemon as `root` (recommended) or as the Oracle Database or Oracle Grid Infrastructure home owner.

```
# ./orachk -d start
```

```
# ./exachk -d start
```

4. Answer the questions prompted during startup.

Related Topics

- [Deciding Which User Should Run Oracle ORAchk or Oracle EXAchk](#) (page 1-6)
Run health checks as `root`. Also, run health checks as the Oracle Database home owner or the Oracle Grid Infrastructure home owner.
- [Using Oracle ORAchk and Oracle EXAchk to Automatically Check for Risks and System Health](#) (page 1-16)
Oracle recommends that you use the daemon process to schedule recurring health checks at regular intervals.
- [Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance Usage](#) (page 3-5)
Usage of Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance depends on other considerations such as virtualization, parallel run, and so on.
- [Oracle EXAchk on Oracle Exalogic Usage](#) (page 3-24)
For optimum performance of the Oracle EXAchk tool, Oracle recommends that you complete the following steps.
- [Oracle EXAchk on Oracle SuperCluster Usage](#) (page 3-49)
Perform health checks from GZ / primary LDOM, or NGZ.
- [Oracle EXAchk on Oracle Exalytics Usage](#) (page 3-55)
Oracle EXAchk runs the appropriate collections and audit checks based on the status of the components.

1.1.5 Run Multiple Instances at the Same Time

It is now possible to run multiple instances of Oracle ORAchk and Oracle EXAchk at the same time on the same machine.

As a result of this change the location of the `root_orachk.sh` and `root_exachk.sh` files have now changed. By default, they are created in the user's home directory.

If you run as non-root, then change this location in the `/etc/sudoers` file, for example,

Previous `/etc/sudoers` entry:

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

New `/etc/sudoers` entry:

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

You can also change the location of those scripts by setting the environment variable `RAT_ROOT_SH_DIR`.

```
export RAT_ROOT_SH_DIR=/some/other/location
```

1.1.6 Email Notification and Health Check Report Overview

The following sections provide a brief overview about email notifications and sections of the HTML report output.

- [First Email Notification](#) (page 1-10)
After completing health check runs, the daemon emails the assessment report as an HTML attachment to all users that you have specified in the `NOTIFICATION_EMAIL` list.
- [What does the Health Check Report Contain?](#) (page 1-10)
Health check reports contain the health status of each system grouped under different sections of the report.
- [Subsequent Email Notifications](#) (page 1-12)
For the subsequent health check runs after the first email notification, the daemon emails the summary of differences between the most recent runs.
- [Diff Report](#) (page 1-13)
The diff report attached to the previous email notification shows a summary of differences between the most recent runs.

1.1.6.1 First Email Notification

After completing health check runs, the daemon emails the assessment report as an HTML attachment to all users that you have specified in the `NOTIFICATION_EMAIL` list.

1.1.6.2 What does the Health Check Report Contain?

Health check reports contain the health status of each system grouped under different sections of the report.

The HTML report output contains the following:

- Health score
- Summary of health check runs
- Table of contents
- Controls for report features
- Findings
- Recommendations

Details of the report output are different on each system. The report is dynamic, and therefore the tools display certain sections only if applicable.

System Health Score and Summary

System Health Score and Summary report provide:

- A high-level health score based on the number of passed or failed checks
- A summary of health check run includes:
 - Name, for example, Cluster Name
 - Version of the operating system kernel
 - Path, version, name of homes, for example, CRS, DB, and EM Agent
 - Version of the component checked, for example, Exadata
 - Number of nodes checked, for example, database server, storage servers, InfiniBand switches
 - Version of Oracle ORAchk and Oracle EXAchk
 - Name of the collection output
 - Date and time of collection
 - Duration of the check
 - Name of the user who ran the check, for example, `root`
 - How long the check is valid

Table of Contents and Report Feature

The **Table of Contents** section provides links to major sections in the report:

- Database Server
- Storage Server
- InfiniBand Switch
- Cluster Wide
- Maximum Availability Architecture (MAA) Scorecard
- Infrastructure Software and Configuration Summary
- Findings needing further review
- Platinum Certification
- System-wide Automatic Service Request (ASR) health check
- Skipped Checks
- Top 10 Time Consuming Checks

The **Report Feature** section enables you to:

- Filter checks based on their statuses
- Select the regions
- Expand or collapse all checks
- View check IDs
- Remove findings from the report
- Get a printable view

Report Findings

The **Report Findings** section displays the result of each health check grouped by technology components, such as Database Server, Storage Server, InfiniBand Switch, and Cluster Wide.

Each section shows:

- Check status (FAIL, WARNING, INFO, or PASS)
- Type of check
- Check message
- Where the check was run
- Link to expand details for further findings and recommendation

Click **View** for more information about the health check results and the recommendations.

- What to do to solve the problem
- Where the recommendation applies
- Where the problem does not apply
- Links to relevant documentation or My Oracle Support notes
- Example of data on which the recommendation is based

Maximum Availability Architecture (MAA) Score Card

Maximum Availability Architecture (MAA) Score Card displays the recommendations for the software installed on your system.

The details include:

- Outage Type
- Status of the check
- Description of the problem
- Components found
- Host location
- Version of the components compared to the recommended version
- Status based on comparing the version found to the recommended version

Related Topics

- [Understanding and Managing Reports and Output](#) (page 1-32)
Oracle ORAchk and Oracle EXAchk generate a detailed HTML report with findings and recommendations.

1.1.6.3 Subsequent Email Notifications

For the subsequent health check runs after the first email notification, the daemon emails the summary of differences between the most recent runs.

Specify a list of comma-delimited email addresses in the `NOTIFICATION_EMAIL` option.

The email notification contains:

- System Health Score of this run compared to the previous run
- Summary of number of checks that were run and the differences between runs
- Most recent report result as attachment
- Previous report result as attachment
- Diff report as attachment

1.1.6.4 Diff Report

The diff report attached to the previous email notification shows a summary of differences between the most recent runs.

To identify the changes since the last run:

Run the following command to generate a diff report:

```
$ ./orachk -diff report_1 report_2
```

When you review the diff report, you see a baseline comparison of the two reports and then a list of differences.

Related Topics

- [Comparing Two Reports](#) (page 1-55)
Oracle ORAchk and Oracle EXAchk automatically compare the two most recent HTML reports and generate a third diff report, when run in automated daemon mode.
- [Managing the Report Output](#) (page 1-82)
Use the list of commands in this section to manage the report output.

1.1.7 Recommended On-Demand Usage

This section summarizes the scenarios that Oracle recommends running health checks on-demand.

Apart from scheduled health check runs, run health checks on-demand by running the following commands:

```
$ ./orachk
```

```
$ ./exachk
```

Oracle recommends that you run health checks in the following on-demand scenarios:

- Pre- or post-upgrades
- Machine relocations from one subnet to another
- Hardware failure or repair
- Problem troubleshooting
- In addition to go-live testing

While running pre- or post-upgrade checks, Oracle ORAchk and Oracle EXAchk automatically detect databases that are registered with Oracle Clusterware and presents the list of databases to check.

Run the pre-upgrade checks during the upgrade planning phase. Oracle ORAchk and Oracle EXAchk prompt you for the version to which you are planning to upgrade:

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

```
$ ./exachk -u -o pre
```

After upgrading, run the post-upgrade checks:

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

```
$ ./exachk -u -o post
```

Related Topics

- [Running Health Checks On-Demand](#) (page 1-27)
Usually, health checks run at scheduled intervals. However, Oracle recommends that you run health checks on-demand when needed.

1.1.8 Updating to the Latest Version of Oracle ORAchk and Oracle EXAchk

There are several methods for maintaining Oracle ORAchk and Oracle EXAchk.

Note:

Each database PSU contains the latest Oracle ORAchk version available at time of creation. When a database PSU is applied, the ORAchk zip version contained is staged in `$ORACLE_HOME/suptools`.

Upon the next run, Oracle ORAchk prompts you to upgrade if the version copied by the PSU is newer than installed.

- [Updating Oracle ORAchk and Oracle EXAchk in an Environment with an Internet Connection](#) (page 1-14)
If your Oracle ORAchk or Oracle EXAchk version is older than 120 days, then the tool prompts you on startup to automatically download a newer version from My Oracle Support.
- [Updating Oracle ORAchk and Oracle EXAchk in an Environment without an Internet Connection](#) (page 1-15)
If you do not have a direct connection to My Oracle Support, then download the latest versions of Oracle ORAchk and Oracle EXAchk from a machine that has an internet connection.

1.1.8.1 Updating Oracle ORAchk and Oracle EXAchk in an Environment with an Internet Connection

If your Oracle ORAchk or Oracle EXAchk version is older than 120 days, then the tool prompts you on startup to automatically download a newer version from My Oracle Support.

The script prompts for your My Oracle Support login details, and then checks if a later version is available for download and upgrade.

You can also download manually by running the `-download` option:

```
$ ./orachk -download

$ ./exachk -download

$ ./exachk -download
Enter your my oracle support username:- some.person@acompany.com
Enter your my oracle support password:-
Started downloading...

exachk.zip successfully downloaded to /opt/oracle.suptools/exachk/
exachk_mybox_040116_043027
```

1.1.8.2 Updating Oracle ORAchk and Oracle EXAchk in an Environment without an Internet Connection

If you do not have a direct connection to My Oracle Support, then download the latest versions of Oracle ORAchk and Oracle EXAchk from a machine that has an internet connection.

Transfer the downloaded files to a shared network staging location, and then set the environment variable `RAT_UPGRADE_LOC` to point to that staging location.

The next time the Oracle ORAchk or Oracle EXAchk is started, the tool detects the latest version and prompts you to upgrade.

1. Download the appropriate health check tool zip file:
 - For Oracle ORAchk, download `orachk.zip`.
 - For Oracle EXAchk, download `exachk.zip`.
2. Transfer the zip file to a shared network staging directory.
3. On each machine with a version of the tool that you want to upgrade, set the environment variable `RAT_UPGRADE_LOC` to point to the network staging directory.

```
$ export RAT_UPGRADE_LOC=PATH_TO_STAGING_DIRECTORY
```

The next time Oracle ORAchk or Oracle EXAchk is started, the tool searches the directory specified in the `RAT_UPGRADE_LOC` environment variable. If this directory contains the latest version of the `orachk.zip` or `exachk.zip` file, then Oracle ORAchk or Oracle EXAchk prompts you to allow it to upgrade.

```
$ ls /opt/oracle.SupportTools/exachk/latest
exachk.zip
$ export RAT_UPGRADE_LOC=/opt/oracle.SupportTools/exachk/latest
$ ./exachk
Latest version of exachk (EXACHK VERSION: 12.1.0.2.7_20160401) is available at /opt/
oracle.SupportTools/exachk/latest/
```

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

```
exachk has been upgraded to EXACHKVERSION:12.1.0.2.7(DEV)_20160401
```

```
Running the latest version...
```

If you have set `RAT_UPGRADE_LOC` but do not want to upgrade, then you can still run Oracle ORAchk or Oracle EXAchk using the `-noupgrade` option:

```
$ ./orachk -noupgrade
```

```
$ ./exachk -noupgrade
```

 **Note:**

Use the `-noupgrade` option when you have the latest version in `RAT_UPGRADE_LOC` and do not yet want to upgrade.

Using `-noupgrade` without having the latest version in `RAT_UPGRADE_LOC` still prompts you to download the latest version.

1.2 Using Oracle ORAchk and Oracle EXAchk to Automatically Check for Risks and System Health

Oracle recommends that you use the daemon process to schedule recurring health checks at regular intervals.

 **Note:**

Daemon mode is supported only on the Linux and Solaris operating systems.

Configure the daemon to:

- Schedule recurring health checks at regular interval
- Send email notifications when the health check runs complete, clearly showing any differences since the last run
- Purge collection results after a pre-determined period
- Check and send email notification about stale passwords
- Store multiple profiles for automated health check runs
- Restart automatically if the *server* or *node* where it is running restarts

 **Note:**

While running, the daemon answers all the prompts required by subsequent on-demand health checks.

To run on-demand health checks, do not use the daemon process started by others. Run on-demand health checks within the same directory where you have started the daemon.

If you change the system configuration such as adding or removing *servers* or *nodes*, then restart the daemon.

- [Setting and Getting Options for the Daemon](#) (page 1-17)
Set the daemon options before you start the daemon. Reset the daemon options anytime after starting the daemon.

- [Starting and Stopping the Daemon](#) (page 1-25)
Start and stop the daemon and force the daemon to stop a health check run.
- [Querying the Status and Next Planned Daemon Run](#) (page 1-25)
Query the status and next automatic run schedule of the running daemon.
- [Configuring the Daemon for Automatic Restart](#) (page 1-26)
By default, you must manually restart the daemon if you restart the *server* or *node* on which the daemon is running.

Related Topics

- [Running Health Checks On-Demand](#) (page 1-27)
Usually, health checks run at scheduled intervals. However, Oracle recommends that you run health checks on-demand when needed.
- [Starting and Stopping the Daemon](#) (page 1-25)
- [Querying the Status and Next Planned Daemon Run](#) (page 1-25)
- [Configuring the Daemon for Automatic Restart](#) (page 1-26)

1.2.1 Setting and Getting Options for the Daemon

Set the daemon options before you start the daemon. Reset the daemon options anytime after starting the daemon.

Set the daemon options using the `-set` option.

Set an option as follows:

```
$ ./orachk -set "option_1=option_1_value"
```

```
$ ./exachk -set "option_1=option_1_value"
```

Set multiple options using the `name=value` format separated by semicolons as follows:

```
$ ./orachk -set  
"option_1=option_1_value;option_2=option_2_value;option_n=option_n_value"
```

```
$ ./exachk -set  
"option_1=option_1_value;option_2=option_2_value;option_n=option_n_value"
```

- [AUTORUN_SCHEDULE](#) (page 1-18)
Schedule recurring health checks using the `AUTORUN_SCHEDULE` daemon option.
- [AUTORUN_FLAGS](#) (page 1-19)
The `AUTORUN_FLAGS` daemon option determines how health checks are run.
- [NOTIFICATION_EMAIL](#) (page 1-19)
Set the `NOTIFICATION_EMAIL` daemon option to send email notifications to the recipients you specify.
- [collection_retention](#) (page 1-20)
Set the `collection_retention` daemon option to purge health check collection results that are older than a specified number of days.
- [PASSWORD_CHECK_INTERVAL](#) (page 1-20)
The `PASSWORD_CHECK_INTERVAL` daemon option defines the frequency, in hours, for the daemon to validate the passwords entered when the daemon was started the first time.

- [Setting Multiple Option Profiles for the Daemon](#) (page 1-21)
Use only one daemon process for each server. Do not start a single daemon on multiple databases in a cluster, or multiple daemons on the same database.
- [Getting the Existing Options for the Daemon](#) (page 1-22)
Query the values that you set for the daemon options.

Related Topics

- [Controlling the Behavior of the Daemon](#) (page 1-84)
Use the list of commands in this section to control the behavior of the daemon.

1.2.1.1 AUTORUN_SCHEDULE

Schedule recurring health checks using the `AUTORUN_SCHEDULE` daemon option.

Set the `AUTORUN_SCHEDULE` option, as follows:

```
AUTORUN_SCHEDULE=hour minute day month day_of_week
```

where:

- `minute` is 0-59 (Optional. If omitted, then 0 is used)
- `hour` is 0–23
- `day` is 1–31
- `month` is 1–12
- `day_of_week` is 0–6, where 0=Sunday and 6=Saturday

Use the asterisk (*) as a wildcard to specify multiple values separated by commas.

Table 1-1 `AUTORUN_SCHEDULE`

Example	Result
" <code>AUTORUN_SCHEDULE=0,15,30,45 * * * *</code> "	Runs every 15 minutes.
" <code>AUTORUN_SCHEDULE=* * * *</code> "	Runs every hour.
" <code>AUTORUN_SCHEDULE=3 * * 0</code> "	Runs at 3 AM every Sunday.
" <code>AUTORUN_SCHEDULE=2 * * 1, 3, 5</code> "	Runs at 2 AM on Monday, Wednesday, and Friday.
" <code>AUTORUN_SCHEDULE=4 1 * * *</code> "	Runs at 4 AM on the first day of every month.
" <code>AUTORUN_SCHEDULE=8,20 * * 1, 2, 3, 4, 5</code> "	Runs at 8 AM and 8 PM every Monday, Tuesday, Wednesday, Thursday, and Friday.

Example 1-1 `AUTORUN_SCHEDULE`

```
$ ./orachk -set "AUTORUN_SCHEDULE=3 * * 0"
```

```
$ ./exachk -set "AUTORUN_SCHEDULE=3 * * 0"
```

1.2.1.2 AUTORUN_FLAGS

The `AUTORUN_FLAGS` daemon option determines how health checks are run.

Set the `AUTORUN_FLAGS` option as follows: `AUTORUN_FLAGS=flags`, where `flags` can be any combination of valid command-line flags.

Table 1-2 `AUTORUN_FLAGS`

Example	Result
<code>"AUTORUN_FLAGS=-profile dba"</code>	Runs only the dba profile checks.
<code>"AUTORUN_FLAGS=-profile sysadmin -tag syadmin"</code>	Runs only the dba profile checks and tags the output with the value <code>sysadmin</code> .
<code>-excludeprofile ebs</code>	Runs all checks except the checks in the ebs profile.

Example 1-2 `AUTORUN_FLAGS`

```
$ ./orachk -set "AUTORUN_FLAGS=-profile sysadmin -tag sysadmin"
$ ./exachk -set "AUTORUN_FLAGS=-profile sysadmin -tag sysadmin"
```

1.2.1.3 NOTIFICATION_EMAIL

Set the `NOTIFICATION_EMAIL` daemon option to send email notifications to the recipients you specify.

The daemon notifies the recipients each time a health check run completes or when the daemon experiences a problem.

Specify a comma-delimited list of email addresses, as follows:

```
$ ./orachk -set
"NOTIFICATION_EMAIL=some.person@acompany.com,another.person@acompany.com"
$ ./exachk -set
"NOTIFICATION_EMAIL=some.person@acompany.com,another.person@acompany.com"
```

Test the email notification configuration using the `-testemail` option, as follows:

```
$ ./orachk -testemail all
$ ./exachk -testemail all
```

After the first health check run, the daemon notifies the recipients with report output attached.

For the subsequent health check runs after the first email notification, the daemon emails the summary of differences between the most recent runs to all recipients specified in the `NOTIFICATION_EMAIL` list.

Contents of the Email Notification

- System Health Score of this run compared to the previous run

- Summary of number of checks run and differences between runs
- Most recent report result as attachment
- Previous report result as attachment
- Diff report as attachment

Related Topics

- [PASSWORD_CHECK_INTERVAL](#) (page 1-20)
The `PASSWORD_CHECK_INTERVAL` daemon option defines the frequency, in hours, for the daemon to validate the passwords entered when the daemon was started the first time.

1.2.1.4 collection_retention

Set the `collection_retention` daemon option to purge health check collection results that are older than a specified number of days.

Set the `collection_retention` option, as follows:

```
collection_retention=number_of_days
```

If you do not set this option, then the daemon does not purge the stale collection.

Set the `collection_retention` option to an appropriate number of days based on

- Frequency of your scheduled collections
- Size of the collection results
- Available disk space

Example 1-3 collection_retention

```
$ ./orachk -set "collection_retention=60"
```

```
$ ./exachk -set "collection_retention=60"
```

1.2.1.5 PASSWORD_CHECK_INTERVAL

The `PASSWORD_CHECK_INTERVAL` daemon option defines the frequency, in hours, for the daemon to validate the passwords entered when the daemon was started the first time.

If an invalid password is found due to a password change, then the daemon stops, makes an entry in the daemon log, and then sends an email notification message to the recipients specified in the `NOTIFICATION_EMAIL` option.

Set the `PASSWORD_CHECK_INTERVAL` option, as follows:

```
PASSWORD_CHECK_INTERVAL=number_of_hours.
```

If you do not set the `PASSWORD_CHECK_INTERVAL` option, then the daemon cannot actively check password validity and fails the next time the daemon tries to run after a password change. Using the `PASSWORD_CHECK_INTERVAL` option enables you to take corrective action and restart the daemon with the correct password rather than having failed collections.

Set the `PASSWORD_CHECK_INTERVAL` option to an appropriate number of hours based on the frequency of your scheduled collections and password change policies.

Example 1-4 PASSWORD_CHECK_INTERVAL

```
$ ./orachk -set "PASSWORD_CHECK_INTERVAL=1"
$ ./exachk -set "PASSWORD_CHECK_INTERVAL=1"
```

Related Topics

- [NOTIFICATION_EMAIL](#) (page 1-19)
Set the NOTIFICATION_EMAIL daemon option to send email notifications to the recipients you specify.

1.2.1.6 Setting Multiple Option Profiles for the Daemon

Use only one daemon process for each server. Do not start a single daemon on multiple databases in a cluster, or multiple daemons on the same database.

The daemon does not start, if the daemon detects another Oracle ORAchK or Oracle EXAchK daemon process running locally.

Define multiple different run profiles using the same daemon. Defining multiple different run profiles enables you to run multiple different health checks with different daemon options, such as different schedules, email notifications, and automatic run flags. The daemon manages all profiles.

Define daemon option profiles using the `-id id` option before the `-set` option, where `id` is the name of the profile.

```
$ ./orachk -id id -set "option=value"
$ ./exachk -id id -set "option=value"
```

Example 1-5 Setting Multiple Option Profiles for the Daemon

For example, if the database administrator wants to run checks within the `dba` profile and the system administrator wants to run checks in the `sysadmin` profile, then configure the daemon using the profiles option.

Define the database administrator profile as follows:

```
$ ./orachk -id dba -set "NOTIFICATION_EMAIL=dba@example.com;\
  AUTORUN_SCHEDULE=4,8,12,16,20 * * *;AUTORUN_FLAGS=-profile dba -tag dba;\
  collection_retention=30"
```

```
Created notification_email for ID[dba]
Created autorun_schedule for ID[dba]
Created autorun_flags for ID[dba]
Created collection_retention for ID[dba]
```

```
$ ./exachk -id dba -set "NOTIFICATION_EMAIL=dba@example.com;\
  AUTORUN_SCHEDULE=4,8,12,16,20 * * *; AUTORUN_FLAGS=-profile dba -tag dba;\
  collection_retention=30"
```

```
Created notification_email for ID[dba]
Created autorun_schedule for ID[dba]
Created autorun_flags for ID[dba]
Created collection_retention for ID[dba]
```

Define the system administrator profile as follows:

```
$ ./orachk -id sysadmin -set "NOTIFICATION_EMAIL=sysadmin@example.com;\
  AUTORUN_SCHEDULE=3 * * 1,3,5; AUTORUN_FLAGS=-profile sysadmin -tag sysadmin;\
  collection_retention=60"
```

```
Created notification_email for ID[sysadmin]
Created autorun_schedule for ID[sysadmin]
Created autorun_flags for ID[sysadmin]
Created collection_retention for ID[sysadmin]
```

```
$ ./exachk -id sysadmin -set "NOTIFICATION_EMAIL=sysadmin@example.com;\
  AUTORUN_SCHEDULE=3 * * 1,3,5; AUTORUN_FLAGS=-profile sysadmin -tag sysadmin;\
  collection_retention=60"
```

```
Created notification_email for ID[sysadmin]
Created autorun_schedule for ID[sysadmin]
Created autorun_flags for ID[sysadmin]
Created collection_retention for ID[sysadmin]
```

Related Topics

- [Controlling the Behavior of the Daemon](#) (page 1-84)
Use the list of commands in this section to control the behavior of the daemon.

1.2.1.7 Getting the Existing Options for the Daemon

Query the values that you set for the daemon options.

To query the values, use `[-id ID] -get option | all`, where

- *ID* is a daemon option profile
- *option* is a specific daemon option you want to retrieve
- *all* returns values of all options

To get a specific daemon option, use the `-get option`.

Example 1-6 Getting Existing Options for the Daemon

```
$ ./orachk -get NOTIFICATION_EMAIL
```

```
ID: orachk.default
-----
notification_email = some.body@example.com
```

```
$ ./exachk -get NOTIFICATION_EMAIL
```

```
ID: exachk.default
-----
notification_email = some.body@example.com
```

To query multiple daemon option profiles, use `-get option: .`

```
$ ./orachk -get NOTIFICATION_EMAIL
```

```
ID: orachk.default
-----
notification_email = some.body@example.com
```

```
ID: dba
-----
notification_email = dba@example.com
```

```
ID: sysadmin
-----
notification_email = sysadmin@example.com
```

```
$ ./exachk -get NOTIFICATION_EMAIL
```

```
ID: exachk.default
-----
notification_email = some.person@example.com
```

```
ID: dba
-----
notification_email = dba@example.com
```

```
ID: sysadmin
-----
notification_email = sysadmin@example.com
```

To limit the request to a specific daemon option profile, use `-id ID -get option`.

To get the NOTIFICATION_EMAIL for a daemon profile called dba :

```
$ ./orachk -id dba -get NOTIFICATION_EMAIL
```

```
ID: dba
-----
notification_email = dba@example.com
```

```
$ ./exachk -id dba -get NOTIFICATION_EMAIL
```

```
ID: dba
-----
notification_email = dba@example.com
```

To get all options set, use `-get all` :

```
$ ./orachk -get all
```

```
ID: orachk.default
-----
notification_email = some.body@example.com
autorun_schedule = 3 * * 0
collection_retention = 30
password_check_interval = 1
```

```
$ ./exachk -get all
```

```
ID: exachk.default
-----
notification_email = some.body@example.com
autorun_schedule = 3 * * 0
collection_retention = 30
password_check_interval = 1
```

To query all daemon option profiles, use `-get all` :

```
$ ./orachk -get all
```

```
ID: orachk.default
```

```

-----
notification_email = some.body@example.com
autorun_schedule = 3 * * 0
collection_retention = 30
password_check_interval = 12

ID: dba
-----
notification_email = dba@example.com
autorun_schedule = 4,8,12,16,20 * * *
autorun_flags = -profile dba - tag dba
collection_retention = 30
password_check_interval = 1

ID: sysadmin
-----
notification_email = sysadmin@example.com
autorun_schedule = 3 * * 1,3,5
autorun_flags = -profile sysadmin -tag sysadmin
collection_retention = 60
password_check_interval = 1

$ ./exachk -get all

ID: exachk.default
-----
notification_email = some.body@example.com
autorun_schedule = 3 * * 0
collection_retention = 30
password_check_interval = 1

ID: dba
-----
notification_email = dba@example.com
autorun_schedule = 4,8,12,16,20 * * *
autorun_flags = -profile dba - tag dba
collection_retention = 30
password_check_interval = 1

ID: sysadmin
-----
notification_email = sysadmin@example.com
autorun_schedule = 3 * * 1,3,5
autorun_flags = -profile sysadmin -tag sysadmin
collection_retention = 60
password_check_interval = 1

```

To limit the request to a specific daemon option profile, use `-id ID -get all` option.

To get all the options set for a daemon profile called `dba`:

```

$ ./orachk -id dba -get all

ID: dba
-----
notification_email = dba@example.com
autorun_schedule = 4,8,12,16,20 * * *
autorun_flags = -profile dba - tag dba
collection_retention = 30
password_check_interval = 1

```

```
$ ./exachk -id dba -get all

ID: dba
-----
notification_email = dba@example.com
autorun_schedule = 4,8,12,16,20 * * *
autorun_flags = -profile dba - tag dba
collection_retention = 30
password_check_interval = 1
```

1.2.2 Starting and Stopping the Daemon

Start and stop the daemon and force the daemon to stop a health check run.

To start and stop the daemon:

1. To start the daemon, use the `-d start` option as follows:

```
$ ./orachk -d start
$ ./exachk -d start
```

The tools prompt you to provide required information during startup.

2. To stop the daemon, use the `-d stop` option as follows:

```
$ ./orachk -d stop
$ ./exachk -d stop
```

If a health check run is progress when you run the stop command, then the daemon indicates so and continues running.

3. To force the daemon to stop a health check run, use the `-d stop_client` option:

```
$ ./orachk -d stop_client
$ ./exachk -d stop_client
```

The daemon stops the health check run and then confirms when it is done. If necessary, stop the daemon using the `-d stop` option.

1.2.3 Querying the Status and Next Planned Daemon Run

Query the status and next automatic run schedule of the running daemon.

```
-d status|info|nextautorun
```

- `-d status`: Checks if the daemon is running.
- `-d info`: Displays information about the running daemon.
- `-d nextautorun [-id ID]`: Displays the next automatic run time.

To query the status and next planned daemon run:

1. To check if the daemon is running, use `-d status`:

```
$ ./orachk -d status
$ ./exachk -d status
```

If the daemon is running, then the daemon confirms and displays the PID.

2. To query more detailed information about the daemon, use `-d info`:

```
$ ./orachk -d info
```

```
$ ./exachk -d info
```

The daemon responds with the following information:

- Node on the which the daemon is installed
- Version
- Install location
- Time when the daemon was started

3. To query the next scheduled health check run, use `-d nextautorun`:

```
$ ./orachk -d nextautorun
```

```
$ ./exachk -d nextautorun
```

The daemon responds with details of schedule.

If you have configured multiple daemon option profiles, then the output shows whichever is scheduled to run next.

If you have configured multiple daemon option profiles, then query the next scheduled health check run of a specific profile using `-id ID -d nextautorun`:

```
$ ./orachk -d ID -d nextautorun
```

```
$ ./exachk -d ID -d nextautorun
```

The daemon responds with details of the schedule for the daemon options profile ID you have specified.

1.2.4 Configuring the Daemon for Automatic Restart

By default, you must manually restart the daemon if you restart the *server* or *node* on which the daemon is running.

However, if you use the automatic restart option, the daemon restarts automatically after the *server* or *node* reboot.

Only `root` can configure automatic restart.

To configure the daemon to start automatically:

1. To set up daemon automatic restart, use `-initsetup`:

```
$ ./orachk -initsetup
```

```
$ ./exachk -initsetup
```

The tool prompts you to provide the required information during startup.

**Note:**

Stop the daemon before running `-initsetup`, if the daemon is already running.

2. To query automatic restart status of the daemon, use `-initcheck`:

```
$ ./orachk -initcheck
```

```
$ ./exachk -initcheck
```

3. To remove automatic restart configuration, use `-initrmsetup` :

```
$ ./orachk -initrmsetup
```

```
$ ./exachk -initrmsetup
```

1.3 Running Health Checks On-Demand

Usually, health checks run at scheduled intervals. However, Oracle recommends that you run health checks on-demand when needed.

Examples of when you must run health checks on-demand:

- Pre- or post-upgrades
- Machine relocations from one subnet to another
- Hardware failure or repair
- Problem troubleshooting
- In addition to go-live testing

To start on-demand health check runs, log in to the system as an appropriate user, and then run an appropriate tool. Specify the options to direct the type of run that you want.

```
$ ./orachk
```

```
$ ./exachk
```

**Note:**

To avoid problems while running the tool from terminal sessions on a network attached workstation or laptop, consider running the tool using VNC. If there is a network interruption, then the tool continues to process to completion. If the tool fails to run, then re-run the tool. The tool does not resume from the point of failure.

Output varies depending on your environment and options used:

- The tool starts discovering your environment
- If you have configured passwordless SSH equivalency, then the tool does not prompt you for passwords

- If you have not configured passwordless SSH for a particular component at the required access level, then the tool prompts you for password
- If the daemon is running, then the commands are sent to the daemon process that answers all prompts, such as selecting the database and providing passwords
- If the daemon is not running, then the tool prompts you for required information, such as which database you want to run against, the required passwords, and so on
- The tool investigates the status of the discovered components

 **Note:**

If you are prompted for passwords, then the Expect utility runs when available. In this way, the passwords are gathered at the beginning, and the Expect utility supplies the passwords when needed at the root password prompts. The Expect utility being supplying the passwords enables the tool to continue without the need for further input. If you do not use the Expect utility, then closely monitor the run and enter the passwords interactively as prompted.

Without the Expect utility installed, you must enter passwords many times depending on the size of your environment. Therefore, Oracle recommends that you use the Expect utility.

While running pre- or post-upgrade checks, Oracle ORAchk and Oracle EXAchk automatically detect databases that are registered with Oracle Clusterware and presents the list of databases to check.

Run the pre-upgrade checks during the upgrade planning phase. Oracle ORAchk and Oracle EXAchk prompt you for the version to which you are planning to upgrade:

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

```
$ ./exachk -u -o pre
```

After upgrading, run the post-upgrade checks:

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

```
$ ./exachk -u -o post
```

- The tool starts collecting information across all the relevant components, including the remote nodes.
- The tool runs the health checks against the collected data and displays the results.
- After completing the health check run, the tool points to the location of the detailed HTML report and the `.zip` file that contains more output.
- [Running On-Demand With or Without the Daemon](#) (page 1-29)
When running on-demand, if the daemon is running, then the daemon answers all prompts where possible including the passwords.
- [Sending Results by Email](#) (page 1-30)
Optionally email the HTML report to one or more recipients using the `-sendemail` option.

Related Topics

- [Handling of root Passwords](#) (page 1-5)
Handling of `root` passwords depends on whether you have installed the Expect utility.
- [Deciding Which User Should Run Oracle ORAchk or Oracle EXAchk](#) (page 1-6)
Run health checks as `root`. Also, run health checks as the Oracle Database home owner or the Oracle Grid Infrastructure home owner.
- [Using Oracle ORAchk and Oracle EXAchk to Automatically Check for Risks and System Health](#) (page 1-16)
Oracle recommends that you use the daemon process to schedule recurring health checks at regular intervals.
- [Upgrade Readiness Mode \(Oracle Clusterware and Oracle Database Upgrade Checks\)](#) (page 1-65)
You can use Upgrade Readiness Mode to obtain an Upgrade Readiness Assessment.
- [Expect - Expect - Home Page](#)

1.3.1 Running On-Demand With or Without the Daemon

When running on-demand, if the daemon is running, then the daemon answers all prompts where possible including the passwords.

To run health checks on-demand if the daemon is running, then use:

```
$ ./orachk
```

```
$ ./exachk
```

You will see the output similar to:

```
Sending commands to daemon (mypid #) args:
```

To avoid connecting to the daemon process, meaning the tool to interactively prompt you as required, use the `-nodaemon` option:

```
$ ./orachk -nodaemon
```

```
$ ./exachk -nodaemon
```

 **Note:**

Daemon mode is supported only on the Linux and Solaris operating systems.

 **Note:**

If you are running database pre-upgrade checks (`-u -o pre`) and if the daemon is running, then you must use the `-nodaemon` option.

Related Topics

- [Upgrade Readiness Mode \(Oracle Clusterware and Oracle Database Upgrade Checks\)](#) (page 1-65)
You can use Upgrade Readiness Mode to obtain an Upgrade Readiness Assessment.

1.3.2 Sending Results by Email

Optionally email the HTML report to one or more recipients using the `-sendemail` option.

```
$ ./orachk -sendemail "NOTIFICATION_EMAIL=email_recipients"
```

```
$ ./exachk -sendemail "NOTIFICATION_EMAIL=email_recipients"
```

Where *email_recipients* is a comma-delimited list of email addresses.

Note:

Verify the email configuration settings using the `-testemail` option.

Related Topics

- [NOTIFICATION_EMAIL](#) (page 1-19)
Set the `NOTIFICATION_EMAIL` daemon option to send email notifications to the recipients you specify.

1.4 Running Health Checks in Silent Mode

Run health checks automatically by scheduling them with the Automated Daemon Mode operation.

Note:

Silent mode operation is maintained for backwards compatibility for the customers who were using it before the daemon mode was available. Silent mode is limited in the checks it runs and Oracle does not actively enhance it any further.

- Running health checks in silent mode using the `-s` option does not run any checks on the storage servers and switches.
- Running health checks in silent mode using the `-s` option excludes checks on database server that require `root` access. Also, does not run any checks on the storage servers and database servers.

To run health checks silently, configure passwordless SSH equivalency. It is not required to run remote checks, such as running against a single-instance database.

When health checks are run silently, output is similar to that described in On-Demand Mode Operation.

 **Note:**

If not configured to run in silent mode operation on an Oracle Engineered System, then the tool does not perform storage server or InfiniBand switch checks.

Including Health Checks that Require root Access

Run as `root` or configure `sudo` access to run health checks in silent mode and include checks that require `root` access.

To run health checks including checks that require `root` access, use the `-s` option followed by other required options:

```
$ ./orachk -s
```

```
$ ./exachk -s
```

Excluding Health Checks that Require root Access

To run health checks excluding checks that require `root` access, use the `-S` option followed by other required options:

```
$ ./orachk -S
```

```
$ ./exachk -S
```

- [Including Health Checks that Require root Access](#) (page 1-31)
Run as `root` or configure `sudo` access to run health checks in silent mode and include checks that require `root` access.
- [Excluding Health Checks that Require root Access](#) (page 1-32)
To run health checks in silent mode and exclude checks that require `root` access, use `-S` followed by other required options.

1.4.1 Including Health Checks that Require root Access

Run as `root` or configure `sudo` access to run health checks in silent mode and include checks that require `root` access.

To run health checks including checks that require `root` access, use the `-s` option followed by other required options:

```
$ ./orachk -s
```

```
$ ./exachk -s
```

Related Topics

- [Deciding Which User Should Run Oracle ORAchk or Oracle EXAchk](#) (page 1-6)
Run health checks as `root`. Also, run health checks as the Oracle Database home owner or the Oracle Grid Infrastructure home owner.

1.4.2 Excluding Health Checks that Require root Access

To run health checks in silent mode and exclude checks that require `root` access, use `-s` followed by other required options.

```
$ ./orachk -s
```

```
$ ./exachk -s
```

1.5 Understanding and Managing Reports and Output

Oracle ORAchk and Oracle EXAchk generate a detailed HTML report with findings and recommendations.

See [Oracle Health Check Collections Manager for Oracle Application Express 4.2](#) (page 1-144) and [Integrating Health Check Results with Other Tools](#) (page 1-192) for more details about other ways to consume those results.

- [Temporary Files and Directories](#) (page 1-33)
While running health checks, Oracle ORAchk and Oracle EXAchk create temporary directories and files for the purposes of data collection and assessment, and then delete them upon completion of health check runs.
- [Output Files and Directories](#) (page 1-33)
Oracle ORAchk and Oracle EXAchk create an output directory that contains various files for you to examine.
- [HTML Report Output](#) (page 1-36)
- [Tagging Reports](#) (page 1-50)
The health check HTML report is typically named:
`orachk_hostname_database_date_timestamp.html` or
`exachk_hostname_database_date_timestamp.html`. You can include other tags in the HTML report name to facilitate differentiation and identification.
- [Tracking File Attribute Changes](#) (page 1-51)
Use the ORAchk and EXAchk `-fileattr` option and command flags to record and track file attribute settings, and compare snapshots.
- [Comparing Two Reports](#) (page 1-55)
Oracle ORAchk and Oracle EXAchk automatically compare the two most recent HTML reports and generate a third diff report, when run in automated daemon mode.
- [Merging Reports](#) (page 1-58)
Merging reports is useful in role-separated environments where different users are run different subsets of checks and then you want to view everything as a whole.
- [Output File Maintenance](#) (page 1-60)
Oracle ORAchk and Oracle EXAchk create a number of temporary files and directories while running health checks.
- [Consuming Multiple Results in Other Tools](#) (page 1-60)
Optionally integrate health check results into various other tools.

1.5.1 Temporary Files and Directories

While running health checks, Oracle ORAchk and Oracle EXAchk create temporary directories and files for the purposes of data collection and assessment, and then delete them upon completion of health check runs.

By default, Oracle ORAchk and Oracle EXAchk create these temporary files and directories in the `$HOME` directory of the user who runs the tool. Change this temporary working directory by setting the environment variable `RAT_TMPDIR=tmp_directory` before using the tools:

```
$ export RAT_TMPDIR=/tmp
$ ./orachk
```

```
$ export RAT_TMPDIR=/tmp
$ ./exachk
```

If you are using `sudo` access for `root`, and change the `RAT_TMPDIR=tmp_directory`, then you must also reflect this change in the `/etc/sudoers` file.

The `/etc/sudoers` file on each server must contain the entry for the `root` script in the new temporary directory location:

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

```
oracle ALL=(root) NOPASSWD:/tmp/root_exachk.sh
```

Alternatively, you can change the location of the directory used for creating the `root` script only by setting the environment variable.

```
export RAT_ROOT_SH_DIR=/mylocation
```

Add an entry in the `/etc/sudoers` file as follows:

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

Note:

Any directory specified in `RAT_TMPDIR` must exist on the hosts for all cluster nodes.

1.5.2 Output Files and Directories

Oracle ORAchk and Oracle EXAchk create an output directory that contains various files for you to examine.

The name format of the output directory is:

```
utility_name host_name database date time_stamp
```

where,

- *utility* is either `orachk` or `exachk`
- *host_name* is the host name of the node on which Oracle ORAchk or Oracle EXAchk was run

- *database* is the name of the database or one of the databases against which health checks were performed, if applicable
- *date* is the date the health check was run
- *timestamp* is the time the health check was run

By default, Oracle ORAchk and Oracle EXAchk create output in the directory from where they are run. To change the location of the output directory, use the `-output` option as follows:

```
$ ./orachk -output output_dir
```

```
$ ./exachk -output output_dir
```

Alternatively, set the output directory using the `RAT_OUTPUT` environment variable as follows:

```
$ export RAT_OUTPUT=output_dir
$ ./orachk
```

```
$ export RAT_OUTPUT=output_dir
$ ./exachk
```

The contents of this directory is available in a zip file with the same name.

After completing the health checks, Oracle ORAchk and Oracle EXAchk report the location of this zip file and the HTML report file.

```
...
Detailed report (html) - /orahome/oradb/orachk/orachk_myhost_rdb11204_041816_055429/
orachk_myhost_rdb11204_041816_055429.html
```

```
UPLOAD(if required) - /orahome/oradb/orachk/orachk_myhost_rdb11204_041816_055429.zip
```

```
$ ls -la
total 61832
drwxr-xr-x  4 oradb oinstall    4096 Apr 18 05:55 .
drwx----- 34 oradb oinstall    4096 Apr 18 05:58 ..
drwxr--r--  3 oradb oinstall    4096 Mar 28 17:36 .cgrep
-rw-r--r--  1 oradb oinstall 4692868 Mar 28 17:35 CollectionManager_App.sql
-rw-r--r--  1 oradb oinstall 41498425 Apr 18 05:54 collections.dat
-rwxr-xr-x  1 oradb oinstall 2730651 Mar 28 17:35 orachk
drwxr-xr-x  7 oradb oinstall    4096 Apr 18 05:55
orachk_myhost_rdb11204_041816_055429
-rw-r--r--  1 oradb oinstall    36141 Apr 18 05:55
orachk_myhost_rdb11204_041816_055429.zip
-rw-r--r--  1 oradb oinstall 9380260 Mar 28 19:02 orachk.zip
-rw-r--r--  1 oradb oinstall    3869 Mar 28 17:36 readme.txt
-rw-r--r--  1 oradb oinstall 4877997 Apr 18 05:54 rules.dat
-rw-r--r--  1 oradb oinstall    40052 Mar 28 17:35 sample_user_defined_checks.xml
-rw-r--r--  1 oradb oinstall    2888 Mar 28 17:35 user_defined_checks.xsd
-rw-r--r--  1 oradb oinstall     425 Mar 28 17:36 UserGuide.txt
```

The output directory contains several other directories and the main HTML report file.

```
$ cd orachk_myhost_rdb11204_041816_055429
$ ls -la
total 60
drwxr-xr-x 7 oradb oinstall 4096 Apr 18 05:55 .
```

```
drwxr-xr-x 4 oradb oinstall 4096 Apr 18 05:55 ..
drwxr-xr-x 2 oradb oinstall 4096 Apr 18 05:55 log
-rw-r--r-- 1 oradb oinstall 30815 Apr 18 05:55
orachk_myhost_rdb11204_041816_055429.html
drwxr-xr-x 4 oradb oinstall 4096 Apr 18 05:55 outfiles
drwxr-xr-x 2 oradb oinstall 4096 Apr 18 05:55 reports
drwxr-xr-x 2 oradb oinstall 4096 Apr 18 05:55 scripts
drwxr-xr-x 2 oradb oinstall 4096 Apr 18 05:55 upload
```

Oracle ORAchk and Oracle EXAchk each creates an output directory containing the following information depending on which tool you use:

Table 1-3 Output Files and Directories

Output	Description
log (directory)	<p>Contains several log files recording details about the health check, including:</p> <p>Oracle ORAchk:</p> <ul style="list-style-type: none"> • orachk.log: Main log for the health check. • orachk_error.log: std_error log for the health check. • orachk_debug_date_time.log: Debug output when run with -debug, which is useful for troubleshooting. <p>Oracle EXAchk:</p> <ul style="list-style-type: none"> • exachk.log: Main log for the health check. • exachk_error.log: std_error log for the health check. • exachk_debug_date_time.log: Debug output when run with -debug, which is useful for troubleshooting.
outfiles (directory)	Contains several the collection results.
reports (directory)	Contains subreports used to build the main report.
scripts (directory)	Contains scripts used during collection.
upload (directory)	Contains files to upload collection results to a database for the Oracle Health Check Collections Manager to consume, integrate the results into your own application, or integrate into other utilities.
orachk_*.html	<p>Oracle ORAchk:</p> <p>Main HTML report output using the same name format as the output directory: orachk_host_name_database_date_timestamp.html.</p>
exachk_*.html	<p>Oracle EXAchk:</p> <p>Main HTML report output using the same name format as the output directory: exachk_host_name_database_date_timestamp.html.</p>

Related Topics

- [Oracle Health Check Collections Manager for Oracle Application Express 4.2 \(page 1-144\)](#)
Oracle Health Check Collections Manager for Oracle Application Express 4.2 provides you an enterprise-wide view of your health check collection data.

- [Integrating Health Check Results with Other Tools](#) (page 1-192)
Integrate health check results from Oracle ORAchk and Oracle EXAchk into Enterprise Manager and other third-party tools.
- [How to Capture Debug Output](#) (page 1-200)
Follow these procedures to capture debug information.

1.5.3 HTML Report Output

The Health Check HTML report contains the following:

- High level health score
- Summary of the run
- Table of contents that provides easy access to findings
- Findings and recommendations to resolve the issues
- [System Health Score and Summary](#) (page 1-37)
Oracle ORAchk and Oracle EXAchk calculate a high-level System Health Score based on the number of passed or failed health checks.
- [HTML Report Table of Contents and Features](#) (page 1-39)
The **Table of Contents** provides links to each of the major sections within the HTML report.
- [HTML Report Findings](#) (page 1-41)
Report findings are grouped by Oracle Stack component.
- [Maximum Availability Architecture \(MAA\) Scorecard](#) (page 1-42)
The Maximum Availability Architecture (MAA) Scorecard is displayed after the Findings group.
- [Findings Needing Further Review](#) (page 1-43)
Issues that health checks have only a partial view and need user reviews to determine if they are relevant are displayed in the **Findings needing further review** section.
- [Platinum Certification](#) (page 1-44)
The **Platinum Certification** section shows a list of compliance status items for the Oracle Platinum service.
- [Viewing Clusterwide Linux Operating System Health Check \(VMPScan\)](#) (page 1-44)
On Linux systems, view a summary of the VMPScan report in the Clusterwide Linux Operating System Health Check (VMPScan) section of the Health Check report.
- ["Systemwide Automatic Service Request \(ASR\) healthcheck" Section](#) (page 1-45)
`asrexachek` is designed to check and test ASR configurations to ensure that communication to the ASR Manager is possible.
- [File Attribute Changes](#) (page 1-46)
The **File Attribute Changes** section is shown in the report only when Oracle ORAchk and Oracle EXAchk are run with the `-fileattr` option.
- [Skipped Checks](#) (page 1-47)
Any checks that were not able to be run and skipped for some reason are shown in the **Skipped Checks** section.

- [Component Elapsed Times](#) (page 1-47)
The **Component Elapsed Times** gives a breakdown of time required to check various components.
- [Top 10 Time Consuming Checks](#) (page 1-48)
The **Top 10 Time Consuming Checks** section shows the slowest 10 checks that were run.
- [How to Find a Check ID](#) (page 1-48)
Each health check has a unique 32 character ID.
- [How to Remove Checks from an Existing HTML Report](#) (page 1-49)
Hide individual findings from the report using **Remove findings** .

1.5.3.1 System Health Score and Summary

Oracle ORAchk and Oracle EXAchk calculate a high-level System Health Score based on the number of passed or failed health checks.

A summary of the run shows, where and when it was run, which version was used, how long it took, which user it was run as, and so on.

Figure 1-1 System Health Score and Summary

Oracle Exadata Assessment Report

System Health Score is 89 out of 100 [\(detail\)](#)

Cluster Summary

Cluster Name	cluster-clu1
OS/Kernel Version	LINUX X86-64 OELRHEL 5 2.6.39-400.124.1.el5uek
CRS Home - Version	/u01/app/11.2.0.4/grid - 11.2.0.4.1
DB Home - Version - Names	/u01/app/oracle/product/11.2.0.4/dbhome_1 - 11.2.0.4.1 - dbm
EM Agent Home	/u01/app/oracle/em/agent_haem/core/12.1.0.5.0
Exadata Version	11.2.3.3.0
Number of nodes	9
Database Servers	2
Storage Servers	3
IB Switches	4
exachk Version	12.1.0.2.6(BETA)_20160125
Collection	exachk_randomadm07_dbm_012516_141503.zip
Duration	10 mins, 49 seconds
Executed by	root
Collection Date	25-Jan-2016 14:15:39

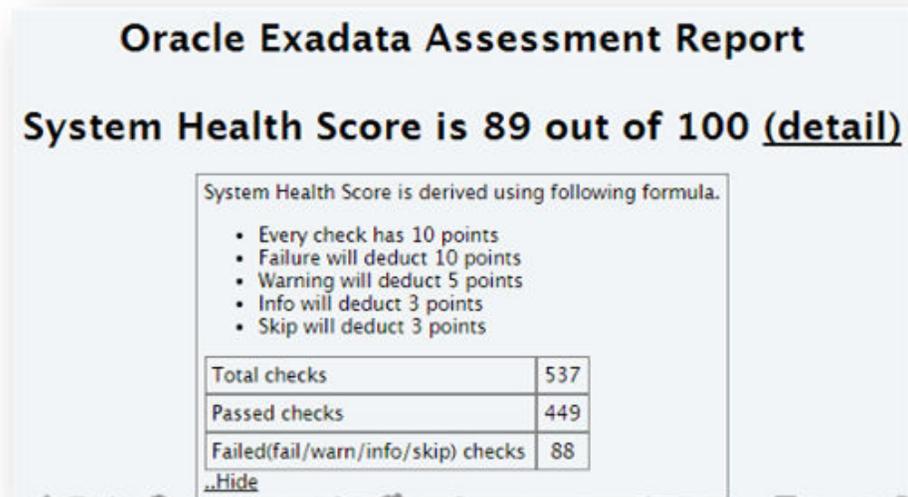
Note! This version of exachk is considered valid for 120 days from today or until a new version is available

NOTE : exachk is only one part of the MAA Best Practices recommendation methodology. My Oracle Support "Oracle Exadata Best Practices (Doc ID757552.1)" should be reviewed thoroughly as it is the driver for exachk and contains additional operational and diagnostic guidance that is not programmed within exachk.

WARNING! The data collection activity appears to be incomplete for this exachk run. Please review the "Killed Processes" and / or "Skipped Checks" section and refer to "Appendix A - Troubleshooting Scenarios" of the "Exachk User Guide" for corrective actions.

Click the **detail** link to expand the **System Health Score** section to view details of how this is calculated.

Figure 1-2 System Health Score Detail



To generate an HTML report without the **System Health Score** section, use the `-noscore` option:

```
$ ./orachk -noscore
```

```
$ ./exachk -noscore
```

Related Topics

- [Managing the Report Output](#) (page 1-82)
Use the list of commands in this section to manage the report output.

1.5.3.2 HTML Report Table of Contents and Features

The **Table of Contents** provides links to each of the major sections within the HTML report.

The next section in the HTML report after the summary is the **Table of Contents** and **Report Features**:

- The **Table of Contents** provides links to each of the major sections within the HTML report
 - What is shown in the Table of Contents will depend on the Oracle Stack components found during the health check run.
- The **Report Features** allow you to:
 - Filter checks based on their statuses.
 - Select the regions.
 - Expand or collapse all checks.
 - View check IDs.

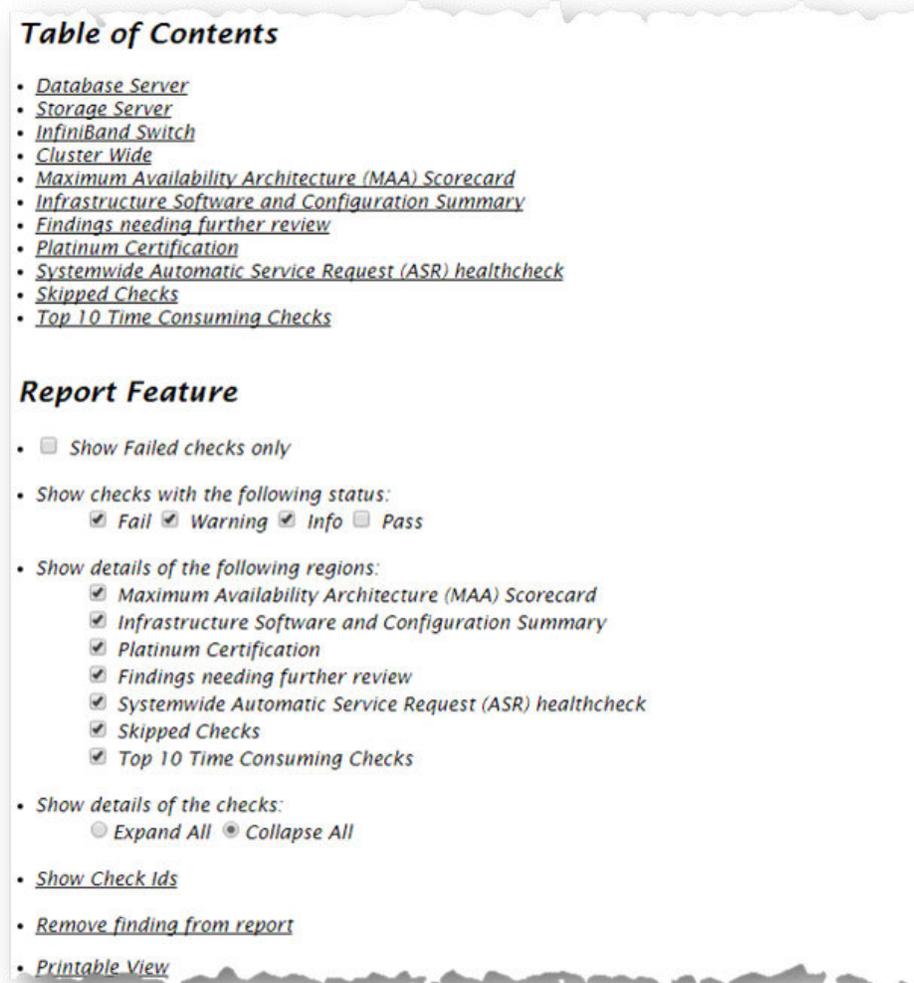
- Remove findings from the report.
- Get a printable view.

By default, passed checks are hidden. To view, select the **Pass** check box under **Show Checks with the following status**. To exclude passed checks from the HTML report, use the `-nopass` option:

```
$ ./orachk -nopass
```

```
$ ./exachk -nopass
```

Figure 1-3 Report Table of Contents and Features



Related Topics

- [How to Find a Check ID](#) (page 1-48)
Each health check has a unique 32 character ID.
- [How to Remove Checks from an Existing HTML Report](#) (page 1-49)
Hide individual findings from the report using **Remove findings**.

- [Managing the Report Output](#) (page 1-82)
Use the list of commands in this section to manage the report output.

1.5.3.3 HTML Report Findings

Report findings are grouped by Oracle Stack component.

Findings include:

- Status of check (FAIL, WARNING, INFO, OR PASS)
- Type of check
- Check message
- Location where the check was run
- Link to expand details for further findings and recommendations

Figure 1-4 Report Findings

Database Server				
Status	Type	Message	Status On	Details
FAIL	SQL Parameter Check	ASM parameter SGA_TARGET is NOT set according to recommended value.	All Instances	View
WARNING	Patch Check	Patch 16618055 not is applied on RDBMS_HOME	All Homes	View
WARNING	OS Check	Database parameter _enable_NUMA_support should be set to recommended value	All Database Servers	View
INFO	SQL Check	Direct NFS Client is NOT enabled	All Databases	View

Storage Server				
Status	Type	Message	Status On	Details
FAIL	Storage Server Check	Active system values should match those defined in configuration file "cell.conf"	All Storage Servers	View

InfiniBand Switch				
Status	Type	Message	Status On	Details
WARNING	Switch Check	Subnet manager daemon is not running	randomsw-iba0	View
WARNING	Switch Check	sm_priority is not set to recommended value	randomsw-ib01, randomsw-ibs0	View

Cluster Wide				
Status	Type	Message	Status On	Details
FAIL	Cluster Wide Check	Firmware version does not match on all Infiniband switches	Cluster Wide	View
FAIL	Cluster Wide Check	Localtime configuration does not match on all Infiniband switches	Cluster Wide	View

Click **view details** to view the findings and the recommendations.

- Solution to solve the problem
- Applicable recommendations
- Where the problem does not apply
- Links to relevant documentation or My Oracle Support Notes
- Example of data the recommendation is based on

Figure 1-5 View Report Findings

Database Server				
Status	Type	Message	Status On	Details
FAIL	SQL Parameter Check	ASM parameter SGA_TARGET is NOT set according to recommended value.	All Instances	View
WARNING	Patch Check	Patch 16618055 not is applied on RDBMS_HOME	All Homes	View
WARNING	OS Check	Database parameter _enable_NUMA_support should be set to recommended value	All Database Servers	Hide
Verify database parameter _enable_NUMA_support				
<i>Recommendation</i>	NUMA enabled in the database on all Exadata 8 socket servers boosts overall application performance. NUMA enabled in the database on Exadata generation X5 2 socket servers boosts performance of memory scan intensive workloads, for example IMDB. As of Oracle RDBMS release 12.1.0.2.6 and above, the enabling of NUMA in the database is automatic so no action is necessary on any Exadata platform. For any Exadata platform using 12.1.0.5 or lower, please reference the recommended value. NUMA support in the database should always be off on Exadata OVM.			
<i>Needs attention on</i>	randomadm07			
<i>Passed on</i>	-			
Status on randomadm07:				
WARNING => Database parameter _enable_NUMA_support should be set to recommended value				
DATA FROM RANDOMADM07 - DBM DATABASE - VERIFY DATABASE PARAMETER _ENABLE_NUMA_SUPPORT				
_enable_NUMA_support = FALSE isdefault = FALSE				
INFO	SQL Check	Direct NFS Client is NOT enabled	All Databases	View

1.5.3.4 Maximum Availability Architecture (MAA) Scorecard

The Maximum Availability Architecture (MAA) Scorecard is displayed after the Findings group.

The MAA Scorecard provides a set of best practices for maximum availability architecture. It also shows results related to maximum availability, such as the installed software versions checked for noncurrent software, and use of incompatible features.

Figure 1-6 Maximum Availability Architecture (MAA) Scorecard

Maximum Availability Architecture (MAA) Scorecard

Outage Type	Status	Type	Message	Status On	Details
		Description Proactive hardware and software maintenance helps avoid critical issues and helps maintain the highest stability and availability of your system. By running the latest version of exachk, automatic detection occurs for the following: <ol style="list-style-type: none"> 1. Software version mismatches on the system. 2. Known critical issue exposure for your specific environment. 3. Software releases that are older than recommended versions. Furthermore, the suggested "Recommended Versions" can be leveraged when planning for your next planned maintenance window. Note that not all Exadata Software components need to be upgraded during one planned maintenance window; however it is advised to maintain a regular maintenance schedule. The recommended frequency is 3 to 12 months depending on business requirements. Oracle recommends patching and upgrading in the following order: <ol style="list-style-type: none"> 1. Grid Infrastructure Software and Oracle Database Software. Grid Infrastructure should always be equal to or higher than the highest Oracle Database Software version. 2. Exadata Database Server Software. For Exadata Database Server Software upgrades, run and evaluate exachk and dbnodeupdate precheck outputs. 3. Exadata Storage Server Software. For Exadata Storage Server Software upgrades, run and evaluate exachk and patchmgr precheck outputs. 4. InfiniBand Switch Software. For InfiniBand Switch Software upgrades, run and evaluate exachk and patchmgr precheck outputs. Best Practices <ol style="list-style-type: none"> 1. Note: 1662018.1 - Oracle Sun Database Machine Cross Node Consistency Best Practice Checks 2. MAA Best Practices for Database Consolidation and Oracle Multitenant with Oracle 12c 3. Oracle Exadata Software Planned Maintenance 4. Note: 1661240.1 - Exadata Database Machine Software and Hardware Maintenance Planning Guide 5. Best Practices for Database Consolidation on Exadata Database Machine 6. Note: 688828.1 - Database Machine and Exadata Storage Server Supported Versions 7. Note: 1270094.1 - Exadata Critical Issues 			
	FAIL	OS Check	System is exposed to Exadata critical issue DB24	All Database Servers	View
	FAIL	Patch Check	System is exposed to Exadata critical issue DB28	All Homes	View
	FAIL	Storage Server Check	System is exposed to Exadata Critical Issue EX19	All Storage Servers	View
Component	Host/Location	Found version	Recommended versions	Status	
DATABASE SERVER	Database Home	randomadm07,randomadm08 /u01/app/oracle/product/11.2.0.4/dbhome_1	11.2.0.4.1	11.2.0.4.160119	11.2.0.4 BP is older than recommended.
	Grid Infrastructure	randomadm07,randomadm08	11.2.0.4.1	11.2.0.4.160119	11.2.0.4 BP is older than recommended.
		/u01/app/11.2.0.4/grid			
	Exadata	randomadm07,randomadm08	11.2.3.3.0	12.1.2.1.3 or 12.1.2.2.1	Older than recommended version.
STORAGE SERVER	Exadata	randomceladm12,randomceladm13,randomceladm14	11.2.3.3.0	11.2.3.3.1	Older than recommended version.
iB SWITCH	Firmware	randomsw-ib01	2.1.6-1	2.1.5-1 or higher	Version within recommended range. Exception: Version is different from peers.
		randomsw-ib03,randomsw-ib00,randomsw-ib00	2.1.3-4	2.1.5-1 or higher	Version within recommended range. Exception: Version is different from peers.

To generate an HTML report without the **MAA Scorecard** section, use the `-m` option:

```
$ ./orachk -m
```

```
$ ./exachk -m
```

Related Topics

- [Controlling the Scope of Checks](#) (page 1-80)
Use the list of commands in this section to control the scope of checks.

1.5.3.5 Findings Needing Further Review

Issues that health checks have only a partial view and need user reviews to determine if they are relevant are displayed in the **Findings needing further review** section.

Figure 1-7 Findings needing further review

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.

Status	Type	Message	Status On	Details
FAIL	SQL Check	DB_UNIQUE_NAME on primary has not been modified from the default, confirm that database name is unique across your Oracle enterprise.	All Databases	View

1.5.3.6 Platinum Certification

The **Platinum Certification** section shows a list of compliance status items for the Oracle Platinum service.

For the existing Platinum customers it is a review. For customers not yet participating in Oracle Platinum, it is an indication of readiness to participate in Oracle Platinum.

Figure 1-8 Platinum Certification

Platinum Certification

Status	Type	Message	Status On	Details
FAIL	Storage Server Check	Exadata software version on storage server does not meet certified platinum configuration	All Storage Servers	View
FAIL	OS Check	Exadata software version on database server does not meet certified platinum configuration	All Database Servers	View



Note:

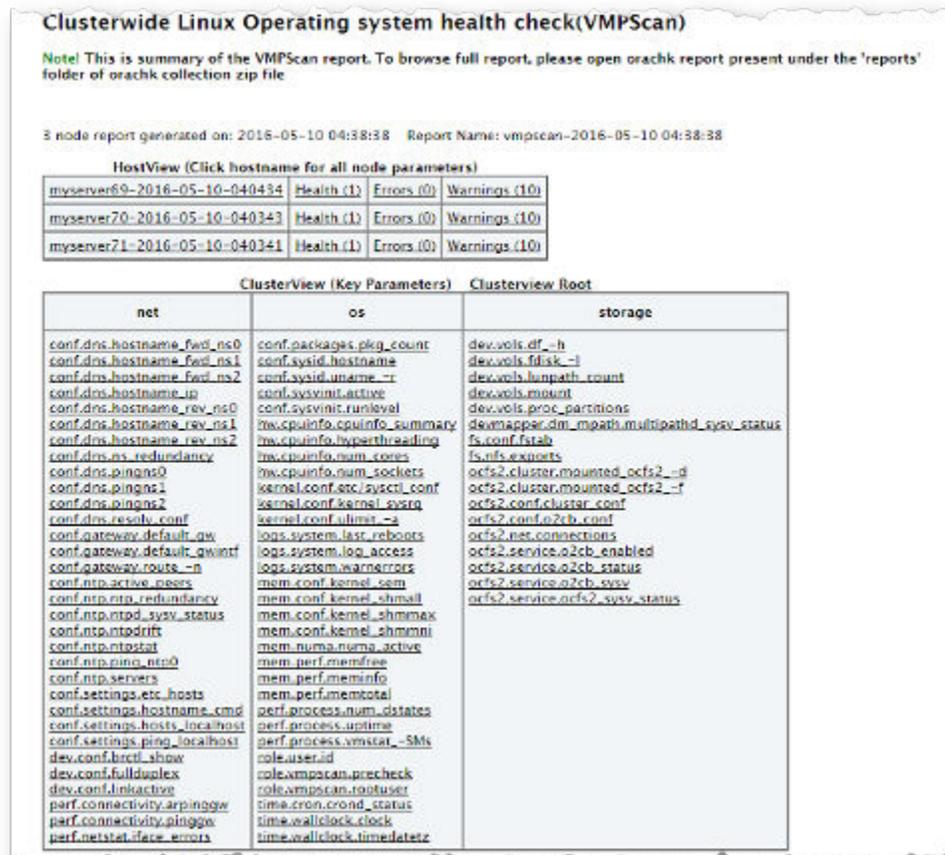
This section is seen when health checks are run on Oracle Engineered Systems.

1.5.3.7 Viewing Clusterwide Linux Operating System Health Check (VMPScan)

On Linux systems, view a summary of the VMPScan report in the Clusterwide Linux Operating System Health Check (VMPScan) section of the Health Check report.

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

Figure 1-9 Clusterwide Linux Operating System Health Check (VMPScan)



Note:
The VMPScan report is included only when Oracle ORAchK is run on Linux systems.

1.5.3.8 "Systemwide Automatic Service Request (ASR) healthcheck" Section

asrexachek is designed to check and test ASR configurations to ensure that communication to the ASR Manager is possible.

This is a non-invasive script that checks configurations only and does not write to any system or configuration files. The script checks for known configuration issues and any previous hardware faults that may not have been reported by ASR due to a misconfiguration on the BDA.

This section is included in the report only when health checks are run on Oracle Engineered Systems.

The following is a sample of the **Systemwide Automatic Service Request (ASR) healthcheck** section truncated for brevity:

Figure 1-10 Systemwide Automatic Service Request (ASR) healthcheck

```

Database server myhostadm07

asrexacheck version: 4.0
Current time: 2016-04-15 04:03:00

=====
SYSTEM CONFIGURATION
=====
Product name       : Exadata X4-2
Product serial    : AK12345678
Component name    : SUN SERVER X4-2
Component serial  : 1234FML457
Engineered System type : Exadata
Server type       : COMPUTE
Image version     : 12.1.1.1.1.140712
OS IP Address     : 168.0.0.123
OS Hostname      : myhostadm07
OS version       : 2.6.39-400.128.20.el5uek.ipoib_rc
ILOM IP Address   : 168.0.0.131
ILOM Hostname    : myhostadm07-ilom
ILOM version     : 3.2.4.46.a

=====
NETWORK
=====
Interface  IP Address      Hostname      Route  fromIP
-----
bondeth0   150.0.0.245     mycli07      YES
eth0       168.0.0.123     myhostadm07  NO

=====
ASR
=====
Destination      Hostname      Rule Type  MON.PL Port Level  Community Version
-----
168.0.0.123     myhostadm07   1          8162 minor public 1
168.0.0.123     myhostadm07   12         40002 critical public 2c
168.0.0.110     scao10adm08   13         40002 critical public 2c
161.0.0..121    ilm-asr1      ASR        YES 162 public
161.0.0..121    ilm-asr1      2          162 minor public 2c
160.0.0.227     v880-bur09-c  4          162 minor public 2c

[OK] Exactly one OS and ILOM IP coincide (161.0.0..121)

```

Related Topics

- <https://support.oracle.com/rs?type=doc&id=1450112.1>

1.5.3.9 File Attribute Changes

The **File Attribute Changes** section is shown in the report only when Oracle ORAchk and Oracle EXAchk are run with the `-fileattr` option.

Figure 1-11 File Attribute Changes

```

File Attribute Changes
Baseline Snapshot: /root/orachk/orachk_myserver18_20160511_041028/Snapshot_2016-05-11_04-10-28.txt

"/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
    
```

1.5.3.10 Skipped Checks

Any checks that were not able to be run and skipped for some reason are shown in the **Skipped Checks** section.

Figure 1-12 Skipped Checks

```

Skipped Checks
skipping Ambient Temperature (checkid:-A4C28178C200A9CBE040E50A1EC00952) because this cluster does not access the first three storage servers
skipping Verify Electronic Storage Module (ESM) Lifetime is within Specification (checkid:-9E01C5EEC7F0067BE040E50A1EC01867) on randomceladm12 because c_cbc_esm_lifetime_111_222_333_444.out not found
skipping Verify Electronic Storage Module (ESM) Lifetime is within Specification (checkid:-9E01C5EEC7F0067BE040E50A1EC01867) on randomceladm13 because c_cbc_esm_lifetime_111_222_333_444.out not found
skipping Verify Electronic Storage Module (ESM) Lifetime is within Specification (checkid:-9E01C5EEC7F0067BE040E50A1EC01867) on randomceladm14 because c_cbc_esm_lifetime_111_222_333_444.out not found
    
```

Related Topics

- [Slow Performance, Skipped Checks, and Timeouts](#) (page 1-211)
Follow these procedures to address slow performance and other issues.

1.5.3.11 Component Elapsed Times

The **Component Elapsed Times** gives a breakdown of time required to check various components.

This can be useful when diagnosing performance problems.

Figure 1-13 Component Elapsed Times

<i>Component Elapsed Times</i>		
<i>Component Name</i>	<i>Component Type</i>	<i>Elapsed Time</i>
<i>busm01client01</i>	<i>Database Server</i>	<i>2 mins, 16 seconds</i>
<i>busm01client02</i>	<i>Database Server</i>	<i>2 mins, 21 seconds</i>

Related Topics

- [Slow Performance, Skipped Checks, and Timeouts](#) (page 1-211)
Follow these procedures to address slow performance and other issues.

1.5.3.12 Top 10 Time Consuming Checks

The **Top 10 Time Consuming Checks** section shows the slowest 10 checks that were run.

This can be useful when diagnosing performance problems.

Figure 1-14 Top 10 Time Consuming Checks

Top 10 Time Consuming Checks

NOTE: This information is primarily used for helping Oracle optimize the run time of exachk.

These timings are not necessarily indicative of any problem and may vary widely from one system to another.

Name	Type	Target	Execution Duration
Verify Hidden ASM Initialization Parameter Usage	OS Check	busm01client01	12 secs
Patches for Grid Infrastructure	OS Collection	busm01client01	7 secs
Patches for RDBMS Home	OS Collection	busm01client01	7 secs
Patches for RDBMS Home	OS Collection	busm01client01	6 secs
Exadata Critical Issue DB29	OS Check	busm01client01	5 secs
RDBMS patch inventory	OS Collection	busm01client01	5 secs
RDBMS patch inventory	OS Collection	busm01client01	4 secs
Exadata Storage Server rolling cell patching minimum GI software requirement	OS Check	busm01client01	4 secs
Exadata Database Server rolling switch patching minimum GI software requirement	OS Check	busm01client01	2 secs
Oracle database version verification for platinum certification	OS Check	busm01client01:/u01/app/oracle/product/12.1.0.2/dbhome_1	2 secs

Related Topics

- [Slow Performance, Skipped Checks, and Timeouts](#) (page 1-211)
Follow these procedures to address slow performance and other issues.
- [Oracle ORAchk Sample Report](#)
- [Oracle EXAchk Sample Report](#)

1.5.3.13 How to Find a Check ID

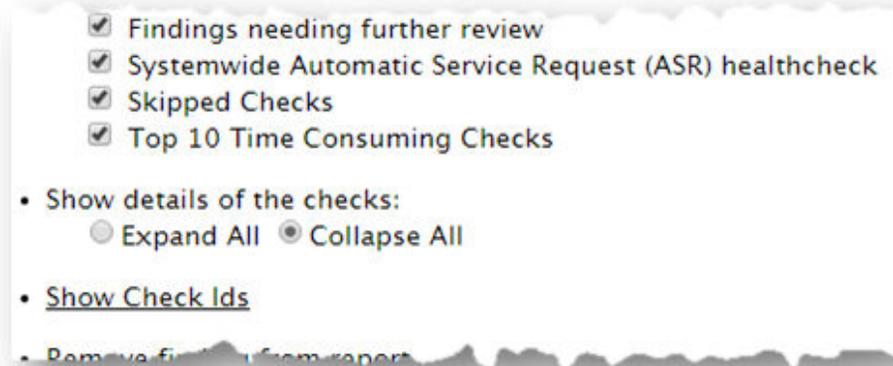
Each health check has a unique 32 character ID.

You may want to find a check id while:

- Communicating to Oracle or your own internal teams about a specific check
- Excluding or only running one or more checks

To find a particular check id using a generated report, click the **Show Check Ids** link.

Figure 1-15 Show Check Ids



The findings will then display an extra column to the left with the Check Id.

Figure 1-16 Show Check Ids

Database Server

Check Id	Status	Type	Message	Status On	Details
E3902F0FD3A61D3EE04312C0E50A8662	FAIL	SQL Parameter Check	ASM parameter SGA_TARGET is NOT set according to recommended value.	All Instances	View
DC3BD42DE3422247E04312C0E50A0CB7	FAIL	SQL Parameter Check	Database parameter DB_FILES should be set to recommended value.	All Instances	View
E7EE9C224CC7073FE04312C0E50A7662	FAIL	OS Check	ILOM Power Up Configuration for HOST_LAST_POWER_STATE should be set to recommended value	All Database Servers	View
D47661C5581A291AE0431EC0E50A5C53	FAIL	ASM Check	ASM gridisk system content type attribute should be set to Oracle recommendation	All ASM Instances	View
		SQL	Table AUD\$(FGA_LOG\$)	All	

Related Topics

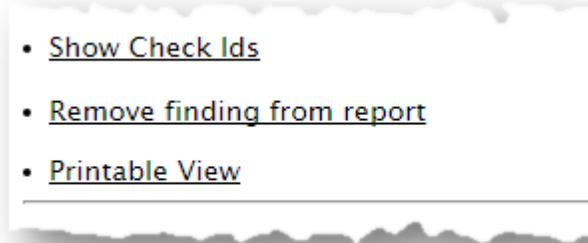
- [Health Check Catalog](#) (page 1-61)
The Health Check Catalogs list the health checks that are included within Oracle ORAchk or Oracle EXAchk.
- [Running Subsets of Checks](#) (page 1-64)
Where necessary, you can run a subset of health checks.

1.5.3.14 How to Remove Checks from an Existing HTML Report

Hide individual findings from the report using **Remove findings** .

Click **Remove finding from report**.

Figure 1-17 Remove Findings from Report



A button with an X appears next to each finding.

Click X to hide the finding. This does not remove the finding from the source of the HTML report it simply hides it. If the HTML report is reloaded the finding will appear again.

To permanently hide the finding use your browser's **Save Page** option to save the report once the finding is hidden.

Figure 1-18 Remove Findings from Report

Database Server

Status	Type	Message	Status On	Details
<input checked="" type="checkbox"/> FAIL	SQL Parameter Check	ASM parameter SGA_TARGET is NOT set according to recommended value.	All Instances	View
<input checked="" type="checkbox"/> FAIL	SQL Parameter Check	Database parameter DB_FILES should be set to recommended value.	All Instances	View
<input checked="" type="checkbox"/> FAIL	OS Check	ILOM Power Up Configuration for HOST_LAST_POWER_STATE should be set to recommended value.	All Database	View

If there are findings that you never want to see in the report, then they can be excluded altogether so the checks are never run in the first place.

Related Topics

- [Running Subsets of Checks](#) (page 1-64)
Where necessary, you can run a subset of health checks.

1.5.4 Tagging Reports

The health check HTML report is typically named:
`orachk_hostname_database_date_timestamp.html` or

`exachk_hostname_database_date_timestamp.html`. You can include other tags in the HTML report name to facilitate differentiation and identification.

Include a custom tag in the HTML report name, as follows:

```
$ ./orachk -tag tag_name
```

```
$ ./exachk -tag tag_name
```

The resulting HTML report name is similar to the following:

`orachk_host_name_database_date_timestamp_tag_name.html`, or
`exachk_host_name_database_date_timestamp_tag_name.html`.

1.5.5 Tracking File Attribute Changes

Use the ORAchk and EXAchk `-fileattr` option and command flags to record and track file attribute settings, and compare snapshots.

By default, running Oracle ORAchk or Oracle EXAchk with the `-fileattr` option checks all files within Oracle Grid Infrastructure and Oracle Database homes. You can use the file attribute tracking options to manage the list of directories and contents that you want to monitor.

Table 1-4 List of ORAchk and EXAchk File Attribute Tracking Options

Option	Description
<code>-fileattr start</code>	Takes file attribute snapshots of discovered directories, and stores the snapshots in the output directory. By default, this option takes snapshots of Oracle Grid Infrastructure homes, and all of the installed database homes. If a user does not own a particular directory, then it does not take snapshots of the directory.
<code>-fileattr check</code>	Takes a new snapshot of discovered directories, and compares it with the previous snapshot.
<code>-fileattr remove</code>	Removes file attribute snapshots and related files.
<code>-fileattr [start check] -includedir directories</code>	You can specify a comma-delimited list of directories to check file attributes. For example: <code>./orachk -fileattr start -includedir "/root/home,/etc"</code> <code>./orachk -fileattr check -includedir "/root/home,/etc"</code>
<code>-fileattr [start check] -excludediscovery</code>	Excludes the discovered directories. For example: <code>./orachk -fileattr start -includedir "/root/home,/etc" -excludediscovery</code>
<code>-fileattr check -baseline baseline snapshot path</code>	Uses a snapshot that you designate as the baseline for a snapshot comparison. You must provide the path to the snapshot that you want to use as the baseline. For example: <code>./orachk -fileattr check -baseline "/tmp/Snapshot"</code>

Table 1-4 (Cont.) List of ORAchk and EXAchk File Attribute Tracking Options

Option	Description
-fileattr check -fileattronly	Performs only file attributes check, and then exits ORAchk. For example: ./orachk -fileattr check -fileattronly

**Note:**

You must have Oracle Grid Infrastructure installed and running before you use -fileattr .

Using the File Attribute Check With the Daemon:

1. Start the daemon:

```
./orachk -d start
```

2. Start the client run with the -fileattr options:

```
./orachk -fileattr start -includedir "/root/myapp,/etc/oratab" -excludediscovery
./orachk -fileattr check -includedir "/root/myapp,/etc/oratab" -excludediscovery
```

3. Specify the output directory to store snapshots with the -output option as follows:

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

Use -tag to help identify your snapshots:

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

Taking File Attribute Snapshots with ORAchk and EXAchk -fileattr start

Use -fileattr start to start the first snapshot. By default, the directories included in the snapshots are Oracle Grid Infrastructure homes, and all installed Oracle Database homes.

```
./orachk -fileattr start
```

```
./exachk -fileattr start
```

```
$ ./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
```

Selecting Directories to Check with ORAchk and EXAchk –includedir

You can include other directories using the `-includedir directories` option, where *directories* is a comma-delimited list of directories to include. For example:

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

./exachk -fileattr start -includedir "/home/oradb,/etc/oratab"

$ ./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
```

Excluding Directories from Checks Using ORAchk and EXAchk - excludediscovery

You can run ORAchk or EXAchk to exclude directories that you do not list in the `-includedir discover` list by using the `-excludediscovery` option.

For 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
```

Rechecking Changes by Using ORAchk and EXAchk –fileattr check

Use `-fileattr check` to take a new snapshot, and run a normal health check collection. The command compares the new snapshot to the previous snapshot.

For example:

```
./orachk -fileattr check

./exachk -fileattr check
```

 **Note:**

To obtain an accurate comparison between snapshots, you must se -fileattr check with the same options that you used with the previous snapshot collection that you obtained with -fileattr start.

For example, if you obtained your first snapshot by using the options -includedir "/somedir" -excludediscovery when you ran -fileattr start, then you must include the same options with -fileattr check to obtain an accurate comparison.

```
$ ./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
...
```

Results of the file attribute changes are reflected in the **File Attribute Changes** section of the HTML output report.

Designating a Snapshot As a Baseline for Comparisons with Oracle ORAchk and Oracle EXAchk -baseline

If you have multiple different baselines that you want to check, then you can provide a specific baseline snapshot to compare against by using the -baseline *path_to_snapshot* option.

```
./orachk -fileattr check -baseline path_to_snapshot
```

```
./exachk -fileattr check -baseline path_to_snapshot
```

For example:

```
./orachk -fileattr check -baseline "/tmp/Snapshot"
```

Restrict System Checks to Attributes Only Using Oracle ORAchk and Oracle EXAchk -fileattronly

By default, -fileattr check also performs a full health check run. To perform only file attribute checking, and not proceed with other health checks, use the -fileattronly option:

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

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

Oracle ORAchk and Oracle EXAchk –fileattr remove

You can remove snapshots using the `-fileattr remove` option:

```
./orachk -fileattr remove  
  
./exachk -fileattr remove
```

For 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...  
...
```

1.5.6 Comparing Two Reports

Oracle ORAchk and Oracle EXAchk automatically compare the two most recent HTML reports and generate a third diff report, when run in automated daemon mode.

To generate a diff HTML report, use the `-diff` option:

```
$ ./orachk -diff report_1 report_2  
  
$ ./exachk -diff report_1 report_2
```

where, `report_1` and `report_2` are the path and name of any of the following:

- HTML reports
- Output directories
- Output zip files

The diff output lists a summary of changes found and the location of the new diff HTML report.

```
$/exachk -diff exachk_myhost07_scao1007_040716_090013.zip  
exachk_myhost07_scao1007_040716_100019.zip  
Summary  
Total : 278  
Missing : 0  
New : 0  
Changed : 3  
Same : 275  
Check comparison is complete. The comparison report can be viewed in: /opt/  
oracle.SupportTools/exachk/exachk_040716090013_040716100019_diff.html
```

The diff HTML report shows a summary of both compared reports.

Figure 1-19 Health Check Baseline Comparison Report

Exadata Health Check Baseline Comparison Report	
Exadata Health Check Baseline Comparison summary	
Report 1	exachk_myhost07_scao1007_040716_090013
Collection Date	07-Apr-2016 09:00:41
exachk Version	12.1.0.2.6_20160317
System Health Score	system health score is 86 out of 100
Executed by	root
Report 2	exachk_myhost07_scao1007_040716_100019
Collection Date	07-Apr-2016 10:00:48
exachk Version	12.1.0.2.6_20160317
System Health Score	system health score is 86 out of 100
Executed by	root
Total Checks Reported	278
Differences between Report 1 and Report 2	3
Unique findings in Report 1	0
Unique findings in Report 2	0
Common Findings in Both Reports	275

The **Table of Contents** provides quick access to the major sections in the report. You can also access various check Ids listed in the **Show Check Ids** section.

Figure 1-20 Table of Contents

Table of Contents
<ul style="list-style-type: none"> • Differences between Report 1 and Report 2 • Unique findings in Report 1 • Unique findings in Report 2 • Common Findings in Both Reports
Show Check Ids

The **Differences between Report 1 and Report 2** section shows what checks have different results.

Figure 1-21 Difference Between Reports

Differences between Report 1 (exachk_myhost07_scao1007_040716_090013) and Report 2 (exachk_myhost07_scao1007_040716_100019)					
Type	Check Name	Status On Report 1		Status On Report 2	
		Status	Status On	Status	Status On
Switch Check	Verify average ping times to DNS nameserver [IB Switch]	PASS	switch8-ib01.acompany.com, switch10-iba0, switch10-ibs0	PASS	All InfiniBand Switches
		WARNING	switch10-ibb0, switch4-ib01		
Storage Server Check	Exadata storage server system model number	FAIL	store13	PASS	All Storage Servers
Storage Server Check	Verify ILOM Power Up Configuration for HOST_LAST_POWER_STATE on storage server	PASS	All Storage Servers	FAIL	store14

The **Unique findings** section shows any check findings that were unique to either of the reports

Figure 1-22 Unique Findings

Unique findings in Report 1 (exachk_myhost07_scao1007_040716_090013)			
Type	Check Name	Status On Report 1	
		Status	Status On
Top			
Unique findings in Report 2 (exachk_myhost07_scao1007_040716_100019)			
Type	Check Name	Status On Report 2	
		Status	Status On

The **Common Findings in Both Reports** section shows all the check results that had the same results in both the reports.

Figure 1-23 Common Findings in Both Reports

Common Findings in Both Reports			
Type	Check Name	Status On Both Report	
		Status	Status On
OS Check	Exadata Storage Server rolling cell patching minimum RDBMS software requirement	PASS	All Database Servers
OS Check	GI shell limits hard stack	PASS	All Database Servers
OS Check	Verify Hidden Database Initialization Parameter Usage	FAIL	All Database Servers
Cluster Wide Check	Verify database server and storage servers and synchronized with NTP server	PASS	Cluster Wide
OS Check	Verify Database Server Disk Controller Configuration	FAIL	All Database Servers
OS Check	cluster_interconnects	PASS	All Database Servers
Storage Server	Check alerthistory for non-test open stateless alerts (Storage	PASS	All Storage Servers

1.5.7 Merging Reports

Merging reports is useful in role-separated environments where different users are run different subsets of checks and then you want to view everything as a whole.

To merge reports use the `-merge` option, followed by a comma--delimited list of reports, directories or zip files:

```
$ ./orachk -merge report_1, report_2

$ ./exachk -merge report_1, report_2

$ ./orachk -merge orachk_myhost_mydb_041916_033322_dba,
orachk_myhost_mydb_041916_035448_sysadmin

Merging following collections:

    orachk_myhost_mydb_041916_033322_dba
    orachk_myhost_mydb_041916_035448_sysadmin
    . . . . .

Started merging orachk_myhost_mydb_041916_033322_dba
.....
Started merging orachk_myhost_mydb_041916_035448_sysadmin
.....
-----

Detailed report (html) - /oracle/orachk/orachk_myhost_mydb_041916_033322_dba_merge/
orachk_myhost_mydb_041916_033322_dba_merge.html

UPLOAD(if required) - /orahome/oradb/orachk/
orachk_myhost_mydb_041916_033322_dba_merge.zip
```

The resulting merged HTML report summary will show the collections it was merged from.

Figure 1-24 Merged Report Summary

Cluster Summary			
Cluster Name	rws12700690072		
Merged Collections	orachk_myhost_mydb_041916_033322_dba	Selected Profiles	dba
		Executed by	oracle
		Arguments	-profile dba -tag dba
		Collection Date	19-Apr-2016 03:34:14
	orachk_myhost_mydb_041916_035448_sysadmin	Selected Profiles	sysadmin
		Executed by	root
		Arguments	-profile sysadmin -tag sysadmin
		Collection Date	19-Apr-2016 03:55:37
OS/Kernel Version	LINUX X86-64 OELRHEL 6 3.8.13-26.2.1.el6uek.x86_64		
CRS Home - Version	/scratch/app/11.2.0.4/grid - 11.2.0.4.0		
DB Home - Version - Names	/scratch/app/oracle/product/11.2.0/dbhome_11204 - 11.2.0.4.0 - 3		
EM Agent Home	/oem/app/oracle/product/emagent/core/12.1.0.4.0		
Number of nodes	3		
Database Servers	3		
orachk Version	12.1.0.2.7(DEV)_20160328		
Collection	orachk_myhost_mydb_041916_033322.zip		
Merge Executed by	oracle		
Arguments	-merge orachk_myhost_mydb_041916_033322_dba,orachk_myhost_mydb_041916_035448_sysadmin		

The merged findings appear together.

Figure 1-25 Merged Report Findings

Database Server				
Status	Type	Message	Status On	Details
FAIL	OS Check	Sefos is running on an Ethernet Switch	All Database Servers	View
FAIL	SQL Check	Table AUD\$(FGA_LOG\$) should use Automatic Segment Space Management for mydb	All Databases	View
WARNING	OS Check	ip_local_port_range is NOT configured according to recommendation	rws1270071	View
WARNING	OS Check	vm.min_free_kbytes should be set as recommended.	All Database Servers	View



Note:

For Oracle EXAchk, use the `-force` option to force merge collections from `dom0` and `domu`, or `global` and `local` zones.

1.5.8 Output File Maintenance

Oracle ORAchk and Oracle EXAchk create a number of temporary files and directories while running health checks.

Oracle ORAchk and Oracle EXAchk create an output directory that contains various files for you to examine. The total size of the output directory and .zip file is under 5 MB. However, the size depends on the number of Oracle Stack Components evaluated.

If you are running health checks in automated daemon Mode, then set the `collection_retention` duration to purge old collections.

If you are running health checks on-demand or in silent mode, then it is your responsibility to implement processes and procedures to purge result output.

Related Topics

- [Using Oracle ORAchk and Oracle EXAchk to Automatically Check for Risks and System Health](#) (page 1-16)
Oracle recommends that you use the daemon process to schedule recurring health checks at regular intervals.
- [Running Health Checks On-Demand](#) (page 1-27)
Usually, health checks run at scheduled intervals. However, Oracle recommends that you run health checks on-demand when needed.
- [Running Health Checks in Silent Mode](#) (page 1-30)
Run health checks automatically by scheduling them with the Automated Daemon Mode operation.
- [Temporary Files and Directories](#) (page 1-33)
While running health checks, Oracle ORAchk and Oracle EXAchk create temporary directories and files for the purposes of data collection and assessment, and then delete them upon completion of health check runs.
- [Output Files and Directories](#) (page 1-33)
Oracle ORAchk and Oracle EXAchk create an output directory that contains various files for you to examine.

1.5.9 Consuming Multiple Results in Other Tools

Optionally integrate health check results into various other tools.

For more information, see:

- [Oracle Health Check Collections Manager for Oracle Application Express 4.2](#) (page 1-144)
- [Integrating Health Check Results with Other Tools](#) (page 1-192)

1.6 Health Check Catalog

The Health Check Catalogs list the health checks that are included within Oracle ORAchk or Oracle EXAchk.

Health Check Catalogs are HTML pages that require JavaScript. Enable JavaScript in your browser to view the Health Check Catalogs.

Each tool has its own Health Check Catalog. Refer to My Oracle Support Note 1268927.2.

As well as being available at the above links, Health Check Catalogs are also available in the download install zip (orachk.zip, orachk_idm.zip, or exachk.zip) file to view them offline in environments with no internet connection.

Each of the respective Health Check Catalogs is called:

- ORAchk_Health_Check_Catalog.html
- EXAchk_Health_Check_Catalog.html

For each check, the Health Check Catalogs display:

- Name of the check
- Benefit and impact of the check
- Alert level of the check
- Links to any My Oracle Support Notes or other documentation linked from the check

Checks can be filtered by various attributes:

Table 1-5 Health Check Filters

Filter	Description
Product Area	Oracle ORAchk Only: Filters checks by the product area to which they apply.
Engineered System	Oracle EXAchk Only: Filters checks by the engineered system to which they apply.
Profiles	Filters checks by the profile to which they apply.
Alert Level	Filters checks by the Alert Level of the check, FAIL, WARN, and INFO.
Release Authored	Filters checks by the Oracle ORAchk or Oracle EXAchk release in which they first published.
Platforms	Filters checks by platform.
Privileged User	Filters checks that require specific privileged user roles, such as root.

You can also filter checks based on searching for checks containing particular text.

Example 1-7 Health Check Catalog

Oracle ORAchk Health Check Catalog:

Figure 1-26 Oracle ORAchk Health Check Catalog

ORAchk Health Check Catalog [User Guide](#)

Product Area: 7 selected ▾ Profiles: 21 selected ▾ Alert Level: 3 selected ▾ Release Authored: 9 selected ▾ Platforms: 30 selected ▾ Privileged User: 2 selected ▾

Number of Checks: 1238

Select All Reset All

Enter keyword to search Show Check Id

CheckName	Benefit Impact	Alert Level	KM Doc
use_large_pages	Properly configuring operating system hugepages on Linux and setting the initialization parameter "use_large_pages" to "only" or "true" results in more efficient use of memory and reduced paging. The impact of validating that the total current hugepages are greater than or equal to estimated requirements for all currently active SGAs is minimal. The impact of corrective actions will vary depending on the specific configuration, and because the hugepages pool must be contiguous, it is recommended to reboot the database server.	WARN	1392497.1 USE_LARGE_PAGES To Enable HugePages 361323.1 HugePages on Linux: What It Is... and What It Is Not... 401749.1 Shell Script to Calculate Values Recommended Linux HugePages / HugeTLB Configuration
Non-multiplexed redo logs	The online redo logs of an Oracle database are critical to availability and recoverability and should always be multiplexed even in cases where fault tolerance is provided at the storage level.	WARN	
Solaris Cluster Check S6979686	The Common Agent Container (Cacao) subsystem is required for multi-node cluster management, including cluster checks, to work correctly.	WARN	1479997.2 Information Center: Solaris Cluster 3.x and 4.x
	To use a ZFS file system as an exported file system in		1479997.2 Information Center:

Oracle EXAchk Health Check Catalog:

Figure 1-27 Oracle EXAchk Health Check Catalog

▼▲ CheckName	▼▲ Benefit Impact	▼▲ Alert Level	▼▲ KM Doc
_disable_cell_optimized_backups	setting _disable_cell_optimized_backups to true will slow down RMAN incremental backups and system performance may be impacted.	WARN	
_enable_NUMA_optimization		WARN	7171446.8 Bug 7171446 - NUMA enabled by default can cause high CPU
_enable_NUMA_support	Experience and testing has shown that certain database initialization parameters should be set at specific values. These are the best practice values set at deployment time. By setting these database initialization parameters as recommended, known problems may be avoided and performance maximized. The parameters are common to all database instances. The impact of setting these parameters is minimal. The performance related settings provide guidance to maintain highest stability without sacrificing performance. Changing the default performance settings can be done after careful performance evaluation and clear understanding of the performance impact.	FAIL	
_exafusion_enabled	Database instance crashes with ORA-600 internal errors such as [ioc_create_queue:1] or [kjcfn_msgq:1] during database	FAIL	1270094.1 Exadata

Using the Health Check Catalog, you can find the Check Id for a particular check without running a health check report.

To view the check Id, select the **Show Check Id** check box.

The catalog displays the **Check Id** field to the left of each the checks.

Figure 1-28 Show Check Id

Check Id	CheckName	Benefit Impact	Alert Level	KM Doc
24BD1CFD404ABEB 4E0530A98EB0A38 5A	use_large_pages	Properly configuring operating system hugepages on Linux and setting the initialization parameter "use_large_pages" to "only" or "true" results in more efficient use of memory and reduced paging. The impact of validating that the total current hugepages are greater than or equal to estimated requirements for all currently active SGAs is minimal. The impact of corrective actions will vary depending on the specific configuration, and because the hugepages pool must be contiguous, it is recommended to reboot the database server.	WARN	1392497.1 USE_LARGE_PAGES To Enable HugePages 361323.1 HugePages on Linux: What It Is... and What It Is Not... 401749.1 Shell Script to Calculate Values Recommended Linux HugePages / HugeTLB Configuration
833F68D88AE57B7 CE040E50A1EC02B E7	Non-multiplexed redo logs	The online redo logs of an Oracle database are critical to availability and recoverability and should always be multiplexed even in cases where fault tolerance is provided at the storage level.	WARN	
291183268DBA365		The Common Agent Container (Cacao)		1479907.2 Information

Related Topics

- [Oracle ORAch Health Check Catalog](#)
- [Oracle EXAch Health Check Catalog](#)

1.7 Running Subsets of Checks

Where necessary, you can run a subset of health checks.

These subsets can be a logical grouping determined by Oracle ORAch and Oracle EXAch based on what the check is about.

You can also determine the subsets at an individual check level where you want to exclude or run only specific checks.

- [Upgrade Readiness Mode \(Oracle Clusterware and Oracle Database Upgrade Checks\)](#) (page 1-65)
You can use Upgrade Readiness Mode to obtain an Upgrade Readiness Assessment.
- [Running Checks on Subsets of the Oracle Stack](#) (page 1-68)
Run checks on subsets of Oracle stack such as, database, cell, switch, and so on.
- [Using Profiles with Oracle ORAch and Oracle EXAch](#) (page 1-70)
Profiles are logical groupings of related checks. These related checks are grouped by a particular role, a task, or a technology.
- [Excluding Individual Checks](#) (page 1-72)
Excluding checks is recommended in situations where you have reviewed all check output and determined a particular check is not relevant for some particular business reason.

- [Running Individual Checks](#) (page 1-74)
There are times when you may want to run only specific checks.
- [Finding Which Checks Require Privileged Users](#) (page 1-74)
Use the **Privileged User** filter in the Health Check Catalogs to find health checks that must be run by a specific privileged user, such as `root`.
- [Option to Run Only the Failed Checks](#) (page 1-76)
New option allows Oracle ORAchk and Oracle EXAchk to run only the checks that failed previously.

Related Topics

- [SSH Connectivity and Access](#) (page 1-4)
In a clustered database environment, Oracle ORAchk and Oracle EXAchk run health checks on a single node and remotely run on all other cluster nodes.
- [Using Oracle ORAchk and Oracle EXAchk to Automatically Check for Risks and System Health](#) (page 1-16)
Oracle recommends that you use the daemon process to schedule recurring health checks at regular intervals.
- [Running Health Checks On-Demand](#) (page 1-27)
Usually, health checks run at scheduled intervals. However, Oracle recommends that you run health checks on-demand when needed.

1.7.1 Upgrade Readiness Mode (Oracle Clusterware and Oracle Database Upgrade Checks)

You can use Upgrade Readiness Mode to obtain an Upgrade Readiness Assessment.

Upgrade Readiness Mode helps you plan the upgrade process for Oracle Cluster and Oracle RAC Database by automating many of the manual pre-checks and post-checks listed in the upgrade documentation.

There are two Upgrade Readiness modes:

- **Pre-upgrade check:** Run this check during the planning phase of the upgrade process. Running this check helps you ensure that you have enough time to correct potential issues before the upgrade.
- **Post-upgrade check:** Run this check after the upgrade to help you ensure the health of Oracle Grid Infrastructure and Oracle Database upgrades.

The Upgrade Readiness report provides the following information:

- The target Clusterware and database versions. The report can only provide information for releases later than 11.2.0.3.
- In pre-upgrade mode, the tool automatically detects all databases that are registered with Oracle Clusterware. It displays a list of these databases on which you can perform pre-upgrade checks.
- In post-upgrade mode, the tool detects all databases registered with Oracle Clusterware. It displays a list of databases on which you can perform post-upgrade checks. If you select any release 11.2.0.3 or earlier releases, then the tool does not perform post-upgrade checks on these databases.
- In both the modes, the tool checks the Oracle Clusterware stack and the operating system.

After the tool completes running, you are referred to the report. The report contains the upgrade readiness report and links where you can obtain additional information.

- [Oracle Clusterware and Oracle Database Pre-Upgrade Checks](#) (page 1-66)
During your pre-upgrade planning phase, run Oracle ORAchk and Oracle EXAchk in pre-upgrade mode as the Oracle Database owner or as `root`.
- [Oracle Clusterware and Oracle Database Post-Upgrade Checks](#) (page 1-67)
After performing the upgrade, you can run in post-upgrade mode as the Oracle Database software owner or `root` to see further recommendations.

1.7.1.1 Oracle Clusterware and Oracle Database Pre-Upgrade Checks

During your pre-upgrade planning phase, run Oracle ORAchk and Oracle EXAchk in pre-upgrade mode as the Oracle Database owner or as `root`.

To start pre-upgrade checking, use the `-u -o pre` option:

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

```
$ ./exachk -u -o pre
```

The tool prompts you to specify the version that you are planning to upgrade to, and then runs all of the applicable checks for that specific version.

```
$ ./orachk -u -o pre
Enter upgrade target version (valid versions are 11.2.0.3.0, 11.2.0.4.0, 12.1.0.1.0,
12.1.0.2.0 and 12.2.0.1.0):- 12.1.0.2.0
```

```
CRS stack is running and CRS_HOME is not set. Do you want to set CRS_HOME to /
scratch/app/11.2.0.4/grid?[y/n][y]
```

```
Checking ssh user equivalency settings on all nodes in cluster
```

```
Node myhost69 is configured for ssh user equivalency for oradb user
```

```
Node myhost71 is configured for ssh user equivalency for oradb user
```

```
Searching for running databases . . . . .
```

```
. . . . .
List of running databases registered in OCR
```

1. ordsdb
2. mydb
3. All of above
4. None of above

```
Select databases from list for checking best practices. For multiple databases,
select 3 for All or comma separated number like 1,2 etc [1-4][3].
```

```
. . . . .
```

```
-----
CLUSTERWIDE CHECKS
-----
```

```
Detailed report (html) - /oracle/orachk/orachk_myhost70_mydb_041916_215655/
orachk_myhost70_mydb_041916_215655.html
```

UPLOAD(if required) - /oracle/orachk/orachk_myhost70_mydb_041916_215655.zip

Output is similar to a standard HTML report output. However, the report shows checks that are relevant to upgrading Oracle Clusterware and Oracle Database to the version that you have specified.

1.7.1.2 Oracle Clusterware and Oracle Database Post-Upgrade Checks

After performing the upgrade, you can run in post-upgrade mode as the Oracle Database software owner or `root` to see further recommendations.

To start post-upgrade checks, use the `-u -o post` option:

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

```
$ ./exachk -u -o post
```

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

```
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 ssh user equivalency settings on all nodes in cluster
```

```
Node myhost69 is configured for ssh user equivalency for oradb user
```

```
Node myhost71 is configured for ssh user equivalency for oradb user
```

```
Searching for running databases . . . . .
```

```
. . . . .
```

```
List of running databases registered in OCR
```

1. ordsdb
2. mydb
3. All of above
4. None of above

```
Select databases from list for checking best practices. For multiple databases,
select 3 for All or comma separated number like 1,2 etc [1-4][3].
```

```
. . . . .
```

```
-----
CLUSTERWIDE CHECKS
-----
```

```
Detailed report (html) - /oracle/orachk/orachk_myhost70_mydb_042316_154355/
orachk_myhost70_mydb_042316_154355.html
```

UPLOAD(if required) - /oracle/orachk/orachk_myhost70_mydb_042316_154355.zip

Output is similar to a standard but shows only the checks that are relevant after upgrading the Clusterware and database.

Related Topics

- [HTML Report Output](#) (page 1-36)

1.7.2 Running Checks on Subsets of the Oracle Stack

Run checks on subsets of Oracle stack such as, database, cell, switch, and so on.

- [Running Database Checks](#) (page 1-68)
During Oracle ORAchk and Oracle EXAchk system checks, all Oracle database logins are performed by using local connections.
- [Running Cell Checks](#) (page 1-69)
Limit the scope of health checks to a subset of storage servers by using the `-cell cell` option.
- [Running Switch Checks](#) (page 1-69)
Limit the scope of health checks to a subset of switches by using the `-ibswitches switch` option.
- [Running Checks on Other Elements of the Oracle Stack](#) (page 1-70)
Health checks are available for large parts of the Oracle software and hardware stack. Health check coverage is expanding with each new release.
- [Oracle ORAchk Support for Oracle Grid Infrastructure with no Database](#) (page 1-70)
Oracle ORAchk now supports Oracle Grid Infrastructure stand-alone checks where no database is installed.

1.7.2.1 Running Database Checks

During Oracle ORAchk and Oracle EXAchk system checks, all Oracle database logins are performed by using local connections.

The user running the tool must have operating system authenticated system privileges in the databases where you are running the tool.

Oracle software is installed by using an Oracle software installation owner, which is commonly referred to in Oracle documentation as the Oracle user. Your system can contain multiple Oracle database homes all owned by the same Oracle user, for example, `oracle`. Your system can also contain multiple database homes owned by different Oracle users, for example, `oracle1`, `oracle2`, `oracle3`. If you have multiple Oracle database homes configured, and these homes are owned by different Oracle users, then you must either run the tool as `root` user, or you must log in as the Oracle user for each Oracle database that you want to check. Use that Oracle user to run the tool on the Oracle database instance on which the user is the software installation owner.

By default, Oracle ORAchk and Oracle EXAchk present a list of running databases that are registered with Oracle Grid Infrastructure. You can run the tools on one database, run the tools on all databases, or run the tool with a comma-delimited list of numbers that designate the databases listed. When you check multiple nodes running on the cluster, you do not need to stage the tool on the other nodes in the cluster to check the database instances running on those nodes.

1. To prevent prompting for which database to run against and check all databases, use the `-dball` option.

```
$ ./orachk -dball
```

```
$ ./exachk -dball
```

2. To prevent prompting and skip all database checks, use the `-dbnone` option.

```
$ ./orachk -dbnone
```

```
$ ./exachk -dbnone
```

3. To run checks against a subset of databases, use the `-dbnames database_name` option.

You can check multiple database instances by listing them in a comma-delimited list.

```
$ ./orachk -dbnames db1,db2,db3
```

```
$ ./exachk -dbnames db1,db2,db3
```

By default, Oracle ORAchk and Oracle EXAchk run checks on all database nodes in the cluster.

4. To run checks against a subset of cluster nodes, use the `-clusternodes node` option.

You can check multiple cluster nodes by listing them in a comma-delimited list.

```
$ ./orachk -clusternodes node1,node2,node3
```

```
$ ./exachk -clusternodes node1,node2,node3
```

5. To run checks against the local node, use the `-localonly` option.

```
$ ./orachk -localonly
```

```
$ ./exachk -localonly
```

1.7.2.2 Running Cell Checks

Limit the scope of health checks to a subset of storage servers by using the `-cell cell` option.

1. To limit the scope to one cell, use the `-cell` option.

```
orachk -cell
```

```
exachk -cell
```

2. To limit the check to a set of cells, use a comma-delimited list of cells.

```
$ ./orachk -cell cell1,cell2,cell3
```

```
$ ./exachk -cell cell1,cell2,cell3
```

1.7.2.3 Running Switch Checks

Limit the scope of health checks to a subset of switches by using the `-ibswitches switch` option.

1. To limit the scope to one switch, use the `-ibswitches` option.

```
$ ./orachk -ibswitches
```

```
$ ./exachk -ibswitches
```

2. To limit the check to a set of switches, use a comma-delimited list of switches.

```
$ ./orachk -ibswitches switch1,switch2
```

```
$ ./exachk -ibswitches switch1,switch2
```

1.7.2.4 Running Checks on Other Elements of the Oracle Stack

Health checks are available for large parts of the Oracle software and hardware stack. Health check coverage is expanding with each new release.

Health checks are organized into logical groupings, which are called *profiles*. You can run subsets of checks for different areas of the Oracle stack by the applicable profile.

Refer to the Using Profiles section for a list of available profiles.

1.7.2.5 Oracle ORAchk Support for Oracle Grid Infrastructure with no Database

Oracle ORAchk now supports Oracle Grid Infrastructure stand-alone checks where no database is installed.

To run Oracle Grid Infrastructure checks in an environment with no Oracle Database has been installed, use the option:

```
-nordbms
```

For example:

```
$ ./orachk -nordbms
```

```
$ ./exachk -nordbms
```

1.7.3 Using Profiles with Oracle ORAchk and Oracle EXAchk

Profiles are logical groupings of related checks. These related checks are grouped by a particular role, a task, or a technology.

The following table describes the profiles that you can use:

Table 1-6 List of Available Profiles for Oracle ORAchk and Oracle EXAchk Checks

Profile	Description
asm	Oracle Automatic Storage Management checks.
exatier1	Exadata only checks with a critical alert level. These represent the top tier of problems with the most severe likely impact. You must fix the problems marked as critical as soon as possible.
patches	Oracle patch checks.
bi_middleware	Oracle Business Intelligence checks.
clusterware	Oracle Clusterware checks.
compute_node	Compute Node checks (Oracle Exalogic only).
control_VM	Checks only for Oracle Virtual Machine Control VM (ec1-vm, ovmm, db, pc1, pc2). No cross-node checks.

Table 1-6 (Cont.) List of Available Profiles for Oracle ORAchk and Oracle EXAchk Checks

Profile	Description
corroborate	Oracle Exadata checks, which you must review to determine pass or fail.
dba	Database Administrator (DBA) Checks.
ebs	Oracle E-Business Suite checks.
el_extensive	Extensive EL checks.
el_lite	Exalogic-Lite Checks(Oracle Exalogic Only).
el_rackcompare	Data Collection for Exalogic Rack Comparison Tool (Oracle Exalogic Only).
emagent	Oracle Enterprise Manager Cloud Control agent checks.
emoms	Oracle Enterprise Manager Cloud Control management server.
em	Oracle Enterprise Manager Cloud Control checks.
goldengate	Oracle GoldenGate checks.
hardware	Hardware-specific checks for Oracle Engineered systems.
maa	Maximum Availability Architecture Checks.
nimbula	Nimbula checks for Oracle Exalogic.
oam	Oracle Access Manager checks.
obiee	OBIEE Checks (Oracle Exalytics Only)
oim	Oracle Identity Manager checks.
oud	Oracle Unified Directory server checks.
ovn	Oracle Virtual Networking.
peoplesoft	Peoplesoft best practices.
platinum	Platinum certification checks.
preinstall	Preinstallation checks.
prepatch	Checks to complete before patching.
security	Security checks.
siebel	Siebel Checks.
solaris_cluster	Oracle Solaris Cluster Checks.
storage	Oracle Storage Server Checks.
switch	InfiniBand switch checks.
sysadmin	System administrator checks.
timesten	Oracle TimesTen checks (Oracle Exalytics Only).
user_defined_checks	Run user-defined checks from user_defined_checks.xml.
virtual_infra	Oracle VM Server (OVS), Control VM, network time protocol (NTP), and stale virtual network interface cards (VNICs) check (Oracle Exalogic Only).
zfs	Oracle ZFS Storage Appliances checks (Oracle Exalogic Only).

You can run the command with an inclusion list, so that it runs only the checks in particular profiles. Run the command with the option `-profile profile_name`. You can run multiple profiles by running the command with a comma-delimited inclusion list. The inclusion list contains only the profiles that you want to run.

```
$ ./orachk -profile dba,clusterware
```

```
$ ./exachk -profile dba,clusterware
```

The output of inclusion list profile checks is similar to the standard HTML Report Output format. However, profile inclusion check reports show only output of checks that are in the specific profiles that you specify in the check.

You can also run the command with exclusion list. Run the command with the option `-excludeprofile profile_name`. When you run the command with an exclusion list, all profile checks are performed except for the checks in the profile that you list. You can list multiple profiles to exclude by running the command with a comma-delimited exclusion list.

```
$ ./orachk -excludeprofile dba,clusterware,ebs
```

```
$ ./exachk -excludeprofile dba,clusterware,ebs
```

The output of exclusion list profile checks is similar to the standard HTML Report Output format. However, profile exclusion check reports show only the checks that are not in the profiles that you specify to exclude in the check.

Related Topics

- [HTML Report Output](#) (page 1-36)

1.7.4 Excluding Individual Checks

Excluding checks is recommended in situations where you have reviewed all check output and determined a particular check is not relevant for some particular business reason.

This allows the health check HTML report to be streamlined to show only the problems you need to fix.

You can exclude checks in two different ways. Both the methods require you to find the check ids.

The first method is to use the `-excludecheck check_id` option. To exclude multiple check ids, use the comma-delimited list of check ids:

```
$ ./orachk -excludecheck  
0829D67E8B1549AFE05312C0E50AD04F,CB95A1BF5B1160ACE0431EC0E50A12EE
```

```
$ ./exachk -excludecheck  
0829D67E8B1549AFE05312C0E50AD04F,CB95A1BF5B1160ACE0431EC0E50A12EE
```

All excluded files are shown in the **Excluded Checks** section of the report.

Figure 1-29 Excluding Checks - Method I**Excluded Checks**

```

Skipping CHECK ID: 0829D67E8B1549AFE05312C0E50AD04F ( Ensure db_unique_name is unique across the
enterprise [primary]) on myhost70 because its excluded
Skipping CHECK ID: CB95A1BF5B1160ACE0431EC0E50A12EE ( Verify AUD$ and FGA_LOG$ tables use Automatic
Segment Space Management) on myhost70 because its excluded

```

The second method of excluding individual checks is as follows:

1. List all check ids in a file, one check id per line.
2. Save the file as `excluded_check_ids.txt` in the same directory where the tool is installed

```

$ ls -la
total 67616
drwxr-xr-x 3 oradb oinstall      4096 Apr 28 06:27 .
drwxr-xr-x 7 oradb oinstall      4096 Apr 28 06:22 ..
-rw-r--r-- 1 oradb oinstall 2077055 Feb  8 09:13 ORAchk_Health_Check_Catlog.html
drwxr--r-- 3 oradb oinstall      4096 Feb  7 21:31 .cgrep
-rw-r--r-- 1 oradb oinstall 4690680 Feb  7 21:30 CollectionManager_App.sql
-rw-r--r-- 1 oradb oinstall 44243042 Feb  7 21:31 collections.dat
-rw-r--r-- 1 oradb oinstall     66 Apr 28 06:27 excluded_check_ids.txt
-rwxr-xr-x 1 oradb oinstall 2653265 Feb  7 21:30 orachk
-rw-r--r-- 1 oradb oinstall 9860069 Apr 25 11:17 orachk.zip
-rw-r--r-- 1 oradb oinstall 3869 Feb  7 21:31 readme.txt
-rw-r--r-- 1 oradb oinstall 5613338 Feb  7 21:31 rules.dat
-rw-r--r-- 1 oradb oinstall 40052 Feb  7 21:30 sample_user_defined_checks.xml
-rw-r--r-- 1 oradb oinstall 2888 Feb  7 21:30 user_defined_checks.xsd
-rw-r--r-- 1 oradb oinstall 425 Feb  7 21:31 UserGuide.txt

$ cat excluded_check_ids.txt
0829D67E8B1549AFE05312C0E50AD04F
CB95A1BF5B1160ACE0431EC0E50A12EE

```

The `excluded_check_ids.txt` file remains in this directory. Each time the tool is run, all applicable health checks are run except those specified in the file.

All excluded files are shown in the **Excluded Checks** section of the report.

Figure 1-30 Excluded Checks**Excluded Checks**

```

Skipping Ensure db_unique_name is unique across the enterprise [primary] (CHECK ID
0829D67E8B1549AFE05312C0E50AD04F) on myhost70 because its in exclude file
/oracle/orachk/excluded_check_ids.txt
Skipping Verify AUD$ and FGA_LOG$ tables use Automatic Segment Space Management (CHECK ID
CB95A1BF5B1160ACE0431EC0E50A12EE) on myhost70 because its in exclude file
/oracle/orachk/excluded_check_ids.txt

```

1.7.5 Running Individual Checks

There are times when you may want to run only specific checks.

Running individual check can particularly be useful in situations such as:

- Quickly verify if a particular issue has been fixed
- Troubleshoot performance or run specific checks
- Develop and test user-defined checks

Find the check ids before you run individual checks.

1. To run only specific checks use the `-check check_id` option.
2. To run multiple check ids, use the comma-delimited list of check ids:

```
$ ./orachk -check  
0829D67E8B1549AFE05312C0E50AD04F,CB95A1BF5B1160ACE0431EC0E50A12EE
```

```
$ ./exachk -check  
0829D67E8B1549AFE05312C0E50AD04F,CB95A1BF5B1160ACE0431EC0E50A12EE
```

Related Topics

- [How to Find a Check ID](#) (page 1-48)
Each health check has a unique 32 character ID.

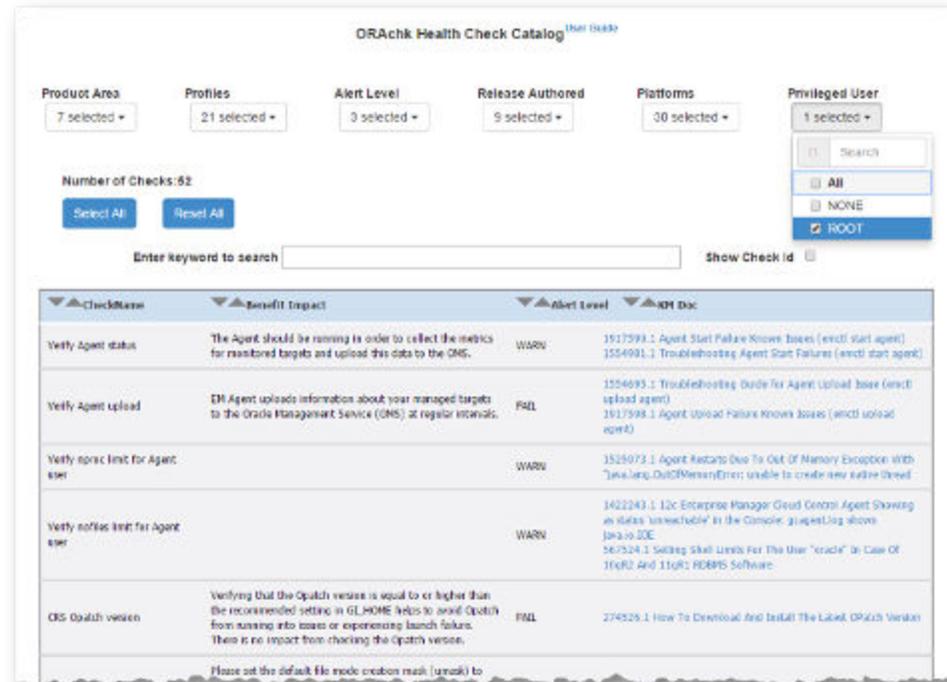
1.7.6 Finding Which Checks Require Privileged Users

Use the **Privileged User** filter in the Health Check Catalogs to find health checks that must be run by a specific privileged user, such as `root`.

Refer to the Oracle ORAchk or Oracle EXAchk example to see how to locate a privileged user.

Example 1-8 Finding a Privileged User Health Check in Oracle ORAchk Health Check Catalog:

Figure 1-31 Oracle ORAchk - Privileged User



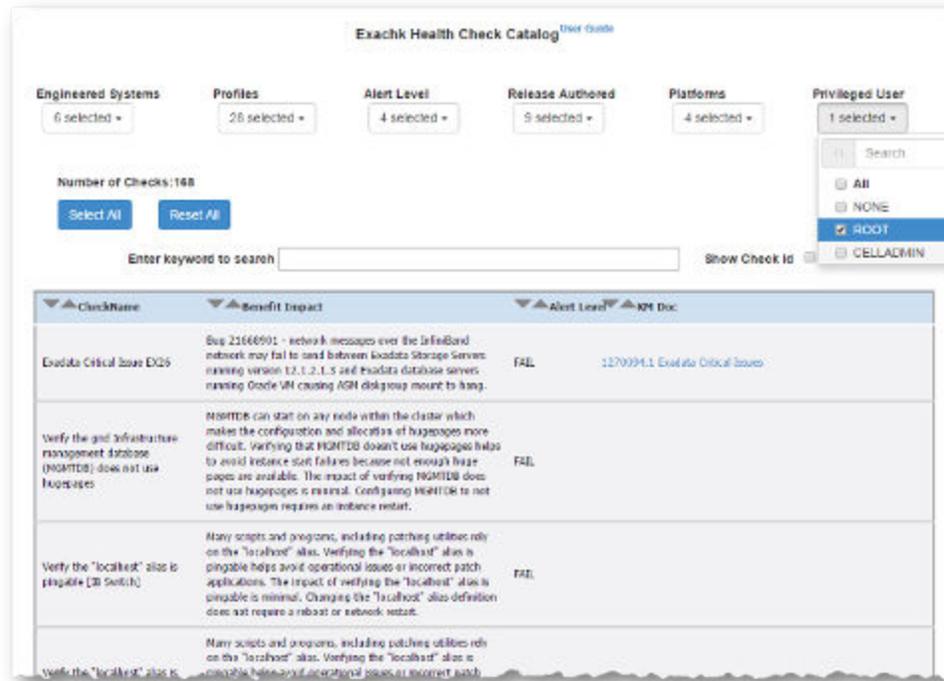
Go to My Oracle Support note 1268927.2, and click the **Health Check Catalog** tab to open an Oracle ORAchk Health Check Catalog:

<https://support.oracle.com/rs?type=doc&id=1268927.2>

You must have Javascript enabled to view the form.

Example 1-9 Finding a Privileged User in Oracle EXAchk Health Check Catalog

Figure 1-32 Oracle EXAchk - Privileged User



Example Oracle EXAchk Health Check Catalog:

[Oracle EXAchk Health Check Catalog](#)

1.7.7 Option to Run Only the Failed Checks

New option allows Oracle ORAchk and Oracle EXAchk to run only the checks that failed previously.

To run only the checks that failed previously:

- Generate a health check report
- Fix the issues identified
- Generate another health check report verifying only the issues that failed before

Use the failed checks option by passing in the HTML report, zip, or directory.

`-failedchecks previous_result`

1.8 Oracle ORAchk and Oracle EXAchk Command-Line Options

Most command-line options apply to both Oracle ORAchk and Oracle EXAchk.

```

$ ./orachk options

[-h] [-a] [-b] [-v] [-p] [-m] [-u] [-f] [-o]
[-clusternodes clusternames]
[-failedchecks previous_result]
[-nordbms]
[-output path]
[-dbnames dbnames]
[-localonly]
[-debug]
[-dbnone | -dball]
[-c]
[-upgrade | -noupgrade]
[-syslog]
[-skip_usr_def_checks]
[-checkfaileduploads]
[-uploadfailed all | comma-delimited list of collections]
[-fileattr [start | check | remove ] [-includedir path ] [-excludediscovery] [-baseline path [-fileattronly]]
[-testemail all | "NOTIFICATION_EMAIL=comma-delimited list of email addresses"]
[-setdbupload all | db upload variable, for example, RAT_UPLOAD_CONNECT_STRING, RAT_UPLOAD_PASSWORD]
[-unsetdbupload all | db upload variable, for example, RAT_UPLOAD_CONNECT_STRING, RAT_UPLOAD_PASSWORD]
[-checkdbupload]
[-getdbupload]
[-cmupgrade]
[-sendemail "NOTIFICATION_EMAIL=comma-delimited list of email addresses"]
[-nopass]
[-noscore]
[-showpass]
[-show_critical]
[-diff Old Report New Report [-outfile Output HTML] [-force]]
[-merge report 1 report 2 [-force]]
[-tag tagname]
[-nodaemon]
[-profile asm | clusterware | corroborate | dba | ebs | emagent | emoms | em | goldengate | hardware | maa | oam | oim | oud | ovn | peoplesoft | preinstall | prepatch | security | siebel | solaris_cluster | storage | switch | sysadmin | timesten | user_defined_checks | zfs ]
[-excludeprofile asm | clusterware | corroborate | dba | ebs | emagent | emoms | em | goldengate | hardware | maa | oam | oim | oud | ovn | peoplesoft | preinstall | prepatch | security | siebel | solaris_cluster | storage | switch | sysadmin | timesten | user_defined_checks | zfs ]
[-acchk -javahome path to jdk8
-asmhome path to asm-all-5.0.3.jar -appjar directory where jar files are present for concrete class -apptrc directory where trace files are present for coverage class]
[-check check ids | -excludecheck check ids]
[-zfsnodes nodes]
[-zfssa appliance names]
[-dbserial | -dbparallel [n] | -dbparallelmax]
[-idmpreinstall | -idmpostinstall | -idmruntime] [-topology topology.xml | -credconfig credconfig] | -idmdbpreinstall | -idmdbpostinstall | -idmdbruntime]
[-idm_config IDMCONFIG] [-idmdiscargs IDMDISCARGS]
[-idmhcargs IDMHCARGS | -h]

$ ./exachk options

[-h] [-a] [-b] [-v] [-p] [-m] [-u] [-f] [-o]
[-clusternodes clusternames]
[-failedchecks previous_result]

```

```

[-nordbms]
[-output path]
[-dbnames dbnames]
[-localonly]
[-debug]
[-dbnone | -dball]
[-c]
[-upgrade | -noupgrade]
[-syslog] [-skip_usr_def_checks]
[-checkfaileduploads]
[-uploadfailed all | comma-delimited list of collections]
[-fileattr start | check | remove [-includedir path [-excludediscovery] [-baseline
path[-fileattronly]
[-testemail all | "NOTIFICATION_EMAIL=comma-delimited list of email addresses"]
[-setdbupload all | db upload variable, for example, RAT_UPLOAD_CONNECT_STRING,
RAT_UPLOAD_PASSWORD]
[-unsetdbupload all | db upload variable, for example, RAT_UPLOAD_CONNECT_STRING,
RAT_UPLOAD_PASSWORD]
[-checkdbupload]
[-getdbupload]
[-cmupgrade] [-sendemail "NOTIFICATION_EMAIL=comma-delimited list of email
addresses"]
[-nopass]
[-noscore]
[-showpass]
[-show_critical]
[-diff Old Report New Report [-outfile Output HTML] [-force]]
[-merge report 1 report 2 [-force]]
[-tag tagname]
[-auto_restart -initsetup | -initdebugsetup | -initrmsetup | -initcheck | -h]
[-d start|start -debug|stop|status|info|stop_client|nextautorun|-h]
[-nodaemon]
[-unlockcells all | -cells comma-delimited list of names or IPs of cells] [-
lockcells all | -cells comma-delimited list of names or IPs of cells]
[-usecompute]
[-exadiff Exalogic collection1 Exalogic collection2]
[-vmguest ]
[-hybrid [-phy nodes]]
[-profile asm | bi_middlewares | clusterware | compute_node | exatier1 | control_VM
| corroborate | dba | ebs | el_extensive | el_lite | el_rackcompare | emagent |
emoms | em | goldengate | hardware | maa | nimbula | obiee | ovn | peoplesoft |
platinum | preinstall | prepatch | security | siebel | solaris_cluster | storage |
switch | sysadmin | timesten | user_defined_checks | virtual_infra]
[-excludeprofile asm | bi_middlewares | clusterware | compute_node | exatier1 |
control_VM | corroborate | dba | ebs | el_extensive | el_lite | el_rackcompare |
emagent | emoms | em | goldengate | hardware | maa | nimbula | obiee | ovn |
peoplesoft | platinum | preinstall | prepatch | security | siebel |
solaris_cluster | storage | switch | sysadmin | timesten | user_defined_checks |
virtual_infra]
[-check check ids | -excludecheck check ids]
[-cells cells]
[-ibswitches switches]
[-torswitches]
[-extzfsnodes nodes]
[-dbserial | -dbparallel [n] | -dbparallelmax | -allserial]
[-allserial | -dbnodeserial |-cellserial | -switchserial]

```

- [Running Generic Oracle ORAchk and Oracle EXAchk Commands](#) (page 1-79)
List of command options common to Oracle ORAchk and Oracle EXAchk.

- [Controlling the Scope of Checks](#) (page 1-80)
Use the list of commands in this section to control the scope of checks.
- [Managing the Report Output](#) (page 1-82)
Use the list of commands in this section to manage the report output.
- [Uploading Results to Database](#) (page 1-83)
Use the list of commands in this section to upload results to the database.
- [Controlling the Behavior of the Daemon](#) (page 1-84)
Use the list of commands in this section to control the behavior of the daemon.
- [Tracking File Attribute Differences](#) (page 1-85)
Use the list of commands in this section to find file attribute differences.
- [Running Oracle Health Check Collections Manager Commands](#) (page 1-86)
List of commands to manage Oracle Health Check Collections Manager.

1.8.1 Running Generic Oracle ORAchk and Oracle EXAchk Commands

List of command options common to Oracle ORAchk and Oracle EXAchk.

Syntax

```
[ -a ]
[ -v ]
[ -debug ]
[ -nodaemon ]
[ -f ]
[ -upgrade ]
[ -nougrade ]
[ -testemail all | "NOTIFICATION_EMAIL=comma-delimited list of email addresses" ]
[ -sendemail "NOTIFICATION_EMAIL=comma-delimited list of email addresses" ]
[ -dbserial ]
[ -dbparallel [n] ]
[ -dbparallelmax ]
```

Parameters

Table 1-7 Generic Commands

Option	Description
-a	Runs all checks, including the best practice checks and the recommended patch check. If you do not specify any options, then the tools run all checks by default.
-v	Shows the version of Oracle ORAchk and Oracle EXAchk tools.
-debug	Runs in debug mode. The generated .zip file contains a debug log and other files useful for Oracle Support.
-nodaemon	Does not send commands to the daemon, usage is interactive.
-f	Runs Offline. The tools perform health checks on the data already collected from the system.
-upgrade	Forces an upgrade of the version of the tools being run.

Table 1-7 (Cont.) Generic Commands

Option	Description
-noupgrade	Does not prompt for an upgrade if a later version is available under the location specified in the RAT_UPGRADE_LOC environment variable.
-testemail all "NOTIFICATION_EMAIL=co mma-delimited list of email addresses"	Sends a test email to validate email configuration.
-sendemail "NOTIFICATION_EMAIL=co mma-delimited list of email addresses"	Specify a comma-delimited list of email addresses. Emails the generated HTML report on completion to the specified email addresses.
-dbserial	Runs the SQL, SQL_COLLECT, and OS health checks in serial.
-dbparallel [n]	Runs the SQL, SQL_COLLECT, and OS health checks in parallel, using <i>n</i> number of child processes. Default is 25% of CPUs.
-dbparallelmax	Runs the SQL, SQL_COLLECT, and OS health checks in parallel, using the maximum number of child processes.

1.8.2 Controlling the Scope of Checks

Use the list of commands in this section to control the scope of checks.

Syntax

```
[-b]
[-p]
[-m]
[-u -o pre]
[-u -o post]
[-clusternodes nodes]
[-failedchecks previous_result]
[-nordbms]
[-dbnames db_names]
[-dbnone]
[-dball]
[-localonly]
[-cells cells]
[-ibswitches switches]
[-profile profile]
[-excludeprofile profile]
[-check check_id]
[-excludecheck check_id]
[-skip_usr_def_checks]
```

Parameters

Table 1-8 Scope of Checks

Command	Description
-b	Runs only the best practice checks. Does not run the recommended patch checks.
-p	Runs only the patch checks.
-m	Excludes the checks for Maximum Availability Architecture (MAA) scorecards.
-u -o pre	Runs the pre-upgrade checks for Oracle Clusterware and database.
-u -o post	Runs the post-upgrade checks for Oracle Clusterware and database.
-clusternodes <i>nodes</i>	Specify a comma-delimited list of node names to run only on a subset of nodes.
-failedchecks <i>previous_result</i>	Runs only checks from the <i>previous_result</i> , which had failed.
-nordbms	Runs Oracle Grid Infrastructure checks only in environments with no Oracle Database checks performed.
-dbnames <i>db_names</i>	Specify a comma-delimited list of database names to run only on a subset of databases.
-dbnone	Does not prompt for database selection and skips all the database checks.
-dball	Does not prompt for database selection and runs the database checks on all databases discovered on the system.
-localonly	Runs only on the local node.
-cells <i>cells</i>	Specify a comma-delimited list of storage server names to run the checks only on a subset of storage servers.
-ibswitches <i>switches</i>	Specify a comma-delimited list of InfiniBand switch names to run the checks only on a subset of InfiniBand switches.
-profile <i>profile</i>	Specify a comma-delimited list of profiles to run only the checks in the specified profiles.
-excludeprofile <i>profile</i>	Specify a comma-delimited list of profiles to exclude the checks in the specified profiles.
-check <i>check_id</i>	Specify a comma-delimited list of check IDs to run only the checks specified in the list check IDs.
-excludecheck <i>check_id</i>	Specify a comma-delimited list of check IDs to exclude the checks specified in the list of check IDs.
-skip_usr_def_checks	Does not run the checks specified in the user-defined <code>xml</code> file.

Related Topics

- [Oracle Clusterware and Oracle Database Pre-Upgrade Checks](#) (page 1-66)
During your pre-upgrade planning phase, run Oracle ORAchk and Oracle EXAchk in pre-upgrade mode as the Oracle Database owner or as `root`.

- [Oracle Clusterware and Oracle Database Post-Upgrade Checks](#) (page 1-67)
After performing the upgrade, you can run in post-upgrade mode as the Oracle Database software owner or `root` to see further recommendations.
- [Running Database Checks](#) (page 1-68)
During Oracle ORAchk and Oracle EXAchk system checks, all Oracle database logins are performed by using local connections.
- [Running Switch Checks](#) (page 1-69)
Limit the scope of health checks to a subset of switches by using the `-ibswitches switch` option.
- [Running Cell Checks](#) (page 1-69)
Limit the scope of health checks to a subset of storage servers by using the `-cell cell` option.
- [Using Profiles with Oracle ORAchk and Oracle EXAchk](#) (page 1-70)
Profiles are logical groupings of related checks. These related checks are grouped by a particular role, a task, or a technology.
- [Excluding Individual Checks](#) (page 1-72)
Excluding checks is recommended in situations where you have reviewed all check output and determined a particular check is not relevant for some particular business reason.
- [Running Individual Checks](#) (page 1-74)
There are times when you may want to run only specific checks.
- [Authoring User-Defined Checks](#) (page 1-183)
Define, test, and maintain your own checks that are specific to your environment.

1.8.3 Managing the Report Output

Use the list of commands in this section to manage the report output.

Syntax

```
[-syslog] [-tag tagname]
[-o]
[-nopass]
[-noscore]
[-diff old_report new_report [-outfile output_HTML]]
[-merge [-force] collections]
```

Parameters

Table 1-9 Managing Output

Option	Description
<code>-syslog</code>	Writes JSON results to syslog.
<code>-tag <i>tagname</i></code>	Appends the <i>tagname</i> specified to the output report name. The <i>tagname</i> must contain only alphanumeric characters.
<code>-o</code>	Argument to an option. If <code>-o</code> is followed by <code>v</code> , (or <i>verbose</i> , and neither option is case-sensitive), then the command prints passed checks on the screen. If the <code>-o</code> option is not specified, then the command prints only the failed checks on the screen.

Table 1-9 (Cont.) Managing Output

Option	Description
-nopass	Does not show passed checks in the generated output.
-noscore	Does not print health score in the HTML report.
-diff <i>old_report</i> <i>new_report</i> [-outfile <i>output_HTML</i>]	Reports the difference between the two HTML reports. Specify a directory name or a ZIP file or an HTML report file as <i>old_report</i> and <i>new_report</i> .
-merge [-force] <i>collections</i>	Merges a comma-delimited list of collections and prepares a single report.

Related Topics

- [Tagging Reports](#) (page 1-50)
The health check HTML report is typically named: `orachk_hostname_database_date_timestamp.html` or `exachk_hostname_database_date_timestamp.html`. You can include other tags in the HTML report name to facilitate differentiation and identification.
- [Comparing Two Reports](#) (page 1-55)
Oracle ORAchk and Oracle EXAchk automatically compare the two most recent HTML reports and generate a third diff report, when run in automated daemon mode.
- [Merging Reports](#) (page 1-58)
Merging reports is useful in role-separated environments where different users are run different subsets of checks and then you want to view everything as a whole.
- [Integrating Health Check Results with Third-Party Tool](#) (page 1-194)
Integrate health check results from Oracle ORAchk and Oracle EXAchk into various third-party log monitoring and analytics tools, such as Elasticsearch and Kibana.

1.8.4 Uploading Results to Database

Use the list of commands in this section to upload results to the database.

Syntax

```
[-setdbupload all|list of variable names]
[-unsetdbupload all|list of variable names]
[-checkdbupload]
[-getdbupload]
[-checkfaileduploads]
[-uploadfailed all|list of failed collections]
```

Parameters

Table 1-10 Uploading Results to Database

Option	Description
<code>-setdbupload all variable_names</code>	Sets the values in the wallet to upload health check run results to the database. all: Sets all the variables in the wallet. variable_names: Specify a comma-delimited list of variables to set.
<code>-unsetdbupload all variable_names</code>	Unsets the values in the wallet to upload health check run results to the database. all: Unsets all the variables in the wallet. variable_names: Specify a comma-delimited list of variables to unset.
<code>-checkdbupload</code>	Checks if the variables are set correctly for uploading the health check run results to the database.
<code>-getdbupload</code>	Prints the variables with their values from wallet for uploading the health check run result to the database.
<code>-checkfaileduploads</code>	Reports any failed collection uploads.
<code>-uploadfailed all list of failed collections</code>	Reattempts to upload one or more failed collection uploads. all: Reattempts to upload all the failed collection uploads. list of failed collections: Specify a comma-delimited list of collections to upload.

Related Topics

- [Integrating Health Check Results with Custom Application](#) (page 1-196)
Oracle ORAchk and Oracle EXAchk upload collection results from multiple instances into a single database for easier consumption of check results across your enterprise.

1.8.5 Controlling the Behavior of the Daemon

Use the list of commands in this section to control the behavior of the daemon.

Syntax

```
[-id id] -set daemon_option
[-id id] -unset daemon_option | all
[-id id] -get parameter | all
[-d start]
[-d start -debug]
[-d stop]
[-d stop_client]
[-d status]
[-d info]
[-id id] -d nextautorun
[-initsetup]
[-initrmsetup]
[-initcheck]
```

Parameters

Table 1-11 Daemon Options

Option	Description
<code>[-id id] -set daemon_option</code>	Optionally use <code>id</code> with the <code>set</code> command to set specific daemon usage profiles.
<code>[-id id] -unset daemon_option all</code>	Unsets the parameter. Use with <code>-id id</code> to set a daemon profile-specific value.
<code>[-id id] -get parameter all</code>	Displays the value of the specified parameter or all the parameters. Use with <code>-id id</code> to set a daemon profile-specific value.
<code>-d start</code>	Starts the daemon.
<code>-d start -debug</code>	Starts the daemon in debug mode.
<code>-d stop</code>	Stops the daemon.
<code>-d stop_client</code>	Forces a running daemon client to stop.
<code>-d status</code>	Checks the current status of the daemon.
<code>-d info</code>	Displays details about the daemon. The details include installation and when the daemon was started.
<code>[-id id] -d nextautorun</code>	Displays details about when the next scheduled automatic run occurs.
<code>-initsetup</code>	Sets the daemon auto restart function that starts the daemon when the node starts.
<code>-initrmsetup</code>	Removes the automatic restart functionality.
<code>-initcheck</code>	Checks if the automatic restart functionality is set up.

Related Topics

- [Using Oracle ORAchk and Oracle EXAchk to Automatically Check for Risks and System Health](#) (page 1-16)
Oracle recommends that you use the daemon process to schedule recurring health checks at regular intervals.

1.8.6 Tracking File Attribute Differences

Use the list of commands in this section to find file attribute differences.

Parameters

Table 1-12 File Attribute Differences

Option	Description
<code>-fileattr start</code>	Takes file attributes snapshot of discovered directories and stores the snapshot in the output directory. By default, the tool takes snapshot of Oracle Grid Infrastructure home and all the installed database homes. If the user doesn't own a particular directory, then the tool does not take snapshot of the directory.

Table 1-12 (Cont.) File Attribute Differences

Option	Description
<code>-fileattr check</code>	Takes a recent snapshot of discovered directories and compares with the previous snapshot
<code>-fileattr remove</code>	Removes the file attribute snapshots and related files.
<code>-fileattr [start check] -includedir directories</code>	Includes the directories specified at the command-line to check file attributes. For example: <pre>./orachk -fileattr start -includedir "/root/home,/etc" ./orachk -fileattr check -includedir "/root/home,/etc"</pre>
<code>-fileattr [start check] -excludediscovery</code>	Excludes the discovered directories. <pre>./orachk -fileattr start -includedir "/root/home,/etc" -excludediscovery</pre>
<code>-fileattr check -baseline baseline snapshot path</code>	For example: <pre>./orachk -fileattr check -baseline "/tmp/Snapshot"</pre>
<code>-fileattr -check -fileattronly</code>	Performs file attributes check and exits ORAchk. <pre>./orachk -fileattr check -fileattronly</pre>

1.8.7 Running Oracle Health Check Collections Manager Commands

List of commands to manage Oracle Health Check Collections Manager.

Table 1-13 Oracle Health Check Collections Manager Commands

Command	Description
<code>./orachk -cmupgrade</code> Or <code>./exachk -cmupgrade</code>	Upgrades Oracle Health Check Collections Manager from Oracle ORAchk or Oracle EXAchk. Oracle Health Check Collections Manager upgrades to the latest version of whichever application your database supports. You get the new theme interface only if you have APEX 5.

1.9 Oracle Health Check Collections Manager for Oracle Application Express 5.0

Oracle Health Check Collections Manager is a companion application to Oracle ORAchk and Oracle EXAchk that gives you an enterprise-wide view of your health check collection data.

- [Scope and Supported Platforms](#) (page 1-87)
Review the scope and platforms supported for Oracle Health Check Collections Manager.

- [Prerequisites](#) (page 1-88)
Review the list of Oracle Health Check Collections Manager prerequisites.
- [Installation](#) (page 1-88)
Follow the installation procedures sequentially to install Oracle Health Check Collections Manager.
- [Upgrading Oracle Health Check Collections Manager Application](#) (page 1-107)
Oracle ORAchk or Oracle EXAchk automatically upgrades new versions of the Oracle Health Check Collections Manager.
- [Getting Started](#) (page 1-108)
Familiarize yourself with the Oracle Health Check Collections Manager Application.
- [Oracle Health Check Collections Manager Application Features](#) (page 1-122)
Familiarize yourself with the features of Oracle Health Check Collections Manager Application.
- [Uploading Collections Automatically](#) (page 1-137)
Use these procedures to configure Oracle ORAchk and Oracle EXAchk to automatically upload check results to the Oracle Health Check Collections Manager database.
- [Viewing and Reattempting Failed Uploads](#) (page 1-140)
Configure Oracle ORAchk and Oracle EXAchk to display and reattempt to upload the failed uploads.
- [Oracle Health Check Collections Manager Application Uninstallation](#) (page 1-141)
Anytime you can decommission Oracle Health Check Collections Manager Application setup. Follow these steps sequentially to uninstall the application leaving no residual files.
- [Troubleshooting Oracle Health Check Collections Manager](#) (page 1-142)
This topic describes how to troubleshoot Oracle Health Check Collections Manager.

1.9.1 Scope and Supported Platforms

Review the scope and platforms supported for Oracle Health Check Collections Manager.

Note:

There are two separate versions of Oracle Health Check Collections Manager respectively for Oracle Application Express 4.2 and Oracle Application Express 5.x.

The scope and supported platforms are applicable to:

- Oracle Health Check Collections Manager for Oracle Application Express 5.x
- [Oracle Health Check Collections Manager for Oracle Application Express 4.2](#) (page 1-144)

It is difficult to run health checks and maintain collection data when you have many systems to manage. Oracle Health Check Collections Manager gives you an enterprise-wide view of your health check collection data.

Oracle Health Check Collections Manager:

- Provides a dashboard to track your collection data in one easy-to-use interface
- Displays collection data based on Business Units and time
- Serves as an enterprise-wide repository of all collections
- Uploads collection automatically

Oracle Health Check Collections Manager is fully supported through Oracle Support Services on all Editions (SE1, SE, and EE) of the Oracle Database 11.1.0.7 or later with a valid Oracle Database Technical Support agreement.

Use Oracle Application Express 4.2 or later with Oracle database 11g R1, 11g R2 and 12c R1. Express Edition (XE) is supported only through the Oracle Technology Network (OTN) discussion forums and not through Oracle Support Services.

1.9.2 Prerequisites

Review the list of Oracle Health Check Collections Manager prerequisites.

Note:

There are two separate versions of Oracle Health Check Collections Manager respectively for Oracle Application Express 4.2 and Oracle Application Express 5.x.

The prerequisites are applicable to:

- Oracle Health Check Collections Manager for Oracle Application Express 5.x
- [Oracle Health Check Collections Manager for Oracle Application Express 4.2](#) (page 1-144)

- Oracle Database 11.1.0.7.0 or later.
- Oracle Application Express 4.2.0 or later.

1.9.3 Installation

Follow the installation procedures sequentially to install Oracle Health Check Collections Manager.

Note:

Upgrade Oracle Health Check Collections Manager directly from the Oracle ORAchk or Oracle EXAchk tool.

- [Configuring Oracle Application Express and Creating a Workspace](#) (page 1-89)
Configure Oracle Application Express and create a workspace.
- [Install Oracle Health Check Collections Manager Application](#) (page 1-98)
To install Oracle Health Check Collections Manager, follow these procedures.
- [Log in to Oracle Health Check Collections Manager Application](#) (page 1-104)
To log in to Oracle Health Check Collections Manager, follow these procedures.

Related Topics

- [Running Oracle Health Check Collections Manager Commands](#) (page 1-86)

1.9.3.1 Configuring Oracle Application Express and Creating a Workspace

Configure Oracle Application Express and create a workspace.

If the Oracle Application Express 4.2 component is already installed and configured on your database, then skip to [Install Oracle Health Check Collections Manager Application](#) (page 1-98).

1. Download the latest version of Oracle Application Express.
2. To install and configure Oracle Application Express, refer to the Application Express Installation Guide:
3. Create a workspace.
 - a. Log in to Oracle Application Express administration services.

Note:

The URLs used for accessing the Oracle Health Check Collections Manager application depend on how Oracle Application Express was deployed initially.

- If you have configured Oracle Application Express using the Oracle HTTP Server with `mod_plsql`, then specify the URL as follows:

```
http://host:port/pls/apex/apex_admin
```

- If you have configured Oracle Application Express the Oracle XML DB HTTP listener with the embedded PL/SQL gateway, then specify the URL as follows:

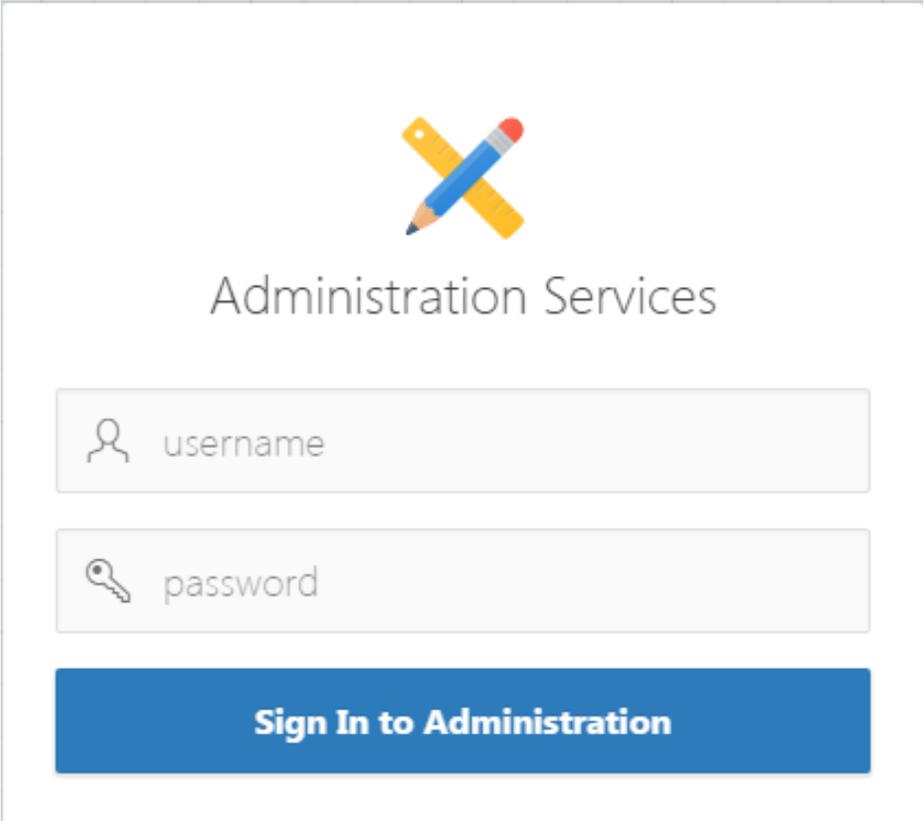
```
http://host:port/apex/apex_admin
```

For example:

```
http://dbserver.domain.com:8080/apex/apex_admin
```

- The default schema user for Oracle Application Express administration services in the Oracle database is `ADMIN`.
- The password is the one you gave at the time of configuring the Oracle Application Express component in the Oracle database.

Figure 1-33 Administration Services Login



The image shows a login form for Administration Services. At the top center is a logo consisting of two crossed pencils, one yellow and one blue. Below the logo is the text "Administration Services". Underneath are two input fields: the first is labeled "username" with a person icon, and the second is labeled "password" with a key icon. At the bottom is a blue button with the text "Sign In to Administration".

- b. In the Oracle Application Express Admin home page, click **Manage Workspaces**.

Figure 1-34 Manage Workspace

The screenshot displays the Oracle Application Express interface for managing workspaces. At the top, there are navigation tabs: 'Manage Requests', 'Manage Instance', 'Manage Workspaces', and 'Monitor Activity'. Below these, the 'Instance Administration' section features a 'Create Workspace' button and four icons representing different management tasks. A 'System Message' section is highlighted in yellow. Below it, a 'Workspace Summary' table provides a quick overview of the workspace's state:

Metric	Count
Workspaces	2
Schemas	2
Applications	30
Users	2
Mail Queue Entries	0
Worksheets	0

On the right side, a 'Workspace Actions' sidebar offers various options, including 'Create Workspace', 'Create Multiple Workspaces', and 'Find a Workspace'.

- c. Under **Workspace Actions**, click **Create Workspace**.
The Create Workspace Wizard appears.

Figure 1-35 Identify Workspace

The screenshot shows the 'Create Workspace' wizard in Oracle Application Express. The current step is 'Identify Workspace'. The wizard includes the following elements:

- Identify Workspace**: A section header with a progress indicator.
- Workspace Name**: A text input field with a required field asterisk and a help icon.
- Workspace ID**: A text input field with a help icon.
- Workspace Description**: A larger text area with a help icon.
- Tasks**: A section containing a link for 'Create Multiple Workspaces'.
- Buttons**: 'Cancel' and 'Next' buttons at the bottom.

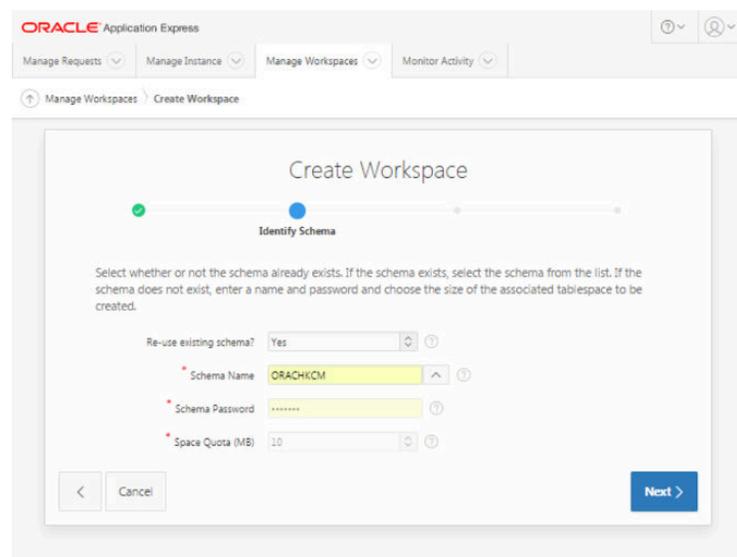
- **Identify Workspace:**
 - i. **Workspace Name:** Enter a unique workspace name, for example, ORAchk_CM_WS.
 - ii. **Workspace ID:** Leave Workspace ID blank to have the new Workspace ID automatically generated.
Workspace ID must be a positive integer greater than 100000.
 - iii. **Workspace Description:** Enter workspace description.
 - iv. Click **Next**.

 **Note:**

Associate a workspace with a database schema.

- **Identify Schema:**
 - i. Specify whether you are reusing an existing schema or creating a new one. This depends on whether you already have Oracle ORAchk and Oracle EXAchk configured to upload data to a schema in the database. If you do, then specify the existing schema. If not, then the name of the schema you create must be the one you intend to use for uploading the Oracle ORAchk data once configured.
 - ii. If you choose an existing schema in the database, then it should not be an Oracle Application Express administration schema (admin).
 - If you are using an existing schema:
 - i. For **Re-use existing schema**, select **YES**.
 - ii. Select a schema from the list.
 - iii. Click **Next**.

Figure 1-36 Identify Schema - Reuse Schema



- If you are creating a new schema:
 - i. For **Re-use existing schema**, select **NO**.
 - ii. Enter the schema name and password, for example, ORAchk_admin, and so on.
 - iii. Specify the space quota.
 - iv. Click **Next**.

Figure 1-37 Identify Schema - New Schema

The screenshot shows the 'Create Workspace' wizard in Oracle Application Express. The current step is 'Identify Schema'. The form contains the following fields:

- Re-use existing schema?**: A dropdown menu set to 'No'.
- Schema Name**: A text input field containing 'ORAchk_admin'.
- Schema Password**: A password input field with masked characters (dots).
- Space Quota (MB)**: A dropdown menu set to '10'.

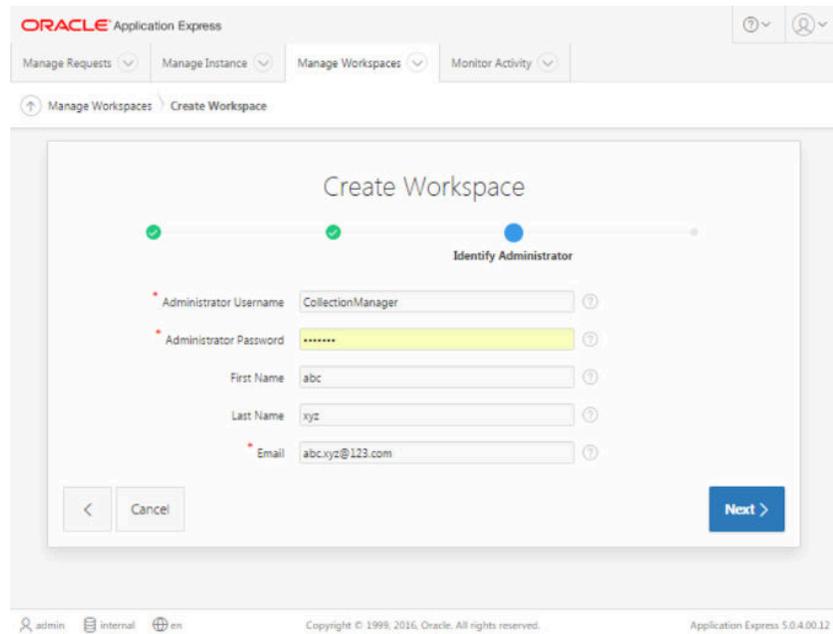
At the bottom of the form, there are 'Cancel' and 'Next' buttons. The 'Next' button is highlighted in blue.

 **Note:**

Minimum Space Quota should not be less than 100 MB to prevent application import failures.

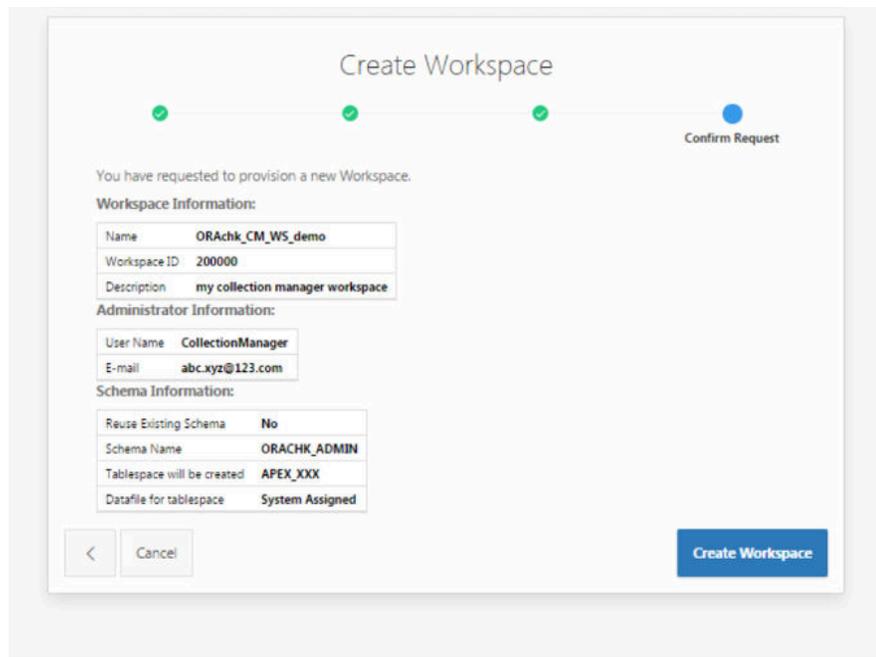
- **Identify Administrator:**
 - i. Enter administrator user name and password.
 - ii. Enter Personal details.
 - iii. Click **Next**.

Figure 1-38 Identify Administrator



- Confirm your selections and then click **Create Workspace**.

Figure 1-39 Create Workspace - Confirm Request



Your workspace is created.

4. Click **Manage Workspaces**.
 - Under **Workspace Reports**, click **Existing Workspaces**.

Figure 1-40 Manage Workspaces - Existing Workspaces

Workspace Name	Display Name	Users	Developers	Applications	Provision Status	Workspace Status	Provisioned	Auto Purge	Source Identifier
INTERNAL	INTERNAL	1	1	14	-	Assigned	-	No	INTERNAL
ORACHKCM	ORACHKCM	1	1	2	Approved	Assigned	6 weeks ago	Yes	ORACHKCM

- To edit Workspace information, click the workspace name, edit any necessary details, and then click **Apply Changes**.
- Log out from Oracle Application Express Administration services.
- [Log in to the Workspace](#) (page 1-95)
Log in to Application Express admin user workspace using these procedures.
- [Application Express User Accounts](#) (page 1-96)
Application Express provides three types of users, namely, workspace administrators, developers, and end users.

Related Topics

- <http://www.oracle.com/technetwork/developer-tools/apex/downloads/index.html>
- https://docs.oracle.com/cd/E59726_01/install.50/e39144/toc.htm

1.9.3.1.1 Log in to the Workspace

Log in to Application Express admin user workspace using these procedures.

1. Log in to Oracle Application Express Admin User Workspace.

Note:

The URLs used for accessing the Oracle Health Check Collections Manager application depend on how Oracle Application Express was deployed initially.

- If you have configured Oracle Application Express the Oracle HTTP Server with mod_plsql, then specify the URL as follows:

`http://host:port/pls/apex/apex_admin`

- If you have configured Oracle Application Express using the Oracle XML DB HTTP listener with the embedded PL/SQL gateway, then specify the URL as follows:

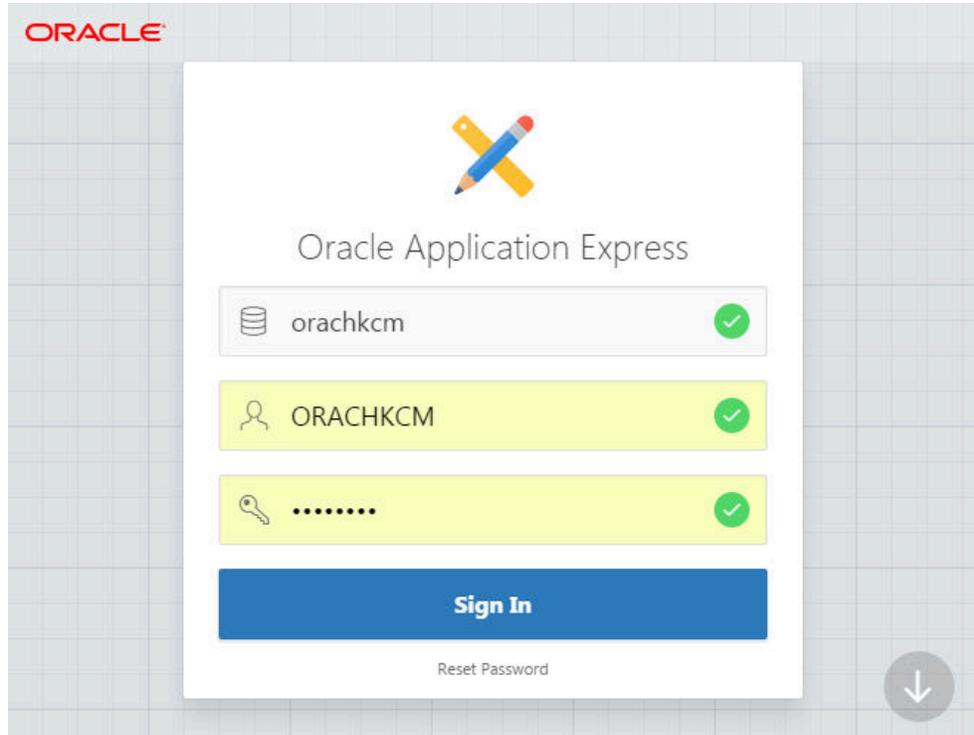
`http://host:port/apex/apex_admin`

For example:

`http://dbserver.domain.com:8080/apex/apex_admin`

- To log in, enter the workspace name, workspace user name, and password details.

Figure 1-41 Log in to the Workspace



- For the first time login, Application Express prompts you to change the password.
- Log in again using the new password.

1.9.3.1.2 Application Express User Accounts

Application Express provides three types of users, namely, workspace administrators, developers, and end users.

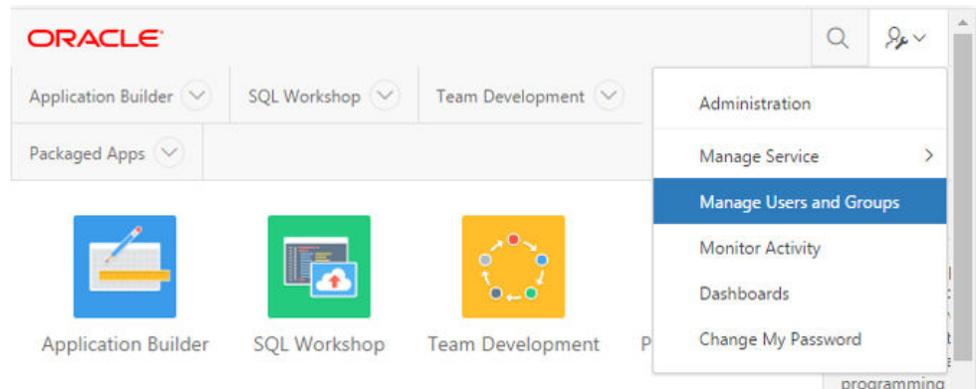
Table 1-14 Application Express Types of Users

Type of User	Description
Workspace administrators	Workspace administrators can also create and edit user accounts, manage groups, and manage development services.
Developers	Developers can create and modify applications and database objects.
End users	End users are non-administrative who have no development privileges and can only access applications that do not use an external authentication scheme. For the Oracle Health Check Collections Manager Application, almost all the users fall into this category. A special role within the Oracle Health Check Collections Manager Application, DBA Managers, and the DBAs manage all application users.

To grant access to the Oracle Health Check Collections Manager Application for non-administrative users, log in to the Workspace as an administrator.

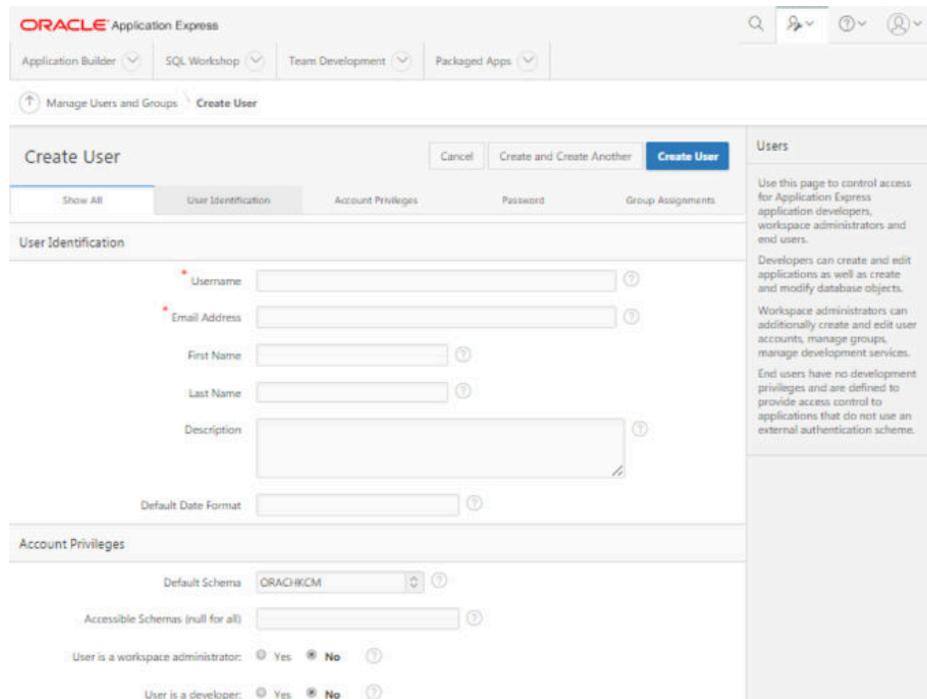
1. Log in to Oracle Application Express admin user workspace.
2. Click the **Administration** tab.
3. Click **Manage Users and Groups**.

Figure 1-42 Manage Users and Groups



4. Click **Create User**.
 - These users are application admin users, DBA Managers, and DBAs who can authenticate to the application and manage their collections.
5. Fill in the user details.
 - Follow a consistent naming convention and specify unique user names. A reasonable naming convention would be `firstname.lastname`.

Figure 1-43 Application Express User Accounts



- For non-administrators, use the default, **No** for **User is a developer** and **User is a Workspace Administrator** options.
6. Assign a temporary password for each user and communicate that password to them. Application Express prompts them to change this password the first time they log in.
 7. Click **Create User**.

1.9.3.2 Install Oracle Health Check Collections Manager Application

To install Oracle Health Check Collections Manager, follow these procedures.

1. Verify if the workspace admin schema owner and the owner of the schema used for import of the Oracle Health Check Collections Manager Application have grants to:
 - Create Job
 - Execute on the database packages `DBMS_RLS` and `UTL_SMTP` owned by the `SYS` user.

The Oracle Health Check Collections Manager Application is distributed as an SQL script. Stage the script on the workstation that is used to install the application.

Execute privilege on the database package `UTL_SMTP` is required only if you use Oracle Health Check Collections Manager Email Notification System Feature. Oracle Health Check Collections Manager uses `UTL_SMTP` package on one of the objects `RAC13_EMAIL`. Failing to grant `EXECUTE ON UTL_SMTP` privilege to workspace owner ends up in compilation error. You can see this information in the **Installation Summary**. Ignore this information, if you are not using the Oracle Health Check Collections Manager Email Notification System feature.

2. Verify if you have required privileges by running the SQL query as follows:

```
select GRANTEE, TABLE_NAME, PRIVILEGE from USER_TAB_PRIVS;
GRANTEE      TABLE_NAME  PRIVILEGE
CM_USER      DBMS_RLS     EXECUTE
CM_USER      UTL_SMTP     EXECUTE

select USERNAME, PRIVILEGE from USER_SYS_PRIVS;
USERNAME      PRIVILEGE
CM_USER       CREATE JOB
```

3. Log in to the Oracle Application Express workspace administration services.
4. Click **Application Builder** on the **Home** page.

Figure 1-44 Home Page

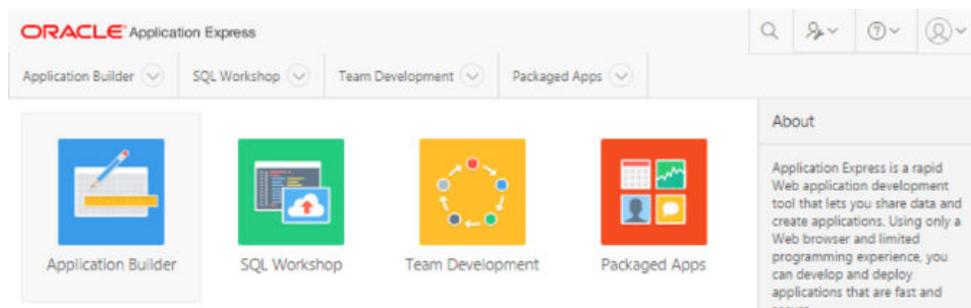
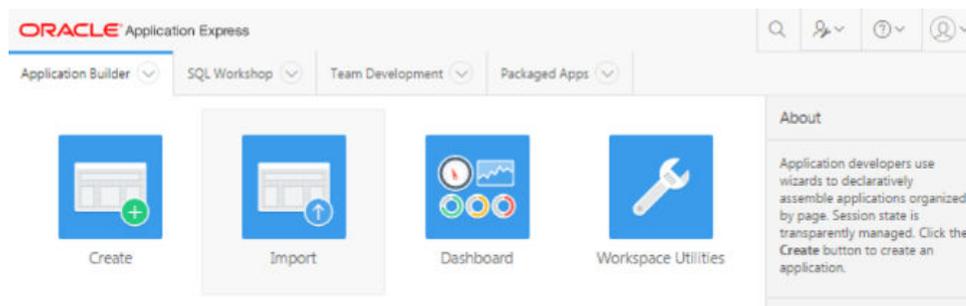
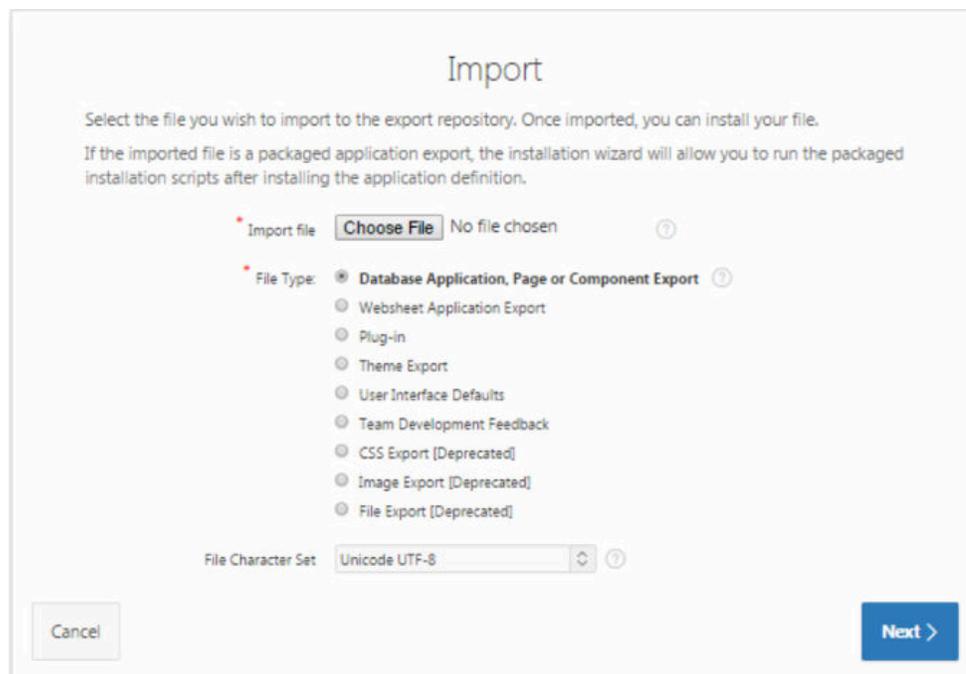


Figure 1-45 Application Builder



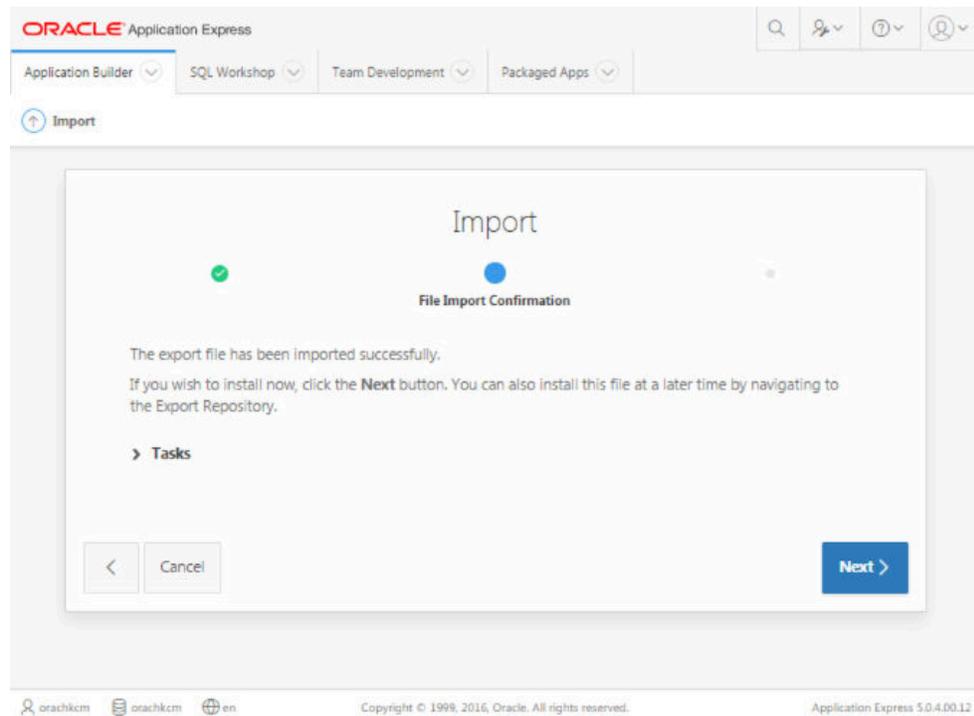
5. Click **Import** .
6. Click **Choose import file**, select the SQL script appropriate for the Oracle Application Express version you are using:
 - Apex5_CollectionManager_App.sql when using Oracle Application Express 5.x
7. **File type**: select the default option **Database Application**, or **Component Export**.
8. **File Character Set**: select the default option **Unicode UTF-8**.
9. Click **Next**.

Figure 1-46 Specify File



10. Click **Install Application**.

Figure 1-47 File Import Confirmation



11. Click **Next**.

 **Note:**

Ensure that the execute privilege on `DBMS_RLS` and `UTL_SMTP` packages and `create job sys` privilege are granted to parsing schema owner before starting the import of the application. This prevents database support object creation failures that prevent the proper installation of the application.

- For Parsing Schema, select the schema specified for the workspace.
- **Build Status:** select default option **Run and Build Application**.
- Install As Application.
- Select any one option based on your requirement or if possible use the same application id as it is easy to upgrade the application in future. However, the application Id must be unique. Ensure that the application ID is not used by any other application, or any workspace administrators within Oracle Application Express Administration server.

Figure 1-48 Install Application

Install Database Application

Install

When you install an application having the same ID as an existing application in the current workspace, the existing application is deleted and then replaced by the new application. If you attempt to install an application having the same ID as an existing application in a different workspace, a benign error message displays. If you are importing a packaged Application Express application, the installation wizard will allow you to install supporting objects.

Current Workspace: **ORACHKCM**

Export File Workspace: **ORACHKCM**

Export File Workspace ID: **5271443584738558**

Export File Application ID: **2310**
Current Workspace: **ORACHKCM**

Export File Workspace: **ORACHKCM**

Export File Workspace ID: **5271443584738558**

Export File Application ID: **2310**

Export File Version: **2013.01.01**

Export File Parsing Schema: **ORACHKCM**

Application Origin: **This application was exported from the current workspace.**

• Parsing Schema: **ORACHKCM**

• Build Status: **Run and Build Application**

• Install As Application: **Auto Assign New Application ID**
 Reuse Application ID 2310 From Export File
 Change Application ID

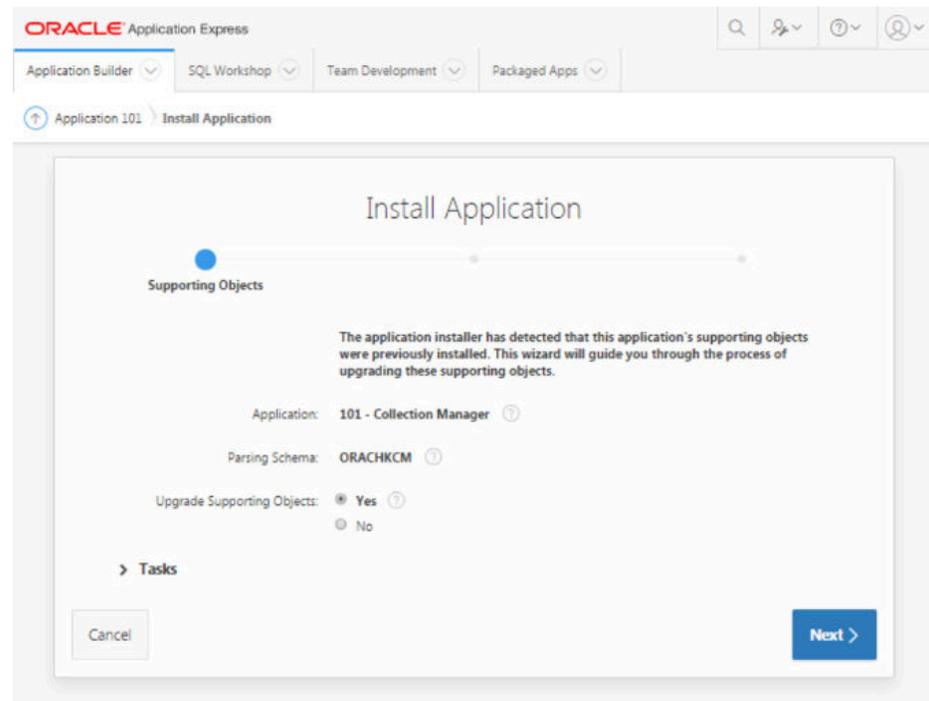
> **Tasks**

< Cancel **Install Application**

12. Click Install Application.

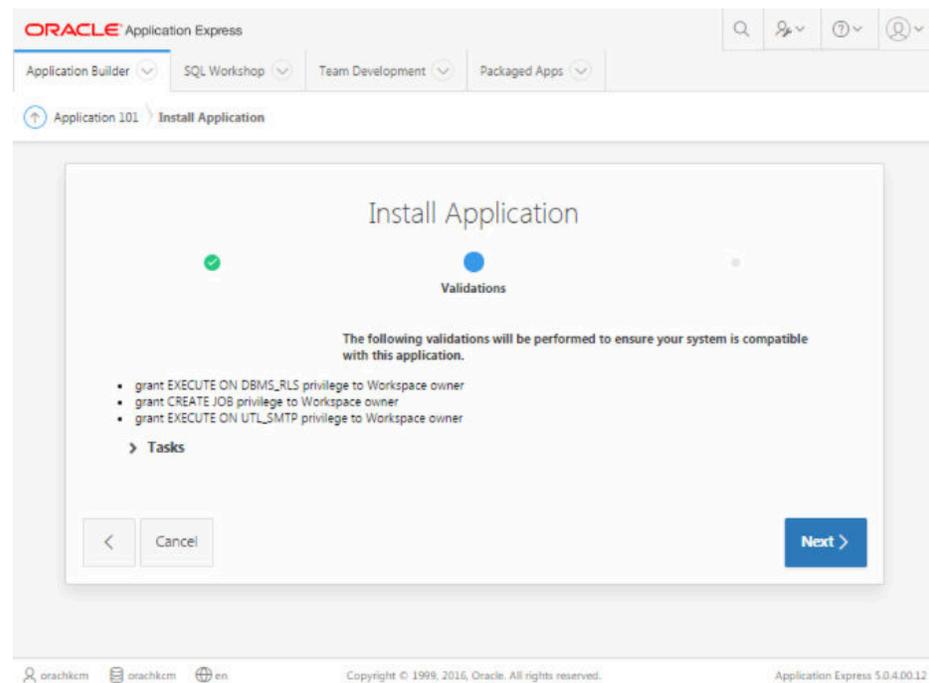
- Installing Application takes some time, please wait.
- Verify the application name and parsing schema, free space allocated for the application. Ensure that install Supporting Objects, is always **Yes**.

Figure 1-49 Supporting Objects



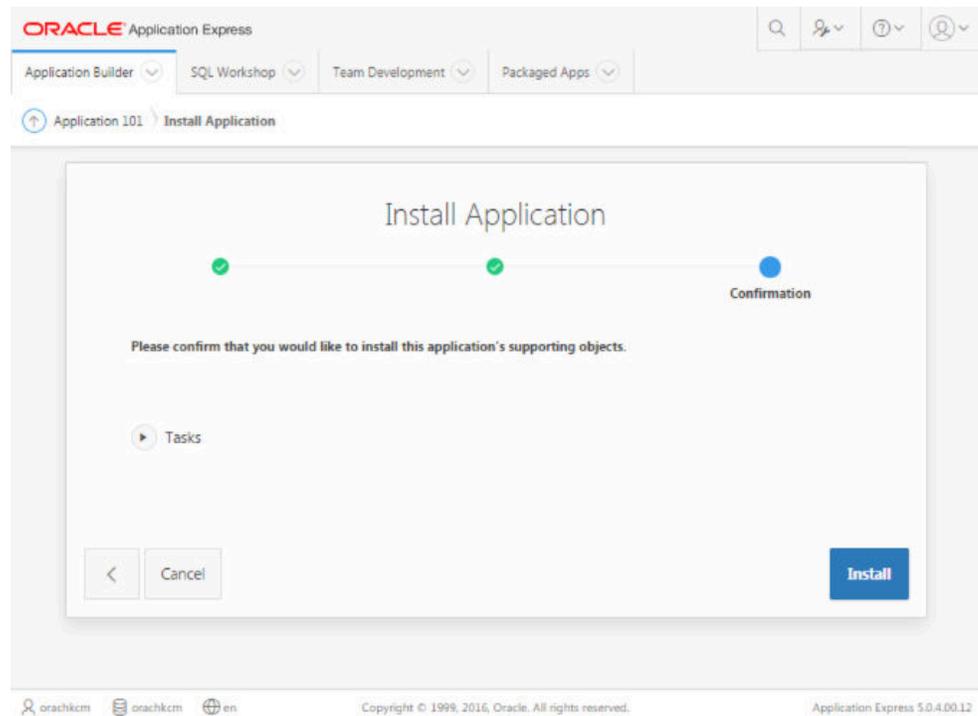
- Grant the required privileges to the workspace owner.

Figure 1-50 Validations



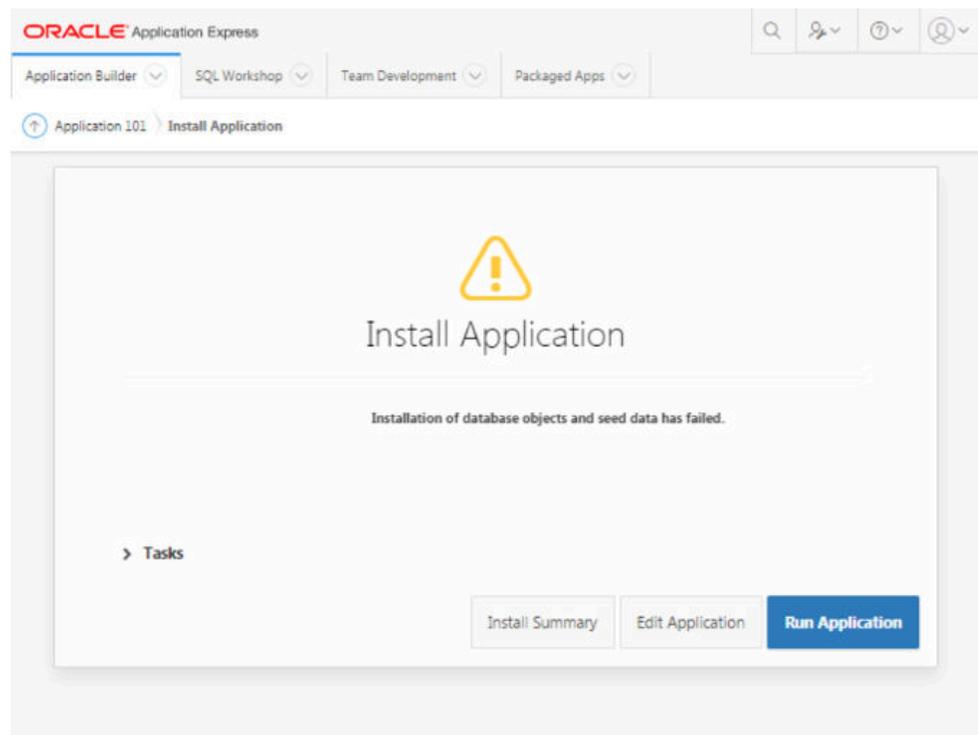
13. Click Next.

Figure 1-51 Install Applications Supporting Objects



14. Click **Install**.

Figure 1-52 Application Installed Successfully



15. Review the **Installation summary** for any errors or installation of database objects and seed data has failures.
16. Capture the application ID generated for the application from the dialog upon successful installation of the application.

The application ID is used in the URLs for accessing the application. Distribute the correct URL to the eventual users of the application.

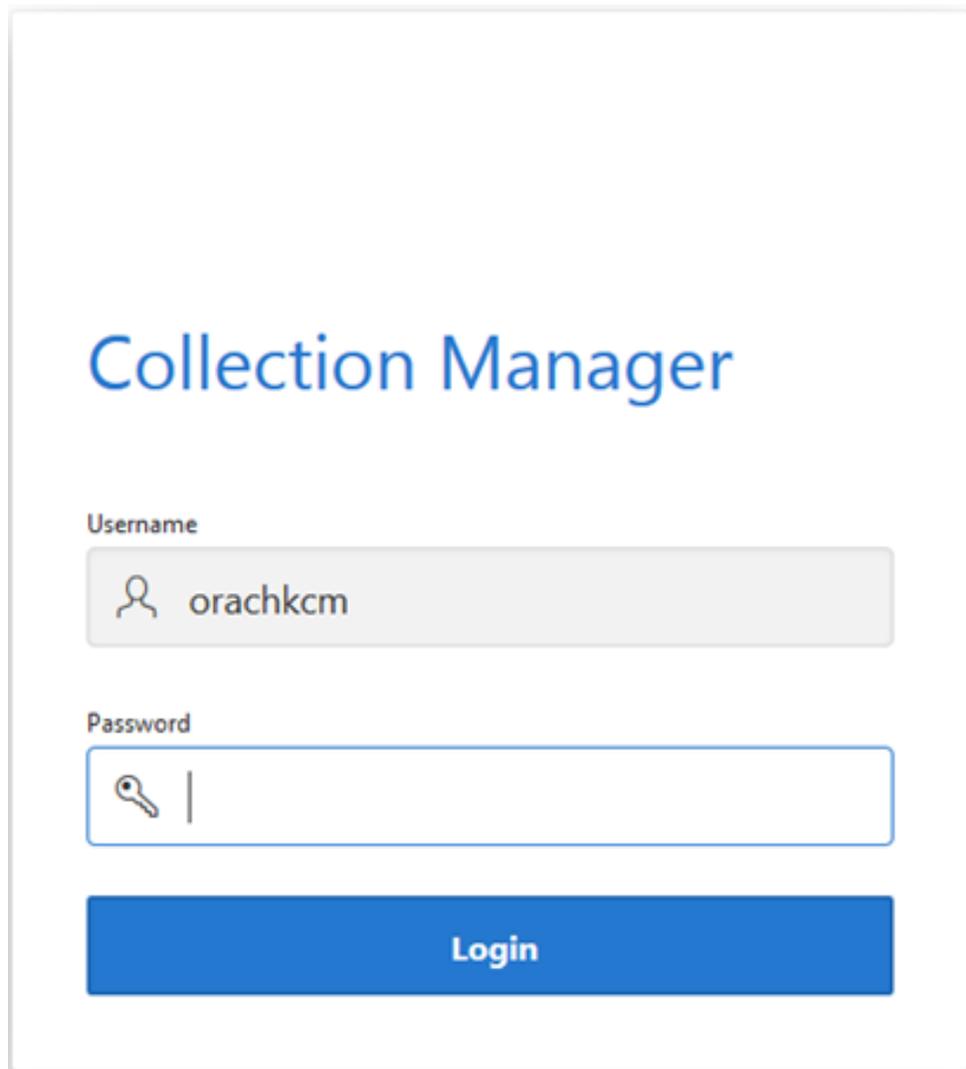
17. Click **Run Application**.

1.9.3.3 Log in to Oracle Health Check Collections Manager Application

To log in to Oracle Health Check Collections Manager, follow these procedures.

1. Enter user name and password details to log in to the Oracle Health Check Collections Manager Application, click **Login**.

Figure 1-53 Log in to Oracle Health Check Collections Manager Application

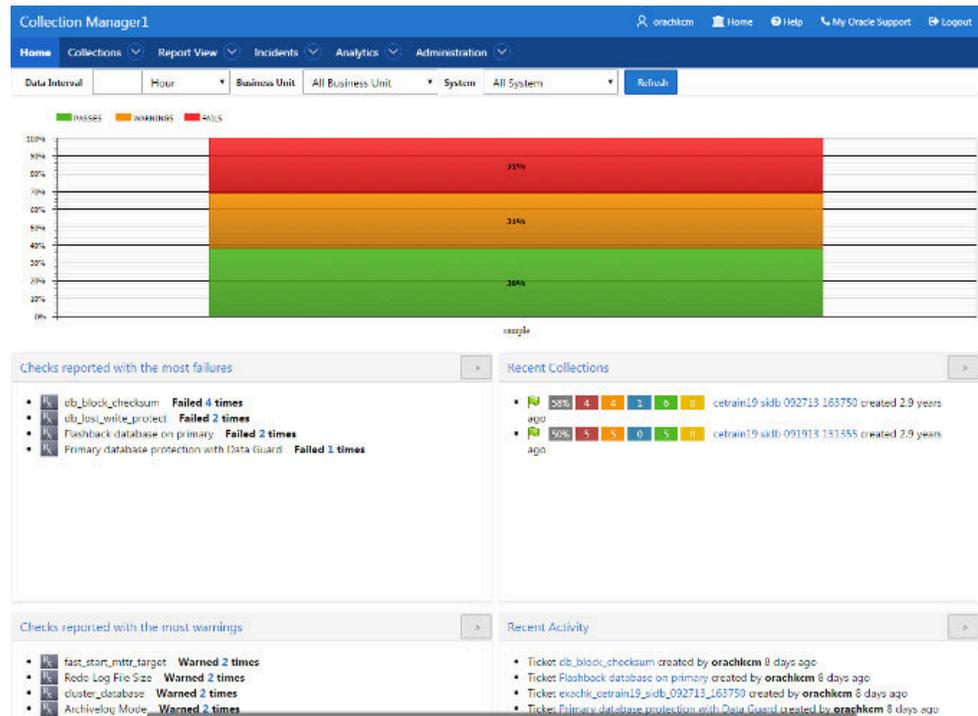


The screenshot shows the login interface for the Oracle Health Check Collections Manager. At the top, the text "Collection Manager" is displayed in a large blue font. Below this, there are two input fields. The first is labeled "Username" and contains a person icon followed by the text "orachkcm". The second is labeled "Password" and contains a key icon followed by a vertical bar. At the bottom of the form is a prominent blue button with the word "Login" in white text.

After successful login, you are all set to use Oracle Health Check Collections Manager Application and its features.

By default, the Oracle Health Check Collections Manager Application is deployed with some default sample data for acclimating new users to the application. Oracle Health Check Collections Manager displays the sample data in the **Home** page. Sample data is hidden automatically once your own data starts streaming into the application as you establish the automation and upload functionality of the tool. If you are already using the upload functionality and have your audit check results data in the database tables, and that data replaces the sample data.

Figure 1-54 Oracle Health Check Collections Manager Default View



2. Log in to Oracle Health Check Collections Manager Application as End user:

- The end user is not an administrator. The end users have only limited access to the application. Non-administrator users cannot do any administrative access unless administrator or developer privileges are granted.
- The **End User** accounts must exist in the workspace where the application is installed.
- To log in to the application, end user needs an application URL and login credentials.

Provide the end users with one of the following URLs (they are interchangeable) and the temporary password that was assigned for them.

`http://hostname:port/apex/f?p=ApplicationID`

`http://hostname:port/pls/apex/f?p=ApplicationID`

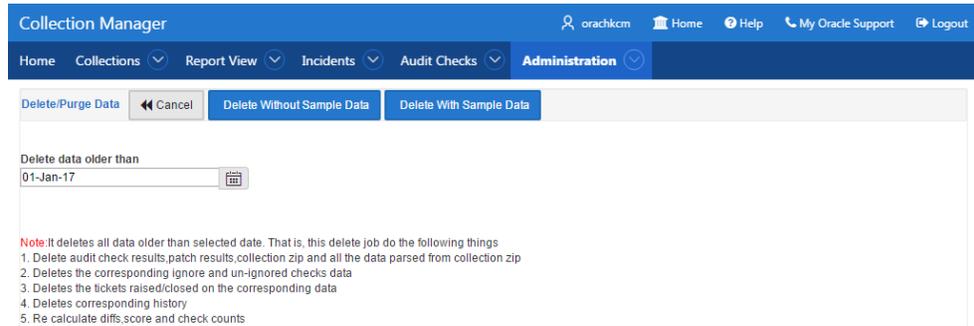
For example:

`http://dbserver.domain.com:8080/apex/f?p=103`

3. Delete the sample data using one of two methods:

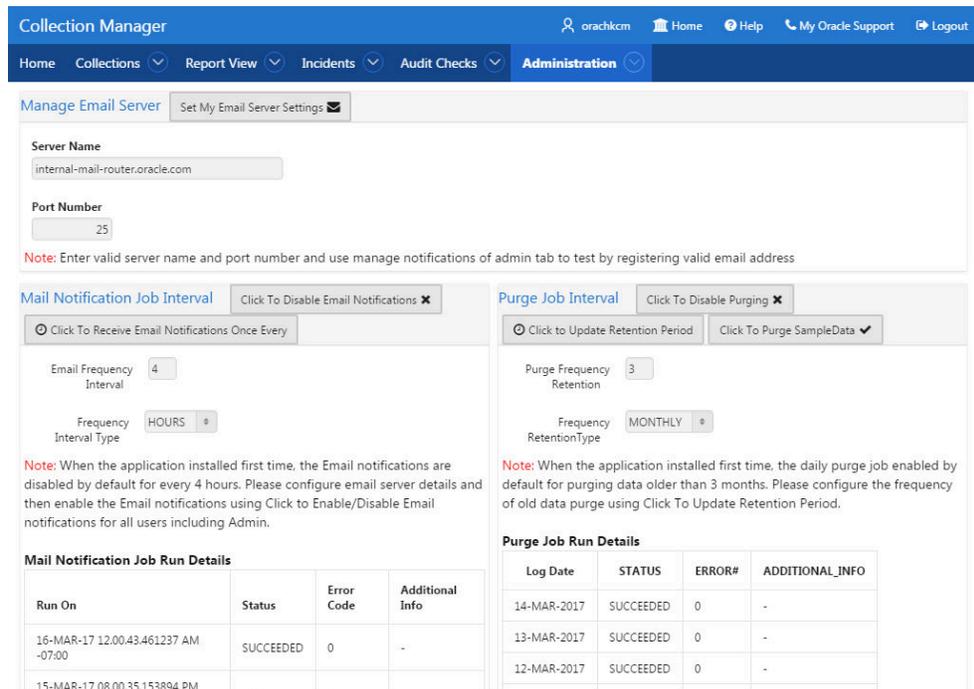
Administration > Delete Old Data: Select a date and then click **Delete With Sample Data**.

Figure 1-55 Oracle Health Check Collections Manager - Delete Old Data



Configure Email > Configure Mail Server/Notification/Purge Job: click **Click To Purge SampleData**.

Figure 1-56 Oracle Health Check Collections Manager - Purge Sample Data



4. To load sample data again, **Configure Email > Configure Mail Server/Notification/Purge Job** and then click **Click to Load SampleData**.

Figure 1-57 Oracle Health Check Collection Manager - Load Sample Data

Collection Manager orachkcm Home Help My Oracle Support Logout

Home Collections Report View Incidents Audit Checks **Administration**

Manage Email Server Set My Email Server Settings

Server Name
internal-mail-router.oracle.com

Port Number
25

Note: Enter valid server name and port number and use manage notifications of admin tab to test by registering valid email address

Mail Notification Job Interval Click To Disable Email Notifications

Click To Receive Email Notifications Once Every

Email Frequency Interval: 4
Frequency Interval Type: HOURS

Note: When the application installed first time, the Email notifications are disabled by default for every 4 hours. Please configure email server details and then enable the Email notifications using Click to Enable/Disable Email notifications for all users including Admin.

Mail Notification Job Run Details

Run On	Status	Error Code	Additional Info
16-MAR-17 12:00:43.461237 AM -07:00	SUCCEEDED	0	-
15-MAR-17 08:00:35.153894 PM -07:00	SUCCEEDED	0	-
15-MAR-17 04:00:35.119812 PM -07:00	SUCCEEDED	0	-

Purge Job Interval Click To Disable Purging

Click To Update Retention Period Click To Load SampleData

Purge Frequency Retention: 3
Frequency Retention Type: MONTHLY

Note: When the application installed first time, the daily purge job enabled by default for purging data older than 3 months. Please configure the frequency of old data purge using Click To Update Retention Period.

Purge Job Run Details

Log Date	STATUS	ERROR#	ADDITIONAL_INFO
14-MAR-2017	SUCCEEDED	0	-
13-MAR-2017	SUCCEEDED	0	-
12-MAR-2017	SUCCEEDED	0	-
11-MAR-2017	SUCCEEDED	0	-
10-MAR-2017	SUCCEEDED	0	-
09-MAR-2017	SUCCEEDED	0	-

1.9.4 Upgrading Oracle Health Check Collections Manager Application

Oracle ORAchk or Oracle EXAchk automatically upgrades new versions of the Oracle Health Check Collections Manager.

Oracle Health Check Collections 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. Oracle ORAchk and Oracle EXAchk continue to include the APEX 4 based Oracle Health Check Collections Manager application. However, all new functionality in the new releases goes only into the APEX 5 Oracle Health Check Collections Manager application.

Upgrade Oracle Health Check Collections Manager application from the Oracle ORAchk or Oracle EXAchk tool. Oracle Health Check Collections Manager application is upgraded to the latest version of whichever application your database can support.

If you have APEX 5, then you get the new theme interface.

 **Note:**

There are two separate versions of Oracle Health Check Collections Manager respectively for Oracle Application Express 4.2 and Oracle Application Express 5.x.

The upgrade procedures are applicable to:

- Oracle Health Check Collections Manager for Oracle Application Express 5.x
- [Oracle Health Check Collections Manager for Oracle Application Express 4.2](#) (page 1-144)

1. Upgrade Oracle Health Check Collections Manager by running the following commands.

```
./orachk -cmupgrade
```

Or

```
./exachk -cmupgrade
```

If the Oracle Health Check Collections Manager schema changes in the future and Oracle ORAchk or Oracle EXAchk requires an Oracle Health Check Collections Manager upgrade, then the tool automatically prompts you to upgrade.

During upgrade, Oracle Health Check Collections Manager goes offline and not it is available to receive new collections. If any collections fail to upload during upgrade, then you can upload again by viewing and reattempting failed uploads.

1.9.5 Getting Started

Familiarize yourself with the Oracle Health Check Collections Manager Application.

- [Incident Ticket System Lookup Lists and Seed Data](#) (page 1-109)
Oracle Health Check Collections Manager Application provides a basic Incident Ticket system.
- [Access Control System](#) (page 1-109)
Limit and control access based on functional roles.
- [Oracle Health Check Collections Manager Application Administration](#) (page 1-109)
To restrict authorized users alone to access the application, grant sufficient privileges to different roles.
- [Selectively Capturing Users During Login](#) (page 1-114)
By default, Oracle Health Check Collections Manager captures details of the users logging in using LDAP authentication, and assigns them DBA role.
- [Configuring Email Notification System](#) (page 1-115)
The Oracle Health Check Collections Manager Application provides an email notification system that users can subscribe to.
- [Bulk Mapping Systems to Business Units](#) (page 1-119)
If you have many systems, then you can quickly map those systems to business units in Oracle Health Check Collections Manager using an XML bulk upload.

- [Purging Old Collections](#) (page 1-121)
By default, Oracle Health Check Collections Manager runs a purge job daily, removing data older than three months.

1.9.5.1 Incident Ticket System Lookup Lists and Seed Data

Oracle Health Check Collections Manager Application provides a basic Incident Ticket system.

Oracle Health Check Collections Manager Application is deployed with seed data for the lookup lists used for data entry for incident tickets:

- Products
- Category
- Customer Contacts
- Notifications
- Status Codes
- Incident Severity
- Incident Urgency

The seed data is values that are commonly used. Add or change the seed data provided with the application. However, you must have administrator privileges to manage seed data through the **Administration** tab.

To access the **Administration** tab, click the gear icon at the upper-right corner.

1.9.5.2 Access Control System

Limit and control access based on functional roles.

By default, the Access Control system is disabled. If Access Control is disabled, then all authenticated users are granted administrator privileges and can access all application features. To assign one or more roles to the end users, manage access controls through the **Administration** tab. You can enable the following three functional roles available in the Oracle Health Check Collections Manager.

- **Admin:** Admin role user can also be a Workspace Administrator for the application and it depends on your functional roles requirements.
- **DBA Manager**
- **DBA**

Assign role to the users after configuring the Access Control system.

1.9.5.3 Oracle Health Check Collections Manager Application Administration

To restrict authorized users alone to access the application, grant sufficient privileges to different roles.

Admin

Any end user who is granted an admin role by the workspace administrator has administrator privileges within the Collection Manager application.

Log in to Oracle Health Check Collections Manager Application using a URL as follows:

```
http://hostname:port/apex/f?p=ApplicationID  
http://hostname:port/pls/apex/f?p=ApplicationID)
```

For example:

```
http://dbserver.domain.com:8080/apex/f?p=103
```

As an admin user, you must see the **Administration** menu at the upper-right corner.

- Following are the admin user privileges:
 - Add or revoke admin privileges
 - Define Business Units (BU)
 - Assign DBA Manager role to users
 - Assign DBA Managers to one or more BUs
 - Assign systems to BUs (a system can belong to one BU)
 - Assign DBAs to DBA Managers
 - Assign systems to DBAs
 - Ignore any check on a collection, BU, or system
 - Create and assign incidents to any user
 - Manage all incidents
- Only Admin role can edit any section under the **Administration** menu.
- The administrators must configure data based on their requirements under the administration menu to prepare for the wider usage of the application. This is a one-time activity, however, change the configuration over time to suit your needs.

Examples of the configuration data that you need set up are:

- Products
- Customers (internal designations for workgroups)
- Categories
- Notifications
- Status codes
- Manage Email Server and Job details
- Manage Notifications
- Incident Severity
- Urgency
- Manage User Roles and Assign systems to users
- Business Units (BUs)
- Assign systems to BUs

DBA Manager

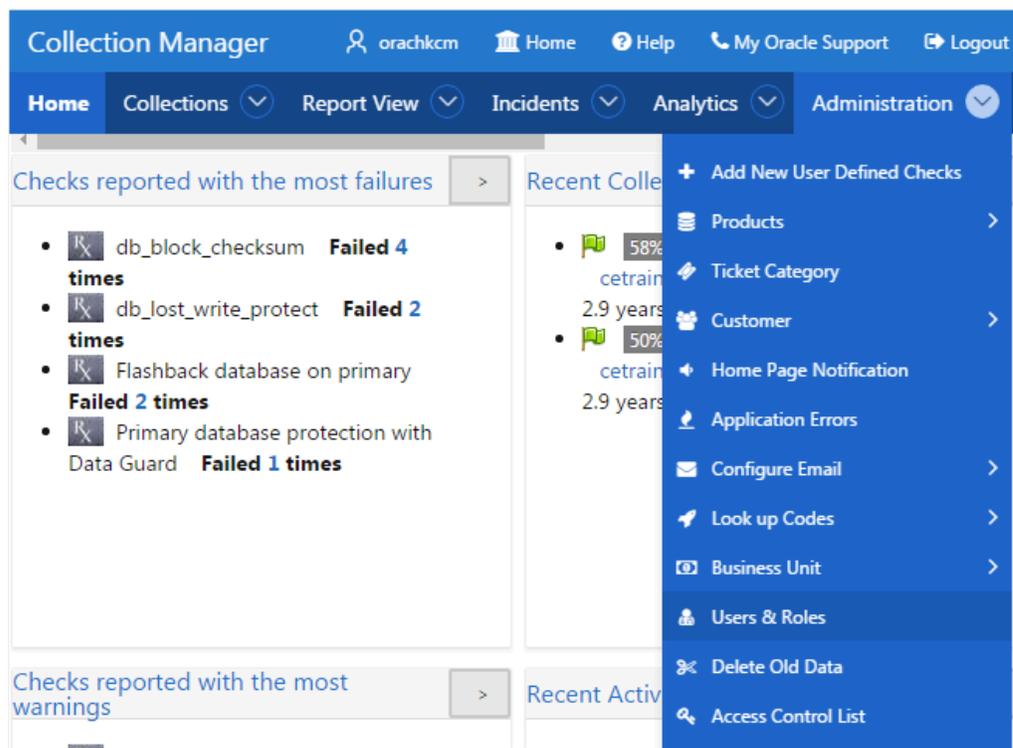
Any user who is granted the DBA Manager role.

Log in to Oracle Health Check Collections Manager Application using a URL as follows:

```
http://hostname:port/apex/f?p=ApplicationID
http://hostname:port/pls/apex/f?p=ApplicationID)
```

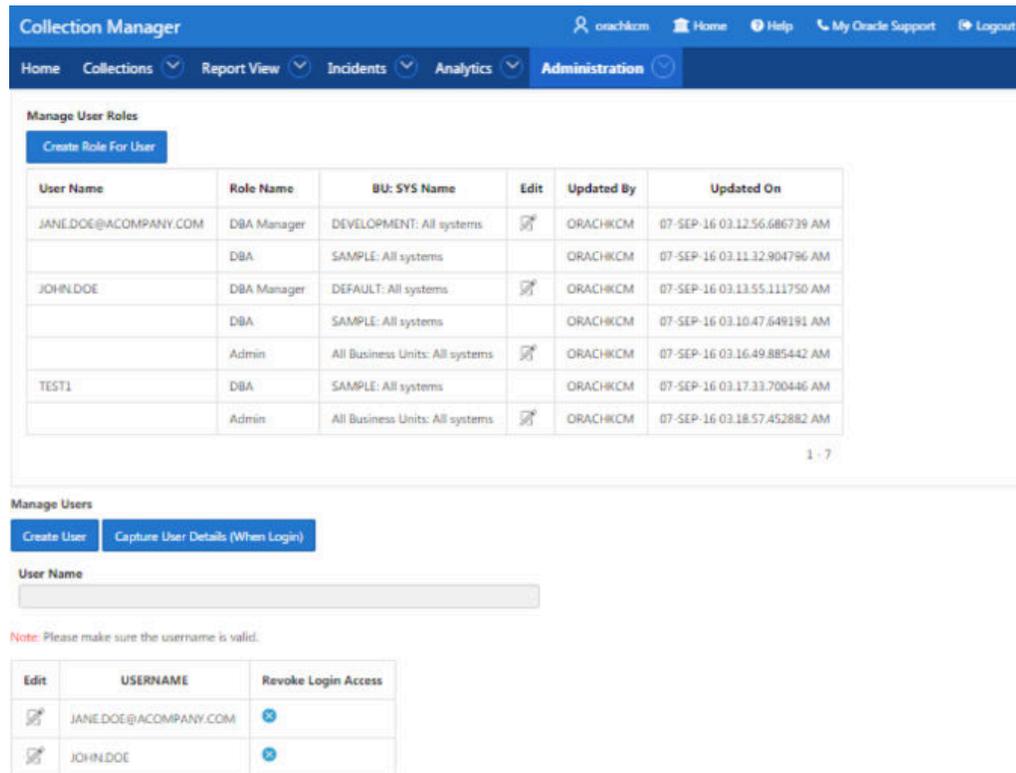
The DBA Managers see an Administration menu at the upper-right corner of the application.

Figure 1-58 Oracle Health Check Collections Manager - DBA Manager Administration



Click **Users and Roles**.

Figure 1-59 Oracle Health Check Collections Manager - DBA Manager - Manage User Roles



The DBA Manager can edit user roles, or assign systems to other users in the DBA Manager BU. The scope of a DBA Manager is an entire BU, or multiple BUs.

Following are the DBA manager privileges:

- Assign DBAs to BUs the manager manages
- Assign DBAs to one or more systems
- Ignore any check on a collection, BU, or system
- Create incidents for any system
- Assign incidents to DBAs that manage the systems in their BUs
- Manage any incidents for systems within their assigned BUs

DBA

Any user who is granted the DBA role.

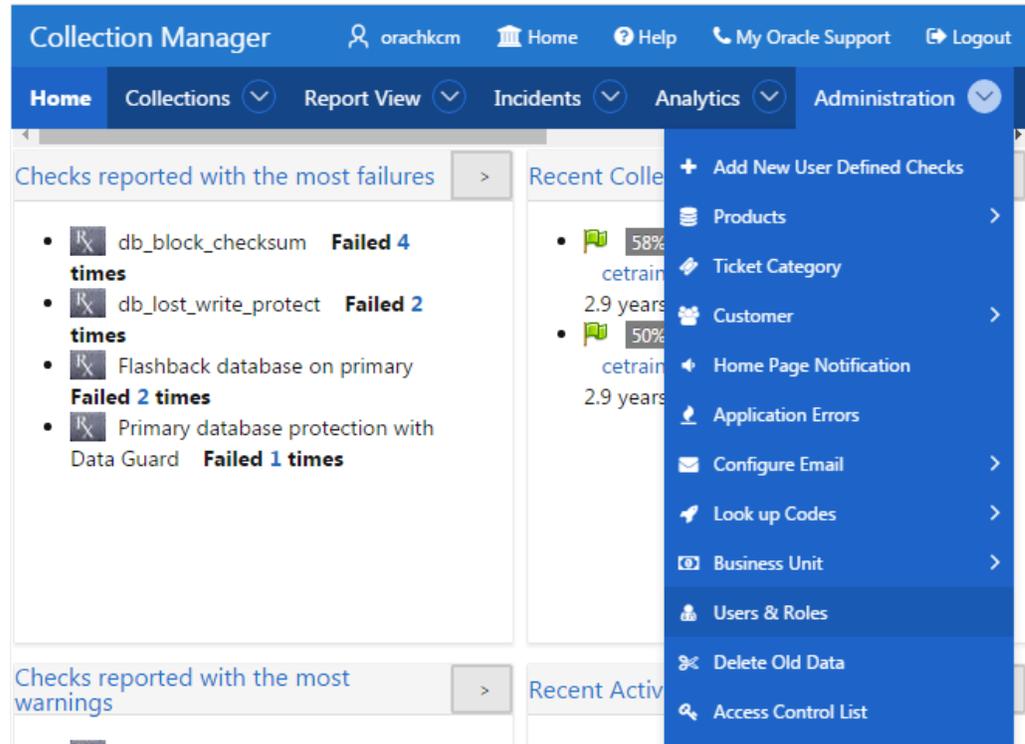
Log in to Oracle Health Check Collections Manager Application using a URL as follows:

```
http://hostname:port/apex/f?p=ApplicationID
http://hostname:port/pls/apex/f?p=ApplicationID)
```

The DBA must see the Administration menu at the upper-right corner of the application.

Any end user who is granted administrator role by the workspace administrator has administrator privileges within the Oracle Health Check Collections Manager application.

Figure 1-60 Oracle Health Check Collections Manager - DBA Manager Administration



Click **Users and Roles**.

DBA has read-only access.

Figure 1-61 Oracle Health Check Collections Manager - DBA Manager - Manage User Roles

Manage User Roles

Create Role For User

User Name	Role Name	BU: SYS Name	Edit	Updated By	Updated On
JANE.DOE@ACOMPANY.COM	DBA Manager	DEVELOPMENT: All systems		ORACHKCM	07-SEP-16 03:12:56.686739 AM
	DBA	SAMPLE: All systems		ORACHKCM	07-SEP-16 03:11:32.904796 AM
JOHN.DOE	DBA Manager	DEFAULT: All systems		ORACHKCM	07-SEP-16 03:13:55.111750 AM
	DBA	SAMPLE: All systems		ORACHKCM	07-SEP-16 03:10:47.649191 AM
	Admin	All Business Units: All systems		ORACHKCM	07-SEP-16 03:16:49.885442 AM
TEST1	DBA	SAMPLE: All systems		ORACHKCM	07-SEP-16 03:17:33.700446 AM
	Admin	All Business Units: All systems		ORACHKCM	07-SEP-16 03:18:57.452882 AM

1 - 7

Manage Users

Create User Capture User Details (When Login)

User Name

Note: Please make sure the username is valid.

Edit	USERNAME	Revoke Login Access
	JANE.DOE@ACOMPANY.COM	
	JOHN.DOE	

Following are the DBA privileges:

- Cannot manage Access Control List
- Manage systems within one or more BUs, if the DBA Managers of those BUs assign them
- Ignore any check on a collection or system they manage
- Manage any incidents assigned to them

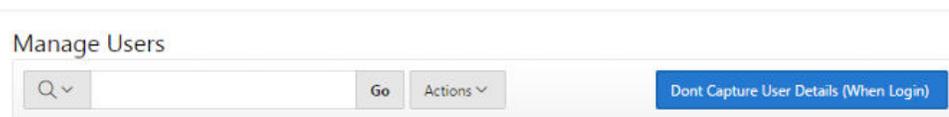
1.9.5.4 Selectively Capturing Users During Login

By default, Oracle Health Check Collections Manager captures details of the users logging in using LDAP authentication, and assigns them DBA role.

However, you can disable automatic capture and re-enable anytime later. If you disable, then you must manually create users and assign them roles.

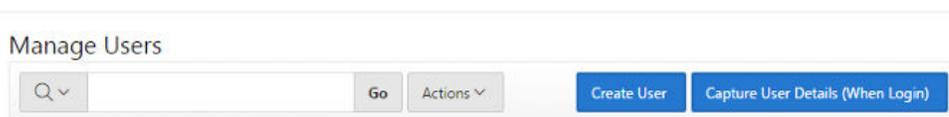
1. Click **Administration**, and then select **Users and Roles**.
2. To disable automatic capture of users details, click **Don't Capture User Details (When Login)**.

Figure 1-62 Don't Capture User Details (When Login)



3. To re-enable automatic capture of user details, click **Capture User Details (When Login)**.

Figure 1-63 Capture User Details (When Login)



1.9.5.5 Configuring Email Notification System

The Oracle Health Check Collections Manager Application provides an email notification system that users can subscribe to.

The setup involves:

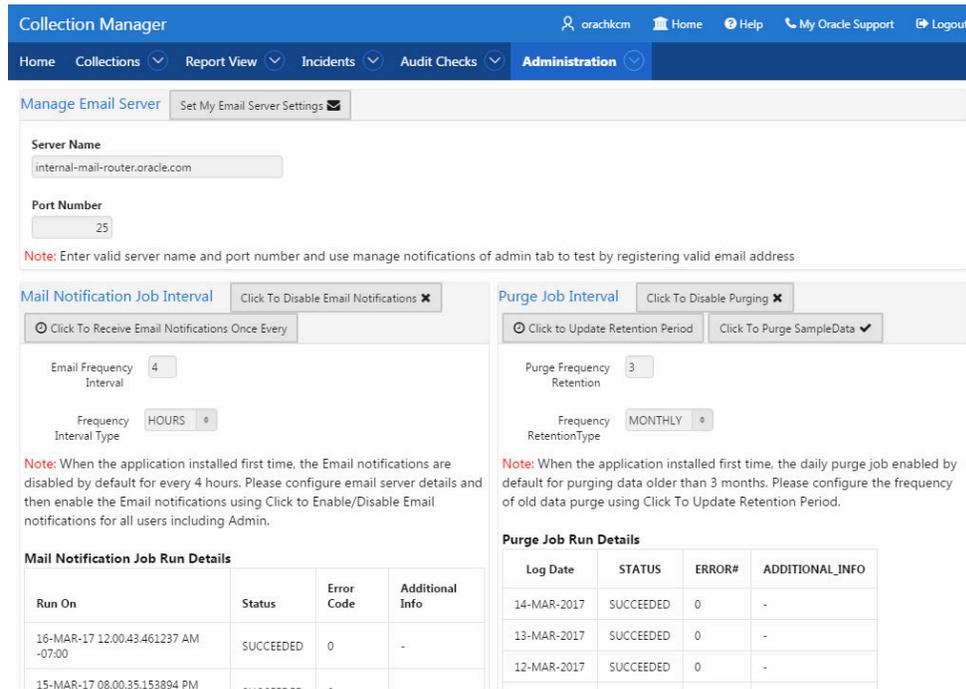
- Configuring the email server, port, and the frequency of email notifications.
- Registering the email address

 **Note:**

Only the administrators have the privilege to manage **Email Notification Server and Job details**.

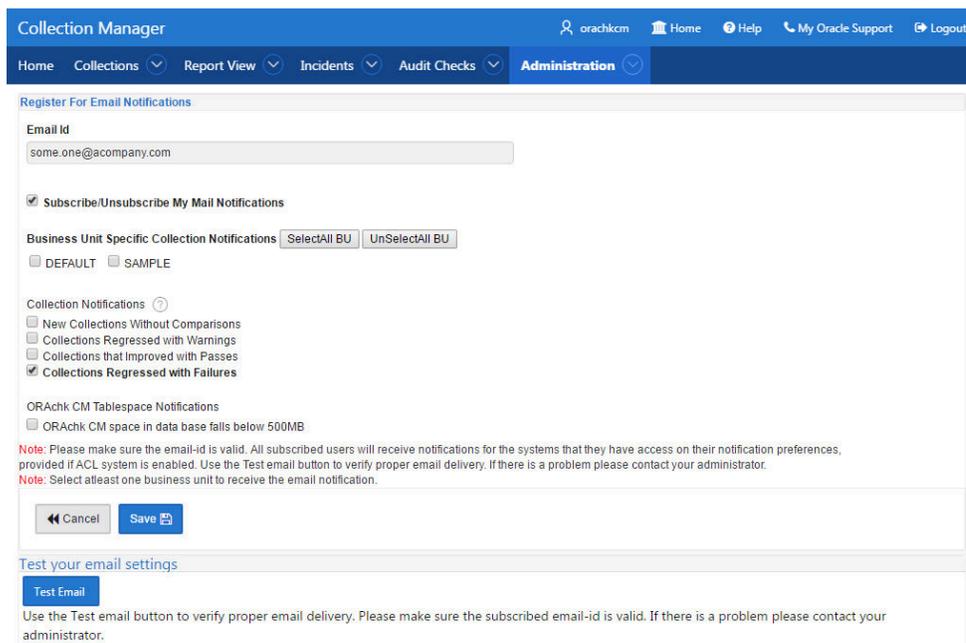
1. Log in to Oracle Health Check Collections Manager, and then click **Administration > Configure Email > Configure Email Server/Notification/Purge** tab.

Figure 1-64 Oracle Health Check Collections Manager - Configure Email Server



- a. Specify a valid **Email Server Name**, **Port Number**, and then click **Set My Email Server Settings**.
 - b. Set **Email Notification Frequency** as per your needs.
 See the **Notification Job Run Details** on the same page.
2. Click **Administration > Configure Email > Email Notification Preferences**.

Figure 1-65 Oracle Health Check Collections Manager - Email Notification Preferences



- a. If you are accessing for the first time, then enter your email address. Subsequent access to **Manage Notifications** page shows your email address automatically.
- b. By default, **Subscribe/Unsubscribe My Mail Notifications** is checked. Leave as is.
- c. Under **Business Unit Specific Collection Notifications**, choose the business unit that you want notifications for.
- d. Under **Collection Notifications**, choose the type of collections for which you want to receive notifications.
- e. Select to receive notification when the available space in ORAchK CM tablespace falls below 100 MB.
- f. Validate the notification delivery by clicking **Test** under **Test your email settings**.

If the configuration is correct, you must receive an email. If you do not receive an email, check with your admin.

Following is the sample notification:

```
From: username@domainname.com
Sent: Thursday, January 28, 2016 12:21 PM
To: username@domainname.com
Subject: Test Mail From Collection Manager
```

```
Testing Collection Manager Email Notification System
```

- g. Click **Submit**.



Note:

Manage Notifications section under the Administration menu is available for all users irrespective of the role.

If the ACL system is enabled, then the registered users receive notifications for the systems that they have access to. If the ACL system is not configured, then all registered users receive all notifications.

Depending on the selections, you made under **Collection Notifications** section, you receive an email with Subject: Collection Manager Notifications containing application URL with results.

Figure 1-66 Oracle Health Check Collections Manager - Sample Email Notification

From: username@domainname.com [mailto:username@domainname.com]					
Sent: Wednesday, February 03, 2016 1:24 AM					
To: username@domainname.com					
Subject: Collection Manager Notifications					
Found Diff for the following collections					
BU Name	System Name	Previous Collection	Current Collection	Collection DifferenceType	Comments
DEFAULT	cloud00290036	orachk_cloud0029_SOLTEN_010416_060310	orachk_cloud0029_SOLTEN_010416_072847	Collections Regressed with Failures	Click here for details
DEFAULT	cloud00290036	orachk_cloud0029_SOLTEN_123015_074624	orachk_cloud0029_SOLTEN_010416_060310	Collections Regressed with Failures	Click here for details
DEFAULT	cloud00290036	orachk_cloud0029_SOLTEN_123015_062009	orachk_cloud0029_SOLTEN_123015_074624	Collections Regressed with Warnings	Click here for details
DEFAULT	cloud00290036	orachk_cloud0029_SOLTEN_010416_072847	orachk_cloud0029_SOLTEN_010416_126702	Collections Regressed with Warnings	Click here for details

Under **Comments** column, click the **Click here** links for details. Click the respective URLs, authenticate, and then view respective comparison report.

Figure 1-67 Oracle Health Check Collections Manager - Sample Diff Report

The screenshot displays the Oracle Health Check Collections Manager interface. The main heading is "Health Checks Baseline Comparison Report". Below this, there are two sections: "Collections Details" and "Checks Matched".

Collections Details:

Collection1 Details	Collection2 Details
Collection Date: 31-AUG-16 05:46:11.000000 PM	Collection Date: 31-AUG-16 05:46:11.000000 PM
Collection Name: orachk_myserver30_083116_173902	Collection Name: orachk_myserver30_083116_173902
Crs Home - Version: /u01/app/12.1.0/grid - 12.1.0.2.0	Crs Home - Version: /u01/app/12.1.0/grid - 12.1.0.2.0
Database Servers: myserver30, myserver29, myserver31, myserver32	Database Servers: myserver30, myserver29, myserver31, myserver32
Tool Version: 12.1.0.2.7_20160526	Tool Version: 12.1.0.2.7_20160526
Current User: root	Current User: root
Profiles: sysadmin	Profiles: sysadmin

Checks Matched:

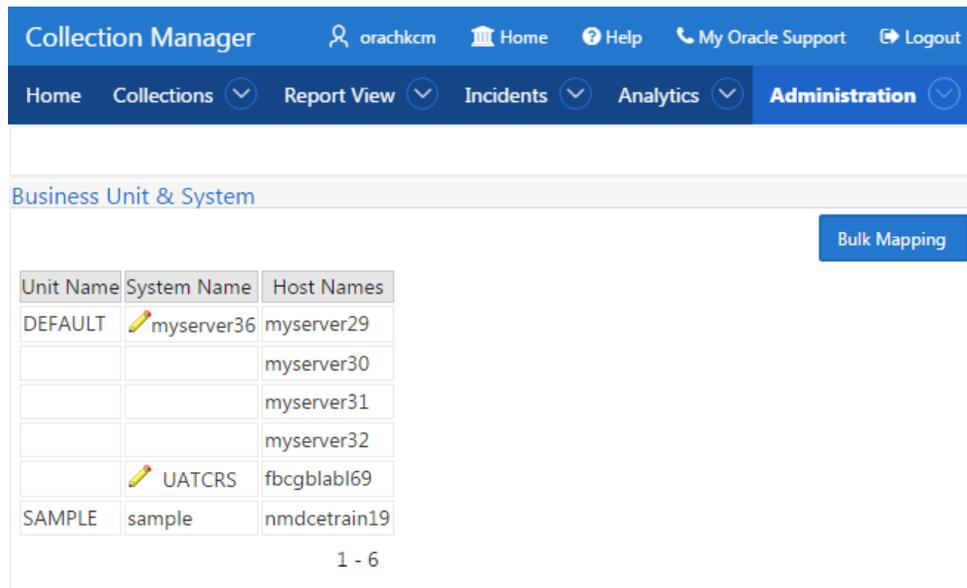
Check Name	Status	StatusMsg	Host Name	DB Name	Instname
Bash vulnerability CVE-2014-6271	PASS	Bash is not vulnerable to code injection (CVE-2014-6271)	myserver32		NA
Bash vulnerability CVE-2014-6271	PASS	Bash is not vulnerable to code injection (CVE-2014-6271)	myserver30		NA
Bash vulnerability CVE-2014-6271	PASS	Bash is not vulnerable to code injection (CVE-2014-6271)	myserver29		NA
Bash vulnerability CVE-2014-6271	PASS	Bash is not vulnerable to code injection (CVE-2014-6271)	myserver31		NA
Physical Memory	WARNING	physical memory is not sufficient on system	myserver29		NA
Physical Memory	WARNING	physical memory is not sufficient on system	myserver32		NA
Physical Memory	VIA REMEDIATION	physical memory is not sufficient on system	myserver30		NA

1.9.5.6 Bulk Mapping Systems to Business Units

If you have many systems, then you can quickly map those systems to business units in Oracle Health Check Collections Manager using an XML bulk upload.

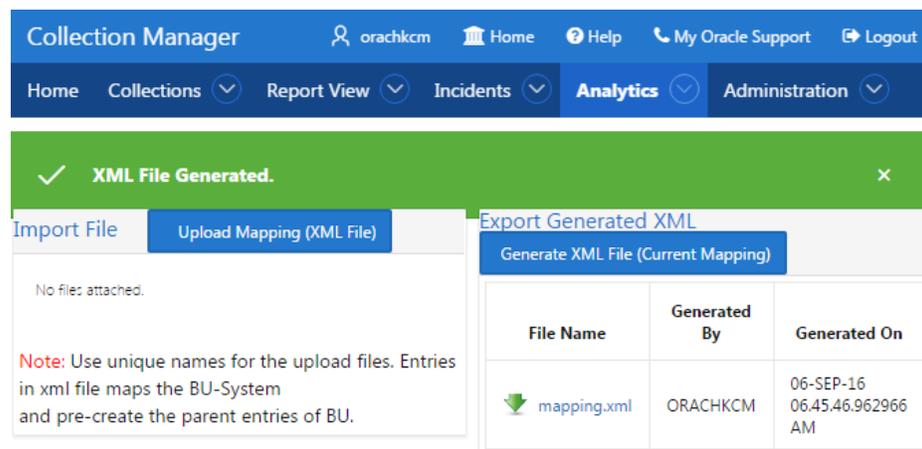
1. Click **Administration > Business Unit > Assign System to BU**.
2. Click **Bulk Mapping**.

Figure 1-68 Bulk Mapping



3. Upload a mapping XML.
 - a. Click **Generate XML File (Current Mapping)**.
 - b. Download the resulting XML file that contains your current system to business unit mappings.

Figure 1-69 Upload a mapping XML



- c. Amend the XML to show mappings that you want.
 - d. Upload new Mapping XML through **Upload Mapping (XML File)**.

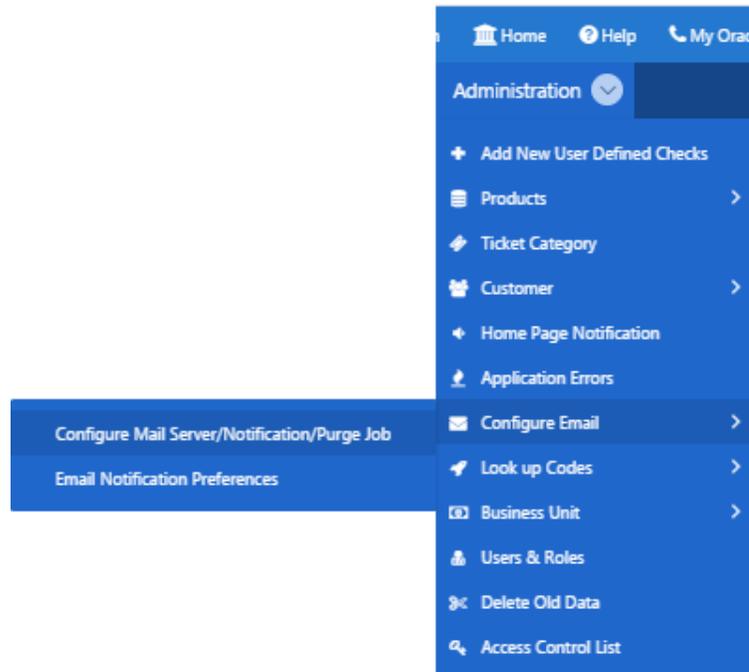
1.9.5.7 Purging Old Collections

By default, Oracle Health Check Collections Manager runs a purge job daily, removing data older than three months.

To adjust or disable the collection purging frequency:

1. Click **Administration > Configure Email > Configure Mail Server/Notification/Purge Job**.

Figure 1-70 Manage Email Server and Job Details



2. Select an appropriate option:
 - Change the frequency of purges by setting different values in **Purge Frequency** , and then click **Click To Purge Every**.
 - To disable purging, click **Click To Disable Purging**.
 - To re-enable purging, click **Click To Enable Purging**.

Figure 1-71 Oracle Health Check Collections Manager - Configure Purging

The screenshot shows the 'Administration' tab in the Oracle Health Check Collections Manager. It is divided into two main sections: 'Mail Notification Job Interval' and 'Purge Job Interval'.

Mail Notification Job Interval: This section includes a 'Click To Receive Email Notifications Once Every' button. Below it, the 'Email Frequency Interval' is set to 4, and the 'Frequency Interval Type' is set to HOURS. A note states: "When the application installed first time, the Email notifications are disabled by default for every 4 hours. Please configure email server details and then enable the Email notifications using Click to Enable/Disable Email notifications for all users including Admin."

Purge Job Interval: This section includes a 'Click To Update Retention Period' button and a 'Click To Purge SampleData' button. Below it, the 'Purge Frequency Retention' is set to 3, and the 'Frequency RetentionType' is set to MONTHLY. A note states: "When the application installed first time, the daily purge job enabled by default for purging data older than 3 months. Please configure the frequency of old data purge using Click To Update Retention Period."

Both sections include a 'Run Details' table. The 'Mail Notification Job Run Details' table has columns for Run On, Status, Error Code, and Additional Info. The 'Purge Job Run Details' table has columns for Log Date, STATUS, ERROR#, and ADDITIONAL_INFO.

Run On	Status	Error Code	Additional Info
16-MAR-17 12:00:43.461237 AM -07:00	SUCCEEDED	0	-
15-MAR-17 08:00:35.153894 PM	-	-

Log Date	STATUS	ERROR#	ADDITIONAL_INFO
14-MAR-2017	SUCCEEDED	0	-
13-MAR-2017	SUCCEEDED	0	-
12-MAR-2017	SUCCEEDED	0	-

1.9.6 Oracle Health Check Collections Manager Application Features

Familiarize yourself with the features of Oracle Health Check Collections Manager Application.

- **Global Select Lists** (page 1-123)
Oracle Health Check Collections Manager Application provides an option to display data based on the select lists like Business Units, Systems, and Data for last periods of time.
- **Home Tab** (page 1-123)
Displays systems and their statuses, and recent activities of all users who has permission to access the application.
- **Collections Tab** (page 1-124)
Displays incidence information for each collection, and collection score for failed, warning, and failed checks.
- **Collections > Browse Sub Tab** (page 1-126)
Enables you to list individual checks based on filters set.
- **Collections > Compare Sub Tab** (page 1-127)
Compare tab enables you to compare audit check results and patch results.
- **Report View Tab** (page 1-129)
Provides a graphical representation of database checks, instance checks, home path checks, and system health checks.

- [Upload Collections Sub Tab](#) (page 1-130)
Provides an interface to manually upload a collection into Oracle Health Check Collections Manager Application and provides a list of uploaded collections and file details.
- [Tracking Support Incidents](#) (page 1-131)
The **Incidents** tab gives you a complete system for tracking support incidents.
- [Authoring User-Defined Checks](#) (page 1-133)
User-defined checks are checks written, tested, verified, and maintained by you that are specific to your environment.

1.9.6.1 Global Select Lists

Oracle Health Check Collections Manager Application provides an option to display data based on the select lists like Business Units, Systems, and Data for last periods of time.

All these select lists are global within the application and options available on starting of each tab.

- Business Unit
- System
- Data interval

1.9.6.2 Home Tab

Displays systems and their statuses, and recent activities of all users who has permission to access the application.

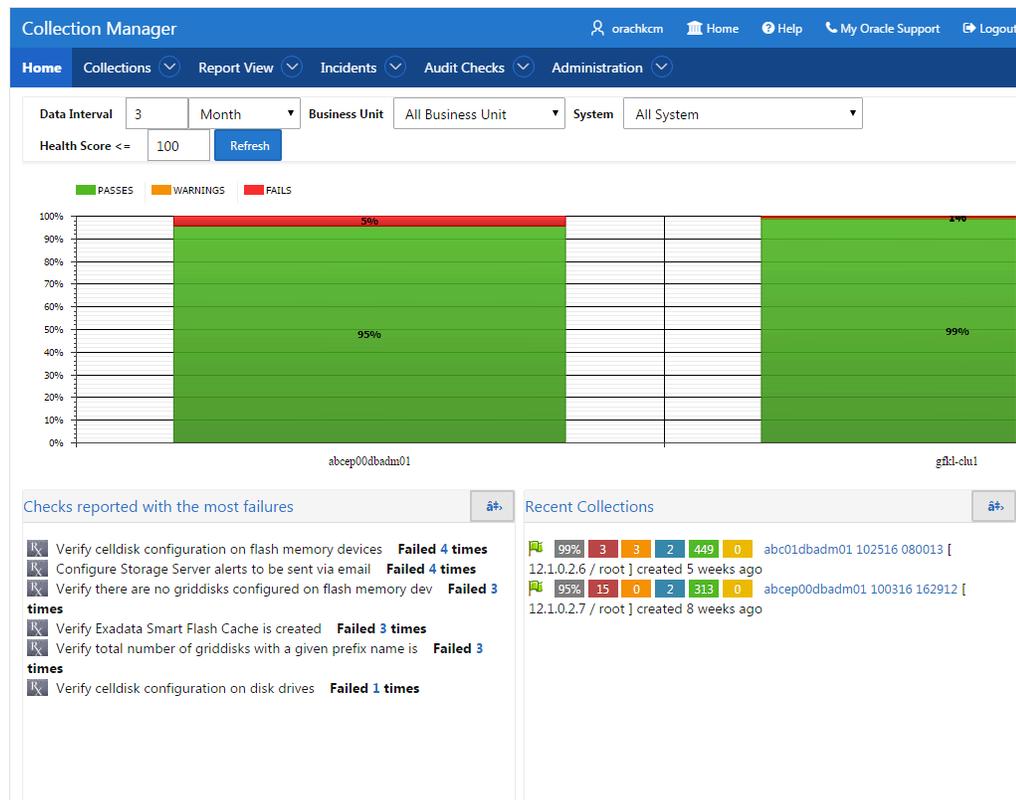
- Displays systems and their statuses in graphs with color coded green, orange, and red based on check results (passed, warning, and failed).
- The **Home** tab provides an option to display the data based on select lists like Business Units and Data for last periods of time. There is also an option to filter the most failed/warned checks and recent collections based on system name.
- The **Most Failed Checks** region displays information for the most frequently failed checks for all collections for the time period, Business Unit, or System selected, and displays the check name, fail count. There is a similar region for most warned checks.
- The **Recent Collections** region displays brief information about recently uploaded collections based on time frame, Overall score with Fail, Warning, and Pass counts and a Status flag. Recent collections are automatically compared to the last collection from the same system, whenever it occurred, if there is one.

Status Flags are color-coded green, orange, or red based on the comparison between the recent collection and the last collection, if any.

- GREEN: There is no difference at all between the two collections or one or more findings from the last collection improved from WARNING or FAIL to PASS or there was no earlier collection to compare with.
- ORANGE: There were one or more regressions between the last collection and the most recent on a given system. In other words some findings transitioned in a negative way, for example, PASS to WARNING.

- RED: There were one or more regressions between the last collection and the most recent on a given system. In other words some findings transitioned in a negative way, for example, PASS to FAIL.
- Recent Activity in **User Range** shows recent activities by all users across all collections specific to the access role granted the user.
 - DBA role users can see everything that happens in the systems assigned to them.
 - DBA Manager role users can see everything within their Business Unit and the systems assigned to them.
 - Admin role user can see everything when there is a collection data uploaded in to the application.

Figure 1-72 Home Tab



1.9.6.3 Collections Tab

Displays incidence information for each collection, and collection score for failed, warning, and failed checks.

- Displays all collections and allows you to filter the list of collections based on Business units and System. You can also filter based on Status flag. The list is also inherently filtered to those collections the user has access to, based on their assigned role.

- Displays incident information for each collection indicated by Delta (Δ) color coded red, blue, and green based on ticket status. Click the delta symbol to raise a new ticket or alter the ticket for an entire collection.
 - **RED (No Incident ticket exists):** Click to create a new incident ticket for the collection or individual checks.
 - **BLUE (An open Incident ticket exists):** Click to open the incident ticket for editing.
 - **GREEN (A closed Incident ticket exists):** Click opens the closed incident ticket for viewing.
- Collection Score is calculated based on failed, warning, and passed checks.

If a user raised a ticket for the collection, resolved the issues and the ticket is closed signifying the issues have all been resolved, then Oracle Health Check Collections Manager changes the collection score to 100%.

If a user raised a ticket for an individual check and if it is closed signifying that the finding has been resolved, then Oracle Health Check Collections Manager changes the status of the check as PASS and recalculates the collection score.

Collection Score is derived using following formula.

 - Every check has 10 points.
 - Failure deducts 10 points.
 - Warning deducts 5 points.
 - Info deducts 3 points.
- A **More Info** link next to a collection indicates that the collection was manually uploaded into the application.
- Click the linked collection name in the list to load the collection in the **Browse** tab.

Figure 1-73 Collections Tab

Collection Date	Incident	Collection Name	Profiles	Alert Flag	Score	Fail#	Warning#	Info#	Pass#	Ignore#	BU/SYS Info	Version / Use
31-AUG-2016 17:46:11	Δ	myserver30 083116 173902	sysadmin	Δ	99	0	36	0	21	0	DEFAULT: rws12700290036	12.1.0.2.7_20160 / root
14-AUG-2016 02:04:57	Δ	myserver69 WPL8SUA 081416 020003	All	Δ	84	41	67	48	40	0	DEFAULT: UATCRS	2.2.4_20140228 oracle
27-SEP-2013 16:39:19	Δ	myserver19 sidb 092713 163750	All	Δ	58	4	4	1	6	0	SAMPLE: sample	NA
19-SEP-2013 15:17:11	Δ	myserver19 sidb 091913 151355	All	Δ	50	5	5	0	5	0	SAMPLE: sample	NA

1.9.6.4 Collections > Browse Sub Tab

Enables you to list individual checks based on filters set.

- Set filters once the list of checks is created.
- Create and alter incident tickets for individual audit check findings similar to as described in the **Collections** tab.
- Select checks to ignore and to undo previously ignored checks. Select the check box beside the audit check and click **Ignore Selected**. Oracle Health Check Collections Manager marks them as **FAIL-IGNORED**, indicating that the check had failed but is ignored.

Oracle Health Check Collections Manager ignores the checks for the entire level based on the level selected for ignoring.

To ignore selected failed checks, you must choose the ignore type from the following list:

- Ignore from collection
- Ignore from system
- Ignore from a business unit
- Ignore from all business units

 **Note:**

The domain for ignoring checks is within the role assigned to the user.

All ignored checks are listed under the **Ignored Checks** tab. If needed, undo ignore.

To undo the selected Ignored checks, consider the type from the following list:

- Undo ignore from collection
- Undo ignore from system
- Undo ignore from business unit
- Undo ignore from all business units

 **Note:**

The domain for undoing ignored checks is within the role assigned to the user.

Figure 1-74 Browse Sub Tab

The screenshot displays the Oracle Health Check Collections Manager interface. At the top, there is a navigation bar with 'Home', 'Collections', 'Report View', 'Incidents', 'Analytics', and 'Administration'. Below the navigation bar, there are filters for 'Data Interval' (set to 1), 'Month', 'Business Unit' (set to All Business Unit), and 'System' (set to All System). A 'Refresh' button is located to the right of the system filter. Below the filters, there are sections for 'Collection Details' and 'Patch Results'. The 'Audit checks' section shows a table with the following data:

Check Name	Status	Status Message	Actual Values	Hostname	Instance Name	DB Name
ORACLE_PATCH 12880299 (security alert)	FAIL	Your Configuration is NOT in Compliance with Oracle Security Alert for CVE-2012-1675 /oracle/product/10.2.0/db_1	View	gblab169	NA	WPLBSUA
Verify operating system hugepages count satisfies total SGA requirements	FAIL	Operating system hugepages count does not satisfy total SGA requirements	View	gblab169	NA	WPLBSUA
Verify AUD\$ and FGA_LOG\$ tables use Automatic Segment Space Management	FAIL	Table AUD\$(FGA_LOG\$) should use Automatic Segment Space Management for CILBSUA	View	gblab169	NA	CILBSUA
Verify AUD\$ and FGA_LOG\$ tables use Automatic Segment Space Management	FAIL	Table AUD\$(FGA_LOG\$) should use Automatic Segment Space Management for CSLBSUA	View	gblab169	NA	CSLBSUA
Verify AUD\$ and FGA_LOG\$ tables use Automatic Segment Space Management	FAIL	Table AUD\$(FGA_LOG\$) should use Automatic Segment Space Management for CSLBSUA	View	gblab169	NA	CSLBSUA

1.9.6.5 Collections > Compare Sub Tab

Compare tab enables you to compare audit check results and patch results.

- **Compare Audit check Results**
 - Compare the audit check findings from two different collections based on Business Unit, System, DB Version and Platform. The collections available for comparison are limited to filters set.
 - Compare collections from the same or different systems.
- **Compare Patch Results**
 - Compare installed Oracle patches from two different collections. The comparison displays the difference between the two collections based on patch results.

Figure 1-75 Compare Sub Tab - Audit Checks Diff

The screenshot displays the 'Compare' sub-tab in the Oracle Health Check Collections Manager. The main content area is titled 'Health Checks Baseline Comparison Report' and shows a comparison between two collections. The 'Checks Matched' section contains a table with the following data:

Check Name	Status	StatusMsg	Host Name	DB Name	Instname
Bash vulnerability CVE-2014-6271	PASS	Bash is not vulnerable to code injection (CVE-2014-6271)	myserver32		NA
Bash vulnerability CVE-2014-6271	PASS	Bash is not vulnerable to code injection (CVE-2014-6271)	myserver30		NA
Bash vulnerability CVE-2014-6271	PASS	Bash is not vulnerable to code injection (CVE-2014-6271)	myserver29		NA
Bash vulnerability CVE-2014-6271	PASS	Bash is not vulnerable to code injection (CVE-2014-6271)	myserver31		NA
Physical Memory	WARNING	physical memory is not sufficient on system	myserver29		NA

Figure 1-76 Compare Sub Tab - Patch Results Diff

The screenshot displays the 'Patch Results Diff' sub-tab in the Oracle Health Check Collections Manager. The main content area shows a comparison between two collections. The 'Matched Homes & Status' section contains a table with the following data:

Note: Row highlighted with blue color tells, patch is recommended but not installed in one of the collections.

Host Name	Home Type	Home Path	Version	Patch#	Rec1	Applied On 1	Rec2	Applied On 2	Description
		/oracle/product/10.2.0/db_1	102040	12879929	YES	NO	YES	NO	DATABASE PATCH SET UPDATE 10.2.0.4.11 (PRE-REQ 10.2.0.4.4)(INCLUDE CPUJAN2012)
			102040	12419397	NO	YES	NO	YES	Patch 12419397 applied on Thu N 10 18:17:29 GMT 2011
			102040	9352164	YES	YES	YES	YES	DATABASE PSU 10.2.0.4.4 (INCLUDES CPUAPR2010)
			102040	7660028	YES	NO	YES	NO	MERGE REQUEST ON TOP OF 10.2.0.4.3 FOR BU 7523755 7660028
			102040	7111619	NO	YES	NO	YES	Patch 7111619 applied on Thu N 10 18:10:50 GMT

Note:

Row highlighted indicates that a patch is recommended, but it is not installed in either of the collections.

1.9.6.6 Report View Tab

Provides a graphical representation of database checks, instance checks, home path checks, and system health checks.

- Provides a printable view option to print the graphical summary of system collection
- Displays separate graphical summary view for database checks, instance checks, and home path checks breakup based on check type and check status in collection
- Displays system health check details based on status and check type in collection

Figure 1-77 Report View Tab - Summary

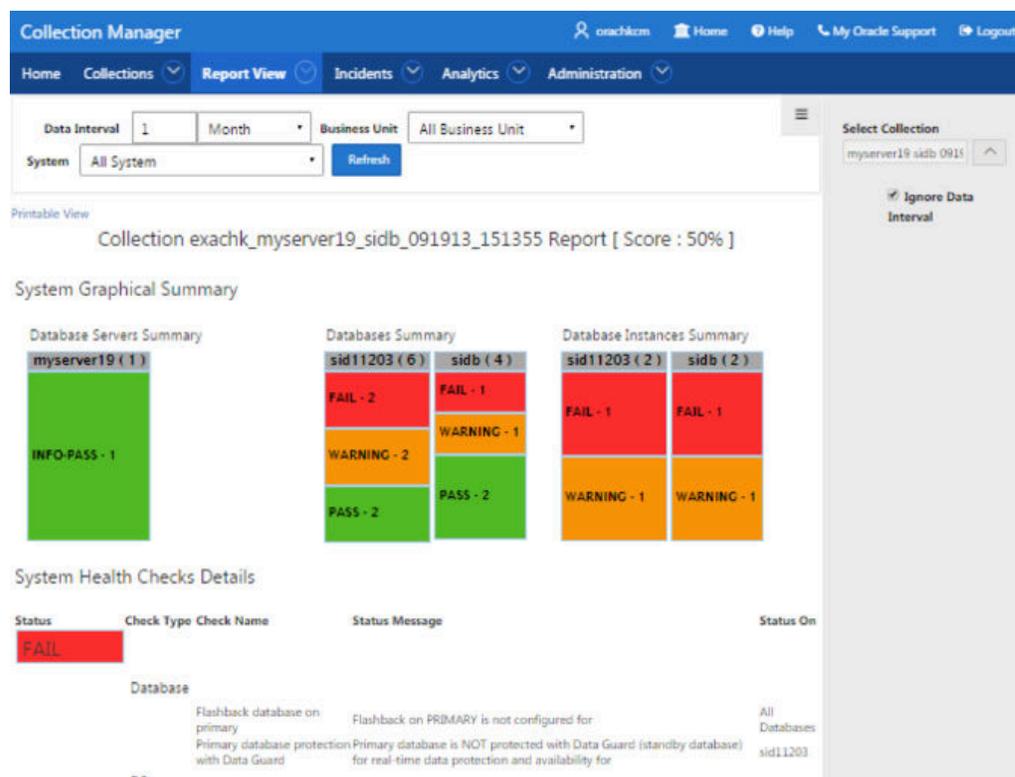


Figure 1-78 Report View Tab - Details

Status	Check Type	Check Name	Status Message	Status On
FAIL				
	Database	Flashback database on primary	Flashback on PRIMARY is not configured for	All Databases
		Primary database protection with Data Guard	Primary database is NOT protected with Data Guard (standby database) for real-time data protection and availability for	sid11203
	DB Instance	db_block_checksum	Database parameter DB_BLOCK_CHECKSUM is NOT set to recommended value on sid11203 instance	sid11203
		db_block_checksum	Database parameter DB_BLOCK_CHECKSUM is NOT set to recommended value on sidb instance	sidb
WARNING				

1.9.6.7 Upload Collections Sub Tab

Provides an interface to manually upload a collection into Oracle Health Check Collections Manager Application and provides a list of uploaded collections and file details.

These manually uploaded collections are unzipped and their data imported into the framework as if they had been uploaded at runtime when the tool was run. Therefore, even if the tool is not configured for automatic upload into the Oracle Health Check Collections Manager Application, you can always upload collections manually.



Note:

Using a combination of tables and environment variables, you can automate the process of uploading collections into the database hosting the Oracle Health Check Collections Manager Application at runtime.

Figure 1-79 Upload Collections Sub Tab

Collection Name	Status	HTML Report	Uploaded On	Uploaded By	BU/SYS Info	Log
orachk_myserver69_083116_221205.zip	Failed		31-aug-16 22:12:50	ORACHKCM		Log
orachk_myserver30_083116_173902.zip	Processed		31-aug-16 11:42:02	ORACHKCM	DEFAULT: myserver290036	Log
orachk_myserver69_WPLBSUA_081416_020003.zip	Processed		31-aug-16 09:27:05	ORACHKCM	DEFAULT: UATCRS	Log
orachk_myserver6572rcv1_083016_075820.zip	Failed		30-aug-16 04:58:52	ORACHKCM		Log
exachk_myserveradm01_sing11g_090616_223054.zip	Processed	View	06-sep-16 22:34:01	ORACHKCM	DEFAULT: busm0101-clu1	Log
orachk_090216_152201.zip	Processed	View	02-sep-16 15:24:51	ORACHKCM		Log
orachk_090116_214723.zip	Processed	View	01-sep-16 21:50:43	ORACHKCM		Log

1.9.6.8 Tracking Support Incidents

The **Incidents** tab gives you a complete system for tracking support incidents.

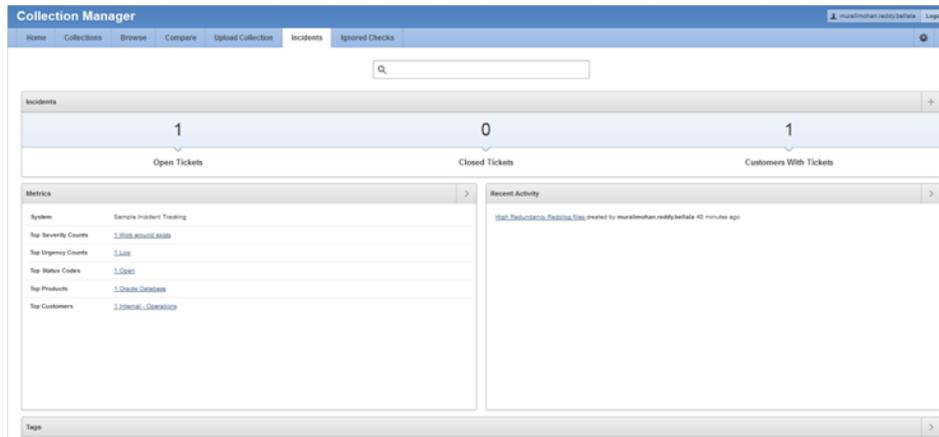
- Specify contact details of each customer, products and categories, and then set up values to limit status codes, severity, and urgency attributes for an incident
- Raise a new ticket by clicking the Delta (Δ) symbol. Oracle Health Check Collections Manager displays the delta symbol only in the **Collections** and **Browse** tabs
- The **Browse** tab enables you to create a new ticket on individual checks
- The **Collections** tab enables you to create a single ticket for entire the collection
- Delta (Δ) symbol is color coded red, blue, and green based on the ticket status
 - **RED (No Incident ticket exists):** Initiates the process to create a new incident ticket for the collection or individual checks
 - **BLUE (An open Incident ticket exists):** Opens the incident ticket for editing
 - **GREEN (A closed Incident ticket exists):** Opens the closed incident ticket for viewing
- Track the progress of the ticket in an update area of the ticket, or add attachments and links to the incident
- Use tags to classify incidents and use the resulting tag cloud in your reports
- Incident access and management happen only within your access control range



Note:

Incident Tracking feature is a basic stand-alone system and it is not designed for integration with other commercial enterprise-level trouble ticketing systems.

Figure 1-80 Incidents Tab



Incident Tracking Features

- Search options
- Track and analyze incident tickets
- Flexible and updateable incident status
- Robust reporting
- Link, Note, and File Attachments
- Flexible Access Control (reader, contributor, administrator model)
- [Incidents Tab](#) (page 1-132)
Create or edit incident tickets for individual checks or for an entire collection.

Related Topics

- [Creating or Editing Incidents Tickets](#) (page 1-182)

1.9.6.8.1 Incidents Tab

Create or edit incident tickets for individual checks or for an entire collection.

The statuses of each ticket is represented by icons with different colors. You can act upon by clicking those icons.

- [Creating Incident Tickets](#) (page 1-133)
Follow these procedures to create incident tickets.
- [Editing Incident Tickets](#) (page 1-133)
Follow these procedures to edit incident tickets.

1.9.6.8.1.1 Creating Incident Tickets

Follow these procedures to create incident tickets.

1. Click the **Delta (Δ)** symbol colored RED.
2. Add your ticket details.
3. Click **Next**.
4. Select the **Product** and **Product Version**.
5. Click **Next**.
6. Select the **Urgency** of the ticket.
7. Select the **Severity** of the ticket.
8. Select the **Status** of the ticket.
9. Select the **Category** of the ticket.
10. Enter a summary and description of the incident.
11. Click **Create Ticket**.

1.9.6.8.1.2 Editing Incident Tickets

Follow these procedures to edit incident tickets.

1. Click the **Incident** tab.
2. Click **Open Tickets**.
3. Click the ticket.
4. Click **Edit Ticket**.
5. Alter required details, click **Apply Changes**.

 **Note:**

Click the delta symbol colored GREEN in the **Collections** or **Browse** tabs to edit incident tickets.

1.9.6.9 Authoring User-Defined Checks

User-defined checks are checks written, tested, verified, and maintained by you that are specific to your environment.

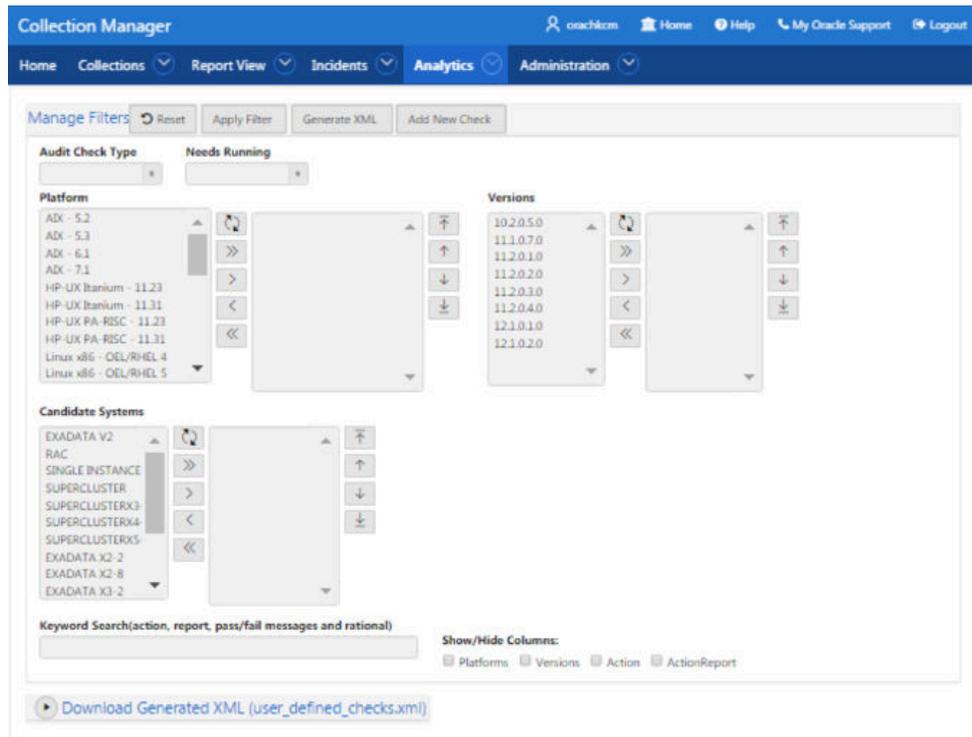
Oracle supports the framework for creating and running user-defined checks, but not the logic of the checks. It is your responsibility to test, verify, author, maintain, and support these checks. The checks are run at runtime by the Oracle ORAchk and Oracle EXAchk script. Oracle ORAchk and Oracle EXAchk display the results of the user-defined checks in the **User Defined Checks** section of the HTML report.

The user-defined checks are stored in the Oracle Health Check Collections Manager schema and output to an XML file, which is co-located with the ORAchk script. When ORAchk 12.1.0.2.5 and later run on your system, the tool checks for the presence of

this XML file. If the tool finds one, then by default the tool runs the checks contained therein. After running, the tool includes the results in the standard HTML report.

1. Click **Analytics > User Defined Checks** (or alternatively, **Administration > Add New User Defined Checks** to skip to step 3).

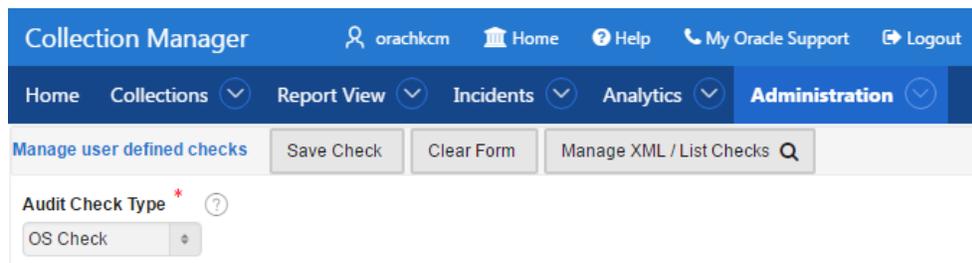
Figure 1-81 User Defined Checks



2. Select **Add New Check**.
3. Select **OS Check** or **SQL Check** as **Audit Check Type**.

This choice decides how your check logic is coded. Operation System checks use a system command to determine the check status. SQL checks run an SQL statement to determine the check status.

Figure 1-82 User Defined Checks Tab - Audit Check Type



Once you have selected an Audit Check Type, Oracle Health Check Collections Manager updates the applicable fields.

Any time during authoring, click the question mark next to a field to see help documentation specific to that field.

OS and SQL commands are supported. Running user defined checks as root is NOT supported.

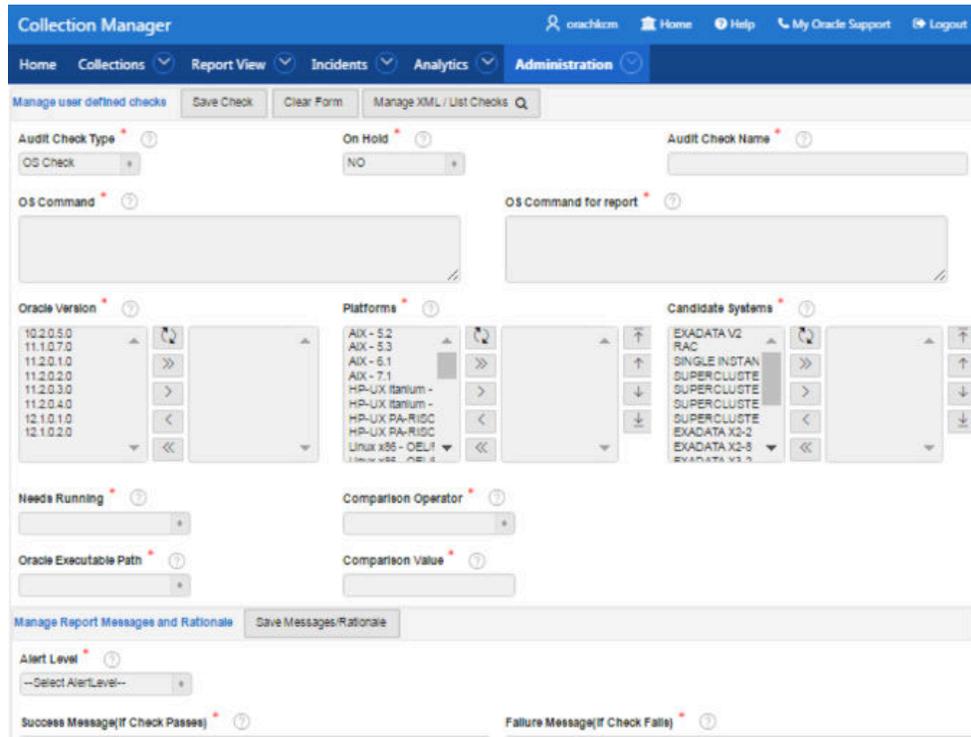
Figure 1-83 User Defined Checks Tab - Audit Check Type - OS Check

The screenshot shows the 'User Defined Checks' configuration page in the Oracle Health Check Collections Manager. The page is titled 'Collection Manager' and has a navigation bar with 'Home', 'Collections', 'Report View', 'Incidents', 'Analytics', and 'Administration'. The 'Administration' tab is active, and the 'Manage user defined checks' section is selected. The form includes the following fields and controls:

- Audit Check Type:** A dropdown menu set to 'OS Check'.
- On Hold:** A dropdown menu set to 'NO'.
- Audit Check Name:** An empty text input field.
- OS Command:** A large text area for entering the command to run.
- OS Command for report:** A large text area for entering the command to run for reporting.
- Oracle Version:** A multi-select list with options: 10.2.0.5.0, 11.1.0.7.0, 11.2.0.1.0, 11.2.0.2.0, 11.2.0.3.0, 11.2.0.4.0, 12.1.0.1.0, 12.1.0.2.0.
- Platforms:** A multi-select list with options: AIX - 5.2, AIX - 5.3, AIX - 5.1, AIX - 7.1, HP-UX Itanium - , HP-UX PA-RISC - , HP-UX PA-RISC - , Linux x86 - OEL - .
- Candidate Systems:** A multi-select list with options: EXADATA V2 RAC, SINGLE INSTAN SUPERCLUSTE, SUPERCLUSTE, SUPERCLUSTE, SUPERCLUSTE, EXADATA X2-2, EXADATA X2-5, EXADATA X3-2.
- Needs Running:** A dropdown menu.
- Oracle Executable Path:** A text input field.
- Comparison Operator:** A dropdown menu.
- Comparison Value:** A text input field.
- Alert Level:** A dropdown menu with the text '---Select AlertLevel---
- Success Message (If Check Passes):** A text input field.
- Failure Message (If Check Fails):** A text input field.

Once a check is created, it is listed in the **Available Audit Checks** section. You can create checks and each can be filtered using the filters on this page.

Figure 1-84 User Defined Checks Tab - Available Audit Checks



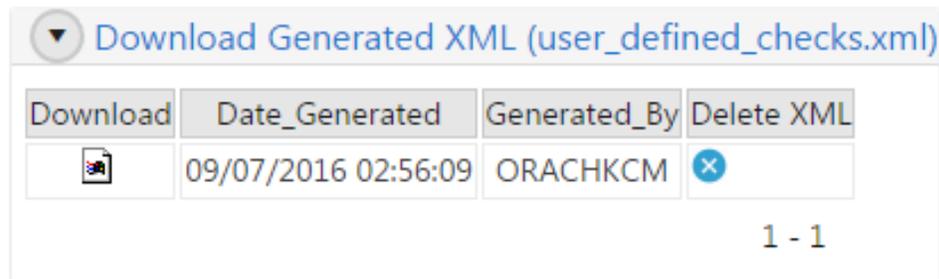
4. Click the **Generate XML**.

On the right, find a link to download the generated `user_defined_checks.xml` file.

All the checks that have been authored and have not been placed on hold are included in the XML file when generated. Placing checks on hold is equivalent to a logical delete. If a problem is discovered with a check or the logic has not been perfected, it can be placed on hold to keep it from being included in the XML file until it is production ready. The hold can be removed to include it in the XML file next time it is generated.

Download the `user_defined_checks.xml` file and save it into the same directory as the Oracle ORAchk and Oracle EXAchk tool. Oracle ORAchk and Oracle EXAchk run the user-defined checks the next time they run.

Figure 1-85 User Defined Checks Tab - Download User Defined Checks



Alternatively, to run only the user-defined checks use the profile `user_defined_checks`. When this option is used, then the user-defined checks are the only checks run. The **User Defined Checks** section is the only one with results displayed in the report.

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

```
./exachk -profile user_defined_checks
```

To omit the user-defined checks at runtime, use the `-excludeprofile` option.

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

```
./exachk -excludeprofile user_defined_checks
```

1.9.7 Uploading Collections Automatically

Use these procedures to configure Oracle ORAchk and Oracle EXAchk to automatically upload check results to the Oracle Health Check Collections Manager database.

To configure Oracle ORAchk and Oracle EXAchk to automatically upload check results, specify the connection string and the password to connect to the database. Oracle Health Check Collections Manager stores the connection details in an encrypted wallet.

Specifying Connection String and Password for Oracle ORAchk and Oracle EXAchk Check Results

Specify the connection details using the `-setdbupload` option. For default options, use `-setdbupload all`.

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

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

Oracle Health Check Collections Manager prompts you to enter the values for the connection string and password. Oracle Health Check Collections Manager stores these values in an encrypted wallet file.

Check Connection String and Password for Oracle ORAchk and Oracle EXAchk Check Results

To see the values set in the wallet, use the `-getdbupload` option.

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

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

Oracle ORAchk and Oracle EXAchk can automatically use the default values set in the `RAT_UPLOAD_USER` and `RAT_ZIP_UPLOAD_TABLE` environment variables.

Verifying Successful Connections to Oracle ORAchk and Oracle EXAchk Database for Check Results

Verify if Oracle ORAchk and Oracle EXAchk make successful connection to the database using the option `-checkdbupload`.

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

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

Example 1-10 Setting Up Database Uploads for Oracle ORAchk and Oracle EXAchk Check Results

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

```
Enter value for RAT_UPLOAD_CONNECT_STRING: (DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)
(HOST=myserver44.acompany.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 fully qualified address as in the example for the connect string. Do not use an alias from the `tnsnames.ora` file. Using the fully qualified address makes it possible to upload files without requiring the `tnsnames.ora` file name resolution is correct on all the servers where you run the tool.

Example 1-11 Reviewing Oracle ORAchk and Oracle EXAchk Database Check Result Uploads

```
$ ./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
```

Example 1-12 Checking Oracle ORAchk and Oracle EXAchk Check Result Uploads

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

Configuration is good to upload result to database.

At the end of health check collection, Oracle ORAchk and Oracle EXAchk check if the required connection details are set (in the wallet or the environment variables). If the connection details are set properly, then Oracle ORAchk and Oracle EXAchk upload the collection results.

To configure many Oracle ORAchk and Oracle EXAchk instances:

1. Create the wallet once with the `-setdbupload all` option, then enter the values when prompted.

2. Copy the resulting wallet directory to each Oracle ORAchk and Oracle EXAchk instance directories.

You can also set the environment variable `RAT_WALLET_LOC` to point to the location of the wallet directory.

Other configurable upload values are:

- `RAT_UPLOAD_USER`: Controls which user to connect as (default is `ORACHKCM`).
- `RAT_UPLOAD_TABLE`: Controls the table name to store non-zipped collection results in (not used by default).
- `RAT_PATCH_UPLOAD_TABLE`: Controls the table name to store non-zipped patch results in (not used by default).
- `RAT_UPLOAD_ORACLE_HOME`: Controls `ORACLE_HOME` used while establishing connection and uploading.

By default, the `ORACLE_HOME` environment variable is set to the Oracle Grid Infrastructure Grid home that Oracle ORAchk and Oracle EXAchk discover.

`RCA13_DOCS`: is not configurable to use Oracle Health Check Collections Manager as this is the table Oracle Health Check Collections Manager looks for.

`RAT_UPLOAD_TABLE` and `RAT_PATCH_UPLOAD_TABLE`: are not used by default because the zipped collection details are stored in `RCA13_DOCS`.

If you are using your own custom application to view collection results, then configure `RAT_UPLOAD_TABLE` and `RAT_PATCH_UPLOAD_TABLE` variable.

You can also set these values in the wallet. For example:

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

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

This prompts you for and set the `RAT_UPLOAD_CONNECT_STRING` and `RAT_UPLOAD_PASSWORD`, then use

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

```
$ ./exachk -setdbupload RAT_PATCH_UPLOAD_TABLE,RAT_PATCH_UPLOAD_TABLE
```

Note:

Alternatively, you can set all values set in the wallet using the environment variables. If you see the values using the environment variable `RAT_UPLOAD_CONNECT_STRING`, then enclose the values in double quotes. For example:

```
export RAT_UPLOAD_CONNECT_STRING="(DESCRIPTION=(ADDRESS=(PROTOCOL=TCP)
(HOST=myserver.example.com)(PORT=1521))(CONNECT_DATA=(SERVER=DEDICATED)
(SERVICE_NAME=mysevice.example.com)))"
```

1.9.8 Viewing and Reattempting Failed Uploads

Configure Oracle ORAchk and Oracle EXAchk to display and reattempt to upload the failed uploads.

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

The following example shows that database upload has been set up, but the last upload was unsuccessful:

```
DATABASE_UPLOAD_SETUP=1
DATABASE_UPLOAD_STATUS=0
```

Oracle ORAchk and Oracle EXAchk -checkfaileduploads

To view failed collections, use the `-checkfaileduploads` option:

```
./orachk -checkfaileduploads

./exachk -checkfaileduploads

$ ./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
```

Oracle ORAchk and Oracle EXAchk -uploadfailed

To reattempt collection upload, use the `-uploadfailed` option:

Specify either all to upload all collections or a comma-delimited list of collections:

```
./orachk -uploadfailed all|list of failed collections

./exachk -uploadfailed all|list of failed collections

./orachk -uploadfailed "/home/oracle/orachk_myserver_042016_232011.zip, /home/
oracle/orachk_myserver_042016_231732.zip"
```



Note:

You cannot upload collections uploaded earlier because of the SQL unique constraint.

1.9.9 Oracle Health Check Collections Manager Application Uninstallation

Anytime you can decommission Oracle Health Check Collections Manager Application setup. Follow these steps sequentially to uninstall the application leaving no residual files.

- [Deleting Oracle Health Check Collections Manager Application](#) (page 1-141)
You need administrative privileges to uninstall Oracle Health Check Collections Manager Application.
- [Deleting Workspace Admin](#) (page 1-141)
You need administrative privileges to delete a workspace. There may exist one or more workspaces so be cautious while deleting workspaces.

1.9.9.1 Deleting Oracle Health Check Collections Manager Application

You need administrative privileges to uninstall Oracle Health Check Collections Manager Application.

After successful uninstallation, application definition and the supporting objects are deleted from the hosting database.

1. Log in to Oracle Health Check Collections Manager Application.

```
http://hostname:port/apex  
http://hostname:port/pls/apex/
```

For example:

```
http://dbserver.domain.com:8080/apex/
```

2. Specify the **Workspace Name**, **Workspace Username**, and **Password**, and then click **Login**.
3. Click **Application Builder**.
4. Select **Collection Manager Application**, then click **Edit**.
5. Click **Edit Application Page**.
6. Click **Delete**.
7. Choose **Deinstallation Options**.
 - Select the **Remove Application Definition & Deinstall Supporting Objects** Deinstallation Options.
 - Click **Deinstall**.

1.9.9.2 Deleting Workspace Admin

You need administrative privileges to delete a workspace. There may exist one or more workspaces so be cautious while deleting workspaces.

1. Log in to Oracle Application Express.
2. Click **Manage Workspaces**.

3. Under **Workspace Reports**, click **Existing Workspaces**, and check the **Workspace** name.
4. Under **Action**, click **Delete**.
5. Select the check box to confirm that you want to proceed with the removal and then click **Next**.
6. Click **Remove Workspace**.

The install process displays the Workspace has been successfully removed message.

Related Topics

- http://docs.oracle.com/cd/E59726_01/install.50/e39144/db_pluggable.htm#HTMIG29436

1.9.10 Troubleshooting Oracle Health Check Collections Manager

This topic describes how to troubleshoot Oracle Health Check Collections Manager.



Note:

There are two separate versions of Oracle Health Check Collections Manager respectively for Oracle Application Express 4.2 and Oracle Application Express 5.x.

The troubleshooting procedures are applicable to:

- Oracle Health Check Collections Manager for Oracle Application Express 5.x
- [Oracle Health Check Collections Manager for Oracle Application Express 4.2 \(page 1-144\)](#)

- If you see any error like, error at line 13: PLS-00201: identifier 'UTL_SMTP' must be declared in the **Installation Summary**, then grant execute on UTL_SMTP privilege to the parsing schema or workspace owner.
- If there is a requirement to download files from within the Oracle Health Check Collections Manager, then two more steps are required. These steps are NOT required to upload files into Oracle Health Check Collections Manager.

Before installing the Oracle Health Check Collections Manager, run the DDL mentioned below to re-create the Application Express built-in function `WV_FLOW_EPG_INCLUDE_MOD_LOCAL` in the `APEX_XXXXX` or `FLOW_XXXXXX` schema whichever is appropriate to your environment. After re-creating the function, ensure that it is in `VALID` state.

```
CREATE OR replace FUNCTION Wwv_flow_epg_include_mod_local(
procedure_name IN VARCHAR2)
RETURN BOOLEAN
IS
BEGIN
RETURN TRUE; ----- It should be always "RETURN TRUE"
IF Upper(procedure_name) IN ( ' ' ) THEN
RETURN TRUE;
```

```

ELSE
    RETURN FALSE;
END IF;
END Wwv_flow_epg_include_mod_local;

```

Once the Oracle Health Check Collections Manager is installed, run `RCA13_GET_DOC` to enable file downloads:

```
SQL> grant execute on RCA13_GET_DOC to public;
```

- Ensure that Oracle Application Express is installed successfully. If you have revoked any default system privileges from default Application Express users, then grant them again.
- Ensure that all the Oracle Application Express related users are not locked and expired.

```

alter user ANONYMOUS account unlock;
alter user XDB account unlock;
alter user APEX_PUBLIC_USER account unlock;
alter user FLOWS_FILES account unlock;

```

- If you see any issues in setting up email notifications, then verify your ACL permissions and privileges to the application schema on the SMTP mail server.

For example, to create ACL system and grant privileges to Application schema, do as follows:

```

BEGIN
    DBMS_NETWORK_ACL_ADMIN.CREATE_ACL(acl => 'apex1.xml',
        description => 'APEX ACL',
        principal => 'ORACHK CM USERNAME',
        is_grant => true,
        privilege => 'connect');
    DBMS_NETWORK_ACL_ADMIN.ADD_PRIVILEGE(acl => 'apex1.xml',
        principal => 'ORACHK CM USERNAME',
        is_grant => true,
        privilege => 'resolve');
    DBMS_NETWORK_ACL_ADMIN.ASSIGN_ACL(acl => 'apex1.xml',
        host => 'mailservername.com', lower_port=>10, upper_port=>1000);
END;
/
COMMIT;

```

- If you see that any uploaded collection processing is not started or collection status is **NEW** for long time, then verify the database scheduler job `RCA13_PROCESS_DATA` status and ensure that the job is enabled and running fine.

```

select * from user_scheduler_jobs where job_name like 'RCA13_%';
select * from user_scheduler_running_jobs where job_name like 'RCA13_%'

```

```

select * from user_scheduler_job_run_details where job_name like 'RCA13_%'
order by log_date desc;

```

`RCA13_COL_%` job is used for processing each collection by having unique job.

This logger helps you in debugging the non-processing collections with reference like

```
select * from rca13_log order by ins_date desc;
```

You can view the logs by clicking **Upload Collections > Log**.

Figure 1-86 Upload Collections - Log

Collection Name	Status	Html Report	Uploaded On	Uploaded By	BU/SYS Info	Log
orachk_slcn20-admin_011916_210433.zip	Processed	View	22-MAR-17 09:59:50.000000 PM	KAVITHA.DHANASEKAR	DEFAULT:slcn20-admin	Log

Figure 1-87 Upload Collections - Viewing Logs

Log Message	Log Date
START: Started processing collection	22-MAR-17 10:00:45:407958 PM
FINISH: Finished getting list of files from Zip archive	22-MAR-17 10:00:46:170801 PM
START: Started parsing non HTML/XML files	22-MAR-17 10:00:46:171218 PM
FINISH: Finished parsing non HTML/XML files	22-MAR-17 10:00:47:660012 PM
START: Started Processing files other than HTML file	22-MAR-17 10:00:47:661085 PM
FINISH: Finished processing files other than HTML file	22-MAR-17 10:00:47:847813 PM
START: Started inserting AuditChecks into auditcheck_result table	22-MAR-17 10:00:47:862951 PM
INSERT: Finished inserting checks into auditcheck_result table	22-MAR-17 10:00:47:954482 PM
START: Started parsing HTML/XML files	22-MAR-17 10:00:47:955194 PM
INSERT: Inserted HTML Report into rca13_docs	22-MAR-17 10:00:48:001921 PM
STARTPRO: Started Processing orachk_slcn20-admin_011916_210433/orachk_slcn20-admin_011916_210433.html file	22-MAR-17 10:00:48:009914 PM
FINISHPRO: Finished processing orachk_slcn20-admin_011916_210433/orachk_slcn20-admin_011916_210433.html file	22-MAR-17 10:00:49:866615 PM
STARTPRO: Started Processing orachk_slcn20-admin_011916_210433/uploadorachk_recommendations.xml file	22-MAR-17 10:00:50:525400 PM
FINISHPRO: Finished processing orachk_slcn20-admin_011916_210433/uploadorachk_recommendations.xml file	22-MAR-17 10:00:50:863640 PM
START: Started updating checks rationale information	22-MAR-17 10:00:50:864534 PM
FINISH: Finished updating checks rationale information	22-MAR-17 10:00:51:217241 PM
FINISH: Finished processing collection	22-MAR-17 10:00:51:219669 PM

- If you see that collection process is failed due to lack of space in Oracle Application Express tablespace and application schema tablespace, then increase the tablespace sizes as much as needed.

1.10 Oracle Health Check Collections Manager for Oracle Application Express 4.2

Oracle Health Check Collections Manager for Oracle Application Express 4.2 provides you an enterprise-wide view of your health check collection data.

- [Installation](#) (page 1-145)
Follow the installation procedures sequentially to install Oracle Health Check Collections Manager.
- [Upgrading Oracle Health Check Collections Manager Application](#) (page 1-159)
Oracle ORAchk or Oracle EXAchk automatically upgrades new versions of the Oracle Health Check Collections Manager.
- [Getting Started](#) (page 1-159)
Familiarize yourself with the Oracle Health Check Collections Manager Application.
- [Oracle Health Check Collections Manager Application Features](#) (page 1-172)
Familiarize yourself with the features of Oracle Health Check Collections Manager Application.
- [Uploading Collections Automatically](#) (page 1-187)
Configure Oracle ORAchk and Oracle EXAchk to automatically upload check results to the Oracle Health Check Collections Manager database.
- [Viewing and Reattempting Failed Uploads](#) (page 1-188)
Use these procedures to view and reattempt to upload the failed uploads.

- [Oracle Health Check Collections Manager Application Uninstallation](#) (page 1-188)
Anytime you can decommission Oracle Health Check Collections Manager Application setup. Follow these steps sequentially to uninstall the application leaving no residual files.
- [Troubleshooting Oracle Health Check Collections Manager](#) (page 1-192)
This topic describes how to troubleshoot Oracle Health Check Collections Manager.

1.10.1 Installation

Follow the installation procedures sequentially to install Oracle Health Check Collections Manager.

 **Note:**

Upgrade Oracle Health Check Collections Manager directly from the Oracle ORAchk or Oracle EXAchk tool.

- [Configuring Oracle Application Express and Creating a Workspace](#) (page 1-145)
To configure Oracle Application Express and create a workspace, follow these procedures.
- [Install Oracle Health Check Collections Manager Application](#) (page 1-153)
To install Oracle Health Check Collections Manager, follow these procedures.
- [Log in to Oracle Health Check Collections Manager Application](#) (page 1-157)
To log in to Oracle Health Check Collections Manager, follow these procedures.

Related Topics

- [Running Oracle Health Check Collections Manager Commands](#) (page 1-86)

1.10.1.1 Configuring Oracle Application Express and Creating a Workspace

To configure Oracle Application Express and create a workspace, follow these procedures.

If the Oracle Application Express 4.2 component is already installed and configured on your database, then skip to [Install Collection Manager Application](#) (page 1-153).

1. Download the latest version of Oracle Application Express.
2. To install and configure Oracle Application Express, refer to the Application Express Installation Guide.
3. Create a workspace.
 - a. Log in to Oracle Application Express administration services.

 **Note:**

The URLs used for accessing the Oracle Health Check Collections Manager application depend on how Oracle Application Express was deployed initially.

- If you have configured Oracle Application Express using the Oracle HTTP Server with `mod_plsql`, then specify the URL as follows:

```
http://host:port/pls/apex/apex_admin
```

- If you have configured Oracle Application Express the Oracle XML DB HTTP listener with the embedded PL/SQL gateway, then specify the URL as follows:

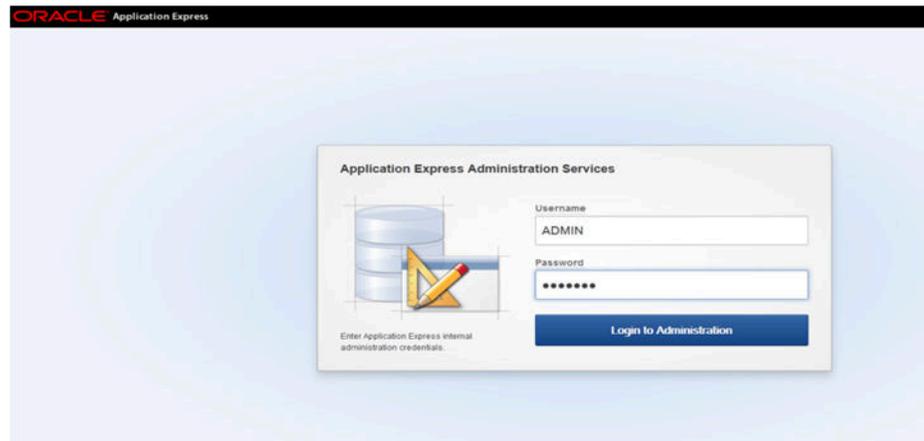
```
http://host:port/apex/apex_admin
```

For example:

```
http://dbserver.domain.com:8080/apex/apex_admin
```

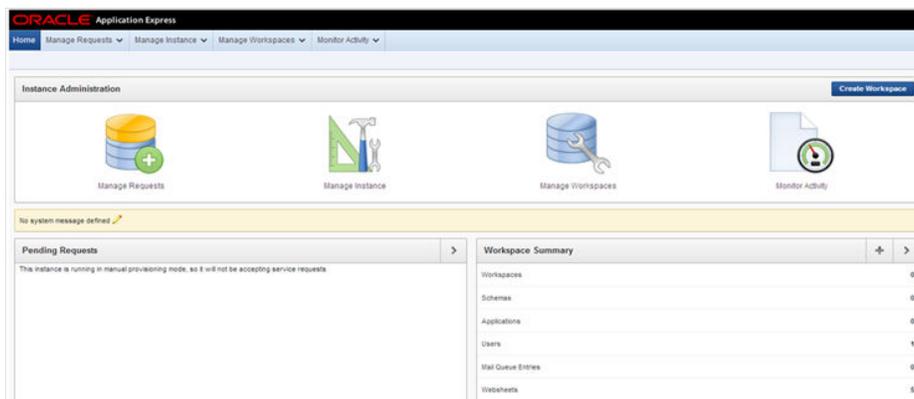
- The default schema user for Oracle Application Express administration services in the Oracle database is `ADMIN`.
- The password is the one you gave at the time of configuring the Oracle Application Express component in the Oracle database.

Figure 1-88 Administration Services Login



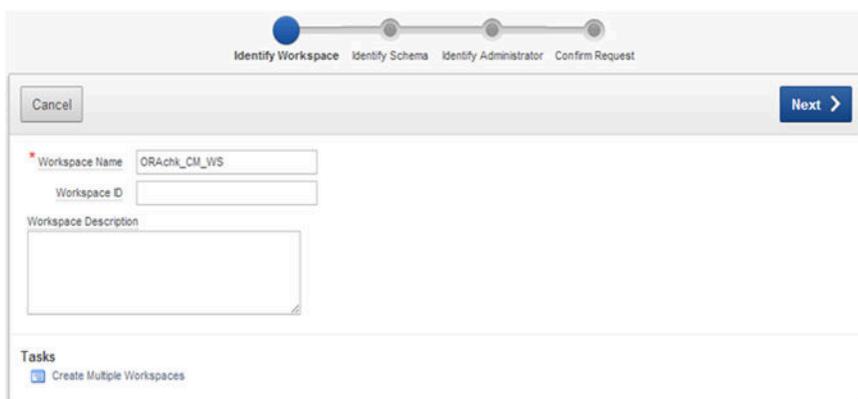
- b. In the Oracle Application Express Admin home page, click **Manage Workspaces**.

Figure 1-89 Manage Workspaces



- c. Under **Workspace Actions**, click **Create Workspace**.
The Create Workspace Wizard appears.

Figure 1-90 Identify Workspace



- **Identify Workspace:**
 - i. **Workspace Name:** Enter a unique workspace name, for example, ORAchk_CM_WS.
 - ii. **Workspace ID:** Leave Workspace ID blank to have the new Workspace ID automatically generated.
Workspace ID must be a positive integer greater than 10000.
 - iii. **Workspace Description:** Enter workspace description.
 - iv. Click **Next**.

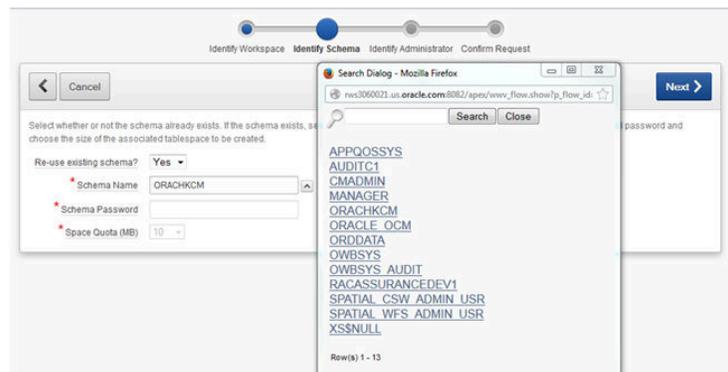
 **Note:**

Associate a workspace with a database schema.

- **Identify Schema:**

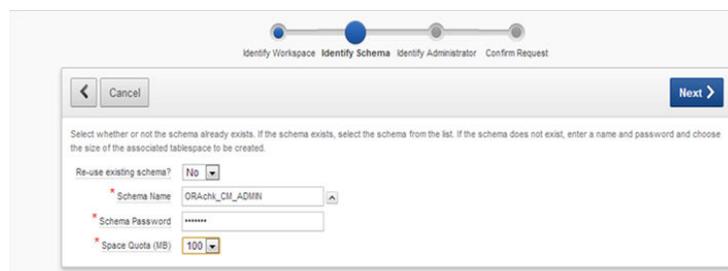
- i. Specify whether you are reusing an existing schema or creating a new one. This depends on whether you already have Oracle ORAchk and Oracle EXAchk configured to upload data to a schema in the database. If you do, then specify the existing schema. If not, then the name of the schema you create must be the one you intend to use for uploading the Oracle ORAchk data once configured.
- ii. If you choose an existing schema in the database, then it should not be an Oracle Application Express administration schema (admin).
 - If you are using an existing schema:
 - i. For **Re-use existing schema**, select **YES**.
 - ii. Select a schema from the list.
 - iii. Click **Next**.

Figure 1-91 Identify Schema - Reuse Schema



- If you are creating a new schema:
 - i. For **Re-use existing schema**, select **NO**.
 - ii. Enter the schema name and password, for example, ORAchk_admin, and so on.
 - iii. Specify the space quota.
 - iv. Click **Next**.

Figure 1-92 Identify Schema - New Schema



Note:

Minimum Space Quota should not be less than 100 MB to prevent application import failures.

- **Identify Administrator:**
 - i. Enter administrator user name and password.
 - ii. Enter Personal details.
 - iii. Click **Next**.

Figure 1-93 Identify Administrator

Identify Workspace Identify Schema **Identify Administrator** Confirm Request

Cancel Next

* Administrator Username CollectionManager

* Administrator Password *****

First Name abc

Last Name xyz

* Email abc.xyz@123.com

- Confirm your selections and then click **Create Workspace**.

Figure 1-94 Create Workspace - Confirm Request

Identify Workspace Identify Schema Identify Administrator **Confirm Request**

Cancel Create Workspace

You have requested to provision a new Workspace.

Workspace Information:

Name ORAchK_CM_WS

Security Group ID System Assigned

Description ...

Administrator Information:

User Name CollectionManager

E-mail abc.xyz@123.com

Schema Information:

Reuse Existing Schema No

Schema Name ORACHK_CM_ADMIN

Tablespace will be created APEX_XXX

Datafile for tablespace System Assigned

Your workspace is created.

4. Click **Manage Workspaces**.
 - Under **Workspace Reports**, click **Existing Workspaces**.

Figure 1-95 Manage Workspaces - Existing Workspaces

The screenshot shows the Oracle Application Express 'Manage Workspaces' page. The breadcrumb trail is 'Home > Manage Requests > Manage Instance > Manage Workspaces > Monitor Activity'. The current page is 'Existing Workspaces'. There is a search bar with a 'Go' button and an 'Actions' dropdown. A 'Reset' button and a 'Create Workspace' button with a right arrow are also present. Below is a table with the following data:

Workspace Name	Display Name	Users	Developers	Applications	Provision Status	Workspace Status	Provisioned	Auto Purge	Source Identifier	Action	Consumer Group
INTERNAL	INTERNAL	1	0	14	-	Assigned	-	Yes	INTERNAL	-	-
ORACHK_CU_WIS	ORACHK_CU_WIS	1	1	1	Approved	Assigned	6 minutes ago	Yes	ORACHK_C	Delete	-

Page 1 of 2

- To edit Workspace information, click the workspace name, edit any necessary details, and then click **Apply Changes**.
- Log out from Oracle Application Express Administration services.
- [Log in to the Workspace](#) (page 1-150)
To log in to Application Express admin user workspace, follow these procedures.
- [Application Express User Accounts](#) (page 1-151)
Application Express provides three types of users, namely, workspace administrators, developers, and end users.

Related Topics

- <http://www.oracle.com/technetwork/developer-tools/apex/downloads/index.html>
- https://docs.oracle.com/cd/E59726_01/install.50/e39144/toc.htm

1.10.1.1.1 Log in to the Workspace

To log in to Application Express admin user workspace, follow these procedures.

1. Log in to Oracle Application Express Admin User Workspace.

Note:

The URLs used for accessing the Oracle Health Check Collections Manager application depend on how Oracle Application Express was deployed initially.

- If you have configured Oracle Application Express the Oracle HTTP Server with `mod_plsql`, then specify the URL as follows:

```
http://host:port/pls/apex/apex_admin
```

- If you have configured Oracle Application Express using the Oracle XML DB HTTP listener with the embedded PL/SQL gateway, then specify the URL as follows:

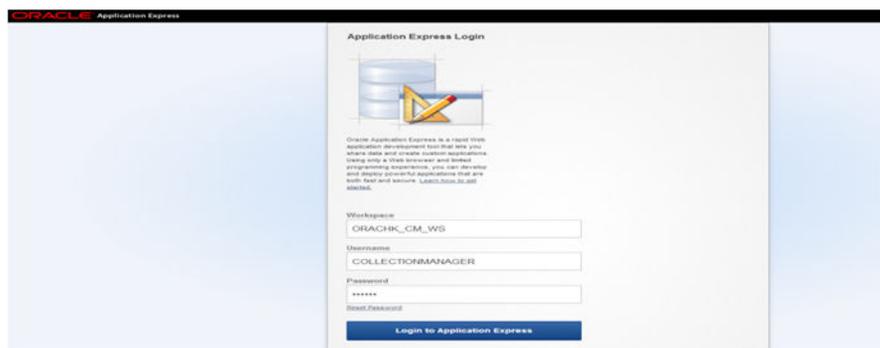
```
http://host:port/apex/apex_admin
```

For example:

```
http://dbserver.domain.com:8080/apex/apex_admin
```

2. Enter the workspace name, workspace user name, and password details to log in.

Figure 1-96 Log into the Workspace



3. For the first time login, Application Express prompts you to change the password.
4. Log in again using the new password.

1.10.1.1.2 Application Express User Accounts

Application Express provides three types of users, namely, workspace administrators, developers, and end users.

Table 1-15 Application Express Types of Users

Type of User	Description
Workspace administrators	Workspace administrators can also create and edit user accounts, manage groups, and manage development services.
Developers	Developers can create and modify applications and database objects.

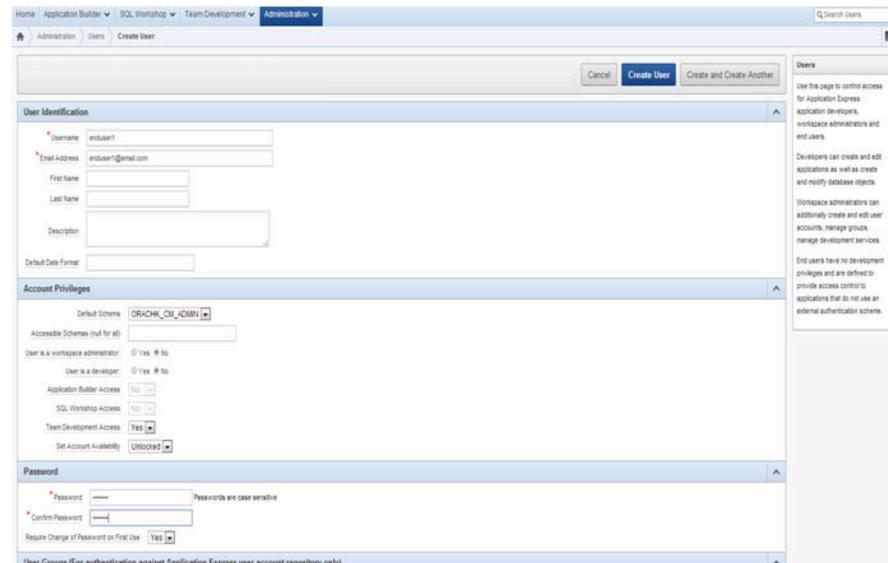
Table 1-15 (Cont.) Application Express Types of Users

Type of User	Description
End users	End users are non-administrative who have no development privileges and can only access applications that do not use an external authentication scheme. For the Oracle Health Check Collections Manager Application, almost all the users fall into this category. A special role within the Oracle Health Check Collections Manager Application, DBA Managers, and the DBAs manage all application users.

To grant access to the Oracle Health Check Collections Manager Application for non-administrative users (End users), you must log in to the Workspace as an Admin user.

1. Log in to Oracle Application Express admin user workspace.
2. Click the **Administration** tab.
3. Click **Manage Users and Groups**.
4. Click **Create User**.
 - These users are application admin users, DBA Managers, and DBAs who can authenticate to the application and manage their collections.
5. Fill in the user details.
 - Follow a consistent naming convention and specify unique user names. A reasonable naming convention would be `firstname.lastname`.

Figure 1-97 Application Express User Accounts



- For non-administrators, use the default, **No** for **User is a developer** and **User is a Workspace Administrator** options.
6. Assign a temporary password for each user and communicate that password to the end user. Application Express prompts them to change this password the first time they log in.

7. Click **Create User**.

1.10.1.2 Install Oracle Health Check Collections Manager Application

To install Oracle Health Check Collections Manager, follow these procedures.

1. Verify if the workspace admin schema owner and the owner of the schema used for import of the Oracle Health Check Collections Manager Application have grants to:
 - Create Job
 - Execute on the database packages `DBMS_RLS` and `UTL_SMTP` owned by the `SYS` user.

The Oracle Health Check Collections Manager Application is distributed as an SQL script. Stage the script on the workstation that is used to install the application.

Execute privilege on the database package `UTL_SMTP` is required only if you use Oracle Health Check Collections Manager Email Notification System Feature. Oracle Health Check Collections Manager uses `UTL_SMTP` package on one of the objects `RAC13_EMAIL`. Failing to grant `EXECUTE ON UTL_SMTP` privilege to workspace owner ends up in compilation error. You can see this information in the **Installation Summary**. Ignore this information, if you are not using the Oracle Health Check Collections Manager Email Notification System feature.

2. Verify if you have required privileges by running the SQL query as follows:

```
select GRANTEE, TABLE_NAME, PRIVILEGE from USER_TAB_PRIVS;
GRANTEE      TABLE_NAME  PRIVILEGE
CM_USER      DBMS_RLS     EXECUTE
CM_USER      UTL_SMTP     EXECUTE

select USERNAME, PRIVILEGE from USER_SYS_PRIVS;
USERNAME      PRIVILEGE
CM_USER       CREATE JOB
```

3. Log in to the Oracle Application Express workspace administration services.
4. Click **Application Builder** on the **Home** page.

Figure 1-98 Home Page

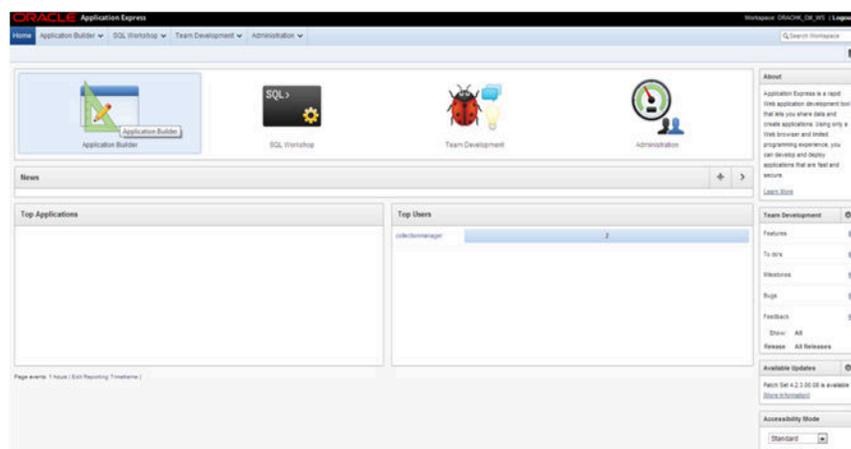
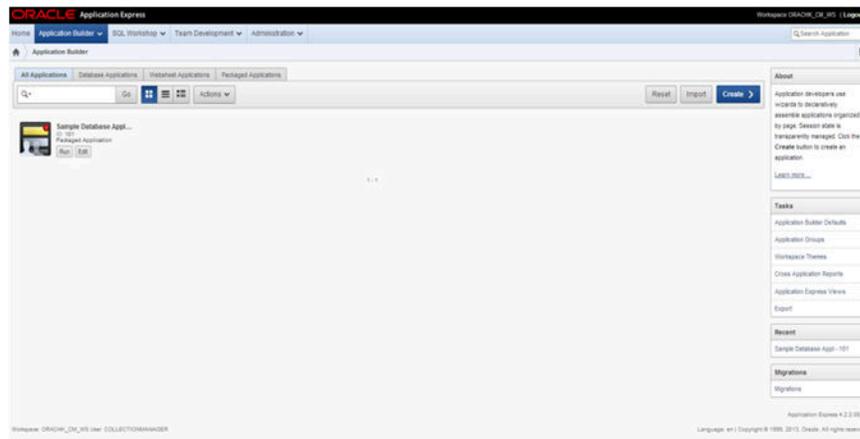
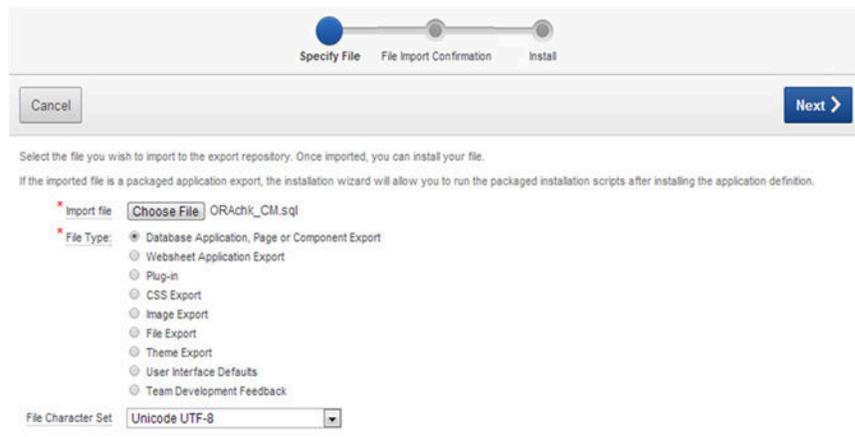


Figure 1-99 Application Builder



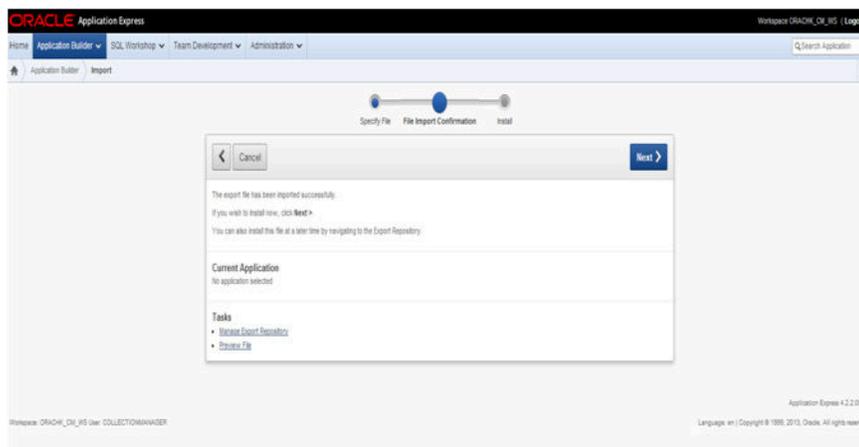
5. Click **Import**.
6. Click **Choose import file**, select the SQL script appropriate for the Oracle Application Express version you are using.
CollectionManager_App.sql when using Oracle Application Express 4.2
7. **File type**: select the default option **Database Application**, or **Component Export**.
8. **File Character Set**: select the default option **Unicode UTF-8**.
9. Click **Next**.

Figure 1-100 Specify File



10. Click **Install Application**.

Figure 1-101 File Import Confirmation

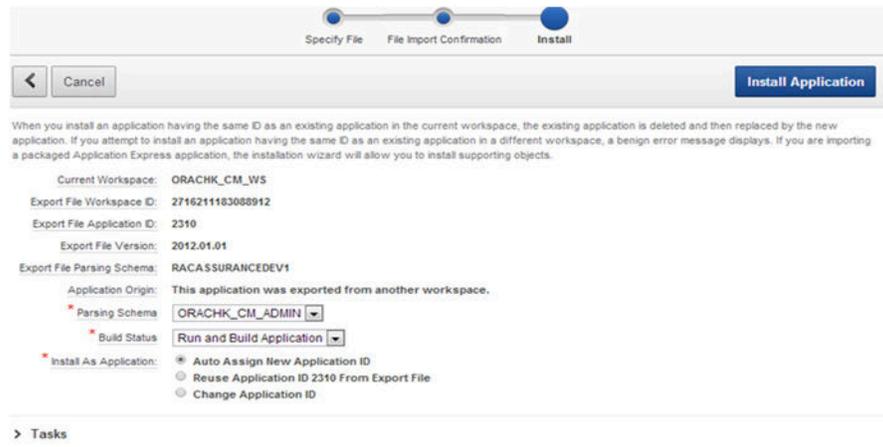
11. Click **Next**.

 **Note:**

Ensure that the execute privilege on `DBMS_RLS` and `UTL_SMTP` packages and `create job sys` privilege are granted to parsing schema owner before starting the import of the application. This prevents database support object creation failures that prevent the proper installation of the application.

- For Parsing Schema, select the schema specified for the workspace.
- **Build Status:** select default option **Run and Build Application**.
- Install As Application.
- Select any one option based on your requirement or if possible use the same application id as it is easy to upgrade the application in future. However, the application Id must be unique. Ensure that the application ID is not used by any other application, or any workspace administrators within Oracle Application Express Administration server.

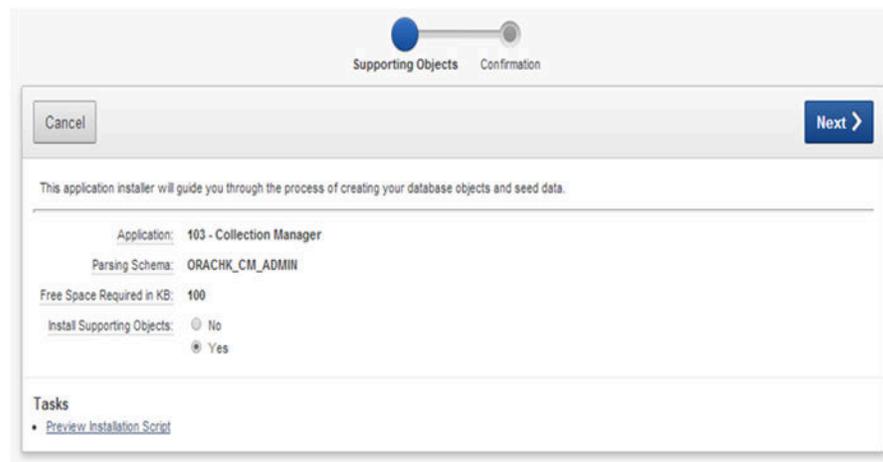
Figure 1-102 Install Application



12. Click **Install Application**.

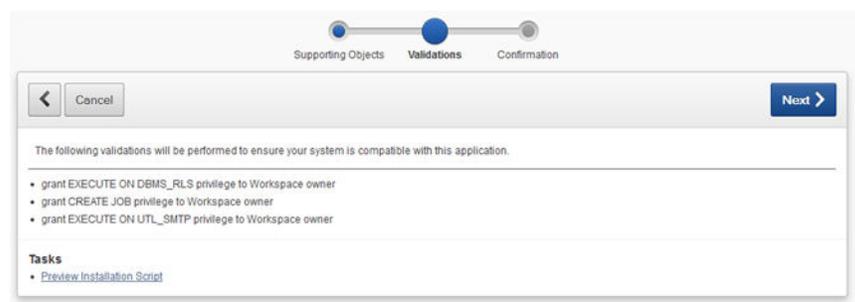
- Installing Application takes some time, please wait.
- Verify the application name and parsing schema, free space allocated for the application. Ensure that install Supporting Objects, is always **Yes**.

Figure 1-103 Supporting Objects



- Grant the required privileges to the workspace owner.

Figure 1-104 Validations



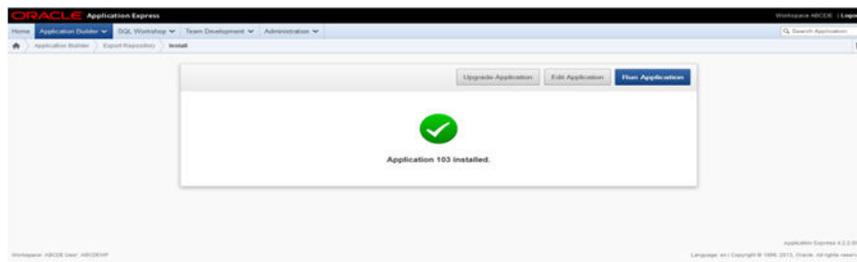
13. Click **Next**.

Figure 1-105 Install Applications Supporting Objects



14. Click **Install**.

Figure 1-106 Application Installed Successfully



15. Review the **Installation summary** for any errors or installation of database objects and seed data has failures.
16. Capture the application ID generated for the application from the dialog upon successful installation of the application.

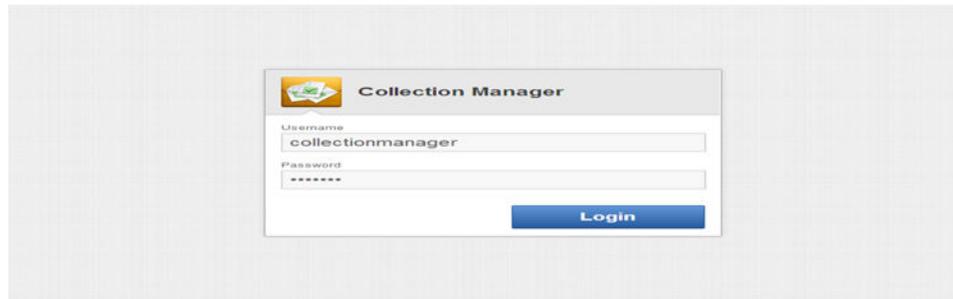
The application ID is used in the URLs for accessing the application. Distribute the correct URL to the eventual users of the application.
17. Click **Run Application**.

1.10.1.3 Log in to Oracle Health Check Collections Manager Application

To log in to Oracle Health Check Collections Manager, follow these procedures.

1. Enter user name and password details to log in to the Oracle Health Check Collections Manager Application, click **Login**.

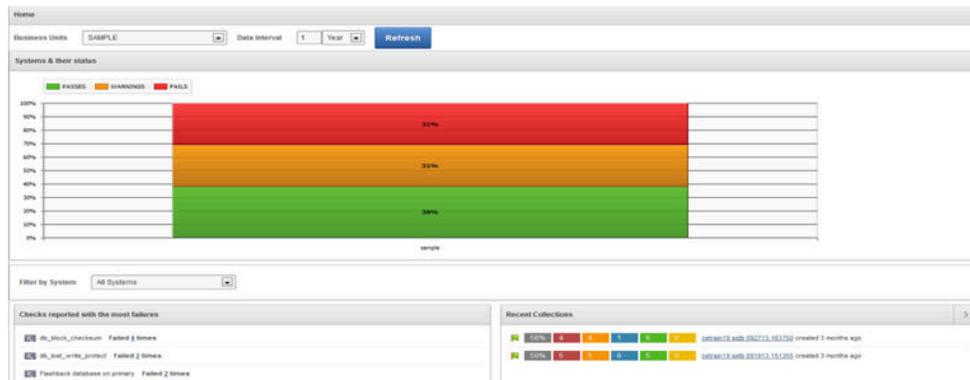
Figure 1-107 Log in to Oracle Health Check Collections Manager Application



After successful login, you are all set to use Oracle Health Check Collections Manager Application and its features.

By default, the Oracle Health Check Collections Manager Application is deployed with some default sample data for acclimating new users to the application. Oracle Health Check Collections Manager displays the sample data in the **Home** page. Sample data is hidden automatically once your own data starts streaming into the application as you establish the automation and upload functionality of the tool. If you are already using the upload functionality and have your audit check results data in the database tables, and that data replaces the sample data.

Figure 1-108 Oracle Health Check Collections Manager Default View



2. Log in to Oracle Health Check Collections Manager Application as End user:
 - The end user is not an administrator. The end users have only limited access to the application. Non-administrator users cannot do any administrative access unless administrator or developer privileges are granted.
 - The **End User** accounts must exist in the workspace where the application is installed.
 - To log in to the application, end user needs an application URL and login credentials.

Provide the end users with one of the following URLs (they are interchangeable) and the temporary password that was assigned for them.

`http://hostname:port/apex/f?p=ApplicationID`

`http://hostname:port/pls/apex/f?p=ApplicationID`

For example:

`http://dbserver.domain.com:8080/apex/f?p=103`

1.10.2 Upgrading Oracle Health Check Collections Manager Application

Oracle ORAchk or Oracle EXAchk automatically upgrades new versions of the Oracle Health Check Collections Manager.

Related Topics

- [Upgrading Oracle Health Check Collections Manager Application](#) (page 1-107)
Oracle ORAchk or Oracle EXAchk automatically upgrades new versions of the Oracle Health Check Collections Manager.

1.10.3 Getting Started

Familiarize yourself with the Oracle Health Check Collections Manager Application.

- [Incident Ticket System Lookup Lists and Seed Data](#) (page 1-159)
Oracle Health Check Collections Manager Application provides a basic Incident Ticket system.
- [Access Control System](#) (page 1-160)
Limit and control access based on functional roles.
- [Oracle Health Check Collections Manager Application Administration](#) (page 1-160)
To restrict authorized users alone to access the application, grant sufficient privileges to different roles.
- [Selectively Capturing Users During Login](#) (page 1-164)
Configure Oracle Health Check Collections Manager to capture user details and assign the users Oracle Health Check Collections Manager roles.
- [Configuring Email Notification System](#) (page 1-166)
Oracle Health Check Collections Manager provides an email notification system that users can subscribe to.
- [Bulk Mapping Systems to Business Units](#) (page 1-170)
Oracle Health Check Collections Manager provides an XML bulk upload option so that you can quickly map many systems to business units.
- [Adjusting or Disabling Old Collections Purging](#) (page 1-171)
Modify or disable the purge schedule for Oracle Health Check Collections Manager collection data.

1.10.3.1 Incident Ticket System Lookup Lists and Seed Data

Oracle Health Check Collections Manager Application provides a basic Incident Ticket system.

Oracle Health Check Collections Manager Application is deployed with seed data for the lookup lists used for data entry for incident tickets:

- Products

- Category
- Customer Contacts
- Notifications
- Status Codes
- Incident Severity
- Incident Urgency

The seed data is values that are commonly used. Add or change the seed data provided with the application. However, you must have administrator privileges to manage seed data through the **Administration** tab.

To access the **Administration** tab, click the gear icon at the upper-right corner.

1.10.3.2 Access Control System

Limit and control access based on functional roles.

By default, the Access Control system is disabled. If Access Control is disabled, then all authenticated users are granted administrator privileges and can access all application features. To assign one or more roles to the end users, manage access controls through the **Administration** tab. You can enable the following three functional roles available in the Oracle Health Check Collections Manager.

- **Admin:** Admin role user can also be a Workspace Administrator for the application and it depends on your functional roles requirements.
- **DBA Manager**
- **DBA**

Assign role to the users after configuring the Access Control system.

1.10.3.3 Oracle Health Check Collections Manager Application Administration

To restrict authorized users alone to access the application, grant sufficient privileges to different roles.

Admin

Any end user who is granted an admin role by the workspace administrator has administrator privileges within the Collection Manager application.

Log in to Oracle Health Check Collections Manager Application using a URL as follows:

```
http://hostname:port/apex/f?p=ApplicationID  
http://hostname:port/pls/apex/f?p=ApplicationID)
```

For example:

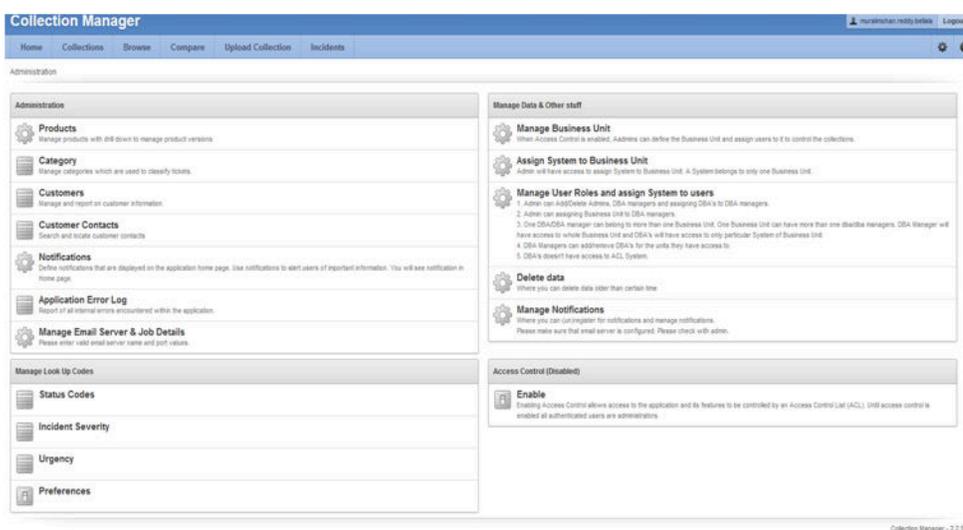
```
http://dbserver.domain.com:8080/apex/f?p=103
```

As an admin user, you must see the Administration menu (gear icon) at the upper-right corner. Click this icon to go to the Administration page.

- Following are the admin user privileges:
 - Add or revoke admin privileges

- Define Business Units (BU)
- Assign DBA Manager role to users
- Assign DBA Managers to one or more BUs
- Assign systems to BUs (a system can belong to one BU)
- Assign DBAs to DBA Managers
- Assign systems to DBAs
- Ignore any check on a collection, BU, or system
- Create and assign incidents to any user
- Manage all incidents

Figure 1-109 Oracle Health Check Collections Manager - Administration



- Only Admin role can edit any section under the **Administration** menu.
- The administrator must configure data based on their requirements under the administration menu to prepare for the wider usage of the application. This is a one-time activity, however, change the configuration over time to suit your needs.

Examples of the configuration data that you need set up are:

- Products
- Customers (internal designations for workgroups)
- Categories
- Notifications
- Status codes
- Manage Email Server and Job details
- Manage Notifications
- Incident Severity
- Urgency

- Manage User Roles and Assign systems to users
- Business Units (BUs)
- Assign systems to BUs

DBA Manager

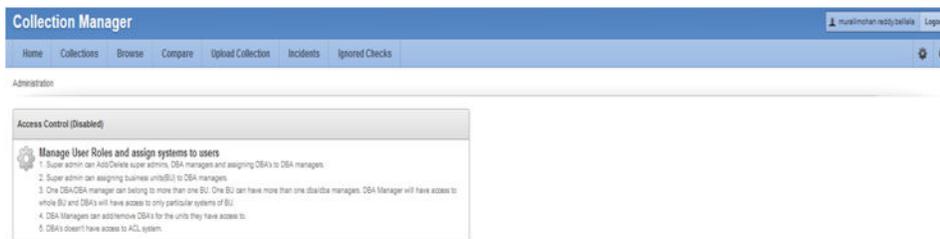
Any user who is granted the DBA Manager role.

Log in to Oracle Health Check Collections Manager Application using a URL as follows:

```
http://hostname:port/apex/f?p=ApplicationID
http://hostname:port/pls/apex/f?p=ApplicationID)
```

The DBA Managers must see an Administration menu (gear icon) at the upper-right corner of the application.

Figure 1-110 Oracle Health Check Collections Manager - DBA Manager Administration



Click **Manage User Roles**.

Figure 1-111 Oracle Health Check Collections Manager - DBA Manager - Manage User Roles

User Name	Role Name	BU / ST's Name	Edit	Updated By	Updated On
BOB CALDWELL	DBA	MANUFACTURING: tp0214-clust		LEELA.KUMARASIVAMY@LAKKANA	26-NOV-13 11:18:11 5:54:15 PM
GRDHARMAI CHOUHARY	DBA Manager	SALES: All systems		LEELA.KUMARASIVAMY@LAKKANA	26-NOV-13 09:33:16 9:42:08 PM
		FRANCE: All systems		LEELA.KUMARASIVAMY@LAKKANA	26-NOV-13 09:33:30 5:37:51 AM
GRDH ADGA	DBA Manager	SALES: All systems		LEELA.KUMARASIVAMY@LAKKANA	26-NOV-13 09:32:25 9:07:40 AM
	DBA	FRANCE: int1-cluster		LEELA.KUMARASIVAMY@LAKKANA	26-NOV-13 09:32:25 9:08:05 AM
LEELA.KUMARASIVAMY@LAKKANA	Super Admin	All Business Units: All systems		LEELA.KUMARASIVAMY@LAKKANA	27-NOV-13 05:29:18 10:51:06 AM
	DBA	SALES: rna2092124-r		MURALMOHAN.REDDY@BELLALA	26-NOV-13 10:46:21 4:03:31 PM
MURALMOHAN.REDDY@BELLALA	DBA Manager	FRANCE: All systems		LEELA.KUMARASIVAMY@LAKKANA	27-NOV-13 06:58:54 9:24:78 AM
	DBA	MANUFACTURING: tp0214-clust		LEELA.KUMARASIVAMY@LAKKANA	26-NOV-13 11:45:18 9:78:09 PM
		SALES: rna2092124-r		LEELA.KUMARASIVAMY@LAKKANA	26-NOV-13 11:44:22 7:59:07 PM
SANDESH RAO	Super Admin	All Business Units: All systems		LEELA.KUMARASIVAMY@LAKKANA	26-NOV-13 09:34:19 7:12:03 PM

Following are the DBA manager privileges:

- Assign DBAs to BUs the manager manages
- Assign DBAs to one or more systems

- Ignore any check on a collection, BU, or system
- Create incidents for any system
- Assign incidents to DBAs that manage the systems in their BUs
- Manage any incidents for systems within their assigned BUs

DBA

Any user who is granted the DBA role.

Log in to Oracle Health Check Collections Manager Application using a URL as follows:

```
http://hostname:port/apex/f?p=ApplicationID
http://hostname:port/pls/apex/f?p=ApplicationID)
```

The DBA must see the Administration menu (gear icon) at the upper-right corner of the application.

Any end user who is granted administrator role by the workspace administrator has administrator privileges within the Oracle Health Check Collections Manager application.

Figure 1-112 Oracle Health Check Collections Manager - DBA Administration



Click **Manage User Roles**.

DBA has read-only access.

Figure 1-113 Oracle Health Check Collections Manager - DBA - Manage User Roles

User Name	Role Name	BU / BU Name	Updated By	Updated On
BOR CALDWELL	DBA	MANUFACTURING: lg214-clust	LEELA.KUMARASWAMY.LAKKANA	26-NOV-13 11:18:11.538415 PM
QIRNABAM CHOUDHARY	DBA Manager	SALES: All systems	LEELA.KUMARASWAMY.LAKKANA	26-NOV-13 09:33:18.954289 PM
		FRANCE: All systems	LEELA.KUMARASWAMY.LAKKANA	26-NOV-13 09:33:05.11575 PM
GRISHA ADGA	DBA Manager	SALES: All systems	LEELA.KUMARASWAMY.LAKKANA	26-NOV-13 08:32:25.907540 AM
	DBA	FRANCE: dm1-cluster	LEELA.KUMARASWAMY.LAKKANA	26-NOV-13 08:32:25.907540 AM
LEELA.KUMARASWAMY.LAKKANA	Super Admin	All Business Units: All systems	LEELA.KUMARASWAMY.LAKKANA	27-NOV-13 05:29:18.185166 AM
	DBA	SALES: rwa2002124-r	MURALIMOHAN.REDDY@BELLALA	26-NOV-13 10:46:21.448021 PM
MURALIMOHAN.REDDY@BELLALA	DBA	MANUFACTURING: lg214-clust	LEELA.KUMARASWAMY.LAKKANA	26-NOV-13 11:45:18.877660 PM
		FRANCE: dm1-cluster	LEELA.KUMARASWAMY.LAKKANA	27-NOV-13 07:47:31.1333 AM
		SALES: rwa2002124-r	LEELA.KUMARASWAMY.LAKKANA	26-NOV-13 11:44:22.765967 PM
SANDESH RAO	Super Admin	All Business Units: All systems	LEELA.KUMARASWAMY.LAKKANA	26-NOV-13 09:34:19.717263 PM

Following are the DBA privileges:

- Cannot manage Access Control List
- Manage systems within one or more BUs, if the DBA Managers of those BUs assign them
- Ignore any check on a collection or system they manage
- Manage any incidents assigned to them

1.10.3.4 Selectively Capturing Users During Login

Configure Oracle Health Check Collections Manager to capture user details and assign the users Oracle Health Check Collections Manager roles.

Automatically capturing users during login automates user management. You need not create users manually.

By default, Oracle Health Check Collections Manager:

- Captures details of users that are logging in with LDAP authentication
- Assigns them Oracle Health Check Collections Manager roles, for example, DBA role.



Note:

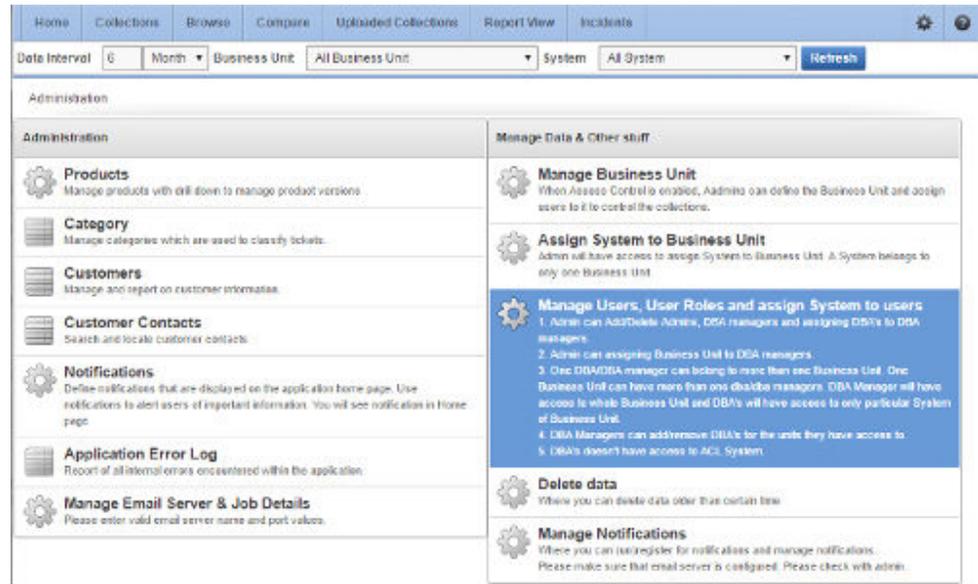
The Oracle Health Check Collections Manager roles are specific to Oracle Health Check Collections Manager and do not equate to system privileges. For example, the DBA role is not granted SYSDBA system privilege.

However, you can disable automatic capture and re-enable anytime later. If you disable, then you must manually create users and assign them roles.

To enable or disable capturing user details automatically:

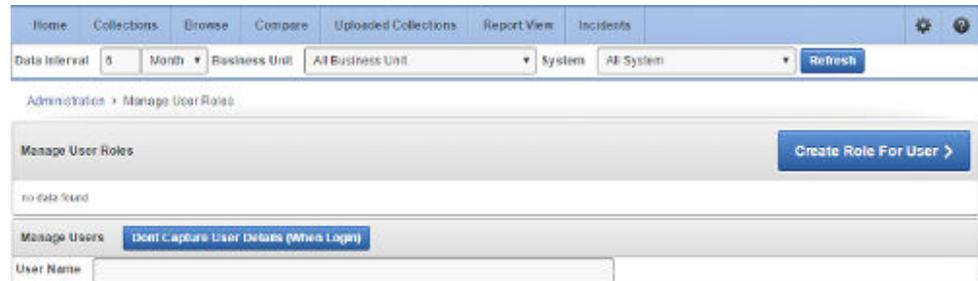
1. Click **Administration**, and then select **Manage Users, User Roles and assign System to users**.

Figure 1-114 Manage Users, User Roles and assign System to users



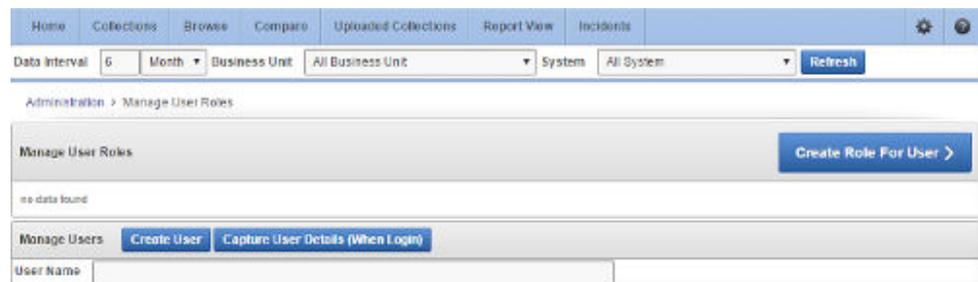
2. To disable automatic capture of users details, click **Don't Capture User Details (When Login)**.

Figure 1-115 Don't Capture User Details (When Login)



3. To re-enable automatic capture of user details, click **Capture User Details (When Login)**.

Figure 1-116 Capture User Details (When Login)



1.10.3.5 Configuring Email Notification System

Oracle Health Check Collections Manager provides an email notification system that users can subscribe to.

The setup involves:

- Configuring the email server, port, and the frequency of email notifications.
- Registering the email address



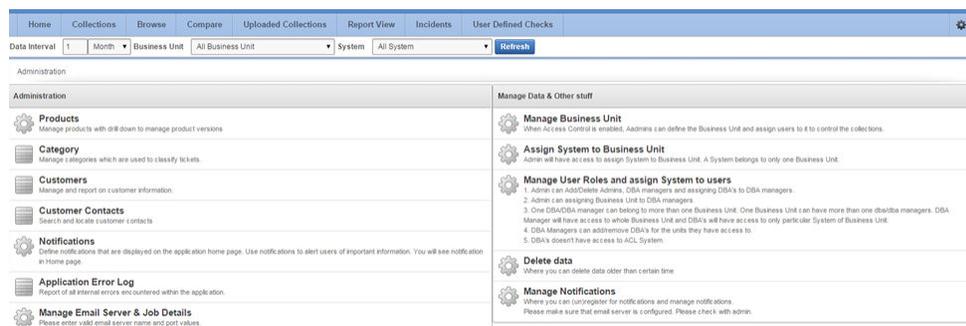
Note:

Only the users who are assigned Admin role can manage **Email Notification Server and Job details**.

To configure the email notification system:

1. Log in to Oracle Health Check Collections Manager, and then click **Administration** at the upper-right corner.

Figure 1-117 Oracle Health Check Collections Manager - Administration



2. Under **Administration**, click **Manage Email Server & Job Details**.

Figure 1-118 Oracle Health Check Collections Manager - Configure Email Server

Administration > Configure Email Server

Manage Email Server & Job Details

Server Name

Port Number

[Set My Email Server Settings](#)

[Click To Disable Notifications Job](#)

Note: Click on Click To Enable/Disable Notifications Job. When the application installed first time, the job is disabled. Please configure email server details and then enable the job. By default 4 hours frequency to get mail notifications. To change the Frequency of the email notifications configure with the below (Set the Frequency of Email Notifications).

[Set the Frequency of Email Notifications](#)

Email Frequency

Note: Click on Click To Receive Email Notifications Once Every to set the frequency of the email notifications.

- a. Specify a valid **Email Server Name**, **Port Number**, and then click **Set My Email Server Settings**.
- b. Set **Email Notification Frequency** as per your needs. See the **Notification Job Run Details** on the same page.

Figure 1-119 Oracle Health Check Collections Manager - Notification Job Run status details

Notifications Job Run Details		
Run On	Status	Error Code
31-MAY-14 04:00:09.397435 AM -07:00	SUCCEEDED	0
31-MAY-14 12:00:00.699009 PM -07:00	SUCCEEDED	0
03-JUN-14 04:00:02.741378 AM -07:00	SUCCEEDED	0
01-JUN-14 12:00:00.640109 PM -07:00	SUCCEEDED	0
31-MAY-14 08:00:02.529193 AM -07:00	SUCCEEDED	0

3. Go back to the **Administration** page, and click **Manage Notifications**.

Figure 1-120 Oracle Health Check Collections Manager - Manage Notifications

Administration > Manage Notifications

Register For Email Notifications

Email Id Subscribe/Unsubscribe My Mail Notifications

Collection Notifications

- New Collections Without Comparisons
- Collections Regressed with Warnings
- Collections that Improved with Passes
- Collections Regressed with Failures

ORAchk CM Tablespace Notifications

- ORAchk CM space in data base falls below 100MB

Note: Please make sure the email is valid. If ACL system is enabled,
All subscribed users will receive notifications for the systems that they have access on their notification preferences.

Test your email settings

Use the Test email button to verify proper email delivery. If there is a problem please contact your administrator.

- If you are configuring for the first time, then enter your email address. Subsequent access to **Manage Notifications** page shows your email address automatically.
- By default, **Subscribe/Unsubscribe My Mail Notifications** is checked. Leave as is.
- Under **Collection Notifications**, choose the type of collections for which you want to receive notifications.
- Select to receive notification when the available space in ORAchk CM Tablespace falls below 100 MB.
- Validate the notification delivery by clicking **Test** under **Test your email settings**.

If the configuration is correct, then you must receive an email. If you do not receive an email, then check with your administrator.

Following is the sample notification:

```
From: username@example.com  
Sent: Thursday, January 28, 2016 12:21 PM  
To: username@example.com  
Subject: Test Mail From Collection Manager
```

```
Testing Collection Manager Email Notification System
```

- Click **Submit**.

 **Note:**

Manage Notifications section under the **Administration** menu is available for all users irrespective of the role.

If the ACL system is enabled, then the registered users receive notifications for the systems that they have access to. If the ACL system is not configured, then all the registered users receive all notifications.

Depending on the selections, you made under **Collection Notifications** section, you receive an email with Subject: **Collection Manager Notifications** containing application URL with results.

Figure 1-121 Oracle Health Check Collections Manager - Sample Email Notification

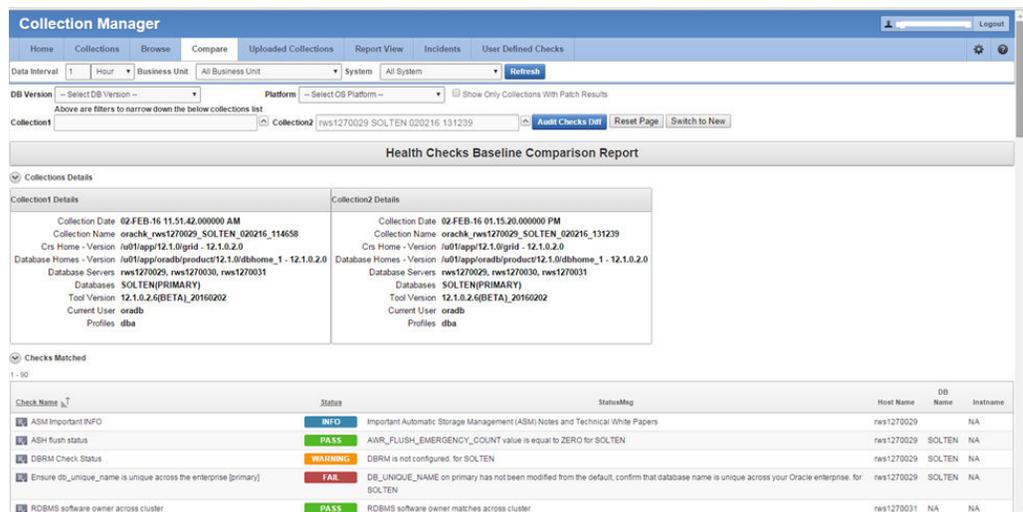
From: username@domainname.com [mailto:username@domainname.com]
 Sent: Wednesday, February 03, 2016 1:24 AM
 To: username@domainname.com
 Subject: Collection Manager Notifications

Found Diff for the following collections

BU Name	System Name	Previous Collection	Current Collection	Collection DifferenceType	Comments
DEFAULT	cloud00290036	orachk_cloud0029_SOLTEN_010416_060310	orachk_cloud0029_SOLTEN_010416_072847	Collections Regressed with Failures	Click here for details
DEFAULT	cloud00290036	orachk_cloud0029_SOLTEN_123015_074624	orachk_cloud0029_SOLTEN_010416_060310	Collections Regressed with Failures	Click here for details
DEFAULT	cloud00290036	orachk_cloud0029_SOLTEN_123015_062009	orachk_cloud0029_SOLTEN_123015_074624	Collections Regressed with Warnings	Click here for details
DEFAULT	cloud00290036	orachk_cloud0029_SOLTEN_010416_072847	orachk_cloud0029_SOLTEN_010416_126702	Collections Regressed with Warnings	Click here for details

Under **Comments** column, click the **Click here** links for details. Click the respective URLs, authenticate, and then view respective comparison report.

Figure 1-122 Oracle Health Check Collections Manager - Sample Diff Report



Collection Manager

Home Collections Browse Compare Uploaded Collections Report View Incidents User Defined Checks

Data Interval: 1 Hour Business Unit: All Business Unit System: All System Refresh

DB Version: Select DB Version Platform: Select OS Platform Show Only Collections With Patch Results

Above are filters to narrow down the below collections list

Collection: rws1270029_SOLTEN_020216_131239 Audit Checks Diff Reset Page Switch to New

Health Checks Baseline Comparison Report

Collections Details

Collection1 Details	Collection2 Details
Collection Date: 02-FEB-16 11:51:42.000000 AM Collection Name: orachk_rws1270029_SOLTEN_020216_114658 Crs Home - Version: /u01/app/12.1.0/grid - 12.1.0.2.0 Database Homes - Version: /u01/app/oradb/product/12.1.0/dbhome_1 - 12.1.0.2.0 Database Servers: rws1270029, rws1270030, rws1270031 Databases: SOLTEN(PRIMARY) Tool Version: 12.1.0.2.0(BETA)_20160202 Current User: oradb Profiles: dba	Collection Date: 02-FEB-16 01:15:20.000000 PM Collection Name: orachk_rws1270029_SOLTEN_020216_131239 Crs Home - Version: /u01/app/12.1.0/grid - 12.1.0.2.0 Database Homes - Version: /u01/app/oradb/product/12.1.0/dbhome_1 - 12.1.0.2.0 Database Servers: rws1270029, rws1270030, rws1270031 Databases: SOLTEN(PRIMARY) Tool Version: 12.1.0.2.0(BETA)_20160202 Current User: oradb Profiles: dba

Checks Matched

Check Name	Status	StatusMsg	Host Name	DB Name	Instance Name
ASM Important Info	INFO	Important Automatic Storage Management (ASM) Notes and Technical White Papers	rws1270029	SOLTEN	NA
ASM flush status	PASS	AWR_FLUSH_EMERGENCY_COUNT value is equal to ZERO for SOLTEN	rws1270029	SOLTEN	NA
DBRM Check Status	WARNING	DBRM is not configured for SOLTEN	rws1270029	SOLTEN	NA
Ensure db_unique_name is unique across the enterprise [primary]	FAIL	DB_UNIQUE_NAME on primary has not been modified from the default; confirm that database name is unique across your Oracle enterprise for SOLTEN	rws1270029	SOLTEN	NA
RDBMS software owner across cluster	PASS	RDBMS software owner matches across cluster	rws1270031	NA	NA

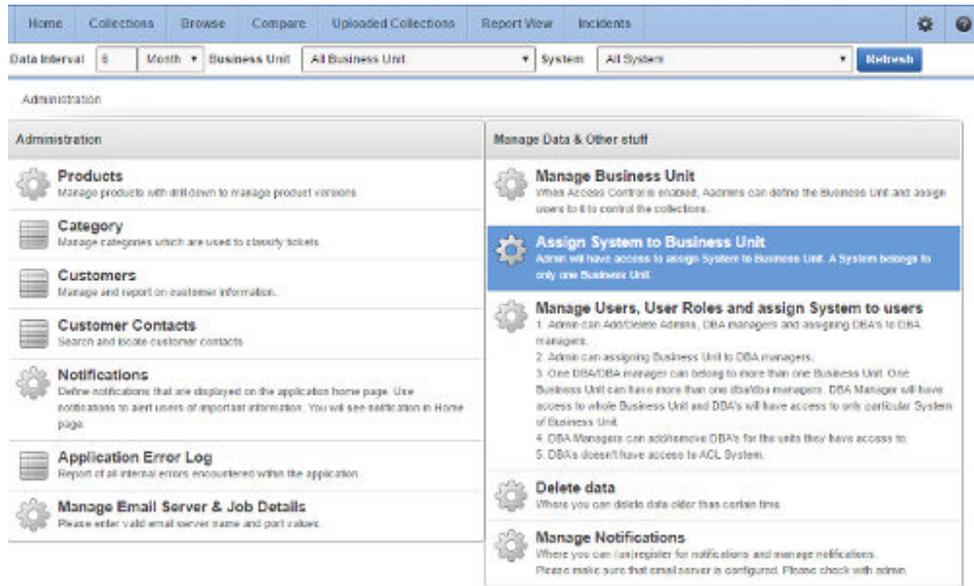
1.10.3.6 Bulk Mapping Systems to Business Units

Oracle Health Check Collections Manager provides an XML bulk upload option so that you can quickly map many systems to business units.

To bulk map systems to the business units:

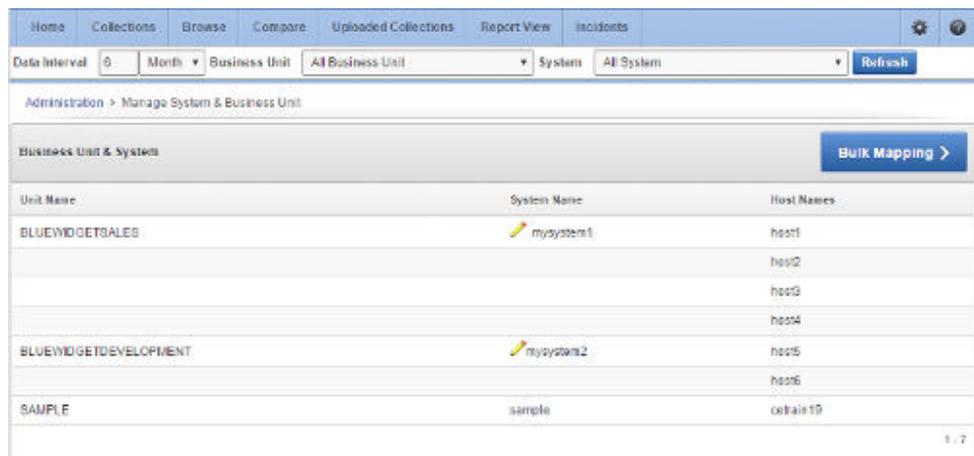
1. Click **Administration**, then select **Assign System to Business Unit**.

Figure 1-123 Assign System to Business Unit



2. Click **Bulk Mapping**.

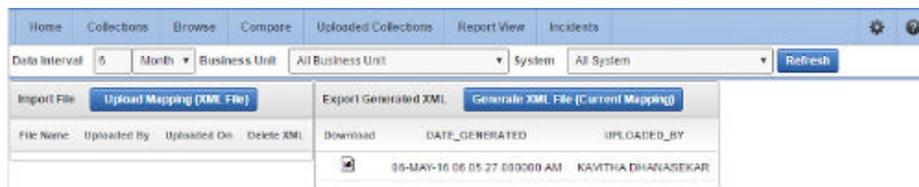
Figure 1-124 Bulk Mapping



3. Upload a mapping XML.
 - a. Click **Generate XML File (Current Mapping)**.

- b. Download the resulting XML file that contains your current system to business unit mappings.

Figure 1-125 Upload a mapping XML



- c. Amend the XML to show mappings that you want.
- d. Upload new Mapping XML through **Upload Mapping (XML File)**.

1.10.3.7 Adjusting or Disabling Old Collections Purging

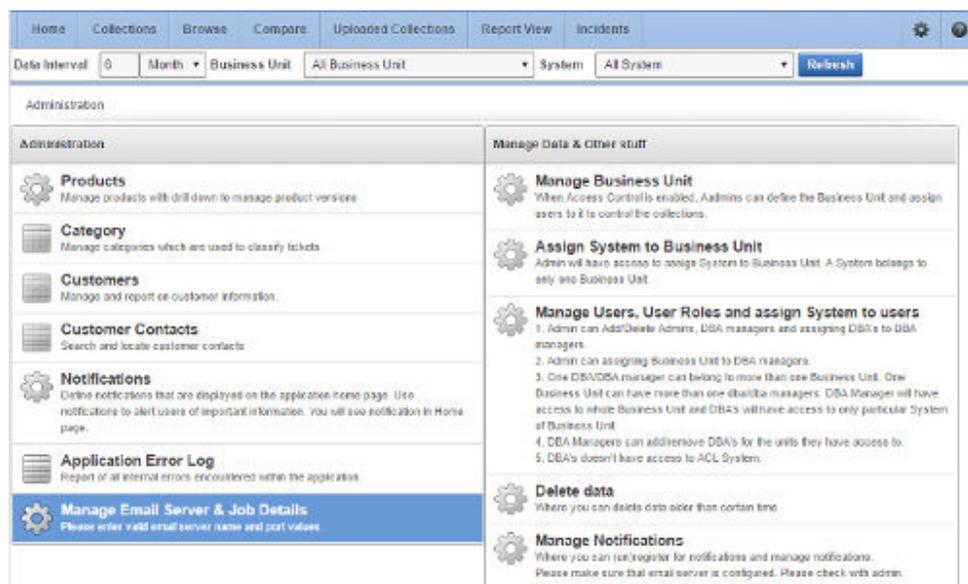
Modify or disable the purge schedule for Oracle Health Check Collections Manager collection data.

By default, Oracle Health Check Collections Manager purges collections older than three months.

To adjust or disable the collection purging frequency:

1. Click **Administration**, and then select **Manage Email Server & Job Details**.

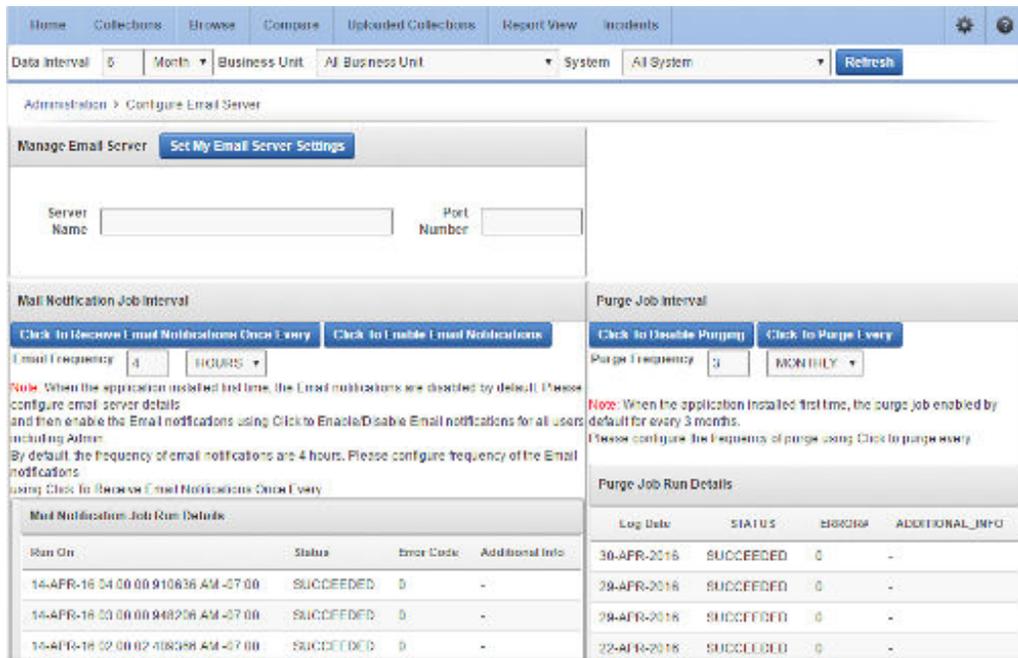
Figure 1-126 Manage Email Server and Job Details



2. Select an appropriate option:
 - Change the frequency of purges by setting different values in **Purge Frequency**. Then click **Click To Purge Every**.
 - To disable purging, click **Click To Disable Purging**.

- To re-enable purging, click **Click To Enable Purging**.

Figure 1-127 Configure Purging



1.10.4 Oracle Health Check Collections Manager Application Features

Familiarize yourself with the features of Oracle Health Check Collections Manager Application.

- [Global Select Lists](#) (page 1-173)
Oracle Health Check Collections Manager Application provides an option to display the data based on select lists like Business Units, Systems, and Data for last periods of time.
- [Home Tab](#) (page 1-173)
Displays systems and their statuses, and recent activities of all users who has permission to access the application.
- [Collections Tab](#) (page 1-174)
Displays incidence information for each collection, and collection score for failed, warning, and failed checks.
- [Browse Tab](#) (page 1-175)
Browse tab enables you to list individual checks based on the filters set.
- [Compare Tab](#) (page 1-177)
Compare tab enables you to compare audit check results and patch results.
- [Report View Tab](#) (page 1-179)
Provides a graphical representation of database checks, instance checks, home path checks, and system health checks.

- [Upload Collections Tab](#) (page 1-180)
Provides an interface to manually upload a collection into Oracle Health Check Collections Manager Application and provides a list of uploaded collections and file details.
- [Tracking Support Incidents](#) (page 1-181)
The **Incidents** tab gives you a complete system for tracking support incidents.
- [Authoring User-Defined Checks](#) (page 1-183)
Define, test, and maintain your own checks that are specific to your environment.

1.10.4.1 Global Select Lists

Oracle Health Check Collections Manager Application provides an option to display the data based on select lists like Business Units, Systems, and Data for last periods of time.

All these select lists are global within the application and options available on starting of each tab.

- Business Unit
- System
- Data interval

1.10.4.2 Home Tab

Displays systems and their statuses, and recent activities of all users who has permission to access the application.

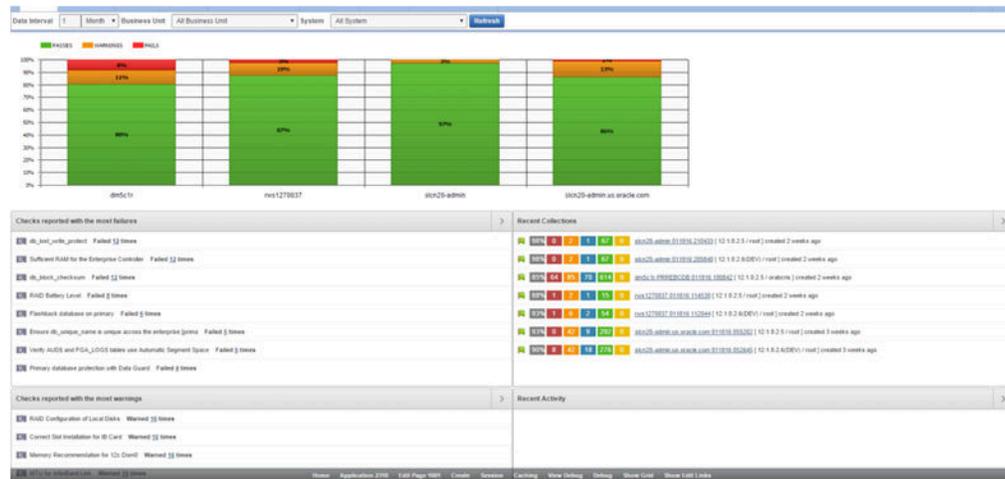
- Displays systems and their statuses in graphs with color coded green, orange, and red based on check results (passed, warning, and failed).
- The **Home** tab provides an option to display the data based on select lists like Business Units and Data for last periods of time. There is also an option to filter the most failed/warned checks and recent collections based on system name.
- The **Most Failed Checks** region displays information for the most frequently failed checks for all collections for the time period, Business Unit, or System selected, and displays the check name, fail count. There is a similar region for most warned checks.
- The **Recent Collections** region displays brief information about recently uploaded collections based on time frame, Overall score with Fail, Warning, and Pass counts and a Status flag. Recent collections are automatically compared to the last collection from the same system, whenever it occurred, if there is one.

Status Flags are color-coded green, orange, or red based on the comparison between the recent collection and the last collection, if any.

- GREEN: There is no difference at all between the two collections or one or more findings from the last collection improved from WARNING or FAIL to PASS or there was no earlier collection to compare with.
- ORANGE: There were one or more regressions between the last collection and the most recent on a given system. In other words some findings transitioned in a negative way, for example, PASS to WARNING.

- RED: There were one or more regressions between the last collection and the most recent on a given system. In other words some findings transitioned in a negative way, for example, PASS to FAIL.
- Recent Activity in **User Range** shows recent activities by all users across all collections specific to the access role granted the user.
 - DBA role users can see everything that happens in the systems assigned to them.
 - DBA Manager role users can see everything within their Business Unit and the systems assigned to them.
 - Admin role user can see everything when there is a collection data uploaded in to the application.

Figure 1-128 Home Tab



1.10.4.3 Collections Tab

Displays incidence information for each collection, and collection score for failed, warning, and failed checks.

- Displays all collections and allows you to filter the list of collections based on Business units and System. You can also filter based on Status flag. The list is also inherently filtered to those collections the user has access to, based on their assigned role.
- Displays incident information for each collection indicated by Delta (Δ) color coded red, blue, and green based on ticket status. Click the delta symbol to raise a new ticket or alter the ticket for an entire collection.
 - **RED (No Incident ticket exists):** Click to create a new incident ticket for the collection or individual checks.
 - **BLUE (An open Incident ticket exists):** Click to open the incident ticket for editing.
 - **GREEN (A closed Incident ticket exists):** Click opens the closed incident ticket for viewing.

- Collection Score is calculated based on failed, warning, and passed checks.

If a user raised a ticket for the collection, resolved the issues and the ticket is closed signifying the issues have all been resolved, then Oracle Health Check Collections Manager changes the collection score to 100%.

If a user raised a ticket for an individual check and if it is closed signifying that the finding has been resolved, then Oracle Health Check Collections Manager changes the status of the check as PASS and recalculates the collection score.

Collection Score is derived using following formula.

- Every check has 10 points.
- Failure deducts 10 points.
- Warning deducts 5 points.
- Info deducts 3 points.
- A **More Info** link next to a collection indicates that the collection was manually uploaded into the application.
- Click the linked collection name in the list to load the collection in the **Browse** tab.

Figure 1-129 Collections Tab

Collection Date	Incident	Collection Name	Profiles	Alert Flag	Score	Fail#	Warning#	Info#	Pass#	Ignore#	BU/SYS Info
06-OCT-2014 02:39:58	▲	nvs3060021.RDB1107.100614.021625	All	🚩	84%	69	212	132	947	0	DEFAULT: nvs20602124-r
01-OCT-2014 16:15:21	▲	nvs1270065.SDB1212.100114.160923	All	🚩	90%	18	73	65	599	0	DEFAULT: nvs12700650068
30-SEP-2014 05:13:28	▲	nvs3060021.RDB1107.093014.045946	sysadmin, dba	🚩	100%	66	197	75	833	0	DEFAULT: nvs20602124-r
30-SEP-2014 04:19:45	▲	nvs3060021.RDB1107.093014.040631	dba	🚩	82%	64	171	75	625	0	DEFAULT: nvs20602124-r

1.10.4.4 Browse Tab

Browse tab enables you to list individual checks based on the filters set.

- Set filters once the list of checks is created.
- Create and alter incident tickets for individual audit check findings similar to as described in the **Collections** tab.
- Select checks to ignore and to undo previously ignored checks. Select the check box beside the audit check and click **Ignore Selected**. Oracle Health Check Collections Manager marks them as **FAIL-IGNORED**, indicating that the check had failed but is ignored.

Oracle Health Check Collections Manager ignores the checks for the entire level based on the level selected for ignoring.

To ignore selected failed checks, you must choose the ignore type from the following list:

- Ignore from collection

- Ignore from system
- Ignore from a business unit
- Ignore from all business units

 **Note:**

The domain for ignoring checks is within the role assigned to the user.

All ignored checks are listed under the **Ignored Checks** tab. If needed, undo ignore.

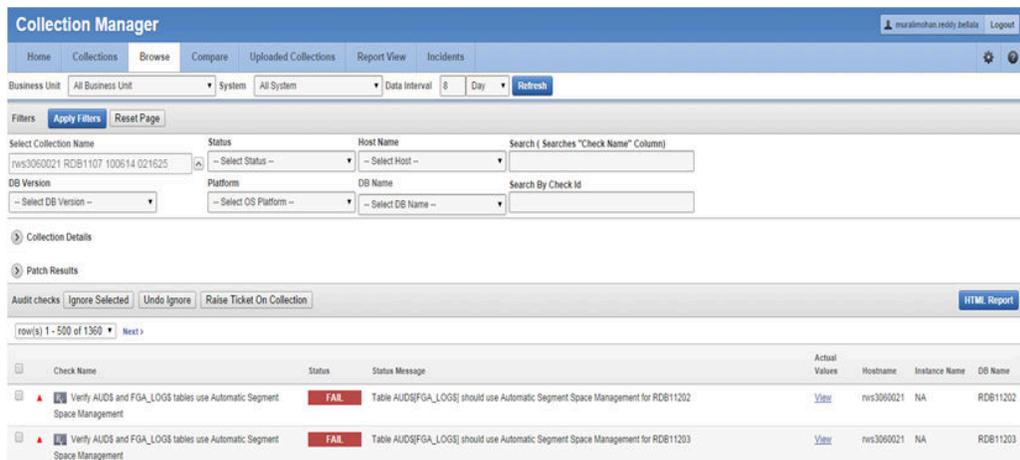
To undo the selected Ignored checks, consider the type from the following list:

- Undo ignore from collection
- Undo ignore from system
- Undo ignore from business unit
- Undo ignore from all business units

 **Note:**

The domain for undoing ignored checks is within the role assigned to the user.

Figure 1-130 Browse Tab



The screenshot displays the 'Browse' tab in the Oracle Health Check Collections Manager. At the top, there is a navigation bar with tabs for 'Home', 'Collections', 'Browse', 'Compare', 'Uploaded Collections', 'Report View', and 'Incidents'. Below this, there are filter controls for 'Business Unit' (set to 'All Business Unit'), 'System' (set to 'All System'), and 'Data Interval' (set to '8 Day'). A 'Refresh' button is also present. The main content area includes a 'Filters' section with 'Apply Filters' and 'Reset Page' buttons. Below the filters, there are sections for 'Collection Details' and 'Patch Results'. The 'Patch Results' section features a table of audit checks. The table has columns for 'Check Name', 'Status', 'Status Message', 'Actual Values', 'Hostname', 'Instance Name', and 'DB Name'. Two rows are shown, both with a 'FAIL' status. The first row's check name is 'Verify AUD\$ and FGA_LOGS tables use Automatic Segment Space Management' and the status message is 'Table AUD\$(FGA_LOGS) should use Automatic Segment Space Management for RDB11202'. The second row is similar but for RDB11203. Each row has a 'View' link in the 'Actual Values' column. At the bottom of the table, there is a pagination control showing 'row(s) 1 - 500 of 1360' and a 'Next' button.

Check Name	Status	Status Message	Actual Values	Hostname	Instance Name	DB Name
Verify AUD\$ and FGA_LOGS tables use Automatic Segment Space Management	FAIL	Table AUD\$(FGA_LOGS) should use Automatic Segment Space Management for RDB11202	View	nrs3060021	NA	RDB11202
Verify AUD\$ and FGA_LOGS tables use Automatic Segment Space Management	FAIL	Table AUD\$(FGA_LOGS) should use Automatic Segment Space Management for RDB11203	View	nrs3060021	NA	RDB11203

Figure 1-131 Ignored Checks

Check Name	Ignored From	Ignored By	Ignored On
Manage ASM Audit File Directory Growth with cron	DEFAULT: orach_nrs3060021_RDB1107_100614_021625	MURALIMOHAN REDDY BELLALA	08-OCT-14 02:26:01 409013 AM
yServer State Lock	DEFAULT: orach_nrs3060021_RDB1107_100614_021625	MURALIMOHAN REDDY BELLALA	08-OCT-14 02:26:01 250671 AM
Verify AUDS and FGA_LOGS tables use Automatic Segment Space Management	DEFAULT: orach_nrs3060021_RDB1107_100614_021625	MURALIMOHAN REDDY BELLALA	08-OCT-14 02:25:17 863242 AM

Figure 1-132 Browse Tab - Apply Filters

Check Name	Status	Status Message	Actual Values	Hostname	Instance Name	DB Name	Platform	DB Version
db_block_checksum	FAIL	Database parameter DB_BLOCK_CHECKSUM is NOT set to recommended value on qa2 instance	View	stcc12adm02	qa2	qa	Linux X86-64	
BP9 or greater in Grid Infrastructure home for Write Back Flash Cache	FAIL	Write Back Flash Cache is in use and the grid home version should be 11.2.0.3 BP 9 or higher	View	stcc12adm02	NA	qa	Linux X86-64	
14132953	FAIL	System is exposed to Exadata Critical Issue DR20 i/o1/appliance/product/11.2.0.3/othome_1	View	stcc12adm02	NA	qa	Linux X86-64	
db_files	FAIL	Database parameter DB_FILES should be set to recommended value on qa2 instance	View	stcc12adm02	qa2	qa	Linux X86-64	
Verify operating system hugepages count satisfies total SGA requirements	FAIL	Operating system hugepages count does not satisfy total SGA requirements	View	stcc12adm02	NA	qa	Linux X86-64	
High Redundancy Redundity files	FAIL	Database parameter DB_create_online_bg_dest_n is not set to recommended value for qa	View	stcc12adm02	NA	qa	Linux X86-64	
13257247	FAIL	System may be exposed to Exadata Critical Issue DB11 i/o1/appliance/product/11.2.0.3/othome_1	View	stcc12adm02	NA	qa	Linux X86-64	
High Redundancy Controlfile	FAIL	Database control files are not configured as recommended for qa	View	stcc12adm02	NA	qa	Linux X86-64	
use_large_pages	FAIL	Database parameter USE_LARGE_PAGES is NOT set to recommended value on qa2 instance	View	stcc12adm02	qa2	qa	Linux X86-64	

Figure 1-133 Browse Tab - Apply Filters - Ignored Checks

Check Name	Status	Status Message	Actual Values	Hostname	Instance Name	DB Name
db_lost_write_protect	IGNORE	Database parameter DB_LOST_WRITE_PROTECT is NOT set to recommended value on RDB112011 instance	View	nrs3060021	RDB112011	RDB11201
Verify AUDS and FGA_LOGS tables use Automatic Segment Space Management	IGNORE	Table AUDS[FGA_LOGS] should use Automatic Segment Space Management for RDB11203	View	nrs3060021	NA	RDB11203
db_lost_write_protect	IGNORE	Database parameter DB_LOST_WRITE_PROTECT is NOT set to recommended value on RDB112031 instance	View	nrs3060021	RDB112031	RDB11203
Manage ASM Audit File Directory Growth with cron	IGNORE	ASM Audit file destination file count > 100,000	View	nrs3060023	NA	RDB11107

1.10.4.5 Compare Tab

Compare tab enables you to compare audit check results and patch results.

- **Compare Audit check Results**
 - Compare the audit check findings from two different collections based on Business Unit, System, DB Version and Platform. The collections available for comparison are limited to filters set.
 - Compare collections from the same or different systems.
- **Compare Patch Results**
 - Compare installed Oracle patches from two different collections. The comparison displays the difference between the two collections based on patch results.

Figure 1-134 Compare Tab



Figure 1-135 Compare Tab - Audit Checks Diff

Check Name	Status1	StatusMsg1	Act Value1	Hostname1	DBName1	InstName1	Status2	StatusMsg2	Act Value2	Hostname2	DBName2	InstName2
resource_manager_plan	FAIL	Initialization parameter RESOURCE_MANAGER_PLAN should be set on OGG112042 instance	View	nws3060022	OGG11204	OGG112042	PASS	Initialization parameter RESOURCE_MANAGER_PLAN is set on OGG112042 instance	View	nws3060022	OGG11204	OGG112042
resource_manager_plan	FAIL	Initialization parameter RESOURCE_MANAGER_PLAN should be set on RDB112012 instance	View	nws3060022	RDB11201	RDB112012	PASS	Initialization parameter RESOURCE_MANAGER_PLAN is set on RDB112012 instance	View	nws3060022	RDB11201	RDB112012
resource_manager_plan	FAIL	Initialization parameter RESOURCE_MANAGER_PLAN should be set on RDB112041 instance	View	nws3060021	RDB11204	RDB112041	PASS	Initialization parameter RESOURCE_MANAGER_PLAN is set on RDB112041 instance	View	nws3060021	RDB11204	RDB112041
resource_manager_plan	FAIL	Initialization parameter RESOURCE_MANAGER_PLAN should be set	View	nws3060021	RDB11203	RDB112031	PASS	Initialization parameter RESOURCE_MANAGER_PLAN is set on	View	nws3060021	RDB11203	RDB112031

Figure 1-136 Compare Tab - Patch Results Diff

Collection Manager

Home Collections Browse Compare Uploaded Collections Report View Incidents Ignored Checks

Data Interval: 2 Month Business Unit: All Business Unit System: All System Refresh

DB Version: -- Select DB Version -- Platform: -- Select OS Platform -- Show Only Collections With Patch Results

Above are filters to narrow down the below collections list

Collection1: nws3060021 RDB1107 111214 022419 Collection2: nws3060021 RDB1107 111214 010247 Audit Checks Diff Patch Results Diff Reset Page Switch to New

Baseline Patch Comparison Report

Collections Details

Matched Homes & Status

Note: Row highlighted with blue color tells, patch is recommended but not installed in one of the collections.

Host Name	Home Type	Home Path	Version	Patch#	Rec1	Applied On 1	Rec2	Applied On 2	Description
nws3060021	crs	/u01/app/11.2.0/grid_11204	11.2.0.4.0	18706472	YES	YES	YES	YES	GRID INFRASTRUCTURE SYSTEM PATCH 11.2.0.4.3
	rdms	/u01/app/psf/db/product/11.1.0/dbhome_11107	11.1.0.7.0	18522513	YES	YES	YES	YES	DATABASE PATCH SET UPDATE 11.1.0.7.20 (INCLUDES CPUJUL2014)
		/u01/app/oradb/product/11.2.0/dbhome_11204	11.2.0.4.0	18706472	YES	YES	YES	YES	GRID INFRASTRUCTURE SYSTEM PATCH 11.2.0.4.3
			11.2.0.4.0	18522515	NO	YES	NO	YES	Patch description: "OCW Patch Set Update : 11.2.0.4.3 (18522515)"
			11.2.0.4.0	18522509	NO	YES	NO	YES	Patch description: "Database Patch Set Update : 11.2.0.4.3 (18522509)"
		/u01/app/oradb/product/11.2.0/dbhome_11203	11.2.0.3.0	18522512	YES	YES	YES	YES	Patch description: "Database Patch Set Update : 11.2.0.3.11 (18522512)"
nws3060024	crs	/u01/app/11.2.0/grid_11204	11.2.0.4.0	18706472	YES	YES	YES	YES	GRID INFRASTRUCTURE SYSTEM PATCH 11.2.0.4.3
	rdms	/u01/app/psf/db/product/11.1.0/dbhome_11107	11.1.0.7.0	18522513	YES	YES	YES	YES	DATABASE PATCH SET UPDATE 11.1.0.7.20 (INCLUDES CPUJUL2014)
		/u01/app/oradb/product/11.2.0/dbhome_11204	11.2.0.4.0	18706472	YES	NO	YES	YES	GRID INFRASTRUCTURE SYSTEM PATCH 11.2.0.4.3
			11.2.0.4.0	18522515	NO	NO	NO	YES	Patch description: "OCW Patch Set Update : 11.2.0.4.3 (18522515)"

 **Note:**

Row highlighted in blue indicates that the patch is recommended, but it is not installed in one of the collections.

1.10.4.6 Report View Tab

Provides a graphical representation of database checks, instance checks, home path checks, and system health checks.

- Provides a printable view option to print the graphical summary of system collection
- Displays separate graphical summary view for database checks, instance checks, and home path checks breakup based on check type and check status in collection
- Displays system health check details based on status and check type in collection

Figure 1-137 Report View Tab - Summary

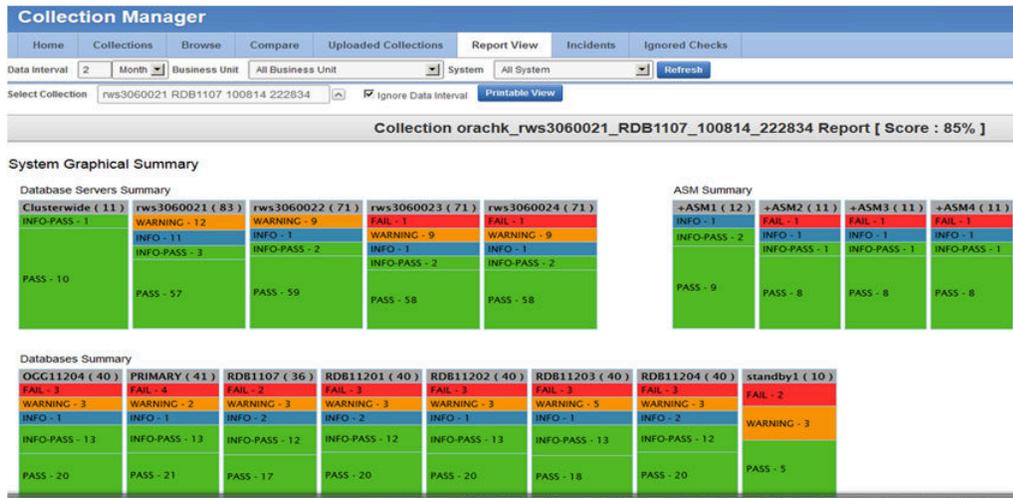


Figure 1-138 Report View Tab - Details

System Health Checks Details

Status	Check Type	Check Name	Status Message	Status On
FAIL				
	DB Server			
		Bash vulnerability CVE-2014-6271	Bash is vulnerable to code injection (CVE-2014-6271)	rws3060023, rws3060024
	ASM			
		Manage ASM Audit File Directory Growth with cron	ASM Audit file destination file count = 100,000	+ASM2, +ASM3, +ASM4
	Database			
		Flashback database on primary	Flashback on is not configured	PRIMARY
		Flashback database on primary	Flashback on PRIMARY is not configured	OGG11204, RDB1107, RDB11201, RDB11202, RDB11203, RDB11204

1.10.4.7 Upload Collections Tab

Provides an interface to manually upload a collection into Oracle Health Check Collections Manager Application and provides a list of uploaded collections and file details.

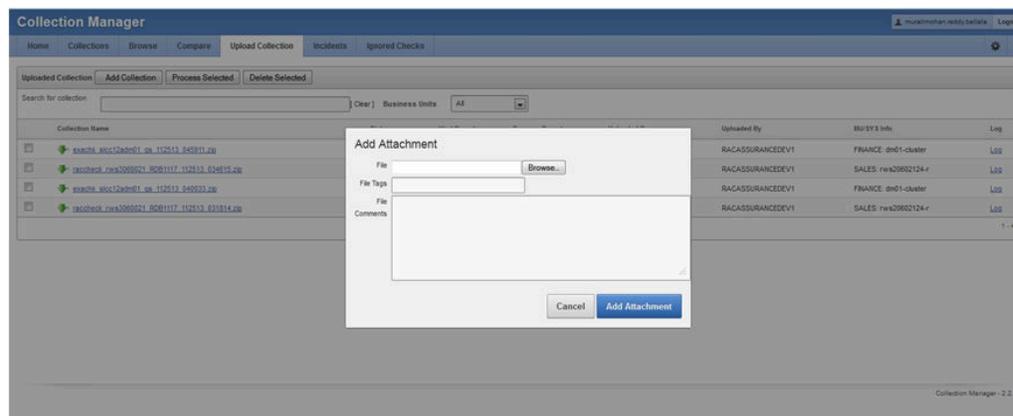
These manually uploaded collections are unzipped and their data imported into the framework as if they had been uploaded at runtime when the tool was run. Therefore, even if the tool is not configured for automatic upload into the Oracle Health Check Collections Manager Application, you can always upload collections manually.



Note:

Using a combination of tables and environment variables, you can automate the process of uploading collections into the database hosting the Oracle Health Check Collections Manager Application at runtime.

Figure 1-139 Upload Collections Tab



1.10.4.8 Tracking Support Incidents

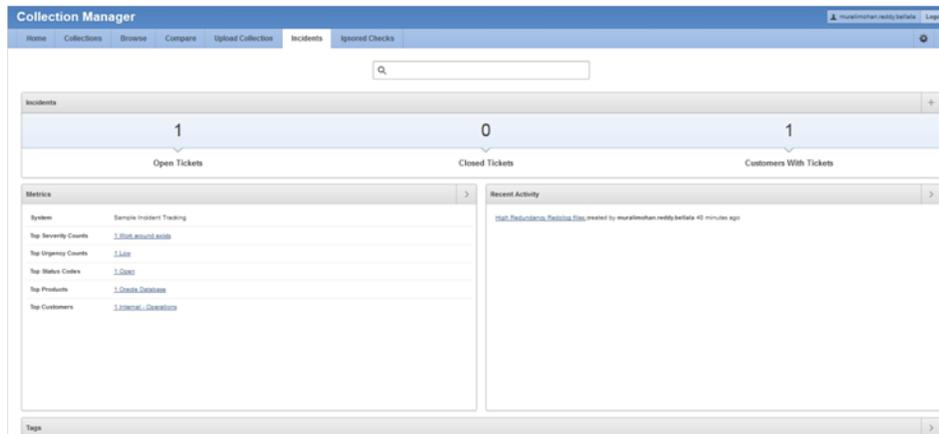
The **Incidents** tab gives you a complete system for tracking support incidents.

- Specify contact details of each customer, products and categories, and then set up values to limit status codes, severity, and urgency attributes for an incident
- Raise a new ticket by clicking the Delta (Δ) symbol. Oracle Health Check Collections Manager displays this symbol only in the **Collections** and **Browse** tabs.
- The **Browse** tab enables you to create a new ticket on individual checks
- The **Collections** tab enables you to create a single ticket for entire the collection
- Delta (Δ) symbol is color coded red, blue, and green based on the ticket status.
 - **RED (No Incident ticket exists)**: initiates the process to create a new incident ticket for the collection or individual checks
 - **BLUE (An open Incident ticket exists)**: opens the incident ticket for editing
 - **GREEN (A closed Incident ticket exists)**: opens the closed incident ticket for viewing
- Track the progress of the ticket in an update area of the ticket, or add attachments and links to the incident
- Use tags to classify incidents and use the resulting tag cloud in your reports
- Incident access and management happen only within your access control range

Note:

Incident Tracking feature is a basic stand-alone system and it is not designed for integration with other commercial enterprise-level trouble ticketing systems.

Figure 1-140 Incidents Tab



Incident Tracking Features

- Search options
- Track and analyze incident tickets
- Flexible and updateable incident status
- Robust reporting
- Link, Note, and File Attachments
- Flexible Access Control (reader, contributor, administrator model)
- [Creating or Editing Incidents Tickets](#) (page 1-182)
Create or edit incident tickets for individual checks or for an entire collection.

1.10.4.8.1 Creating or Editing Incidents Tickets

Create or edit incident tickets for individual checks or for an entire collection.

The statuses of each ticket is represented by icons with different colors. You can act upon by clicking the icons.

- [Creating Incident Tickets](#) (page 1-182)
- [Editing Incident Tickets](#) (page 1-183)

1.10.4.8.1.1 Creating Incident Tickets

To create incident tickets:

1. Click the **Delta (Δ)** symbol colored RED.
2. Add your ticket details.
3. Click **Next**.
4. Select the **Product** and **Product Version**.
5. Click **Next**.
6. Select the **Urgency** of the ticket.

7. Select the **Severity** of the ticket.
8. Select the **Status** of the ticket.
9. Select the **Category** of the ticket.
10. Enter a summary and description of the incident.
11. Click **Create Ticket**.

1.10.4.8.1.2 Editing Incident Tickets

To edit incident tickets:

1. Click the **Incident** tab.
2. Click **Open Tickets**.
3. Click the ticket.
4. Click **Edit Ticket**.
5. Alter required details, click **Apply Changes**.

 **Note:**

Click the delta symbol colored GREEN in the **Collections** or **Browse** tabs to edit incident tickets.

1.10.4.9 Authoring User-Defined Checks

Define, test, and maintain your own checks that are specific to your environment.

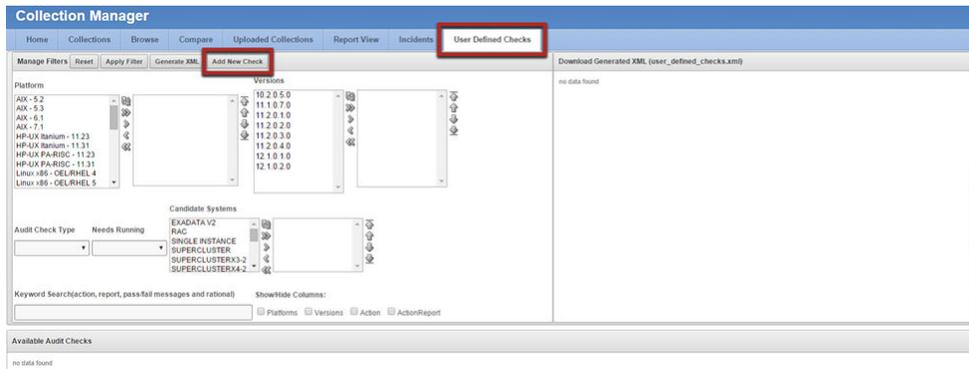
Oracle supports the framework for creating and running user-defined checks, but not the logic of the checks. It is your responsibility to test, verify, author, maintain, and support user-defined checks. At runtime, Oracle ORAchk and Oracle EXAchk script run the user-defined checks and display the results in the **User Defined Checks** section of the HTML report.

The user-defined checks are stored in the Oracle Health Check Collections Manager schema and output to an XML file, which is co-located with the ORAchk script. When run on your system, ORAchk 12.1.0.2.5 and later tries to find the XML file. If found, then Oracle ORAchk runs the checks contained therein and includes the results in the standard HTML report.

To author user-defined checks:

1. Click the **User Defined Checks** tab, then select **Add New Check**.

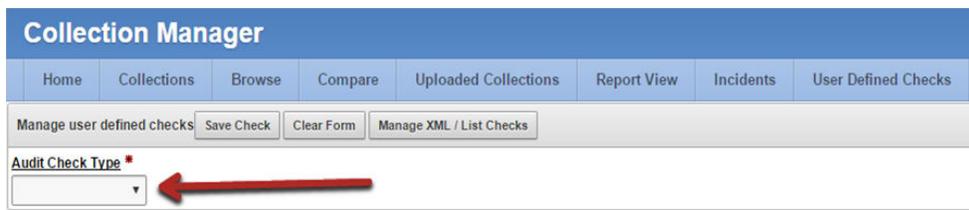
Figure 1-141 User-Defined Checks Tab



2. Select **OS Check** or **SQL Check** as **Audit Check Type**.

Operating system checks use a system command to determine the check status. SQL checks run an SQL statement to determine the check status.

Figure 1-142 User-Defined Checks Tab - Audit Check Type



Once you have selected an **Audit Check Type**, Oracle Health Check Collections Manager updates the applicable fields.

Any time during authoring, click the title of a field to see help documentation specific to that field.

Operating system and SQL commands are supported. Running user-defined checks as `root` is **NOT** supported.

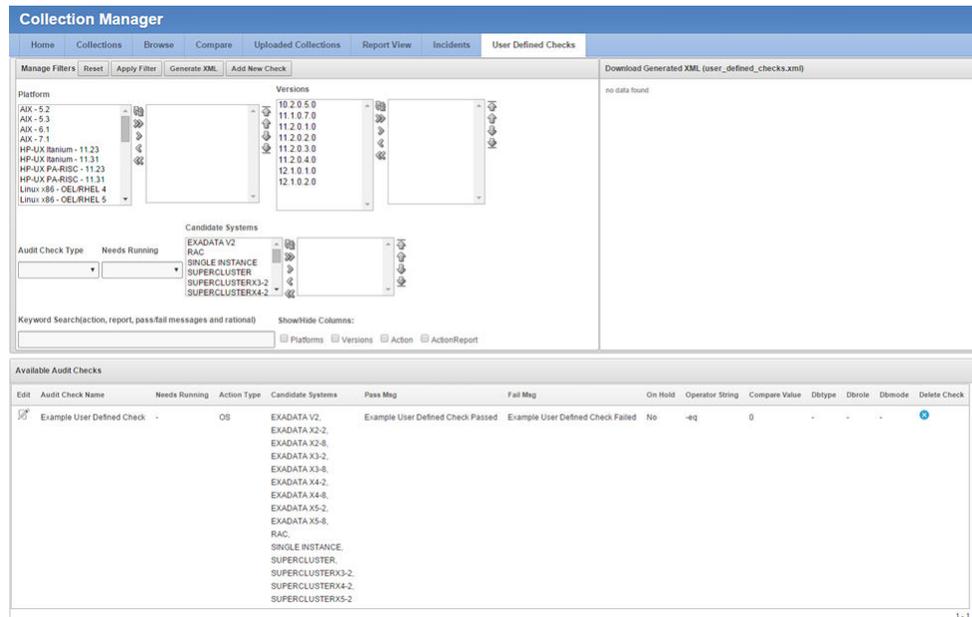
Figure 1-143 User-Defined Checks Tab - Audit Check Type - OS Check

The screenshot displays the 'Collection Manager' interface for defining a user check. The top navigation bar includes 'Home', 'Collections', 'Browse', 'Compare', 'Uploaded Collections', 'Report View', 'Incidents', and 'User Defined Checks'. Below this, there are buttons for 'Manage user defined checks', 'Save Check', 'Clear Form', and 'Manage XML / List Checks'. The main form is titled 'Audit Check Type' and 'On Hold'. It contains several sections: 'Audit Check Name' (text input), 'OS Command' (text area), 'OS Command for report' (text area), 'Oracle Version' (dropdown menu with options: 10.2.0.5.0, 11.1.0.7.0, 11.2.0.1.0, 11.2.0.2.0, 11.2.0.3.0, 11.2.0.4.0), 'Platforms' (dropdown menu with options: AIX - 5.2, AIX - 5.3, AIX - 6.1, AIX - 7.1, HP-UX Itanium - 11.23, HP-UX Itanium - 11.31), 'Candidate Systems' (list with checkboxes: EXADATA V2, RAC, SINGLE INSTANCE, SUPERCLUSTER, SUPERCLUSTERX3-2, SUPERCLUSTERX4-2), 'Needs Running' (checkbox), 'Oracle Executable Path' (text input), 'Comparison Operator' (dropdown), 'Comparison Value' (text input), 'Alert Level' (dropdown), 'Success Message (If Check Passes)' (text area), 'Failure Message (If Check Fails)' (text area), 'Benefit/Impact' (text area), 'Risk' (text area), 'Action/Repair' (text area), 'User Comments' (text area), and 'Documents/Notes' (text area). At the bottom, there is a section for 'Add Links to Audit Check' with a 'Link Type' dropdown. Red arrows point to the 'Oracle Version' and 'Platforms' dropdown menus with the text 'Click field titles for help'.

Once a check is created, the check is listed in the **Available Audit Checks** section.

Filter the checks using the filters on this page.

Figure 1-144 User-Defined Checks Tab - Available Audit Checks



3. Click the **Generate XML.**

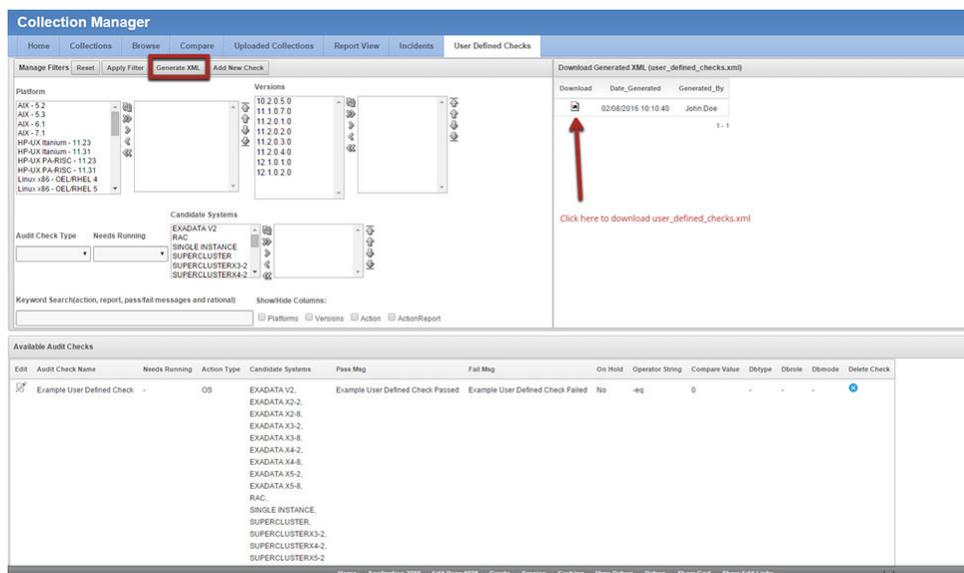
On the right, find a link to download the generated `user_defined_checks.xml` file.

The generated XML file includes all the checks that have been authored and have not been placed on hold. Placing checks on hold is equivalent to a logical delete. If there is a problem with a check or the logic is not perfect, then place the check on hold. The check that is placed on hold is not included in the XML file. If the check is production ready, then remove the hold to include the check the next time the XML file is generated.

4. Download and save the `user_defined_checks.xml` file into the same directory as the Oracle ORAchk and Oracle EXAchk tools.

Oracle ORAchk and Oracle EXAchk run the user-defined checks the next time they run.

Figure 1-145 User-Defined Checks Tab - Download User-Defined Checks



- Alternatively, to run only the user-defined checks use the profile `user_defined_checks`.

When this option is used, then the user-defined checks are the only checks run and the **User Defined Checks** section is the only one with results displayed in the report.

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

```
./exachk -profile user_defined_checks
```

- To omit the user-defined checks at runtime, use the `-excludeprofile` option.

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

```
./exachk -excludeprofile user_defined_checks
```

Related Topics

- [Running Subsets of Checks](#) (page 1-64)
Where necessary, you can run a subset of health checks.

1.10.5 Uploading Collections Automatically

Configure Oracle ORAchk and Oracle EXAchk to automatically upload check results to the Oracle Health Check Collections Manager database.

Specify the connection string and the password to connect to the database and upload collection results. Oracle Health Check Collections Manager stores the connection details in an encrypted wallet.

Related Topics

- [Uploading Collections Automatically](#) (page 1-137)
Use these procedures to configure Oracle ORAchk and Oracle EXAchk to automatically upload check results to the Oracle Health Check Collections Manager database.

1.10.6 Viewing and Reattempting Failed Uploads

Use these procedures to view and reattempt to upload the failed uploads.

Related Topics

- [Viewing and Reattempting Failed Uploads](#) (page 1-140)
Configure Oracle ORAchk and Oracle EXAchk to display and reattempt to upload the failed uploads.

1.10.7 Oracle Health Check Collections Manager Application Uninstallation

Anytime you can decommission Oracle Health Check Collections Manager Application setup. Follow these steps sequentially to uninstall the application leaving no residual files.

- [Deleting Oracle Health Check Collections Manager Application](#) (page 1-188)
You need administrative privileges to uninstall Oracle Health Check Collections Manager Application.
- [Deleting Workspace Admin](#) (page 1-190)
You need administrative privileges to delete a workspace. There may exist one or more workspaces so be cautious while deleting workspaces.

1.10.7.1 Deleting Oracle Health Check Collections Manager Application

You need administrative privileges to uninstall Oracle Health Check Collections Manager Application.

After successful uninstallation, application definition and the supporting objects are deleted from the hosting database.

1. Log in to Oracle Health Check Collections Manager Application.

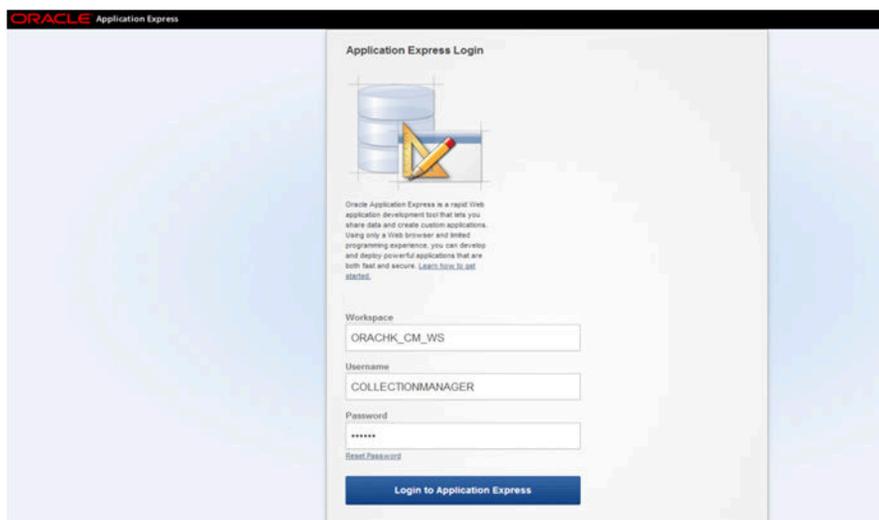
```
http://hostname:port/apex  
http://hostname:port/pls/apex/
```

For example:

```
http://dbserver.domain.com:8080/apex/
```

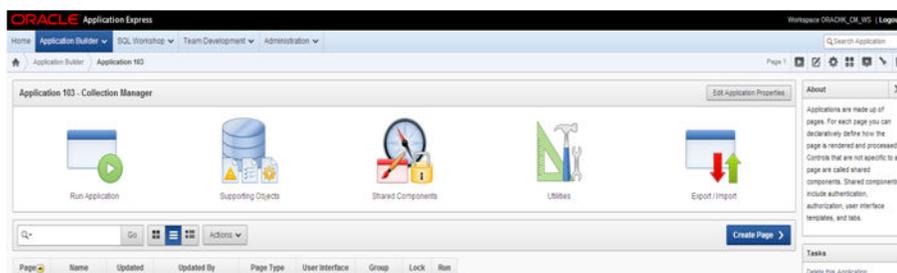
2. Specify the **Workspace Name**, **Workspace Username**, and **Password**, and then click **Login**.

Figure 1-146 Application Express Login



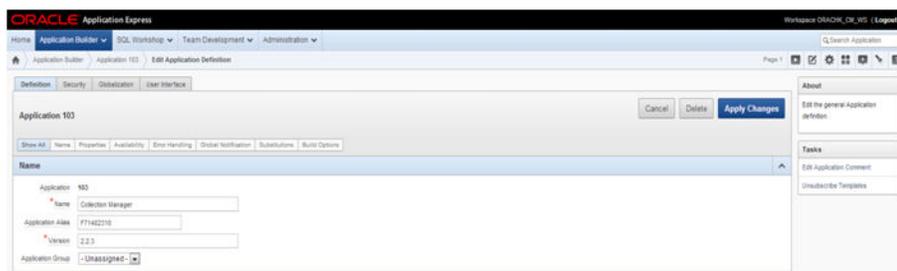
3. Click **Application Builder**.
4. Select **Collection Manager Application**, then click **Edit**.
5. Click **Edit Application Page**.

Figure 1-147 Application Express - Edit Application



6. Click **Delete**.

Figure 1-148 Application Express - Delete



7. Choose **Deinstallation Options**.
 - Select the **Remove Application Definition & Deinstall Supporting Objects** Deinstallation Options.

- Click **Deinstall**.

Figure 1-149 Application Express - Deinstall

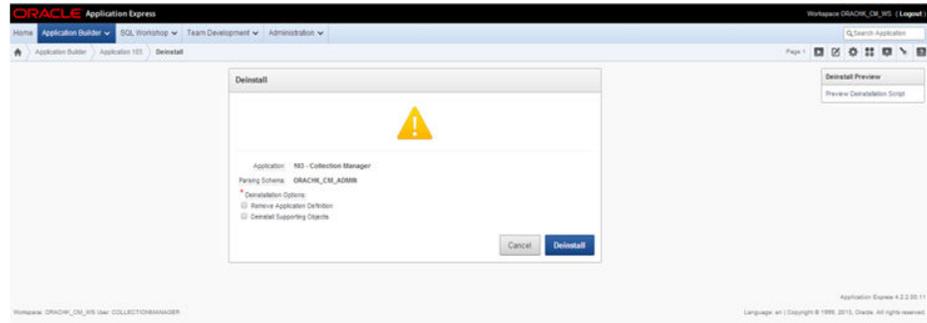
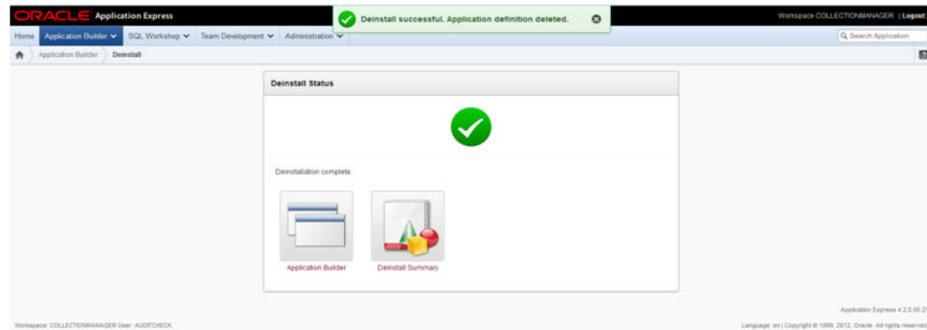


Figure 1-150 Application Express - Deinstall Summary

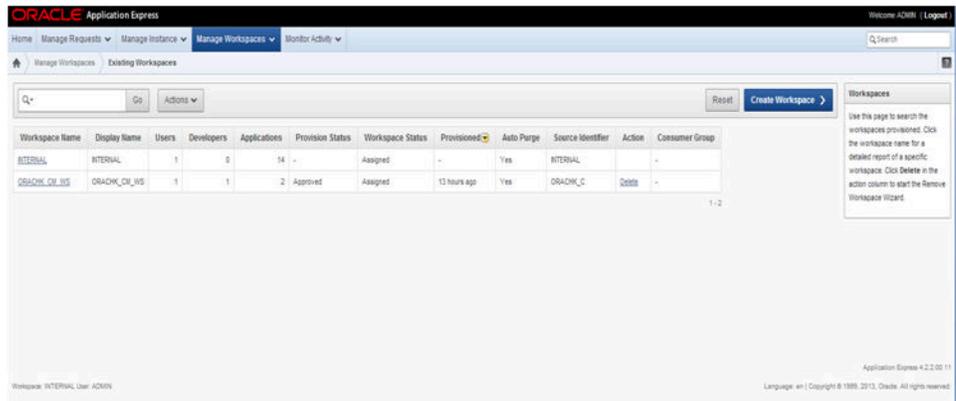


1.10.7.2 Deleting Workspace Admin

You need administrative privileges to delete a workspace. There may exist one or more workspaces so be cautious while deleting workspaces.

1. Log in to Oracle Application Express.
2. Click **Manage Workspaces**.
3. Under **Workspace Reports**, click **Existing Workspaces**, and check the **Workspace** name.

Figure 1-151 Application Express - Manage Workspaces



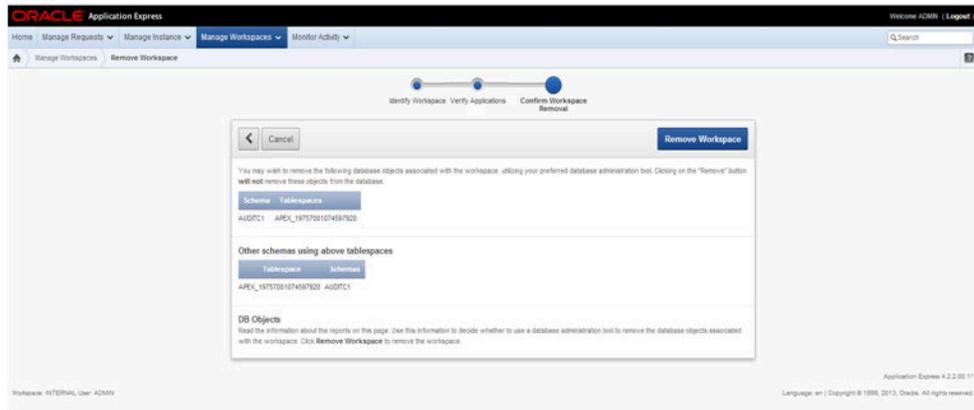
4. Under **Action**, click **Delete**.
5. Select the check box to confirm that you want to proceed with the removal and then click **Next**.

Figure 1-152 Application Express - Confirm Delete



6. Click **Remove Workspace**.

Figure 1-153 Application Express - Remove Workspace



The install process displays the workspace has been successfully removed message.

Related Topics

- http://docs.oracle.com/cd/E59726_01/install.50/e39144/db_pluggable.htm#HTMIG29436

1.10.8 Troubleshooting Oracle Health Check Collections Manager

This topic describes how to troubleshoot Oracle Health Check Collections Manager.

Related Topics

- [Troubleshooting Oracle Health Check Collections Manager](#) (page 1-142)
This topic describes how to troubleshoot Oracle Health Check Collections Manager.

1.11 Integrating Health Check Results with Other Tools

Integrate health check results from Oracle ORAchk and Oracle EXAchk into Enterprise Manager and other third-party tools.

- [Integrating Health Check Results with Oracle Enterprise Manager](#) (page 1-192)
Integrate health check results from Oracle ORAchk and Oracle EXAchk into Oracle Enterprise Manager.
- [Integrating Health Check Results with Third-Party Tool](#) (page 1-194)
Integrate health check results from Oracle ORAchk and Oracle EXAchk into various third-party log monitoring and analytics tools, such as Elasticsearch and Kibana.
- [Integrating Health Check Results with Custom Application](#) (page 1-196)
Oracle ORAchk and Oracle EXAchk upload collection results from multiple instances into a single database for easier consumption of check results across your enterprise.

1.11.1 Integrating Health Check Results with Oracle Enterprise Manager

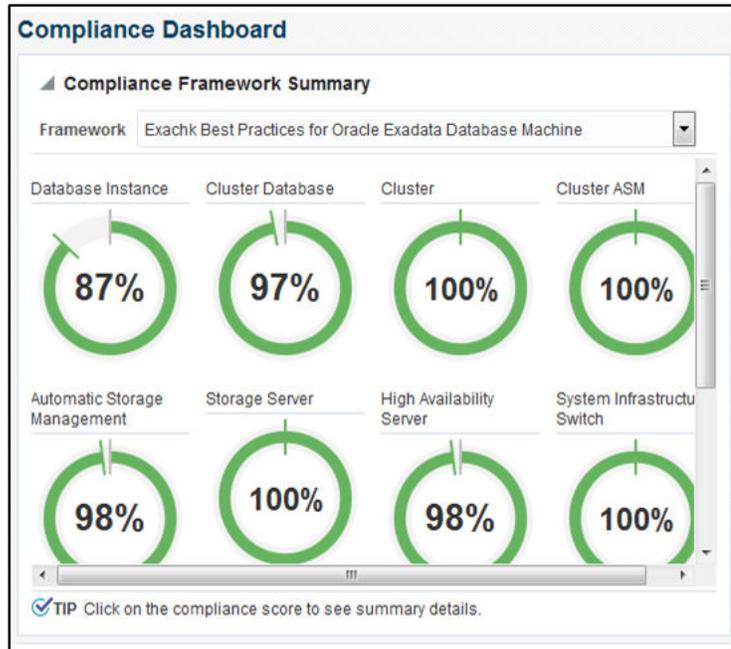
Integrate health check results from Oracle ORAchk and Oracle EXAchk into Oracle Enterprise Manager.

Oracle Enterprise Manager Cloud Control releases 13.1 and 13.2 support integration with Oracle ORAchk and Oracle EXAchk through the Oracle Enterprise Manager ORAchk Healthchecks Plug-in. The Oracle Engineered System Healthchecks plug-in supported integration with EXAchk for Oracle Enterprise Manager Cloud Control 12c release 12.1.0.5 and earlier releases.

With Oracle Enterprise Manager Cloud Control 13.1, Oracle ORAchk and Oracle EXAchk check results are integrated into the compliance framework. Integrating check results into the compliance framework enables you to display Compliance Framework Dashboards and browse checks by compliance standards.

- Integrate check results into Oracle Enterprise Manager compliance framework.
- View health check results in native Oracle Enterprise Manager compliance dashboards.

Figure 1-154 Compliance Dashboard



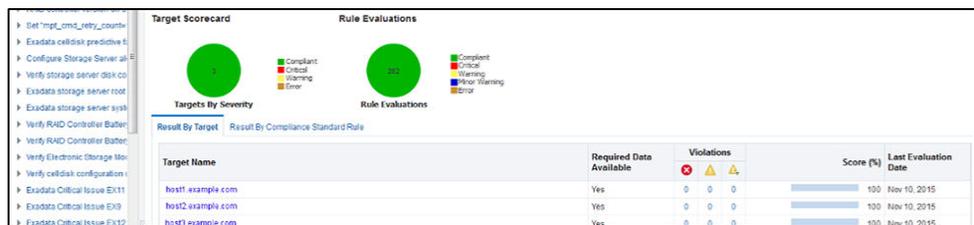
- Related checks are grouped into compliance standards where you can view targets checked, violations, and average score.

Figure 1-155 Compliance Standards

Compliance Standards	Applicable To	Compliance Standard State	Target Evaluations			Violations			Average Score (%)
			⊖	⚠	✔	⊖	⚠	✔	
Exachk Cluster ASM Best Practices For Oracle Exadata Database Machine	Cluster ASM	Production	0	0	1	0	0	0	100
Exachk Oracle Exadata Storage Server Best Practices For Oracle Exadata Database Machine	Oracle Exadata Storage Server	Production	0	0	3	0	0	0	100
Exachk System Infrastructure Switch Best Practices For Oracle Exadata Database Machine	System Infrastructure Switch	Production	0	0	3	0	0	0	100
Exachk Cluster Best Practices For Oracle Exadata Database Machine	Cluster	Production	0	0	1	0	0	0	100
Exachk Host Best Practices For Oracle Exadata Database Machine	Host	Production	0	0	2	2	2	13	93
Exachk Automatic Storage Management Best Practices For Oracle Exadata Database Machine	Automatic Storage Management	Production	0	0	2	2	1	0	97
Exachk Cluster Database Best Practices For Oracle Exadata Database Machine	Cluster Database	Production	0	0	1	5	3	1	97
Exachk Oracle High Availability Service Best Practices For Oracle Exadata Database Machine	Oracle High Availability Service	Production	0	0	2	2	0	0	98
Exachk Database Instance Best Practices For Oracle Exadata Database Machine	Database Instance	Production	0	0	2	32	8	0	87

- From within a compliance standard, drill-down to see individual check results and break the results by targets.

Figure 1-156 Compliance Standards Drill-Down





Note:

Although Oracle ORAchk and Oracle EXAchk do not require additional licenses, you require applicable Oracle Enterprise Manager licenses.

Related Topics

- Oracle Enterprise Manager ORAchk Healthchecks Plug-in User's Guide
- Oracle Enterprise Manager Licensing Information User Manual

1.11.2 Integrating Health Check Results with Third-Party Tool

Integrate health check results from Oracle ORAchk and Oracle EXAchk into various third-party log monitoring and analytics tools, such as Elasticsearch and Kibana.

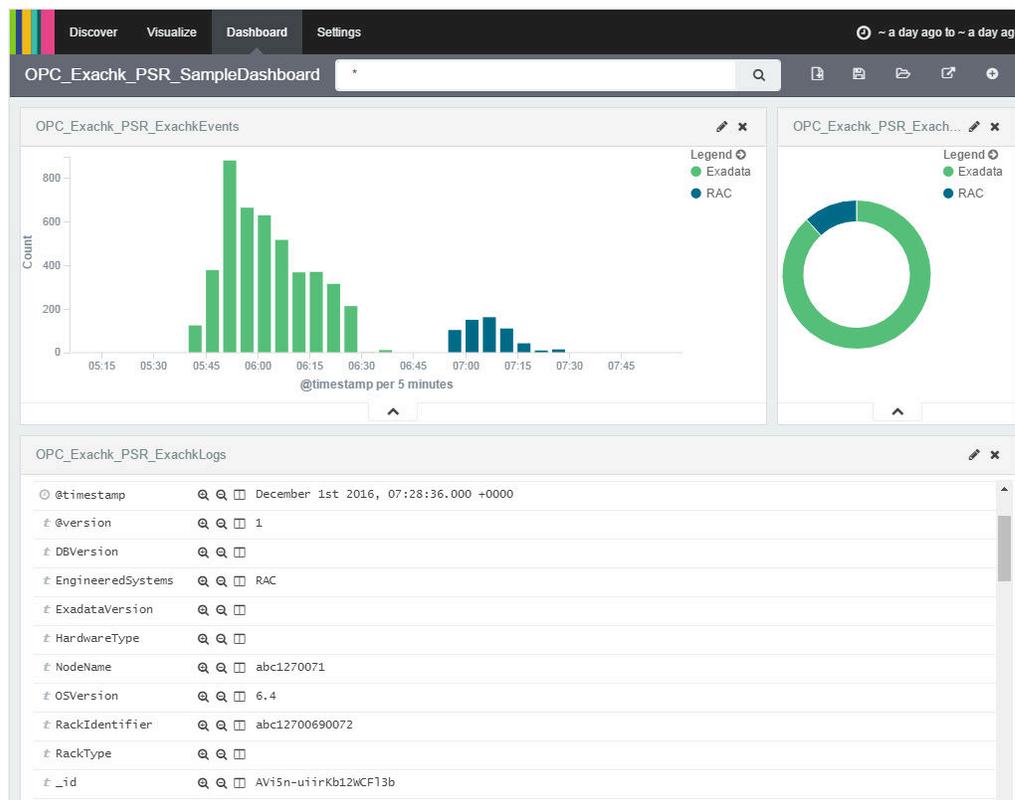
JSON provides many tags to allow dashboard filtering based on facts such as:

- Engineered System type
- Engineered System version
- Hardware type
- Node name
- Operating system version
- Rack identifier
- Rack type
- Database version

Use the Kibana dashboard to view health check compliance across the data center.

Filter the results based on any combination of exposed system attributes.

Figure 1-157 Third-Party Tool Integration



Oracle ORAchk and Oracle EXAchk create JSON output results in the output upload directory, for example:

```
Report_Output_Dir/upload/mymachine_orachk_results.json
Report_Output_Dir/upload/mymachine_orachk_exceptions.json
```

```
Report_Output_Dir/upload/mymachine_exachk_results.json
Report_Output_Dir/upload/mymachine_exachk_exceptions.json
```

1. Run the `-syslog` option to write JSON results to the `syslog` daemon.

For example:

```
./orachk -syslog
./exachk -syslog
```

2. Verify the `syslog` configuration by running the following commands:

Oracle ORAchk and Oracle EXAchk use the message levels: CRIT, ERR, WARN, and INFO.

```
$ logger -p user.crit crit_message
$ logger -p user.err err_message
$ logger -p user.warn warn_message
$ logger -p user.info info_message
```

3. Verify in your configured message location, for example, `/var/adm/messages` that each test message is written.

Related Topics

- https://docs.oracle.com/cd/E19424-01/820-4809/log_syslog/index.html
- [Elasticsearch: RESTful, Distributed Search & Analytics | Elastic](#)
- [Kibana: Explore, Visualize, Discover Data | Elastic](#)

1.11.3 Integrating Health Check Results with Custom Application

Oracle ORAchk and Oracle EXAchk upload collection results from multiple instances into a single database for easier consumption of check results across your enterprise.

Use Oracle Health Check Collections Manager or your own custom application to consume health check results.

1. Upload the collection results into the following tables at the end of a collection:

Table 1-16 Uploading Collection Results into a Database

Table	What Get's Uploaded
rca13_docs	Full zipped collection results.
auditcheck_result	Health check results.
auditcheck_patch_result	Patch check results.

If you install Oracle Health Check Collections Manager, then these tables are created by the install script.

2. If the tables are not created, then use the following DDL statements:

- **DDL for the RCA13_DOCS table**

```
CREATE TABLE RCA13_DOCS (
  DOC_ID          NUMBER DEFAULT
to_number(sys_guid(), 'XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX') NOT NULL ENABLE,
  COLLECTION_ID  VARCHAR2(40 BYTE),
  FILENAME       VARCHAR2(1000 BYTE) NOT NULL ENABLE,
  FILE_MIMETYPE  VARCHAR2(512 BYTE),
  FILE_CHARSET   VARCHAR2(512 BYTE),
  FILE_BLOB      BLOB NOT NULL ENABLE,
  FILE_COMMENTS  VARCHAR2(4000 BYTE),
  TAGS           VARCHAR2(4000 BYTE),
  ATTR1          VARCHAR2(200 BYTE),
  UPLOADED_BY    VARCHAR2(200 BYTE) DEFAULT USER,
  UPLOADED_ON    TIMESTAMP (6) DEFAULT systimestamp,
  SR_BUG_NUM     VARCHAR2(20 BYTE),
  CONSTRAINT RCA13_DOCS_PK PRIMARY KEY (DOC_ID),
  CONSTRAINT RCA13_DOCS_UK1 UNIQUE (FILENAME)
);
```

- **DDL for the auditcheck_result table**

```
CREATE TABLE auditcheck_result (
  COLLECTION_DATE  TIMESTAMP NOT NULL ENABLE,
  CHECK_NAME       VARCHAR2(256),
  PARAM_NAME       VARCHAR2(256),
  STATUS           VARCHAR2(256),
  STATUS_MESSAGE   VARCHAR2(256),
  ACTUAL_VALUE     VARCHAR2(256),
```

```

RECOMMENDED_VALUE          VARCHAR2(256),
COMPARISON_OPERATOR        VARCHAR2(256),
HOSTNAME                    VARCHAR2(256),
INSTANCE_NAME              VARCHAR2(256),
CHECK_TYPE                 VARCHAR2(256),
DB_PLATFORM                VARCHAR2(256),
OS_DISTRO                  VARCHAR2(256),
OS_KERNEL                  VARCHAR2(256),
OS_VERSION                 NUMBER,
DB_VERSION                 VARCHAR2(256),
CLUSTER_NAME               VARCHAR2(256),
DB_NAME                    VARCHAR2(256),
ERROR_TEXT                 VARCHAR2(256),
CHECK_ID                   VARCHAR2(40),
NEEDS_RUNNING              VARCHAR2(100),
MODULES                    VARCHAR2(4000),
DATABASE_ROLE              VARCHAR2(100),
CLUSTERWARE_VERSION        VARCHAR2(100),
GLOBAL_NAME                VARCHAR2(256),
UPLOAD_COLLECTION_NAME     VARCHAR2(256) NOT NULL ENABLE,
AUDITCHECK_RESULT_ID       VARCHAR2(256) DEFAULT sys_guid() NOT NULL
ENABLE,
COLLECTION_ID              VARCHAR2(40),
TARGET_TYPE                VARCHAR2(128),
TARGET_VALUE               VARCHAR2(256),
CONSTRAINT "AUDITCHECK_RESULT_PK" PRIMARY KEY ("AUDITCHECK_RESULT_ID")
);

```

- **DDL for the auditcheck_patch_result table**

```

CREATE TABLE auditcheck_patch_result (
  COLLECTION_DATE          TIMESTAMP(6) NOT NULL,
  HOSTNAME                 VARCHAR2(256),
  ORACLE_HOME_TYPE         VARCHAR2(256),
  ORACLE_HOME_PATH         VARCHAR2(256),
  ORACLE_HOME_VERSION      VARCHAR2(256),
  PATCH_NUMBER             NUMBER,
  CLUSTER_NAME             VARCHAR2(256),
  DESCRIPTION              VARCHAR2(256),
  PATCH_TYPE               VARCHAR2(128),
  APPLIED                  NUMBER,
  UPLOAD_COLLECTION_NAME   VARCHAR2(256),
  RECOMMENDED              NUMBER
);

```

- [Viewing and Reattempting Failed Uploads](#) (page 1-197)
Use these procedures to view and reattempt to upload the failed uploads.

1.11.3.1 Viewing and Reattempting Failed Uploads

Use these procedures to view and reattempt to upload the 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

```

Oracle ORAchk and Oracle EXAchk -checkfaileduploads

To see failed collections, use the `-checkfaileduploads` option:

```
./orachk -checkfaileduploads  
  
./exachk -checkfaileduploads  
  
$ ./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
```

Oracle ORAchk and Oracle EXAchk -uploadfailed

To reattempt collection upload you can use the `-uploadfailed` option, specifying either all to upload all or a comma-delimited list of collections:

```
./orachk -uploadfailed all|list of failed collections  
  
./exachk -uploadfailed all|list of failed collections  
  
./orachk -uploadfailed "/home/oracle/orachk_myserver_042016_232011.zip, /home/  
oracle/orachk_myserver_042016_231732.zip"
```



Note:

You cannot upload previously uploaded collections because of the SQL unique constraint.

1.12 Troubleshooting Oracle ORAchk and Oracle EXAchk

Follow the steps explained in this section to troubleshoot and fix Oracle ORAchk and Oracle EXAchk related issues.

- [How to Troubleshoot Oracle ORAchk and Oracle EXAchk Issues](#) (page 1-199)
Follow these steps to fix Oracle ORAchk and Oracle EXAchk related issues.
- [How to Capture Debug Output](#) (page 1-200)
Follow these procedures to capture debug information.
- [Error Messages or Unexpected Output](#) (page 1-201)
Follow these steps to troubleshoot and fix error messages and unexpected output.
- [Operating System Is Not Discovered Correctly](#) (page 1-205)
Oracle ORAchk and Oracle EXAchk display this message if the tools are not able to detect the operating system.
- [Oracle Clusterware or Oracle Database is not Detected or Connected Issues](#) (page 1-205)
Follow the procedures in this section to troubleshoot and fix Oracle Clusterware or Oracle Database issues.

- [Remote Connections](#) (page 1-208)
Troubleshoot and fix remote connections issues.
- [Permission Problems](#) (page 1-210)
You must have sufficient directory permissions to run Oracle ORAchk and Oracle EXAchk.
- [Slow Performance, Skipped Checks, and Timeouts](#) (page 1-211)
Follow these procedures to address slow performance and other issues.

1.12.1 How to Troubleshoot Oracle ORAchk and Oracle EXAchk Issues

Follow these steps to fix Oracle ORAchk and Oracle EXAchk related issues.

1. Ensure that you are using the correct tool.
If you have an Oracle Engineered System other than Oracle Database Appliance, then use Oracle EXAchk. For all other systems, use Oracle ORAchk.
2. Ensure that you are using the latest versions of Oracle ORAchk and Oracle EXAchk.
New versions are released every three months.
 - a. Check the version using the `-v` option:

```
$ ./orachk -v  
  
$ ./exachk -v
```
 - b. Compare your version with the latest version available here:
 - i. For Oracle ORAchk, refer to My Oracle Support Note 1268927.2.
 - ii. For Oracle EXAchk, refer to My Oracle Support Note 1070954.1.
3. Check the **FAQ** for similar problems in My Oracle Support Note 1070954.1.
4. Review files within the `log` directory.
 - Check applicable `error.log` files for relevant errors.
This file contains `stderr` output captured during the run, not everything you see in here will mean you have a problem, but if you have a problem this may give more information.

```
- output_dir/log/orachk_error.log  
- output_dir/log/exachk_error.log
```
 - Check applicable log for other relevant information.

```
- output_dir/log/orachk.log  
- output_dir/log/exachk.log
```
5. Review My Oracle Support Notes for similar problems.
6. For Oracle ORAchk issues, check My Oracle Support Community (MOSC).
7. If necessary capture debug output, log a new SR and attach the resulting `zip` file.

Related Topics

- [Output Files and Directories](#) (page 1-33)
Oracle ORAchk and Oracle EXAchk create an output directory that contains various files for you to examine.
- [How to Capture Debug Output](#) (page 1-200)
Follow these procedures to capture debug information.
- <https://support.oracle.com/rs?type=doc&id=1268927.2>
- <https://support.oracle.com/rs?type=doc&id=1070954.1>
- [My Oracle Support Community \(MOSC\)](#)

1.12.2 How to Capture Debug Output

Follow these procedures to capture debug information.

To capture debug output, use the following process:

1. Before enabling debug, reproduce the problem with the least run necessary.
 - Debug captures a lot, the resulting `zip` file can be large so try to narrow down the amount of run necessary to reproduce the problem.
Use relevant command line options to limit the scope of checks.

2. Enable debug.

If you are running the tool in on-demand mode, then use the `-debug` option:

```
$ ./orachk -debug
```

```
$ ./exachk -debug
```

When debug is enabled, Oracle ORAchk and Oracle EXAchk create a new debug log file in:

- `output_dir/log/orachk _debug_date_stamp_time_stamp.log`
- `output_dir/log/exachk _debug_date_stamp_time_stamp.log`

The `output_dir` directory retains a number of other temporary files used during health checks.

If you run health checks using the daemon, then restart the daemon with the `-d start -debug` option.

Running this command generates both debug for daemon and include debug in all client runs:

```
$ ./orachk -d start -debug
```

```
$ ./exachk -d start -debug
```

When debug is run with the daemon, Oracle ORAchk and Oracle EXAchk create a daemon debug log file in the directory the daemon was started:

```
orachk_daemon_debug.log
```

```
exachk_daemon_debug.log
```

3. Collect the resulting output `zip` file, and the daemon debug log file if applicable.

Related Topics

- [Controlling the Scope of Checks](#) (page 1-80)
Use the list of commands in this section to control the scope of checks.

1.12.3 Error Messages or Unexpected Output

Follow these steps to troubleshoot and fix error messages and unexpected output.

- [Data Entry Terminal Considerations](#) (page 1-201)
Use any supported UNIX and Linux terminal type (character mode terminal, ILOM, VNC server) to run Oracle ORAchk and Oracle EXAchk.
- [Tool Runs without Producing Files](#) (page 1-202)
Oracle ORAchk and Oracle EXAchk create temporary files and directories at runtime, as well as output files for data collection.
- [Messages similar to “line ****: **** Killed \\$perl_cmd 2>> \\$ERRFIL?”](#) (page 1-202)
Oracle ORAchk and Oracle EXAchk have a built-in `watchdog` process that monitors and kills the commands that exceed default timeouts to prevent hangs.
- [Messages similar to “RC-001- Unable to read driver files”](#) (page 1-202)
There are a number of possible causes related to not having a supported platform or not being able to read or write into temporary, working or installation directories.
- [Messages similar to “There are prompts in user profile on \[hostname\] which will cause issues in \[tool\] successful execution”](#) (page 1-203)
Oracle ORAchk and Oracle EXAchk tools exit if the tools detect prompts in the user profile.
- [Problems Related to Remote Login](#) (page 1-204)
- [Other Error Messages in `orachk_error.log` or `exachk_error.log`](#) (page 1-204)
When examining the `orachk_error.log`, some messages are expected and they are not indicative of problems.

1.12.3.1 Data Entry Terminal Considerations

Use any supported UNIX and Linux terminal type (character mode terminal, ILOM, VNC server) to run Oracle ORAchk and Oracle EXAchk.

Respond to the prompts during interactive runs, or while configuring the daemon.

Each terminal type has advantages and disadvantages. The effect of a dropped network connection varies based on the terminal type used.

For example, in an interactive run using a character mode terminal, if all the prompts are answered before the network drop, then the running process completes successfully even if the network connection drops. If the network connection drops before all the input prompts are answered, then all the running processes hang. Clean up the hung processes manually when the network connection is restored.

Using a remote connection to a VNC server running on the database where Oracle ORAchk and Oracle EXAchk are running minimizes the network drop interruptions.

If you use accessibility software or devices that prevent the use of a VNC server, and experience network drops, then contact your system administrator to determine the root cause and adjust the environment as necessary.

For example, if an accessibility aid inserts suspensions and restarts the interactive process running Oracle ORAchk and Oracle EXAchk leads to an operating system timeout due to terminal inactivity. Lengthen the inactivity timeouts of the environment before running the commands.

The timeout caused by an assistive tool at the operating system level due to terminal inactivity is not specific to Oracle ORAchk and Oracle EXAchk. The timeout could happen to any process managed by the assistive technology.

1.12.3.2 Tool Runs without Producing Files

Oracle ORAchk and Oracle EXAchk create temporary files and directories at runtime, as well as output files for data collection.

If you cancel Oracle ORAchk using Ctrl+C or if Oracle ORAchk fails due to an error, then Oracle ORAchk cleans up the files that Oracle ORAchk created while running.

If Oracle ORAchk or Oracle EXAchk complete health check runs, but did not generate output files, then there is an error probably near the end of the run that caused an ungraceful exit. If the problem persists, then run the tool again in debug mode and examine the output. If necessary, contact Oracle Support for assistance.

Related Topics

- [How to Capture Debug Output](#) (page 1-200)
Follow these procedures to capture debug information.

1.12.3.3 Messages similar to “line ****: **** Killed \$perl_cmd 2>> \$ERRFIL?”

Oracle ORAchk and Oracle EXAchk have a built-in `watchdog` process that monitors and kills the commands that exceed default timeouts to prevent hangs.

Killing a command results in “line ****: **** Killed \$perl_cmd 2>> \$ERRFIL?” error.

Related Topics

- [Slow Performance, Skipped Checks, and Timeouts](#) (page 1-211)
Follow these procedures to address slow performance and other issues.

1.12.3.4 Messages similar to “RC-001- Unable to read driver files”

There are a number of possible causes related to not having a supported platform or not being able to read or write into temporary, working or installation directories.

Oracle ORAchk and Oracle EXAchk display the same error message also as, RC-002- Unable to read driver files

Troubleshooting Process

1. Verify that you are running on a supported platform.
2. Verify that there is sufficient disk space available in the temporary or output directory. If necessary increase disk space or direct temporary and output files elsewhere.
3. Verify the hidden subdirectory `.cgrep` exists within the install location. This directory contains various support files some of which are platform-specific.

4. Verify that you are able to write into and read out of the temporary and working directory location.

Related Topics

- [Oracle ORAchk Supported Platforms](#) (page 2-3)
Review the list of Oracle ORAchk supported platforms.
- [Scope and Supported Platforms for Running Oracle EXAchk on Oracle Engineered Systems](#) (page 3-1)
Oracle EXAchk supports all supported hardware types, operating systems, firmware versions, and Oracle versions of the following Oracle engineered systems.
- [Scope and Supported Platforms for Running Oracle EXAchk on Oracle Exalogic](#) (page 3-14)
Oracle EXAchk is a health check tool that is designed to audit important configuration settings in an Oracle Exalogic Elastic Cloud machine.
- [Scope and Supported Platforms for Running Oracle EXAchk on Oracle SuperCluster](#) (page 3-47)
Oracle EXAchk is an invaluable aid in keeping your system up-to-date and recording changes, as well as providing baselines for support analysis in the event such data is required to resolve a Service Request.
- [Scope and Supported Platforms for Running Oracle EXAchk on Oracle Exalytics](#) (page 3-53)
Oracle EXAchk for Oracle Exalytics is a health check tool that audits important configuration settings within an Oracle Exalytics machine.
- [Scope and Supported Platforms for Running Oracle EXAchk on Oracle Big Data Appliance](#) (page 3-58)
Oracle EXAchk for Oracle Big Data Appliance supports all Oracle Big Data Appliance versions later than 2.0.1.
- [Output Files and Directories](#) (page 1-33)
Oracle ORAchk and Oracle EXAchk create an output directory that contains various files for you to examine.
- [Permission Problems](#) (page 1-210)
You must have sufficient directory permissions to run Oracle ORAchk and Oracle EXAchk.

1.12.3.5 Messages similar to “There are prompts in user profile on [hostname] which will cause issues in [tool] successful execution”

Oracle ORAchk and Oracle EXAchk tools exit if the tools detect prompts in the user profile.

Oracle ORAchk and Oracle EXAchk fetch the user environment files on all nodes. If the user environment files contain prompts, for example, `read -p`, or other commands that pause the running commands, then the commands timeout. The commands timeout because there is no way to respond to the messages when it is being called.

All such commands cannot be detected in the environment. However, the commands that can be detected lead to this message.

Troubleshooting Process

Comment all such prompts from the user profile file (at least temporarily) and test run again.

1.12.3.6 Problems Related to Remote Login

If you see messages similar to `-bash: /usr/bin/ssh -q: No such file or directory` or `/usr/bin/scp -q: No such file or directory`, then refer to "Remote Login Problems" to fix the issues.

Related Topics

- [Remote Login Problems](#) (page 1-208)
If Oracle ORAchk and Oracle EXAchk tools have problem locating and running SSH or SCP, then the tools cannot run any remote checks.

1.12.3.7 Other Error Messages in `orachk_error.log` or `exachk_error.log`

When examining the `orachk_error.log`, some messages are expected and they are not indicative of problems.

These errors are redirected and absorbed into the `error.log` to keep them from being reported on the screen. You do not need to report these types of errors to Oracle Support.

For example, an error similar to the following is reported numerous times, once for each Oracle software home for each node:

```
/bin/sh: /u01/app/11.2.0/grid/OPatch/opatch: Permission denied
chmod: changing permissions of `/u01/app/oracle_ebs/product/11.2.0.2/
VIS_RAC/.patch_storage': Operation not permitted
OPatch could not open log file, logging will not be possible
Inventory load failed... OPatch cannot load inventory for the given Oracle Home.
```

These types of errors occur in role-separated environments when the tool runs as the Oracle Database software owner uses `Opatch` to list the patch inventories of homes that are owned by Oracle Grid Infrastructure or other Oracle Database home owners. When you run `Opatch` to list the patch inventories for other users, `Opatch` fails because the current user does not have permissions on the other homes. In these cases, the `Opatch` error is ignored and the patch inventories for those homes are gathered by other means. To avoid such errors, Oracle recommends that you run Oracle ORAchk and Oracle EXAchk as `root` in role-separated environments.

Also, ignore the errors similar to the following:

```
./orachk: line [N]: [: : integer expression expected
```

The line number changes over time. However, the error indicates that the tool was expecting an integer return value and no value was found. The value was null that the shell was not able to compare the return values. The error is repeated many times for the same command, once for each node.

1.12.4 Operating System Is Not Discovered Correctly

Oracle ORAchk and Oracle EXAchk display this message if the tools are not able to detect the operating system.

If Oracle ORAchk and Oracle EXAchk are not able to detect the operating system, then the tools prompt:

- Data needed for the derived platform could not be found
- Improperly detecting an unsupported platform

Set the `RAT_OS` environment variable to the correct operating system:

```
$ export RAT_OS=platform
```

1.12.5 Oracle Clusterware or Oracle Database is not Detected or Connected Issues

Follow the procedures in this section to troubleshoot and fix Oracle Clusterware or Oracle Database issues.

- [Oracle Clusterware Software is Installed, but Cannot be Found](#) (page 1-205)
Oracle ORAchk discovers the location of the Oracle Clusterware home from the `oraInst.loc` and `oraInventory` files.
- [Oracle Database Software Is Installed, but Cannot Be Found](#) (page 1-206)
Oracle ORAchk and Oracle EXAchk tools display this message if the tools cannot find the Oracle Database software installed.
- [Oracle Database Software Is Installed, but Version cannot Be Found](#) (page 1-206)
Oracle ORAchk and Oracle EXAchk tools display this message if the tools cannot find the version of the Oracle Database software installed.
- [Oracle ASM Software is Installed, but Cannot be Found](#) (page 1-206)
Oracle ORAchk and Oracle EXAchk tools display this message if the tools cannot find the Oracle ASM software installed.
- [Oracle Database Discovery Issues on Oracle Real Application Clusters \(Oracle RAC\) Systems](#) (page 1-207)
On Oracle Real Application Clusters (Oracle RAC) systems, Oracle ORAchk discovers the database resources registered in the Oracle Cluster Registry.
- [Oracle Database Login Problems](#) (page 1-208)
Oracle Database login problems arise if you run Oracle ORAchk and Oracle EXAchk without sufficient privileges.

1.12.5.1 Oracle Clusterware Software is Installed, but Cannot be Found

Oracle ORAchk discovers the location of the Oracle Clusterware home from the `oraInst.loc` and `oraInventory` files.

Oracle Clusterware discovery fails due to:

- Problems discovering the `oraInst.loc` and `oraInventory` files
- Problems with the `oraInst.loc` and `oraInventory` files
- One or more paths in the `oraInst.loc` and `oraInventory` files are incorrect

Troubleshooting Process

1. Ensure that the `oraInst.loc` file is located correctly and is properly formed.

If the file is not in the default location, then set the `RAT_INV_LOC` environment variable to point to the `oraInventory` directory:

```
$ export RAT_INV_LOC=oraInventory directory
```

2. If necessary, set the `RAT_CRS_HOME` environment variable to point to the location of the Oracle Clusterware home:

```
$ export RAT_CRS_HOME=CRS_HOME
```

1.12.5.2 Oracle Database Software Is Installed, but Cannot Be Found

Oracle ORAchk and Oracle EXAchk tools display this message if the tools cannot find the Oracle Database software installed.

If the Oracle Database software is installed, but Oracle ORAchk and Oracle EXAchk cannot find, then set the `RAT_ORACLE_HOME` environment variable to the applicable `ORACLE_HOME` directory.

For example, enter the following command, where *your-oracle-home* is the path to the Oracle home on your system:

```
$ export RAT_ORACLE_HOME=your-oracle-home
```

Oracle ORAchk and Oracle EXAchk perform best practice and recommended patch checks for all the databases running from the home specified in the `RAT_ORACLE_HOME` environment variable.

1.12.5.3 Oracle Database Software Is Installed, but Version cannot Be Found

Oracle ORAchk and Oracle EXAchk tools display this message if the tools cannot find the version of the Oracle Database software installed.

If Oracle ORAchk and Oracle EXAchk cannot find the correct version, then set the `RAT_DB` environment variable to the applicable version.

For example:

```
$ export RAT_DB=11.2.0.3.0
```

1.12.5.4 Oracle ASM Software is Installed, but Cannot be Found

Oracle ORAchk and Oracle EXAchk tools display this message if the tools cannot find the Oracle ASM software installed.

If Oracle ORAchk and Oracle EXAchk cannot find Oracle ASM, then set the `RAT_ASM_HOME` environment variable to the applicable home directory.

```
$ export RAT_ASM_HOME=ASM_HOME
```

1.12.5.5 Oracle Database Discovery Issues on Oracle Real Application Clusters (Oracle RAC) Systems

On Oracle Real Application Clusters (Oracle RAC) systems, Oracle ORAchk discovers the database resources registered in the Oracle Cluster Registry.

The `ORACLE_HOME` for the database resources is derived from the profile of the database resources.

If there is a problem with any of the profiles of the database resources, then Oracle ORAchk cannot recognize or connect to one or more databases. Use the `-dbnames` option temporarily to fix the problem.

Specify the names of the database in a comma-delimited list as follows:

```
$ ./orachk -dbnames ORCL,ORADB
```

Alternatively, use the space-delimited environment variable `RAT_DBNAMES`:

```
$ export RAT_DBNAMES="ORCL ORADB"
```

Use double quotes to specify more than one database.

Note:

Configure the `RAT_DBHOMES` environment variable if you,

- Configure `RAT_DBNAMES` as a subset of databases registered in the Oracle Clusterware
- Want to check the patch inventories of ALL databases found registered in the Oracle Clusterware for recommended patches

By default, the recommended patch analysis is limited to the homes for the list of databases specified in the `RAT_DBNAMES` environment variable.

To perform the recommended patch analysis for additional database homes, specify space-delimited list of all database names in the `RAT_DBHOMES` environment variable.

For example:

```
export RAT_DBNAMES="ORCL ORADB"
```

```
export RAT_DBHOMES="ORCL ORADB PROD"
```

Best practice checks are applied to `ORACL` and `ORADB`.

Recommended patch checks are applied to `ORACL`, `ORADB`, and `PROD`.

1.12.5.6 Oracle Database Login Problems

Oracle Database login problems arise if you run Oracle ORAchk and Oracle EXAchk without sufficient privileges.

If you run Oracle ORAchk and Oracle EXAchk as a user other than the database software installation owner, `root` or `grid`, and if you experience problems connecting to the database, then perform the following steps:

1. Log in to the system as `grid` (operating system).
2. Run `export ORACLE_HOME=path of Oracle database home`
3. Run `export ORACLE_SID=database SID`
4. Run `export PATH=$ORACLE_HOME/bin:$ORACLE_HOME/lib:$PATH`
5. Add alias in the `$ORACLE_HOME/network/admin/tnsnames.ora` file for `database SID`.
6. Connect to the database using `$ORACLE_HOME/bin/sqlplus "sys@SID as sysdba"`, and enter the password.
7. Ensure that you have a successful connection.

If this method of connecting to the database does not work, then Oracle ORAchk and Oracle EXAchk do not connect either.

- If you have multiple homes owned by different users and you are not able to login to the target database as the user running Oracle ORAchk independently in SQL*Plus, then Oracle ORAchk does not login either.
- If the operating system authentication is not set up, then it should still prompt you for user name and password.

1.12.6 Remote Connections

Troubleshoot and fix remote connections issues.

- [Remote Login Problems](#) (page 1-208)
If Oracle ORAchk and Oracle EXAchk tools have problem locating and running SSH or SCP, then the tools cannot run any remote checks.

1.12.6.1 Remote Login Problems

If Oracle ORAchk and Oracle EXAchk tools have problem locating and running SSH or SCP, then the tools cannot run any remote checks.

Also, the `root` privileged commands do not work if:

- Passwordless remote `root` login is not permitted over SSH
 - Expect utility is not able to pass the `root` password
1. Verify that the SSH and SCP commands can be found.
 - The SSH commands return the error, `-bash: /usr/bin/ssh -q: No such file or directory`, if SSH is not located where expected.

Set the `RAT_SHELL` environment variable pointing to the location of SSH:

```
$ export RAT_SHELL=path to ssh
```

- The SCP commands return the error, `/usr/bin/scp -q: No such file or directory`, if SCP is not located where expected.

Set the `RAT_SCOPI` environment variable pointing to the location of SCP:

```
$ export RAT_SCOPI=path to scp
```

2. Verify that the user you are running as, can run the following command manually from where you are running Oracle ORAchk and Oracle EXAchk to whichever remote node is failing.

```
$ ssh root@remotehostname "id"
root@remotehostname's password:
uid=0(root) gid=0(root) groups=0(root),1(bin),2(daemon),3(sys),4(adm),6(disk),
10(wheel)
```

- If you face any problems running the command, then contact the systems administrators to correct temporarily for running the tool.
- Oracle ORAchk and Oracle EXAchk search for the prompts or traps in remote user profiles. If you have prompts in remote profiles, then comment them out at least temporarily and test run again.
- If you can configure passwordless remote `root` login, then edit the `/etc/ssh/sshd_config` file as follows:

```
n to yes
```

Now, run the following command as `root` on all nodes of the cluster:

```
hd restart
```

3. Enable Expect debugging.

- Oracle ORAchk uses the Expect utility when available to answer password prompts to connect to remote nodes for password validation. Also, to run `root` collections without logging the actual connection process by default.
- Set environment variables to help debug remote target connection issues.
 - `RAT_EXPECT_DEBUG`: If this variable is set to `-d`, then the Expect command tracing is activated. The trace information is written to the standard output.

For example:

```
export RAT_EXPECT_DEBUG=-d
```

- `RAT_EXPECT_STRACE_DEBUG`: If this variable is set to `strace`, `strace` calls the Expect command. The trace information is written to the standard output.

For example:

```
export RAT_EXPECT_STRACE_DEBUG=strace
```

- By varying the combinations of these two variables, you can get three levels of Expect connection trace information.

 **Note:**

Set the `RAT_EXPECT_DEBUG` and `RAT_EXPECT_STRACE_DEBUG` variables only at the direction of Oracle support or development. The `RAT_EXPECT_DEBUG` and `RAT_EXPECT_STRACE_DEBUG` variables are used with other variables and user interface options to restrict the amount of data collected during the tracing. The `script` command is used to capture standard output.

As a temporary workaround while you resolve remote problems, run reports local on each node then merge them together later.

On each node, run:

```
./orachk -local
./exachk -local
```

Then merge the collections to obtain a single report:

```
./orachk -merge zipfile 1 zipfile 2 > zipfile 3 > zipfile ...
./exachk -merge zipfile 1 zipfile 2 > zipfile 3 > zipfile ...
```

1.12.7 Permission Problems

You must have sufficient directory permissions to run Oracle ORAchk and Oracle EXAchk.

1. Verify that the permissions on the tools scripts `orachk` and `exachk` are set to 755 (-rwxr-xr-x).

If the permissions are not set, then set the permissions as follows:

```
$ chmod 755 orachk
$ chmod 755 exachk
```

2. If you install Oracle ORAchk and Oracle EXAchk as `root` and run the tools as a different user, then you may not have the necessary directory permissions.

```
[root@randomdb01 exachk]# ls -la
total 14072
drwxr-xr-x  3 root root   4096 Jun  7 08:25 .
drwxrwxrwt 12 root root   4096 Jun  7 09:27 ..
drwxrwxr-x  2 root root   4096 May 24 16:50 .cgrep
-rw-rw-r--  1 root root 9099005 May 24 16:50 collections.dat
-rwxr-xr-x  1 root root  807865 May 24 16:50 exachk
-rw-r--r--  1 root root 1646483 Jun  7 08:24 exachk.zip
-rw-r--r--  1 root root   2591 May 24 16:50 readme.txt
-rw-rw-r--  1 root root 2799973 May 24 16:50 rules.dat
-rw-r--r--  1 root root    297 May 24 16:50 UserGuide.txt
```

- If Oracle Clusterware is installed, then:
 - Install Oracle EXAchk in `/opt/oracle.SupportTools/exachk` as the Oracle Grid Infrastructure home owner
 - Install Oracle ORAchk in `CRS_HOME/suptools/orachk` as the Oracle Grid Infrastructure home owner

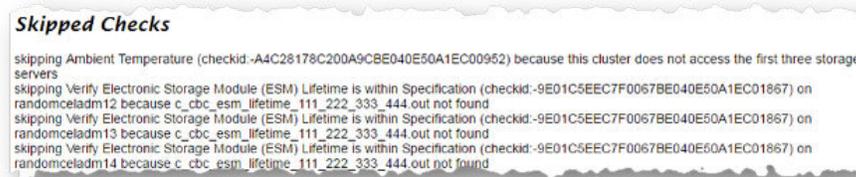
- If Oracle Clusterware is not installed, then:
 - Install Oracle EXAchk in `/opt/oracle.SupportTools/exachk` as `root`
 - Install Oracle ORAchk (in a convenient location) as `root` (if possible)
 or
 Install Oracle ORAchk (in a convenient location) as Oracle software install user or Oracle Database home owner

1.12.8 Slow Performance, Skipped Checks, and Timeouts

Follow these procedures to address slow performance and other issues.

When Oracle ORAchk and Oracle EXAchk run commands, a child process is spawned to run the command and a watchdog daemon monitors the child process. If the child process is slow or hung, then the watchdog kills the child process and the check is registered as skipped:

Figure 1-158 Skipped Checks



The `watchdog.log` file also contains entries similar to **killing stuck command**.

Depending on the cause of the problem, you may not see skipped checks.

1. Determine if there is a pattern to what is causing the problem.
 - EBS checks, for example, depend on the amount of data present and may take longer than the default timeout.
 - If there are prompts in the remote profile, then remote checks timeout and be killed and skipped. Oracle ORAchk and Oracle EXAchk search for prompts or traps in the remote user profiles. If you have prompts in remote profiles, then comment them out at least temporarily, and test run again.
2. Increase the default timeout.
 - You override the default timeouts by setting the environment variables.

Table 1-17 Timeout Controlling

Timeout Controlling	Default Value (seconds)	Environment Variable
Checks not run by root (most).	90	RAT_TIMEOUT

Table 1-17 (Cont.) Timeout Controlling

Timeout Controlling	Default Value (seconds)	Environment Variable
Collection of all root checks.	300	RAT_ROOT_TIMEOUT
SSH login DNS handshake.	1	RAT_PASSWORDCHECK_TIMEOUT

- The default timeouts are lengthy enough for most cases. If it is not long enough, then it is possible you are experiencing a system performance problem that should be corrected. Many timeouts can be indicative of a non-Oracle ORAchk and Oracle EXAchk problem in the environment.
3. If you can not increase the timeout, then try excluding problematic checks running separately with a large enough timeout and then merging the reports back together.
 4. If the problem does not appear to be down to slow or skipped checks but you have a large cluster, then try increasing the number of slave processes users for parallel database run.
 - Database collections are run in parallel. The default number of slave processes used for parallel database run is calculated automatically. This default number can be changed using the options: `-dbparallel slave processes`, or `-dbparallelmax`

 **Note:**

The higher the parallelism the more resources are consumed. However, the elapsed time is reduced.

You can raise or lower the number of parallel slaves beyond the default value.

After the entire system is brought up after maintenance, but before the users are permitted on the system, use a higher number of parallel slaves to finish a run as quickly as possible.

On a busy production system, use a number less than the default value yet more than running in serial mode to get a run more quickly with less impact on the running system.

Turn off the parallel database run using the `-dbserial` option.

Related Topics

- [Using Profiles with Oracle ORAchk and Oracle EXAchk](#) (page 1-70)
 Profiles are logical groupings of related checks. These related checks are grouped by a particular role, a task, or a technology.
- [Excluding Individual Checks](#) (page 1-72)
 Excluding checks is recommended in situations where you have reviewed all check output and determined a particular check is not relevant for some particular business reason.

- [Merging Reports](#) (page 1-58)
Merging reports is useful in role-separated environments where different users are run different subsets of checks and then you want to view everything as a whole.

1.13 Uninstalling Oracle ORAchk and Oracle EXAchk

 **Note:**

Oracle ORAchk daemon functionality is supported only on the Linux and Solaris operating systems.

1. Stop any active Oracle ORAchk or Oracle EXAchk daemon clients:

```
orachk -d stop_client  
exachk -d stop_client
```

2. Stop any running Oracle ORAchk or Oracle EXAchk daemon:

```
orachk -d stop  
exachk -d stop
```

3. Remove the Oracle ORAchk or Oracle EXAchk daemon from automatic restart configuration:

```
orachk -initrmsetup  
exachk -initrmsetup
```

4. Delete the Oracle ORAchk or Oracle EXAchk install directory.

2

Oracle ORAchk Specific Features and Tasks

This chapter describes the features specific to Oracle ORAchk and the tasks that you can perform using Oracle ORAchk.

- [Oracle ORAchk Scope and Supported Environments](#) (page 2-1)
Review the scope and supported environments for Oracle ORAchk.
- [Using Oracle ORAchk to Confirm System Readiness for Implementing Application Continuity](#) (page 2-4)
Application Continuity Checking for Application Continuity allows you to deploy Application Continuity easily and transparently.
- [Oracle ORAchk for Oracle Identity and Access Management Health Check Tool](#) (page 2-8)
Oracle ORAchk for Oracle Identity and Access Management proactively identifies areas to take preventive measures to keep a system healthy on an ongoing basis.
- [Running Oracle ZFS Storage Appliance Health Checks](#) (page 2-16)
Oracle ORAchk supports health checks for Oracle ZFS Storage Appliances.
- [Oracle ORAchk Specific Command-Line Options](#) (page 2-17)
List of command-line options specific to Oracle ORAchk.
- [Troubleshooting Oracle ORAchk Specific Problems](#) (page 2-19)
Troubleshoot and fix Oracle ORAchk specific problems.

2.1 Oracle ORAchk Scope and Supported Environments

Review the scope and supported environments for Oracle ORAchk.

- [Oracle ORAchk Scope of Oracle Stack Supported](#) (page 2-1)
Oracle ORAchk performs health checks for the entire range of Oracle products from hardware, to Oracle Database, middleware, and applications.
- [Oracle ORAchk Supported Platforms](#) (page 2-3)
Review the list of Oracle ORAchk supported platforms.
- [Oracle ORAchk Supported Database Releases](#) (page 2-3)
Review the list of supported database releases for Oracle ORAchk.

2.1.1 Oracle ORAchk Scope of Oracle Stack Supported

Oracle ORAchk performs health checks for the entire range of Oracle products from hardware, to Oracle Database, middleware, and applications.

Oracle ORAchk proactively scans for top known problems (based on prioritization of reported issues) within an Oracle system.

The scope of Oracle ORAchk increases with new releases. Review the following list for the current scope of Oracle ORAchk.

Oracle Database Appliance**Oracle ASR****Oracle Database**

- Single-instance Oracle Database
- Oracle Grid Infrastructure and Oracle RAC
- Maximum Availability Architecture (MAA) validation
- Upgrade Readiness validation
- Oracle GoldenGate
- Application Continuity

Enterprise Manager Cloud Control (12c only)

- Management Repository
- Management Agents
- Oracle Management Service (OMS), version 12.1.0.1 and later on Linux only

E-Business Suite

- 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

Oracle Identity and Access Management

- Oracle Identity Manager (11.1.2.2.x and 11.1.2.3.x)
- Oracle Access Manager (11.1.2.2.x and 11.1.2.3.x)
- Oracle Unified Directory (11.1.2.2.x and 11.1.2.3.x)

Oracle Hardware Systems

- Oracle Solaris
- Oracle Solaris Cluster
- Oracle Systems configuration for Oracle Middleware and Oracle Applications
- Oracle ZFS Storage Appliance
- Oracle Virtual Networking

Oracle Siebel

- Oracle Siebel verification of the database configuration for stability, best practices, and performance optimization (Siebel 8.1.1.11 connecting to Oracle Database 11.2.0.4.)

Oracle PeopleSoft

- Oracle PeopleSoft verification of database best practices

2.1.2 Oracle ORAchk Supported Platforms

Review the list of Oracle ORAchk supported platforms.

Oracle ORAchk is supported on the following platforms:

- Intel Linux* (Oracle Linux/RedHat 4, 5, 6, 7 and SuSE 9, 10, 11, 12)
- Linux on System Z (RedHat 6, 7 and SuSE 12)
- Oracle Solaris SPARC (Solaris 9, 10, and 11)
- Oracle Solaris x86-64 (Solaris 9, 10, and 11)
- AIX **
- HPUX**
- Microsoft Windows (2008 and 2012)***

Note:

*No planned support for Linux Itanium.

*Only 32-bit platforms are supported for 32-bit EBS environments using the command `./orachk -ebs32bit`

2.1.3 Oracle ORAchk Supported Database Releases

Review the list of supported database releases for Oracle ORAchk.

Oracle ORAchk is supported on the following database releases:

- Oracle Database 10g Release 2 (10.2.x)
- Oracle Database 11g Release 1 (11.1.x)
- Oracle Database 11g Release 2 (11.2.x)
- Oracle Database 12c Release 1 (12.1.x)
- Oracle Database 12g Release 2 (12.2)

2.2 Using Oracle ORAchK to Confirm System Readiness for Implementing Application Continuity

Application Continuity Checking for Application Continuity allows you to deploy Application Continuity easily and transparently.

- [Overview of Application Continuity](#) (page 2-4)
- [Checks for Application Continuity](#) (page 2-4)

2.2.1 Overview of Application Continuity

Oracle ORAchK identifies any references to deprecated JDNVC concrete classes that need to be changed.

Oracle ORAchK analyzes the database operations in the application and reports the level of protection. It also reports where and why the applications are not protected.

Together, these checks can help you ensure that your application workload is covered by Oracle Application Continuity.

Related Topics

- [olink:RACAD-GUID-C1EF6BDA-5F90-448F-A1E2-DC15AD5CFE75](#)
- <http://docs.oracle.com/middleware/1213/wls/JDBCP/thirdparty.htm#JDBCP1028>
- <http://docs.oracle.com/middleware/1213/wls/JDBCP/thirdparty.htm#JDBCP1028>

2.2.2 Checks for Application Continuity

Application Continuity Checking for Concrete Classes

Determine whether Java applications use deprecated Oracle JDBC concrete classes.

To use Application Continuity with Java, replace the deprecated Oracle JDBC concrete classes. For information about the deprecation of concrete classes including actions to take if an application uses them, see My Oracle Support Note 1364193.1.

To know if the application is using concrete classes, use Application Continuity checking (called `acchk` in Oracle ORAchK). There is no need to use 12c driver or database, or to have source code for concrete class checks. Verify the application in advance while planning for high availability for your application.

Application Continuity is unable to replay transactions that use `oracle.sql` deprecated concrete classes of the form `ARRAY`, `BFILE`, `BLOB`, `CLOB`, `NCLOB`, `OPAQUE`, `REF`, or `STRUCT` as a variable type, a cast, the return type of a method, or calling a constructor.

Modify them for Application Continuity to work with the application.

There are three values that control the Application Continuity checking for Oracle concrete classes. Set these values either on the command line, or through shell environment variables, or mixed. The values are as follows:

Table 2-1 Application Continuity Checking for Concrete Classes

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 ASM Home Page.
-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, this must point to the parent directory name for the code. The program analyzes .class files, and recursively .jar files and directories.

Example Application Continuity Concrete Class Checks Summary

The following command checks the Application Continuity checking for Oracle concrete classes.

```
export RAT_AC_TRCDIR=/u01/app/oracle/diag/rdbms/dbname/instance1/trace

$ ./orachk -acchk -asmhome /path/orachk/asm-5.0.3/lib/all/asm-all-5.0.3.jar -
javahome /usr/lib/jvm/jre-1.8.0-openjdk.x86_64
```

Outage Type	Status	Message
Concrete class checks	Total : 19845 Passed : 19610 Warning : 0 Failed : 235 (Failed check count is one per file)	
	FAILED	[oracle/jdbc/driver/ArrayDataSet] [[CAST]desc= oracle/sql/STRUCT method name=getObject, lineno=1477]
	FAILED	[oracle/jdbc/driver/ArrayDataSet] [[CAST]desc= oracle/sql/NCLOB method name=getNClob, lineno=1776]
	FAILED	[oracle/jdbc/driver/BfileAccessor] [[Method]name=getBFILE, desc=(I)Loracle/sql/BFILE; lineno=99]
	FAILED	[oracle/jdbc/driver/BlobAccessor] [[Method]name=getBLOB, desc=(I)Loracle/sql/BLOB; lineno=129]
	FAILED	[oracle/jdbc/driver/ClobAccessor] [[Method]name=getCLOB_ desc=(I[B)Loracle/sql/CLOB; lineno=230]
	FAILED	[oracle/jdbc/driver/ClobAccessor] [[Method] name=getCLOB,

```
desc=(I)Oracle/sql/CLOB; ,
lineno=226]
```

Application Continuity Checking for the Protection Level Application Continuity is Providing Your Application

Measure Coverage

Destructive testing is a good thing to do. However, introducing failures is non-deterministic. The application can fail over in all the tests, and then in production a failure occurs elsewhere and unexpectedly some requests do not fail over.

Using AC Check Coverage Analysis averts this situation by reporting in advance the percentage of requests that are fully protected by Application Continuity, and for the requests that are not fully protected, which they are and where. Use the coverage check before deployment, and the after application changes. Developers and management know how protected an application release is from failures of the underlying infrastructure. If there is a problem, then it can be fixed before the application is released or waived knowing the level of coverage.

Executing the coverage check is rather like using `SQL_TRACE`. First run the application in a representative test environment with Application Continuity trace turned on at the server side. The trace is collected in the standard database user trace directory in user trace files. Then, pass this directory as input to Oracle ORAchK to report the coverage for the application functions that were run. As this check uses Application Continuity, the database and client must be using 12c. The application need not necessarily released with Application Continuity. The check is to help you release.

The following is a summary of the coverage analysis.

- If a round trip is made to the database server and returns while Application Continuity' capture is enabled during capture phase, then it is counted as a protected call.
- If a round trip is made to the database server while Application Continuity' capture is disabled (not in a request, or following a restricted call or a disable replay API was called), then it is counted as an unprotected call.
- Round trips ignored by capture and replay are ignored in the protection-level statistics.

At the end of processing each trace file, a level of protection for the calls sent to the database is computed.

For each trace: PASS (≥ 75), WARNING ($25 \leq \text{value} < 75$), and FAIL (< 25)

Running the Coverage Report

1. Turn on tracing at either a session level or database level.

To enable for a single application function, run as follows (put this statement in the callback or before `beginRequest` so replay is not disabled by setting events):

```
alter session set events 'trace [progint_appcont_rdbms]';
```

To enable for all sessions, run as follows:

```
alter system set event='trace[progint_appcont_rdbms]' scope = spfile;
```

2. Run through the application functions. To report on an application function, the application function must be run. The more application functions run, the better the information that the coverage analysis provides.

- Use Oracle ORAchK to analyze the collected database traces and report the level of protection, and where not protected, reports why a request is not protected.

To control the Application Continuity checking for coverage, set the following four values through command line or shell environment variables (or mixed):

Table 2-2 Using Application Continuity Checking for Protection Level

Command-Line Argument	Shell Environment Variable	Usage
-asmhome jarfilename	RAT_AC_ASMJAR	This must point to a version of <code>asm-all-5.0.3.jar</code> that you download from ASM Home Page.
-javahome JDK8dirname	RAT_JAVA_HOME	This must point to the <code>JAVA_HOME</code> directory for a JDK8 installation.
-apptrc dirname	RAT_AC_TRCDIR	To analyze the coverage, specify a directory name that contains one or more database server trace files. The trace directory is generally, <code> \$ORACLE_BASE/diag/rdbms/ {DB_UNIQUE_NAME}/\$ORACLE_SID/trace </code>
NONE	RAT_ACTRACEFILE_ WINDOW	When scanning the trace directory, this optional value limits the analysis to scanning to files created in the most recent specified number of days

Example Coverage Report

```
$ ./orachk -asmhome /tmp/asm-all-5.0.3.jar -javahome /tmp/jdk1.8.0_40 -
apptrc $ORACLE_BASE/diag/rdbms/$ORACLE_SID/trace 3
```

Reading the Coverage Report

The coverage check produces a directory named `orachk_uname_date_time`. This report summaries coverage and lists trace files that have WARNINGS or FAIL status. To ensure all requests PASS (Coverage(%) = 100), check the PASS report, `acchk_scorecard_pass.html` in the reports directory. To see all the details, look for `reports/acchk_scorecard_pass.html` under the `outfile` subdirectory.

The output includes the database service name, the module name (from `v$session.program`, which can be set on the client side using the connection property on Java, for example, `oracle.jdbc.v$session.program`), the `ACTION` and `CLIENT_ID`, which can be set using `setClientInfo` with `OCSID.ACTION` and `OCSID.CLIENTID` respectively.

Example output: found in `orachk_...html#acchk_scorecard`

Outage Type Status/Message

Coverage

```
checks      Total : 19845 Passed : 19610 Warning : 0
           Failed : 235
           (Failed check count is one per file)
```

```
[FAIL] Trace file name = SAMPLE_ora_1234.trc
Row number = 2222
SERVICE NAME = (SAMPLE_WEB_SERVICE.OCS.QA)
```

```
MODULE NAME = (DEBIT)
ACTION NAME = null
CLIENT ID = null
Coverage(%) = 50
ProtectedCalls = 4
UnProtectedCalls = 4

[FAIL] Trace file name = SAMPLE_ora_5678.trc
Row number = 7653
SERVICE NAME = (SAMPLE_WEB_SERVICE.OCS.QA)
MODULE NAME = (PAYMENTS)
ACTION NAME = null
CLIENT ID = null
Coverage(%) = 20
ProtectedCalls = 1
UnProtectedCalls = 4

[FAIL] Trace file name = SAMPLE_ora_90123.trc
Row number = 15099
SERVICE NAME = (SAMPLE_WEB_SERVICE.OCS.QA)
MODULE NAME = (PAYMENTS)
ACTION NAME = null
CLIENT ID = null
Coverage(%) = 60
ProtectedCalls = 3
UnProtectedCalls = 2

[FAIL] Trace file name = SAMPLE_ora_4747.trc
Row number = 789
SERVICE NAME = (SAMPLE_WEB_SERVICE.OCS.QA)
MODULE NAME = (ACCOUNT)
ACTION NAME = null
CLIENT ID = null
Coverage(%) = 50
ProtectedCalls = 2
UnProtectedCalls = 2
```

Related Topics

- [Application Continuity Command-Line Options](#) (page 2-17)
List of Application Continuity command-line options.
- <https://support.oracle.com/rs?type=doc&id=1364193.1>
- [ASM - Home Page](#)

2.3 Oracle ORAchk for Oracle Identity and Access Management Health Check Tool

Oracle ORAchk for Oracle Identity and Access Management proactively identifies areas to take preventive measures to keep a system healthy on an ongoing basis.

Oracle ORAchk for Oracle Identity and Access Management includes checks that cover the entire deployment stack from application tier to database tier.

- [Supported Operating Systems and Oracle Database Releases](#) (page 2-9)
Review the operating systems and Oracle Database requirements for deploying Oracle ORAchk for Oracle Identity and Access Management health check tool.

- [Supported Components and Topologies](#) (page 2-9)
Review the following for supported components and topologies.
- [Introduction to Oracle ORAchk for Oracle Identity and Access Management Health Checks](#) (page 2-10)
Oracle ORAchk for Oracle Identity and Access Management health checks inspect the entire deployment stack from application tier to database tier providing a simplistic, value-added, and easy-to-use solution.
- [Running Oracle ORAchk for Oracle Identity and Access Management Health Checks](#) (page 2-12)
Review the prerequisites before you install Oracle ORAchk for Oracle Identity and Access Management.

2.3.1 Supported Operating Systems and Oracle Database Releases

Review the operating systems and Oracle Database requirements for deploying Oracle ORAchk for Oracle Identity and Access Management health check tool.

Only Linux is supported and in these combinations:

Table 2-3 Operating System and Database Requirements for Oracle ORAchk for Oracle Identity and Access Management health check tool

Operating System	Database
Linux(Oracle Enterprise Linux/RedHat 5, 6, 7 and SuSE 9.10, 11, 12)	10g R1
Linux on System Z (RedHat 6, 7 and SuSE 12)	11g R1 11g R2 12c 12c R2

2.3.2 Supported Components and Topologies

Review the following for supported components and topologies.

Oracle ORAchk for Oracle Identity and Access Management health checks support the following components:

- Oracle Identity Manager (11.1.2.2.x and 11.1.2.3.x)
- Oracle Access Manager (11.1.2.2.x and 11.1.2.3.x)
- Oracle Unified Directory (11.1.2.2.x and 11.1.2.3.x)

Based on the components, the following topologies are supported:

- Oracle Identity Manager in single node and multi-node setup
- Oracle Access Manager + (Any directory)* in single node and multi-node setup

Oracle ORAchk for Oracle Identity and Access Management health checks run only on Oracle Unified Directory (OUD). If other directories are there as well, then Oracle ORAchk for Oracle Identity and Access Management skips health checks for those directories and perform health checks on Oracle Access Manager.

However, Oracle Access Manager configured in embedded LDAP mode is not supported.

- Oracle Identity Manager + Oracle Access Manager + (Any directory)** in single node and multi-node setup

Oracle ORAchk for Oracle Identity and Access Management health checks run only on Oracle Unified Directory (OUD). If other directories are there as well, then Oracle ORAchk for Oracle Identity and Access Management skips health checks for those directories and perform health checks on Oracle Access Manager. However, Oracle Access Manager configured in embedded LDAP mode is not supported.

2.3.3 Introduction to Oracle ORAchk for Oracle Identity and Access Management Health Checks

Oracle ORAchk for Oracle Identity and Access Management health checks inspect the entire deployment stack from application tier to database tier providing a simplistic, value-added, and easy-to-use solution.

Run Oracle ORAchk for Oracle Identity and Access Management health checks before and after installing the product, and while running the product.

Table 2-4 Oracle ORAchk for Oracle Identity and Access Management health check tool Use Cases

Use Cases	Description
Post-install health checks	Includes checks that are run just after a product is installed. These are mostly product focused checks, for example, for Oracle Identity Manager, Oracle Access Manager, and Oracle Unified Directory respective post-install checks.
Runtime health checks	Shows the health of the system regularly and helps you take proactive corrective actions.

- [Features of Oracle ORAchk for Oracle Identity and Access Management Health Check Tool](#) (page 2-10)
Health checks are run both at product install time as well as runtime.
- [Auto-discovery of Oracle Identity and Access Management Environment](#) (page 2-11)
Oracle ORAchk framework automatically runs the Discovery tool while running Oracle ORAchk for Oracle Identity and Access Management health checks.

2.3.3.1 Features of Oracle ORAchk for Oracle Identity and Access Management Health Check Tool

Health checks are run both at product install time as well as runtime.

Product install time checks cover the following areas:

- System Resources
- System Configuration
- Software Configuration

- Database Configuration

Table 2-5 Runtime Checks by Component

Component	Modules	Common Services	Data Tier	General
Oracle Identity Manager	Access Request and Catalog	Audit and Reports/Embedded BIP	Database	Overall Performance
	Certification Engine	Scheduler		Application Readiness
	UI Category	Policy/Rule Engine		
	Provisioning Engine	Workflow Engine (SOA/BPEL)		
	Reconciliation Engine	Authorization Layer		
	IT Admin (User/Role/Org)	Notification Engine		
	Connector Framework			
	Identify Audit Engine			
	Identify Analytics Engine			
	Role Engine			
Oracle Access Manager	UI Category	NA	Database	Overall Performance
	Federation (Single Sign On) Engine			Application Readiness
	Authentication Engine			
	Admin Console			
	Policy Engine			
	oAuth			
	Token Processing			
	Session Management			
	Config Services			
	Authorization Services			
	Oracle Platform Security Services			
	Webgates			
	Oracle Unified Directory	Basic Sanity		NA
Oracle Unified Directory Replication				
Performance				

2.3.3.2 Auto-discovery of Oracle Identity and Access Management Environment

Oracle ORAchk framework automatically runs the Discovery tool while running Oracle ORAchk for Oracle Identity and Access Management health checks.

Auto-discovery process includes:

1. Discovery tool Identifies the host names of the following:
 - a. Oracle Identity Manager Admin server
 - b. Oracle Access Manager Admin server

- c. One Oracle Unified Directory host from user ID store and system ID store Oracle Unified Directory clusters. If both ID stores are same, then the Discovery tool picks one Oracle Unified Directory host.
2. Discovery tool stores the discovered information in a topology file and the user credentials in a wallet file.
3. Oracle ORAchk copies the discovery executables to the target machine and runs the Discovery tool on all required machines.
4. Discovery tool runs serially on all the required machines.
5. Oracle ORAchk passes the same `topology.xml` and `wallet` files to the Discovery tool on all Oracle Identity and Access Management machines.

That is, if Oracle ORAchk runs the Discovery tool on the first machine, then the Discovery tool creates the `topology.xml` and `wallet.sso` files. Oracle ORAchk copies the same `xml` and `wallet` while running the Discovery tool on other Oracle Identity and Access Management machines.

6. At the end of the discovery, the topology file contains the complete information of the entire environment and the wallet file contains the encrypted user credentials.
7. Oracle ORAchk uses the topology file and the wallet file to run the health checks on multiple nodes.
8. The Discovery tool validates the user credentials that it collected. If the credentials are not valid, then the tool prompts the user to enter the details again. After three unsuccessful attempts, the discovery process exits.

2.3.4 Running Oracle ORAchk for Oracle Identity and Access Management Health Checks

Review the prerequisites before you install Oracle ORAchk for Oracle Identity and Access Management.

Provide the information that is required while running the Discovery tool for the first time.

- [Downloading Oracle ORAchk for Oracle Identity and Access Management](#) (page 2-13)
Oracle ORAchk for Oracle Identity and Access Management uses a different distribution than the standard Oracle ORAchk.
- [Prerequisites for Installing Oracle ORAchk for Oracle Identity and Access Management](#) (page 2-13)
Review the list of prerequisites for running Oracle Identity and Access Management health checks.
- [Inputs Required by Discovery Tool \(First Time Only\)](#) (page 2-13)
Discovery tool prompts you to answer a series of questions about your configuration when you run the tool for the first time.
- [Oracle ORAchk for Oracle Identity and Access Management Health Checks](#) (page 2-15)
Run Oracle ORAchk for Oracle Identity and Access Management health checks as `root` or the user who owns the Oracle Identity and Access Management setup.

2.3.4.1 Downloading Oracle ORAchk for Oracle Identity and Access Management

Oracle ORAchk for Oracle Identity and Access Management uses a different distribution than the standard Oracle ORAchk.

Download `orachk_idm.zip` for Oracle ORAchk with Oracle Identity and Access Management support, which is available at My Oracle Support Note 1268927.2.

Related Topics

- <https://support.oracle.com/rs?type=doc&id=1268927.2>

2.3.4.2 Prerequisites for Installing Oracle ORAchk for Oracle Identity and Access Management

Review the list of prerequisites for running Oracle Identity and Access Management health checks.

- Ensure that JDK 6 or later is set in the system path. If it is not set, then set the environment variable `RAT_JAVA_HOME` to the correct Java home location.
- You must run Oracle ORAchk on the machine where the WebLogic admin server for Oracle Identity and Access Management is installed.
- Set `RAT_TMPDIR` to the location of a temporary directory, for example:

```
export RAT_INV_LOC=/tmp/oracle/oraInventoryM
```

If `RAT_TMPDIR` is not set, then Oracle ORAchk uses `$HOME` as the temporary directory. The temporary directory used by Oracle ORAchk must have sufficient space (20 MB) or errors can occur.

- If the `oraInst.loc` file is not in the default directory, for example, `/u01/app/oraInventory`, then specify the exact location of the `oraInventory` directory using the `RAC_INV_LOCAL` environment variable. For example:

```
export RAT_INV_LOC=/scratch/shared/oracle/oraInventory
```

- You must run Oracle ORAchk as the same user that installed the Oracle Identity and Access Management software components.
- Each server that is part of the Oracle Identity and Access Management topology must have secure shell (SSH) enabled. If SSH is disabled, then Oracle ORAchk cannot remotely run checks on those servers. On servers without SSH enabled you must run Oracle ORAchk individually and then combine the results.
- Oracle ORAchk can only detect local database installations. It cannot detect databases that are installed on remote machines. In such cases, run Oracle ORAchk explicitly on the database machine and combine the results.

2.3.4.3 Inputs Required by Discovery Tool (First Time Only)

Discovery tool prompts you to answer a series of questions about your configuration when you run the tool for the first time.

Table 2-6 Discovery Tool Configuration Information

Input	Description
Is this a Single Node Identity Management System (idm) [Y N] [N] :	Checks whether your Oracle Identity Manager environment is a single node or multi-node setup.
How many Oracle Unified Directory (OUD) clusters present[0] :1	Checks for the number of Oracle Unified Directory clusters present.
Enter one of the Oracle Unified Directory (OUD) Host in cluster 1	Specify one Oracle Unified Directory host name.
Enter Oracle Identity Manager (OIM) Host (Press just ENTER to skip)	Specify one Oracle Identity Manager admin server host name.
Enter Oracle Access Manager (OAM) Host (Press just ENTER to skip) :	Specify one Oracle Access Manager admin server host name.
Enter JAVA_HOME:	The Discovery tool does not prompts this question, if you have set the RAT_JAVA_HOME environment variable.
Enter WLS Admin user name for domain IAMGovernanceDomain:	Specify WebLogic admin user name.
Enter password	Specify the password for WebLogic admin user name.
Enter Oracle Identity Manager (OIM) admin user (xelsysadm) password :	Specify the password for xelsysadm.
Enter Oracle Identity Manager (OIM) LDAP Admin user DN:	Specify the entire DN for Oracle Identity Manager LDAP admin user, for example,cn=oimLDAP,cn=SystemIDs,dc=us,dc=oracle,dc=com.
Enter password for admin user DN	Specify the password for Oracle Identity Manager LDAP DN.
Enter password for schema <OIM Schema>:	Specify the password for Oracle Identity Manager schema.
Enter OUD Admin password for cn=oudadmin:	Specify the Oracle Unified Directory admin password.
Enter OUD Admin password for cn=oudmanager,cn=Administrators,cn=admin data:	Specify the Oracle Unified Directory manager password.
Enter WLS Admin Username for domain IAMAccessDomain:	Specify the Oracle Access Manager admin user name.
Enter password:	Specify the Oracle Access Manager Admin user password.

Table 2-6 (Cont.) Discovery Tool Configuration Information

Input	Description
Enter Oracle Access Manager (OAM) Admin user	Specify the Oracle Access Manager LDAP admin user name.
Enter password for admin user:	Specify the Oracle Access Manager LDAP admin password.
Enter password for schema <OAM Schema>:	Specify the password for Oracle Access Manager schema.
Database Oracle home location	If Oracle database is on the local machine, then the Discovery tool prompts you to specify the Oracle home location.

2.3.4.4 Oracle ORAchk for Oracle Identity and Access Management Health Checks

Run Oracle ORAchk for Oracle Identity and Access Management health checks as `root` or the user who owns the Oracle Identity and Access Management setup.

1. Create a new folder on a location on one of the WebLogic admin machine, for example, `healthcheck IAM`.
2. Set the environment variable to run the health checks based on a specific deployment size.

Oracle ORAchk supports four deployment sizes:

Table 2-7 Deployment Size

Deployment Size	Directory User Size
small	Close to 100 K
medium	Close to 1 million
large	Close to 15 million
extralarge	Close to 250 million

To specify a deployment size, before running Oracle ORAchk, set the environment variable `RAT_IDM_DEPLOYMENT_SIZE`.

```
$ export RAT_IDM_DEPLOYMENT_SIZE=small
```

If `RAT_IDM_DEPLOYMENT_SIZE` is not set, then Oracle ORAchk uses the default deployment size `small`.

3. Change directories to the new directory you created in Step 1 and run Oracle ORAchk.

Oracle ORAchk prompts the discovery questions as described in "Inputs Required by Discovery Tool (First Time Only)".

If the database is running on the same machine where the core Oracle Identity and Access Management components are installed, then the database checks are run as well.

4. If database is running on a remote server, then run the database checks manually:
 - a. Copy the same `orachk_IAM.zip` to the remote server, and unzip it in any directory.
 - b. Run `./orachk -idmdbluntime` either as root or the user who owns the Oracle Identity and Access Management installation.

This command generates a new Oracle ORAchk collection, for example, `orachk_den00etd_orcl_100915_061616.zip`.

Oracle ORAchk runs checks on all servers that are part of the Oracle Identity and Access Management topology and generates a single report. However, in the following cases Oracle ORAchk cannot generate a single report:

- a. Oracle Identity and Access Management install is multi-node setup and SSH is disabled on machines involved. In such case Oracle ORAchk run on each node and then merge the reports.
- b. Oracle ORAchk is run on machine where WebLogic Admin server is running. If this machine doesn't have the database installed, then Oracle ORAchk does not run the database checks.. In such case run Oracle ORAchk on the database node additionally and then merge the reports.

Refer to My Oracle Support Note 2070073.1 for the latest known issues specific to Oracle ORAchk for Oracle Identity and Access Management health checks.

Related Topics

- [Auto-discovery of Oracle Identity and Access Management Environment](#) (page 2-11)
Oracle ORAchk framework automatically runs the Discovery tool while running Oracle ORAchk for Oracle Identity and Access Management health checks.
- [Inputs Required by Discovery Tool \(First Time Only\)](#) (page 2-13)
Discovery tool prompts you to answer a series of questions about your configuration when you run the tool for the first time.
- [Oracle ORAchk for Oracle Identity and Access Management Command-Line Options](#) (page 2-18)
List of Oracle ORAchk for Oracle Identity and Access Management command-line options.
- [Merging Reports](#) (page 1-58)
Merging reports is useful in role-separated environments where different users are run different subsets of checks and then you want to view everything as a whole.
- [Understanding and Managing Reports and Output](#) (page 1-32)
Oracle ORAchk and Oracle EXAchk generate a detailed HTML report with findings and recommendations.
- [Health Check Catalog](#) (page 1-61)
The Health Check Catalogs list the health checks that are included within Oracle ORAchk or Oracle EXAchk.
- <https://support.oracle.com/rs?type=doc&id=2070073.1>

2.4 Running Oracle ZFS Storage Appliance Health Checks

Oracle ORAchk supports health checks for Oracle ZFS Storage Appliances.

To run Oracle ORAchk on one Oracle ZFS appliance, use the `-zfssa` option.

To run Oracle ORAchK on multiple Oracle ZFS appliances, specify a comma-delimited list of Oracle ZFS Storage Appliances:

```
./orachk -zfssa node1,node2
```

2.5 Oracle ORAchK Specific Command-Line Options

List of command-line options specific to Oracle ORAchK.

- [Application Continuity Command-Line Options](#) (page 2-17)
List of Application Continuity command-line options.
- [Oracle ORAchK for Oracle Identity and Access Management Command-Line Options](#) (page 2-18)
List of Oracle ORAchK for Oracle Identity and Access Management command-line options.
- [ZFS Storage Appliance Options](#) (page 2-19)
List of ZFS Storage Appliance options.

2.5.1 Application Continuity Command-Line Options

List of Application Continuity command-line options.

Table 2-8 Application Continuity Command-Line Options

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 ASM Home Page.
-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, this must point to the parent directory name for the code. The program analyzes .class files, and recursively .jar files and directories. To analyze the coverage, specify a directory name that contains one or more database server trace files. The trace directory is generally, \$ORACLE_BASE/diag/ rdbms/\$ORACLE_UNQNAME/\$ORACLE_SID/trace
NONE	RAT_ACTRACEFILE_W INDOW	When scanning the trace directory, this optional value limits the analysis to scanning to files created in the most recent specified number of days

Example 2-1 Application Continuity Command-Line Options

```
$ ./orachk -asmhome /tmp/asm-all-5.0.3.jar -javahome /tmp/jdk1.8.0_40 -  
apptrc $ORACLE_BASE/diag/rdbms/$ORACLE_SID/trace 3
```

Related Topics

- [ASM - Home Page](#)

2.5.2 Oracle ORAchK for Oracle Identity and Access Management Command-Line Options

List of Oracle ORAchK for Oracle Identity and Access Management command-line options.

Table 2-9 Oracle Identity and Access Management Options

Option	Description
-idm -h	Displays IDM help.
-idmpreinstall	Runs all pre-install checks on Identity Management System.
-idmpostinstall	Runs all post-install checks on Identity Management System.
-idmruntime	Runs all runtime checks on Identity Management System.
-idmdbpreinstall	Runs pre-install database checks on Identity Management System.
-idmpdbostinstall	Runs post-install database checks on Identity Management System.
-idmdbContext	Runs runtime database checks on Identity Management System.
-idm_config	Passes OAM, OIM, and one of the OUD host from clusters.
-Idmdiscargs	Passes arguments to Identity Management Discovery Tool.
-idmhargs	Passes arguments to Identity Management Healthcheck Tool.

Oracle Identity and Access Management Health Check Scenarios

Table 2-10 Oracle Identity and Access Management Health Check Scenarios

Scenario	Command
Run pre-install checks.	<pre>./orachk -idmpreinstall -idm_config "OUD_HOST=h1,h2;OIM_HOST=h3,h4;OAM_HOST=h5,h6,h7;OHS_HOST=h8,h9"</pre>
Run pre-install database checks.	<pre>./orachk -idmdbpreinstall</pre>
Run post-install checks on single node Identity Management setup.	<pre>./orachk -idmpostinstall -idm_config "singlenode"</pre>
Run runtime checks on multi-mode Identity Management setup.	<pre>./orachk -idmruntime -idm_config "OUD_HOST=host1,host2;OAM_HOST=host3;OIM_HOST=host4"</pre>
Run OIM runtime checks on multi-mode Identity Management setup.	<pre>./orachk -idmruntime -idm_config "OUD_HOST=host1,host2;OAM_HOST=host3;OIM_HOST=host4" -profile "OIM"</pre>

Table 2-10 (Cont.) Oracle Identity and Access Management Health Check Scenarios

Scenario	Command
Run OIM and OAM post-install checks on single node Identity Management setup.	<pre>./orachk -idmpostinstall -idm_config "singlenode" -profile "OIM,OAM"</pre>
Run runtime checks with log level specified for Identity Management.	<pre>./orachk -idmruntime -idmdiscargs "-DlogLevel=FINEST" -idmhargs "-DlogLevel=FINEST"</pre>
Discovery and Healthcheck tool Run checks directly passing topology.xml and credconfig location.	<pre>./orachk - idmpreinstall idmpostinstall idmruntime - topology topology.xml -credconfig credconfig</pre>

2.5.3 ZFS Storage Appliance Options

List of ZFS Storage Appliance options.

Table 2-11 ZFS Storage Appliance Options

Option	Description
<code>-zfssa node</code>	Runs Oracle ORAchK only on selected ZFS appliance nodes, where <i>node</i> is a comma-delimited list of ZFS Storage Appliance names. For example: <pre>./orachk -zfssa node1,node2</pre>

Related Topics

- [Running Oracle ZFS Storage Appliance Health Checks](#) (page 2-16)
Oracle ORAchK supports health checks for Oracle ZFS Storage Appliances.

2.6 Troubleshooting Oracle ORAchK Specific Problems

Troubleshoot and fix Oracle ORAchK specific problems.

- [Troubleshooting Oracle ORAchK for Oracle Identity and Access Management Health Checks](#) (page 2-19)
My Oracle Support has the most current information about troubleshooting Oracle ORAchK for Oracle Identity and Access Management.

2.6.1 Troubleshooting Oracle ORAchK for Oracle Identity and Access Management Health Checks

My Oracle Support has the most current information about troubleshooting Oracle ORAchK for Oracle Identity and Access Management.

Related Topics

- <https://support.oracle.com/rs?type=doc&id=2070073.1>

3

Oracle EXAchk Specific Features and Tasks

Review this information on the features of Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance, Oracle Exalogic, Oracle SuperCluster, Oracle Exalytics, and Oracle Big Data Appliance.

- [Scope and Supported Platforms for Running Oracle EXAchk on Oracle Engineered Systems](#) (page 3-1)
Oracle EXAchk supports all supported hardware types, operating systems, firmware versions, and Oracle versions of the following Oracle engineered systems.
- [Oracle Exadata and Zero Data Loss Recovery Appliance](#) (page 3-2)
Understand the features and tasks specific to Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance.
- [Oracle Exalogic](#) (page 3-14)
This section explains the features and tasks specific to Oracle EXAchk on Oracle Exalogic.
- [Oracle SuperCluster](#) (page 3-46)
This section explains the features and tasks specific to Oracle EXAchk on Oracle SuperCluster.
- [Oracle Exalytics](#) (page 3-53)
This section explains the features and tasks specific to Oracle EXAchk on Oracle Exalytics.
- [Oracle Big Data Appliance](#) (page 3-58)
This section explains the features and tasks specific to Oracle EXAchk on Oracle Big Data Appliance.

Related Topics

- [Oracle ORAchk and Oracle EXAchk Common Features and Tasks](#) (page 1-1)

3.1 Scope and Supported Platforms for Running Oracle EXAchk on Oracle Engineered Systems

Oracle EXAchk supports all supported hardware types, operating systems, firmware versions, and Oracle versions of the following Oracle engineered systems.

- Oracle Big Data Appliance
- Oracle Exadata Database Machine Version 2 and later
- Oracle Exalogic
- Oracle Exalytics
- Oracle SuperCluster

- Zero Data Loss Recovery Appliance

Related Topics

- <https://support.oracle.com/rs?type=doc&id=1070954.1>

3.2 Oracle Exadata and Zero Data Loss Recovery Appliance

Understand the features and tasks specific to Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance.

- [Prerequisites for Running Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance](#) (page 3-2)
Review the list of additional prerequisites for running Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance.
- [Installation Requirements for Running Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance](#) (page 3-3)
Understand the requirements for installing Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance, either on your local database or on a remote device that is connected to a database.
- [Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance Usage](#) (page 3-5)
Usage of Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance depends on other considerations such as virtualization, parallel run, and so on.
- [Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance Command-Line Options](#) (page 3-12)
List of command-line options specific to Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance.
- [Troubleshooting Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance](#) (page 3-13)
Follow these steps to troubleshoot and fix Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance issues.

Related Topics

- [Oracle ORAchk and Oracle EXAchk Common Features and Tasks](#) (page 1-1)
Oracle ORAchk and Oracle EXAchk share a common health check framework and a large portion of their features and tasks are common.

3.2.1 Prerequisites for Running Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance

Review the list of additional prerequisites for running Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance.

- [InfiniBand Switches](#) (page 3-3)
- [Storage Servers](#) (page 3-3)

Related Topics

- [Prerequisites](#) (page 1-4)
Review the checklist for Bash requirements, SSH connectivity, and required user privileges to run health checks.

3.2.1.1 InfiniBand Switches

On the database, if you configure passwordless SSH equivalency for the user that launched Oracle EXAchk to the `nm2user` user on each InfiniBand switch, then Oracle EXAchk uses SSH equivalency credentials to complete the InfiniBand switch checks.

If you have not configured passwordless SSH equivalency, then Oracle EXAchk prompts you for the `nm2user` user password on each of the InfiniBand switches.

3.2.1.2 Storage Servers

On the database, if you configure passwordless SSH equivalency for the user that launched Oracle EXAchk to the `root` user on each storage server, then Oracle EXAchk uses SSH equivalency credentials to complete the storage server checks.

You can run Oracle EXAchk from the Oracle Exadata storage server, if there is no SSH connectivity from the database to the storage server.

To lock and unlock cells, use the `-unlockcells` and `-lockcells` options for Oracle Exadata, Oracle SuperCluster and Zero Data Loss Recovery Appliance.

```
./exachk -unlockcells all | -cells [comma-delimited list of cell names or cell IPs]  
./exachk -lockcells all | -cells [comma-delimited list of cell names or cell IPs]
```

3.2.2 Installation Requirements for Running Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance

Understand the requirements for installing Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance, either on your local database or on a remote device that is connected to a database.

- [Shared Remote Versus Local Installation](#) (page 3-3)
- [Recommended User and Local Installation Directory](#) (page 3-4)
- [Recommended Oracle EXAchk Run Location](#) (page 3-5)

Related Topics

- [Installing Oracle ORAchk and Oracle EXAchk](#) (page 1-3)
Follow these procedures to install Oracle ORAchk and Oracle EXAchk.
- [Understanding and Managing Reports and Output](#) (page 1-32)
Oracle ORAchk and Oracle EXAchk generate a detailed HTML report with findings and recommendations.
- <https://support.oracle.com/rs?type=doc&id=1070954.1>

3.2.2.1 Shared Remote Versus Local Installation

If the environment contains only one Oracle Exadata Database machine or one Oracle Real Application Clusters (Oracle RAC) database, then the entire Oracle EXAchk installation must be local to one of the databases. Do not install Oracle EXAchk on every database.

When an environment consists of more than one Oracle Exadata Database machine or Oracle RAC database, consider installing Oracle EXAchk on a remote device that is connected to a database on each Oracle Exadata Database machine or Oracle RAC cluster.

The advantage is that you can install Oracle EXAchk in one location, validate it, and then run it where required within your environment. This saves time and errors. Because Oracle EXAchk is frequently updated, Oracle recommends that you always use the latest version available.

Use the remote location for running Oracle EXAchk only. All working directories and output files are written to the local databases using the `RAT_OUTPUT` environment variable. The location you choose for `RAT_OUTPUT` must have read, write, and delete privileges for the user running Oracle EXAchk. Typically, `RAT_OUTPUT` is set to the local `/opt/oracle.SupportTools/exachk` directory.

For example, to install Oracle EXAchk in the `/remotely_mounted_dev/exachk/12.1.0.2.6` directory, and then run Oracle EXAchk on the local node as the Oracle Database home owner `oracle`, use the command:

```
oracle $ export RAT_OUTPUT=/opt/oracle.SupportTools/exachk
oracle $ /remotely_mounted_dev/exachk/12.1.0.2.6/exachk
```

 **Note:**

To use the remote device for Oracle EXAchk output, consider the following:

1. Ensure that the remote device can handle the I/O load.

The performance of Oracle EXAchk is adversely affected when the remote device cannot manage the I/O load. The effect varies from excessively long run times to unpredictable check timeouts leading to hard-to-diagnose skipped checks.

2. Do not write I/O from multiple Oracle Exadata Database machines or Oracle RAC clusters into the same output directory.

Using the same output directory for multiple devices can cause remote locking or access issues on the remote device.

At a minimum, store the output for each unique Oracle Exadata Database Machine or Oracle RAC cluster to its own directory structure using the `RAT_OUTPUT` environment variable.

3.2.2.2 Recommended User and Local Installation Directory

If the installation is local, then install Oracle EXAchk in `/opt/oracle.SupportTools/exachk` owned by the Oracle Grid Infrastructure home owner for the relevant cluster. The permissions on the directory must be `775`.

For example, in a role-separated environment if the Oracle Grid Infrastructure home is owned by `user1` belonging to the `install1` group, then the installation directory is as follows:

```
# ls -lt /opt/oracle.SupportTools | grep exachk
drwxrwxr-x 2 user1 install1 4096 Jan 23 08:31 exachk
```

As *user1*, copy and unzip the `exachk.zip` file as follows:

```
# ls -la
total 55912
drwxrwxr-x 5 user1 install1 4096 Jan 23 10:27 .
drwxr-xr-x 8 root root 4096 Jan 23 08:31 ..
drwxrwxr-x 3 user1 install1 4096 Jan 22 16:00 .cgrep
-rw-r--r-- 1 user1 install1 8041431 Jan 22 16:34 exachk.zip
-rw-r--r-- 1 user1 install1 4580698 Jan 22 16:00 rules.dat
-rw-r--r-- 1 user1 install1 36866945 Jan 22 16:00 collections.dat
-rw-r--r-- 1 user1 install1 291 Jan 22 15:59 UserGuide.txt
-rw-r--r-- 1 user1 install1 2533 Jan 22 15:58 readme.txt
-rw-r--r-- 1 user1 install1 4114714 Jan 22 15:55 CollectionManager_App.sql
-rwxr-xr-x 1 user1 install1 1973350 Jan 22 15:55 exachk
```

This configuration permits the `root` user and the users in the `install1` group to run Oracle EXAchk from the installation directory.

3.2.2.3 Recommended Oracle EXAchk Run Location

By default, Oracle EXAchk stores the output in the directory from where you run it. Oracle recommends any user that runs Oracle EXAchk must first change the working directory to the Oracle EXAchk installation directory.

For example:

```
[user1]$ cd /opt/oracle.SupportTools/exachk
[user1]$ ./exachk -nodaemon -profile clusterware
```

This method maintains the output files in one location, even though the file owner users are different.

For example:

```
[user1]$ ls -lt | grep exachk_
-rw-r--r-- 1 user2 install1 1462155 Jan 23 12:25
exachk_randomdb04_V1201_012315_121443.zip
drwxr-xr-x 8 user2 install1 61440 Jan 23 12:25
exachk_randomdb04_V1201_012315_121443
-rw-r--r-- 1 user1 install1 295994 Jan 23 12:12
exachk_randomdb04_V1201_012315_120457.zip
drwxr-xr-x 8 user1 install1 28672 Jan 23 12:12
exachk_randomdb04_V1201_012315_120457
drwxr-xr-x 8 root root 69632 Jan 23 10:27 exachk_randomdb04_012315_101719
-rw-r--r-- 1 root root 1405449 Jan 23 10:27 exachk_randomdb04_012315_101719.zip
```

If you do not want the output files in this location, then use either the `RAT_OUTPUT` environment variable or the `-output` command line option to direct the output to another location. By default, Oracle EXAchk maintains temporary working files in the home directory of the user that runs Oracle EXAchk, and deletes the files at the end of the run.

3.2.3 Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance Usage

Usage of Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance depends on other considerations such as virtualization, parallel run, and so on.

- [Database Default Access on the Client Interface](#) (page 3-6)
If you use the client interface as the default access for your database, then use the `-clusternodes` command-line option to instruct Oracle EXAchk to communicate over the management interface.
- [Virtualization Considerations](#) (page 3-7)
Oracle EXAchk supports virtualization on Oracle Exadata and Zero Data Loss Recovery Appliance.
- [Running Serial Data Collection](#) (page 3-7)
By default, Oracle EXAchk runs parallel data collection for the storage servers, InfiniBand switches, and databases.
- [Multiple Asymmetric Database Home Examples](#) (page 3-8)
If the Oracle Database homes are not symmetric, then install Oracle EXAchk onto multiple databases in the cluster so that there is one installation for each Oracle Database home on a subset of databases.
- [Using the root User ID in Asymmetric and Role Separated Environments](#) (page 3-10)
Run Oracle EXAchk as `root` to simplify the work required in asymmetric or role separated environments.
- [Environment Variables for Specifying a Different User Than root](#) (page 3-11)
Review the list of environment variables for specifying a different user than `root`.
- [Oracle EXAchk InfiniBand Switch Processing](#) (page 3-12)
This topic explains how Oracle EXAchk InfiniBand switch processing is done when Oracle Exalogic and Oracle Exadata engineered systems reside on the same InfiniBand fabric.

Related Topics

- [Oracle ORAchk and Oracle EXAchk Common Features and Tasks](#) (page 1-1)

3.2.3.1 Database Default Access on the Client Interface

If you use the client interface as the default access for your database, then use the `-clusternodes` command-line option to instruct Oracle EXAchk to communicate over the management interface.

For example, if a cluster is configured as follows, then the command must include:

```
-clusternodes dbadm01,dbadm02,dbadm03,dbadm04
```



Note:

When using the `-clusternodes` option, start Oracle EXAchk on the first database in the list.

Table 3-1 Example Cluster Configuration

Interface	Database Host names
Management	dbadm01, dbadm02, dbadm03, dbadm04
Client	dbclnt01, dbclnt02, dbclnt03, dbclnt04

3.2.3.2 Virtualization Considerations

Oracle EXAchk supports virtualization on Oracle Exadata and Zero Data Loss Recovery Appliance.

To run hardware and operating system level checks for database, storage servers, InfiniBand fabric, and InfiniBand switches:

- Install Oracle EXAchk into the management domain also referred to as `DOM0`
- Run Oracle EXAchk as `root`

When you run Oracle EXAchk from `DOM0`, Oracle EXAchk:

- Discovers all compute nodes, storage servers, and InfiniBand switches in the entire InfiniBand fabric
- Runs on all those components

To run Oracle EXAchk on a subset of nodes when Oracle EXAchk is run in the management domain, use the command-line options:

- `-clusternodes` to designate databases
- `-cells` to designate storage servers
- `-ibswitches` to designate InfiniBand switches

For example, for a full rack where only the first quarter rack is configured for virtualization, but all components are on the same InfiniBand fabric, run the following command as `root` on the database `randomadm01`:

```
./exachk -clusternodes randomadm01,randomadm02 \  
          -cells randomceladm01,randomceladm02,randomceladm03 \  
          -ibswitches randomsw-ibs0,randomsw-iba0,randomsw-ibb0
```

Run Oracle EXAchk separately for each cluster in a user domain also referred to as `DOMUs`.

For example, consider 2 clusters and 4 user domains in each cluster. Although there are a total of 8 user domains, Oracle EXAchk runs only twice. Once on the first node of the first cluster running in the first user domain and once on the first node of second cluster running in the second user domain. The user domain runs do not include hardware or operating system level checks on the database, storage servers, or InfiniBand switches.

 **Note:**

Run Oracle EXAchk as `root` in the management domain and the user domains.

3.2.3.3 Running Serial Data Collection

By default, Oracle EXAchk runs parallel data collection for the storage servers, InfiniBand switches, and databases.

You can also configure Oracle EXAchk to run serial data collection.

To run serial data collection for the storage server, database, and InfiniBand switches, set the following environment variables:

- RAT_COMPUTE_RUNMODE
 - RAT_CELL_RUNMODE
 - RAT_IBSWITCH_RUNMODE
1. To collect database server data in serial:
`export RAT_COMPUTE_RUNMODE=serial`
 2. To collect storage server data in serial:
`export RAT_CELL_RUNMODE=serial`
 3. To collect InfiniBand switch data in serial:
`export RAT_IBSWITCH_RUNMODE=serial`

Related Topics

- [Slow Performance, Skipped Checks, and Timeouts](#) (page 1-211)
Follow these procedures to address slow performance and other issues.

3.2.3.4 Multiple Asymmetric Database Home Examples

If the Oracle Database homes are not symmetric, then install Oracle EXAchk onto multiple databases in the cluster so that there is one installation for each Oracle Database home on a subset of databases.

Multiple Asymmetric Database Homes Owned by the Same or Different Users

The following table is an example of a distribution in the same cluster, with role separation between `user1` and `user2` such that neither can access the other's database home or database:

Table 3-2 Multiple Asymmetric Database Homes Owned by the Same or Different Users

Owner User	Database Home	Installed on	Databases
user1	/path1/ dbhome_1	db01, db02, db03, db04	dbm-a
user2	/path2/ dbhome_2	db05, db06, db07, db08	dbm-b, dbm-c

Do the following:

1. As `user1`, install Oracle EXAchk in `/home/exachk/user1` on db01.
2. As `user2`, install Oracle EXAchk in `/home/exachk/user2` on db05.
3. As `user1`, on db01, run the following command to collect the storage server, root level database checks, and InfiniBand switch checks:

```
cd /home/exachk/user1
./exachk -profile sysadmin
```

4. As `user1`, on db01, collect the database checks for `dbm-a`:

```
cd /home/exachk/user1
./exachk -profile dba -clusternodes db01,db02,db03,db04
```

5. AS user2, on db05:

```
cd /home/exachk/user2
./exachk -profile dba -clusternodes db05,db06,db07,db08.
```

Choose dbm-b and dbm-c from the database selection list to collect the database checks for dbm-b and dbm-c.

6. Optionally, use the `-merge` option to merge the reports.

Multiple Asymmetric Database Homes Owned by the Same or Different Users, Grid User, and SYSADMIN/DBA Role Isolation

For this example, assume the following configuration in the same cluster:

Table 3-3 Multiple Asymmetric Database Homes Owned by the Same or Different Users, Grid User, and SYSADMIN/DBA Role Isolation

Owner User ID	Database Home	Installed on	Database(s)
user1	/path1/ dbhome_1	db01, db02, db03, db04	dbm-a
user2	/path2/ dbhome_2	db05, db06, db07, db08	dbm-b, dbm-c
grid	/path3/ grid	db01, db02, db03, db04, db05, db06, db07, db08	+ASM

Further, there is role separation between `user1` and `user2` and `grid` such that none can access the database structure of others and a company policy to isolate the system administrators from the database administrators.

Do the following:

1. As `user1`, install Oracle EXAchK in `/home/exachk/user1` on db01.
2. As `user2`, install Oracle EXAchK in `/home/exachk/user2` on db05.
3. As the `grid` user, run Oracle Clusterware checks:

```
mkdir /home/grid/exachk_reports
cd /home/grid/exachk_reports
/home/exachk/userid1/exachk -profile clusterware
```

The working directory and zip file are stored in the `/home/grid/exachk_reports` directory.

4. As `root`, run the `sysadmin` checks to collect from the storage server, `root` level database, and InfiniBand switch checks:

```
mkdir /root/exachk_reports
cd /root/exachk_reports
/home/exachk/userid1/exachk -profile sysadmin
```

The working directory and zip file are stored in the `/root/exachk_reports` directory.

5. As `user1` on `db01`, run the command:

```
cd /home/exachk/user1
./exachk -profile dba -clusternodes db01,db02,db03,db04
```

Choose `dbm-a` from the Oracle database selection list to collect the database checks for `dbm-a`.

6. As `user2` on `db05`, run the command:

```
cd /home/exachk/user2
./exachk -profile dba -clusternodes db05,db06,db07,db08
```

Choose `dbm-b` and `dbm-c` from the database selection list to collect the database checks for `dbm-b` and `dbm-c`.

7. Optionally, use the `-merge` command-line option to merge the reports.

3.2.3.5 Using the root User ID in Asymmetric and Role Separated Environments

Run Oracle EXAchk as `root` to simplify the work required in asymmetric or role separated environments.

If database homes are not symmetric, then install Oracle EXAchk on multiple databases in the cluster, such that there is one installation for each Oracle Database home located on a subset of databases.

For this example, assume the following configuration in the same cluster:

Table 3-4 Using root User ID in Asymmetric and Role Separated Environments

Owner User ID	Database Home	Installed on	Database(s)
<code>user1</code>	<code>/path1/ dbhome_1</code>	<code>db01, db02, db03, db04</code>	<code>dbm-a</code>
<code>user2</code>	<code>/path2/ dbhome_2</code>	<code>db05, db06, db07, db08</code>	<code>dbm-b, dbm-c</code>
<code>grid</code>	<code>/path3/ grid</code>	<code>db01, db02, db03, db04, db05, db06, db07, db08</code>	<code>+ASM</code>

Further, there is role separation between `user1` and `user2` and GRID, such that none can access the database structure of the others. You can also enforce company policy to isolate the system administrators from the database administrators.

Do the following:

1. As `root`, install Oracle EXAchk in the `/tmp/exachk/121026` directory on `db01`.
2. As `root`, install Oracle EXAchk the `/tmp/exachk/121026` directory on `db05`.
3. As `root`, on `db01`:

```
cd /tmp/exachk/121026
./exachk -clusternodes db01,db02,db03,db04
```

Choose `dbm-a` from the database selection list to collect the database checks for `dbm-a`.

4. As `root` on `db05`:

```
cd /tmp/exachk/121026
./exachk -excludeprofiles storage,switch -clusternodes db05,db06,db07,db08
```

Choose `dbm-b` and `dbm-c` from the database selection list to collect the database checks for `dbm-b` and `dbm-c`.

5. If desired, use the `-merge` command-line option to merge the reports.

3.2.3.6 Environment Variables for Specifying a Different User Than `root`

Review the list of environment variables for specifying a different user than `root`.

- `RAT_CELL_SSH_USER`

By default, Oracle EXAchk runs as `root` to run checks on an Oracle Exadata Storage Server.

If security policies do not permit connection to a storage server as `root` over SSH, then you can specify a different user by setting this environment variable:

```
export RAT_CELL_SSH_USER=celladmin
```

 **Note:**

If you specify `RAT_CELL_SSH_USER`, then a subset of checks is run, based upon the privileges of the alternate user you specify.

- `RAT_IBSWITCH_USER`

By default, Oracle EXAchk runs as `root` to run checks on the InfiniBand switches, when you run Oracle EXAchk on a database as `root`. By default, when Oracle EXAchk is run as a user other than `root` on a database, the `nm2user` is used to run checks on the InfiniBand switches.

If security policies do not permit connection to an InfiniBand switch as either the `root` or `nm2user` user over SSH, then specify a different user by setting this environment variable:

```
export RAT_IBSWITCH_USER=ilom-admin
```

 **Note:**

If you specify `RAT_IBSWITCH_USER`, then a subset of checks is run, based upon the privileges of the alternate user you specify.

3.2.3.7 Oracle EXAchk InfiniBand Switch Processing

This topic explains how Oracle EXAchk InfiniBand switch processing is done when Oracle Exalogic and Oracle Exadata engineered systems reside on the same InfiniBand fabric.

When an Exalogic and Exadata engineered system reside on the same InfiniBand fabric:

1. Running Oracle EXAchk on an Exadata database server excludes the Exalogic gateway switches.
2. Running Oracle EXAchk on an Exalogic compute node excludes the Exadata switches.

3.2.4 Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance Command-Line Options

List of command-line options specific to Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance.

Table 3-5 Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance Command-Line Options

Option	Description
<code>-cells <i>cells</i></code>	<p>Pass comma-delimited list of storage server names to limit to subset of storage servers.</p> <p>Alternatively, set the <code>RAT_CELLS</code> environment variable to space-delimited list of cells:</p> <p>For example:</p> <pre>export RAT_CELLS="randomcel01 randomcel06"</pre> <p>Or</p> <pre>export RAT_CELLS=randomcel01</pre>
<code>-ibswitches <i>switches</i></code>	<p>Pass comma-delimited list of InfiniBand switch names to limit to subset of InfiniBand switches.</p> <p>Alternatively, set <code>RAT_IBSWITCHES</code> environment variable to space-delimited list of switches:</p> <p>For example:</p> <pre>export RAT_IBSWITCHES="randomsw-ib1 randomsw-ib3"</pre> <p>Or</p> <pre>export RAT_CELLS=randomsw-ib2</pre>

To lock and unlock the cell, use the `-unlockcells` and `-lockcells` options:

```
./exachk -unlockcells all | -cells comma-delimited list of names or IP addresses of cells
```

```
./exachk -lockcells all | -cells comma-delimited list of names or IP addresses of cells
```

Related Topics

- [Oracle ORAchk and Oracle EXAchk Command-Line Options](#) (page 1-76)
Most command-line options apply to both Oracle ORAchk and Oracle EXAchk.

3.2.5 Troubleshooting Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance

Follow these steps to troubleshoot and fix Oracle EXAchk on Oracle Exadata and Zero Data Loss Recovery Appliance issues.

Error RC-003 - No Audit Checks Were Found

Description: While identifying the environment characteristics, Oracle EXAchk

- Constructs environment variables
- Compares with the Oracle EXAchk rules database to determine what checks to run

If one of the environment variables does not match a known profile in the rules database, then Oracle EXAchk displays an error `error RC-003 - no audit checks were found...` and exits.

Cause: The most common case occurs when an older version of Oracle EXAchk is used in an Oracle Exadata Database machine environment with recently released components. This may occur because of a delay between the release of a new component or version and when Oracle EXAchk incorporates support for it.

For example, when Oracle EXAchk earlier than 2.1.3_20111212 were run on an Oracle Exadata Database machine where Oracle Database release 11.2.0.3.0 was deployed, EXAchk exited with the following message:

```
Error RC-003 - No audit checks were found for LINUXX8664OELRHEL5_112030-.  
Please refer to the section for this error code in  
"Appendix A - Troubleshooting Scenarios" of the "Exachk User Guide".
```

In this example, `_112030` indicates that Oracle Database release 11.2.0.3.0 was installed on the system. Since the version of Oracle EXAchk used did not support 11.2.0.3.0, Oracle EXAchk could not find a known match in the Oracle EXAchk rules database.

How Long Should It Take to Run Oracle EXAchk?

The time it takes to run the tool varies based on the number of nodes in a cluster, CPU load, network latency, and so on. Normally the entire process takes only a few minutes per node, that is, less than 5 minutes per node. If it takes substantially more time than 5 minutes, then investigate the problem.

With the introduction of parallelized database collection in 2.2.5, the elapsed time for systems with many databases is reduced. Experience in the field is that, it normally takes about 10 minutes for a quarter rack X2-2 system with one database. On an internal X3-2 half rack with 20 storage servers, 9 InfiniBand switches, and 44 databases, the elapsed time was 44 minutes.

Related Topics

- [Oracle ORAchk and Oracle EXAchk Command-Line Options](#) (page 1-76)
Most command-line options apply to both Oracle ORAchk and Oracle EXAchk.
- <https://support.oracle.com/rs?type=doc&id=1070954.1>

3.3 Oracle Exalogic

This section explains the features and tasks specific to Oracle EXAchk on Oracle Exalogic.

- [Scope and Supported Platforms for Running Oracle EXAchk on Oracle Exalogic](#) (page 3-14)
Oracle EXAchk is a health check tool that is designed to audit important configuration settings in an Oracle Exalogic Elastic Cloud machine.
- [Prerequisites for Running Oracle EXAchk on Oracle Exalogic](#) (page 3-15)
Review the list of prerequisites.
- [Prerequisite for Viewing Oracle EXAchk HTML Report](#) (page 3-19)
Review the prerequisite for viewing Oracle EXAchk HTML Report in a web browser.
- [Installing and Upgrading Oracle EXAchk on Oracle Exalogic](#) (page 3-22)
Follow these instructions to install and upgrade Oracle EXAchk on Oracle Exalogic.
- [Oracle EXAchk on Oracle Exalogic Usage](#) (page 3-24)
For optimum performance of the Oracle EXAchk tool, Oracle recommends that you complete the following steps.
- [Oracle EXAchk on Oracle Exalogic Output](#) (page 3-39)
Identify the checks that you must act immediately to remediate, or investigate further to assess the checks that might cause performance or stability issues.
- [Oracle EXAchk on Oracle Exalogic Command-Line Options](#) (page 3-42)
List of command-line options applicable to Oracle Exalogic.
- [Troubleshooting Oracle EXAchk on Oracle Exalogic](#) (page 3-46)
Troubleshoot and fix Oracle EXAchk on Oracle Exalogic issues.

Related Topics

- [Oracle ORAchk and Oracle EXAchk Common Features and Tasks](#) (page 1-1)

3.3.1 Scope and Supported Platforms for Running Oracle EXAchk on Oracle Exalogic

Oracle EXAchk is a health check tool that is designed to audit important configuration settings in an Oracle Exalogic Elastic Cloud machine.

Oracle EXAchk examines the following components:

- Compute nodes
- Storage appliance
- InfiniBand fabric
- Ethernet network

- Oracle Exalogic Control vServers, relevant only in virtual configurations
- Guest vServers, relevant only in virtual configurations

Oracle EXAchk audits the following configuration settings:

- Hardware and firmware
- Operating system kernel parameters
- Operating system packages

You must run Oracle EXAchk for Oracle Exalogic in the following conditions:

- After deploying the machine.
- Before and after patching or upgrading the infrastructure.
- Before and after making any changes in the system configuration.
- Before and after any planned maintenance activity.

Related Topics

- <https://support.oracle.com/rs?type=doc&id=1449226.1>

3.3.2 Prerequisites for Running Oracle EXAchk on Oracle Exalogic

Review the list of prerequisites.

Oracle recommends that you install Oracle EXAchk on the pre-existing share `/export/common/general` on the ZFS storage appliance on the Exalogic machine. You can then run Oracle EXAchk and access the Oracle EXAchk generated HTML reports from a compute node on which the `/export/common/general` share is mounted.

For Exalogic machines in a virtual configuration, Oracle recommends that you mount the `/export/common/general` share on the vServer that hosts the Enterprise Controller component of the Exalogic control stack, and run Oracle EXAchk from that vServer.

To install Oracle EXAchk on the `/export/common/general` share, you must complete the following steps:

1. Enable NFS on the `/export/common/general` share.
 2. Mount the `/export/common/general` share.
- [Enable NFS on the /export/common/general Share](#) (page 3-15)
Before installing Oracle EXAchk on the pre-existing share `export/common/general`, enable NFS share mode on the share.
 - [Mount the /export/common/general Share](#) (page 3-18)
In this section, compute node `e101cn01` is used as the example of the host on which the `/export/common/general` share is mounted.

3.3.2.1 Enable NFS on the `/export/common/general` Share

Before installing Oracle EXAchk on the pre-existing share `export/common/general`, enable NFS share mode on the share.

1. In a web browser, enter the IP address or host name of the storage node as follows:
`https://ipaddress:215`
or
`https://hostname:215`
2. Log in as `root`.
3. Click **Shares** in the top navigation pane.
4. Place your cursor over the row corresponding to the share `/export/common/general`.
5. Click the **Edit entry**.

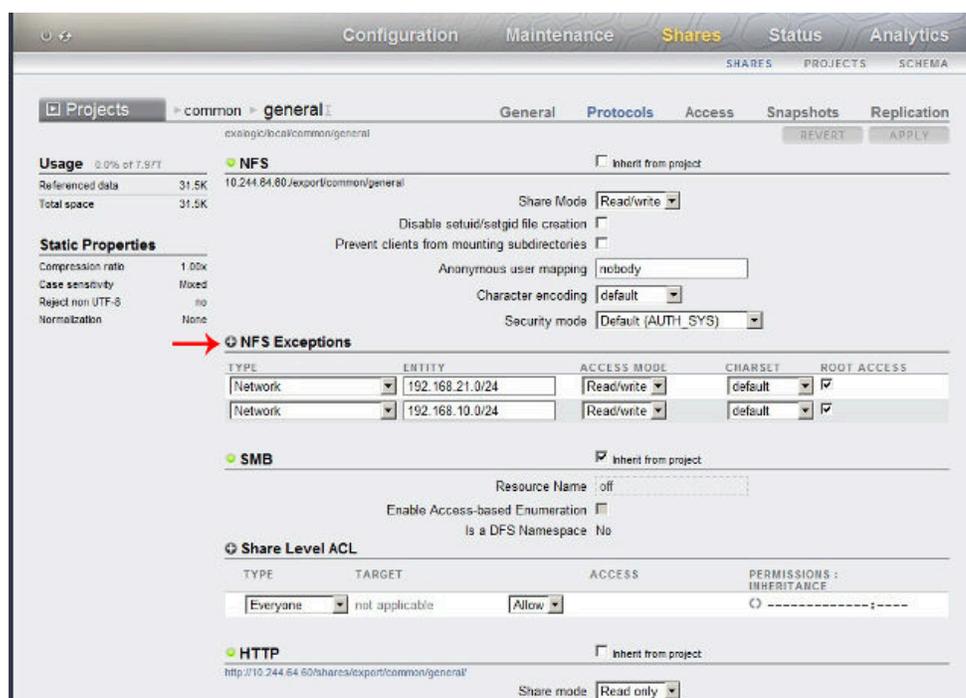
Figure 3-1 Oracle Exalogic - Shares

The screenshot shows the Oracle Exalogic Shares management interface. The top navigation pane includes Configuration, Maintenance, Shares (active), Status, and Analytics. Below the navigation, there are tabs for SHARES, PROJECTS, and SCHEMA. The main content area displays a table of filesystems with columns for NAME, SIZE, and MOUNTPOINT. The row for '/export/common/general' is highlighted, and a red arrow points to the edit icon in the right-hand column of that row.

NAME	SIZE	MOUNTPOINT
NODE_1 / general	31K	/export/NODE_1/general
NODE_2 / dumps	31K	/export/NODE_2/dumps
NODE_2 / general	31K	/export/NODE_2/general
NODE_3 / dumps	31K	/export/NODE_3/dumps
NODE_3 / general	31K	/export/NODE_3/general
NODE_4 / dumps	31K	/export/NODE_4/dumps
NODE_4 / general	31K	/export/NODE_4/general
NODE_5 / dumps	31K	/export/NODE_5/dumps
NODE_5 / general	31K	/export/NODE_5/general
NODE_6 / dumps	31K	/export/NODE_6/dumps
NODE_6 / general	31K	/export/NODE_6/general
NODE_7 / dumps	31K	/export/NODE_7/dumps
NODE_7 / general	31K	/export/NODE_7/general
NODE_8 / dumps	31K	/export/NODE_8/dumps
NODE_8 / general	31K	/export/NODE_8/general
OVMHA / HAApp	81.1G	/export/HAApp
OVMHA / HATemplate	6.57G	/export/HATemplate
common / general	31.5K	/export/common/general
common / images	84.9G	/export/common/images
common / patches	31.5K	/export/common/patches

6. On the resulting page, select **Protocols** in the top navigation pane.
7. In the **NFS** section, deselect **Inherit from project**, and click plus (+) located next to **NFS Exceptions**.

Figure 3-2 Oracle Exalogic - Edit Protocols



8. Edit the following in the **NFS Exceptions** section:

Table 3-6 NFS Exceptions

Element	Action/Description
TYPE	Select Network .
ENTITY	Enter the IP address of the host that gains access to the share. For example: 192.168.10.0/24
ACCESS MODE	Select Read/write .
CHARSET	Keep the default setting.
ROOT ACCESS	Select the check box.

9. Click **Apply**.
10. Log out.

3.3.2.2 Mount the /export/common/general Share

In this section, compute node `e101cn01` is used as the example of the host on which the `/export/common/general` share is mounted.

 **Note:**

- For an Oracle Exalogic machine in a virtual configuration running EECS 2.0.6, mount the `export/common/general` share on the vServer that hosts the Enterprise Controller component of the Exalogic Control stack. Substitute the compute node `e101cn01` in this procedure with the host name or IP address of that vServer.

For an Oracle Exalogic machine running EECS 2.0.4 (virtual), if traffic from the `eth-admin` network cannot be routed to the `EoIB-external-mgmt` network, when you run Oracle EXAchk from the Enterprise Controller vServer, then health checks are not performed for the switches and the storage appliance. On such racks, to perform health checks on the physical components, you must mount the `export/common/general` share on a compute node as well.

- In a virtual configuration, if you run Oracle EXAchk from a compute node, Oracle EXAchk does not perform health checks for the Exalogic Control components.

1. Check if the `/export/common/general` share is already mounted at the `/u01/common/general` directory on compute node `e101cn01`.

You can do this by logging in to `e101cn01` as `root` and running the following command:

```
# mount
```

If the `/export/common/general` share is already mounted on the compute node, then the output of the `mount` command contains an entry like the following:

```
192.168.10.97:/export/common/general on /u01/common/general ...
```

In this example, `192.168.10.97` is the IP address of the storage node `e101sn01`.

If you see the previous line in the output of the `mount` command, then skip step 2.

If the output of `mount` command does not contain the previous line, perform step 2.

2. Mount the `/export/common/general` share at a directory on compute node `e101cn01`.

- a. Create the directory `/u01/common/general` to serve as the mount point on `e101cn01` as follows:

```
# mkdir -p /u01/common/general
```

- b. Depending on the operating system running on the host on which you want to mount the `/export/common/general` share, complete the following steps:

Oracle Linux

Edit the `/etc/fstab` file by using a text editor like `vi`, and add the following entry for the mount point that you just created:

```
el01sn01-priv:/export/common/general /u01/common/general nfs4
rw,bg,hard,nointr,rsize=131072,wsiz=131072,proto=tcp
```

Oracle Solaris

Edit the `/etc/vfstab` file by using a text editor like `vi`, and add the following entry for the mount point that you just created:

```
el01sn01-priv:/export/common/general - /u01/common/general nfs - yes
rw,bg,hard,nointr,rsize=131072,wsiz=131072,proto=tcp
```

- c. Save and close the file.
- d. Mount the volumes by running the following command:

```
# mount -a
```

3.3.3 Prerequisite for Viewing Oracle EXAchK HTML Report

Review the prerequisite for viewing Oracle EXAchK HTML Report in a web browser.

Enable access to the `/export/common/general` share through the HTTP/WebDAV Protocol

To enable access to a share through the HTTP/WebDAV protocol, complete the following steps:

1. In a web browser, enter the IP address or host name of the storage node as follows:

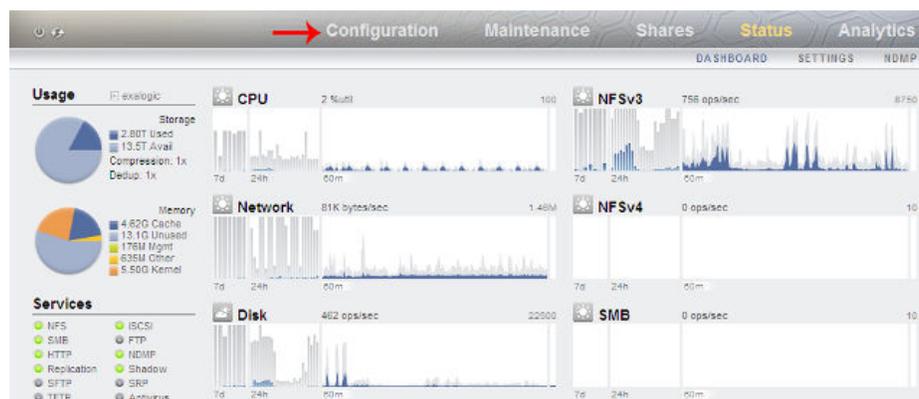
```
https://ipaddress:215
```

Or

```
https://hostname:215
```

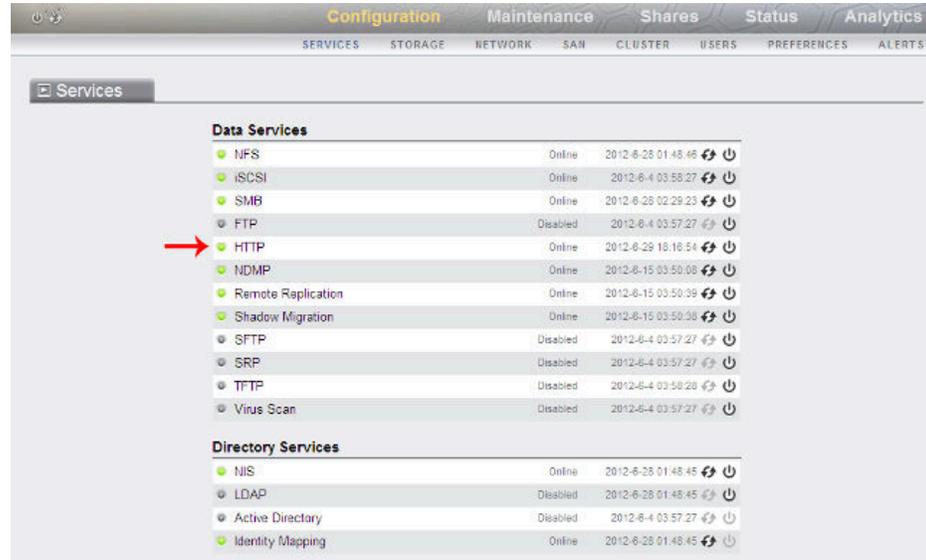
2. Log in as `root`.
3. Enable the HTTP service on the appliance, by doing the following:
 - a. Click **Configuration** in the top navigation pane.

Figure 3-3 Oracle Exalogic - Configuration



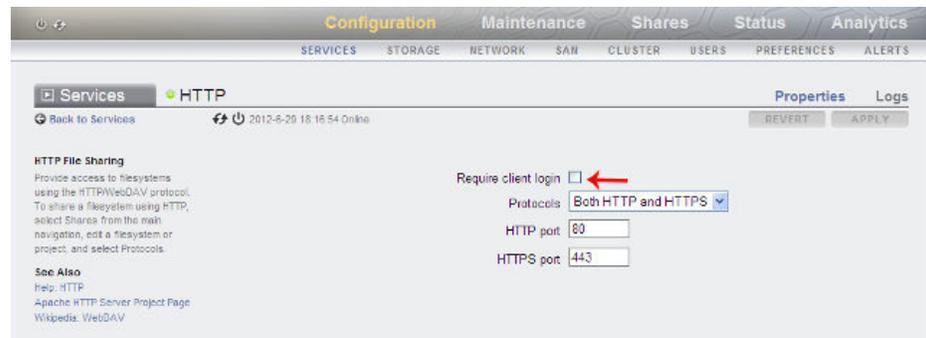
- b. Click **HTTP** under **Data Services**.

Figure 3-4 Oracle Exalogic - Data Services



- c. Ensure that the **Require client login** check box is not selected.

Figure 3-5 Oracle Exalogic - Client Login



- d. Click **Apply**.

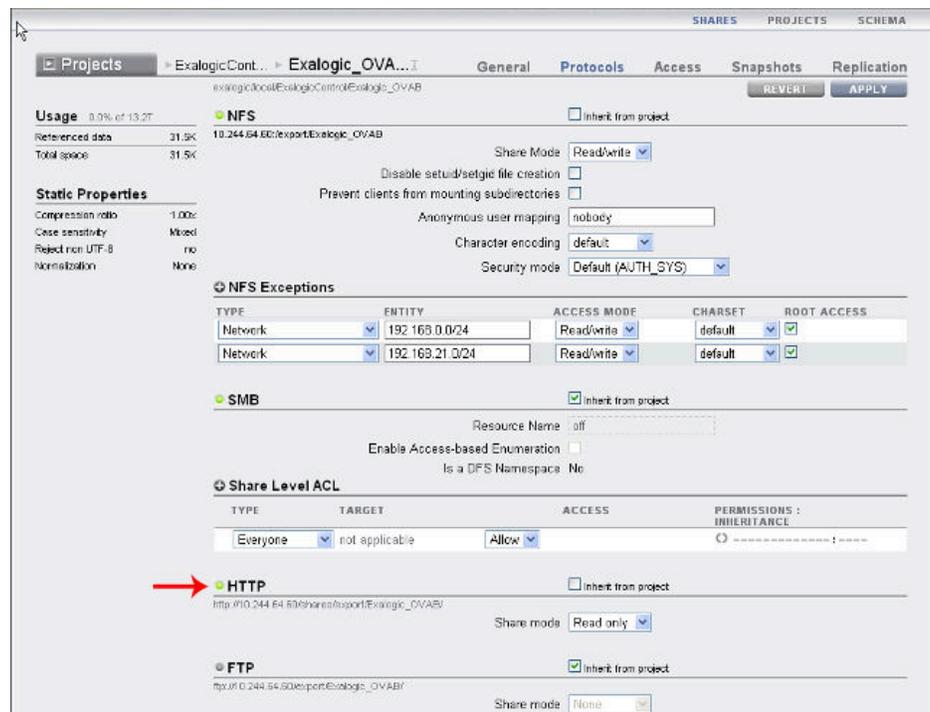
If the button is disabled, select and deselect the **Require client login** check box.

Figure 3-6 Oracle Exalogic - Client Login



4. Enable read-only HTTP access to the /export/common/general share by doing the following:
 - a. Click **Shares** in the top navigation pane.
 - b. Place your cursor over the row corresponding to the /export/common/general share.
 - c. Click the **Edit entry** button (pencil icon) near the right edge of the row.
 - d. On the resulting page, click **Protocols** in the navigation pane.
 - e. Scroll down to the **HTTP** section.
 - f. Deselect the **Inherit from project** check box.
 - g. In the **Share mode** field, select **Read only**.

Figure 3-7 Oracle Exalogic - Share Mode



1. Ensure that `/export/common/general` share is mounted on the vServer that hosts the Enterprise Controller.

 **Note:**

For an Exalogic machine running EECS 2.0.4 (virtual), if traffic from the `eth-admin` network cannot be routed to the `EoIB-external-mgmt` network, when you run Oracle EXAchk from the Enterprise Controller vServer, health checks will not be performed for the switches and the storage appliance. On such racks, to perform health checks on the physical components, you must mount the `export/common/generalshare` on a compute node as well.

2. SSH to the vServer.
3. Create a subdirectory named `exachk` in `/u01/common/general/` to hold the EXAchk binaries:

```
# mkdir /u01/common/general/exachk
```

 **Note:**

If the vServer is down or otherwise inaccessible, then you can run Oracle EXAchk from a compute node. However, in this case, the health checks are performed for the Exalogic Control components.

4. Go to the `/u01/common/general/exachk` directory.
5. Download the `exachk.zip` file.
6. Extract the contents of the `exachk.zip` file.

```
# unzip exachk.zip
```

The Oracle EXAchk tool is now available at the following location on compute node `e101cn01`:

```
/u01/common/general/exachk/exachk
```

Related Topics

- https://docs.oracle.com/cd/E18476_01/doc.220/e35316/install_upgrade.htm#ELCHK111

3.3.4.3 Upgrading Oracle EXAchk on Oracle Exalogic

Follow these instructions to upgrade Oracle EXAchk on Oracle Exalogic.

1. Back up the directory containing the existing Oracle EXAchk binaries by moving it to a new location.

For example, if the Oracle EXAchk binaries are currently in the directory `/u01/common/general/exachk`, then move them to a directory named `exachk_05302012` by running the following commands:

```
# cd /u01/common/general
# mv exachk exachk_05302012
```

In this example, the date when Oracle EXAchk is upgraded (05302012) is used to uniquely identify the backup directory. Pick any unique naming format, like a combination of the backup date and the release number and use it consistently.

2. Create the `exachk` directory afresh.

```
$ mkdir /u01/common/general/exachk
```

3. Install the latest version of Oracle EXAchk.

Related Topics

- <https://support.oracle.com/rs?type=doc&id=1449226.1>

3.3.5 Oracle EXAchk on Oracle Exalogic Usage

For optimum performance of the Oracle EXAchk tool, Oracle recommends that you complete the following steps.

- Oracle EXAchk is a minimal impact tool. However, Oracle recommends that you run Oracle EXAchk when the load on the system is low. The runtime of Oracle EXAchk depends on the number of nodes to check, CPU load, network latency, and so on.
- Do not run the scripts in the Oracle EXAchk directory unless specifically documented.
- To avoid problems while running the tool from terminal sessions on a workstation or laptop, connect to the Exalogic machine and then run Oracle EXAchk by using VNC. Even if a network interruption occurs, Oracle EXAchk continues to run.
- Run Oracle EXAchk as `root`.
- [Performing Health Checks for Oracle Exalogic Infrastructure](#) (page 3-25)
Perform health checks in a virtual or physical rack.
- [Performing Health Checks for Guest vServers](#) (page 3-27)
Run Oracle EXAchk to perform health checks for guest vServers.
- [About the Oracle EXAchk Health Check Process](#) (page 3-31)
Review the Oracle EXAchk start up sequence of events.
- [Running Oracle EXAchk in Silent Mode](#) (page 3-34)
When you run Oracle EXAchk in silent mode, it does not perform health checks for storage nodes and InfiniBand switches.
- [Overriding Discovered Component Addresses](#) (page 3-35)
In a physical environment, the component IP addresses or host names are determined in the first run based on user input. In a virtual environment, Oracle EXAchk has an in-built mechanism to automatically discover the IP addresses or host names of all the components. These features are designed to minimize the need for end-user input.
- [Setting Environment Variables for Local Issues](#) (page 3-36)
Oracle EXAchk attempts to derive all the data it needs from the environment in which it is run.
- [External ZFS Storage Appliance](#) (page 3-39)
For Exalogic systems, support has been added to run health checks on External ZFS Storage appliances. The results of these checks are displayed in the **External ZFS Storage Appliance** of the report.

Related Topics

- [Oracle EXAchk InfiniBand Switch Processing](#) (page 3-12)
This topic explains how Oracle EXAchk InfiniBand switch processing is done when Oracle Exalogic and Oracle Exadata engineered systems reside on the same InfiniBand fabric.

3.3.5.1 Performing Health Checks for Oracle Exalogic Infrastructure

Perform health checks in a virtual or physical rack.

- [Prerequisites for Running Health Checks on Oracle Exalogic Infrastructure](#) (page 3-25)
The term infrastructure is used here to indicate the compute nodes, switches, storage appliance, and, also, the Exalogic Control stack if a machine in a virtual configuration.
- [Running Oracle EXAchk for Physical Racks](#) (page 3-26)
Perform health checks for all the infrastructure components in an Oracle Exalogic machine in a physical Linux or Solaris configuration.
- [Running Oracle EXAchk for Virtual Racks](#) (page 3-26)
Perform health checks for all the infrastructure components in an Oracle Exalogic machine in a virtual configuration.
- [Running Oracle EXAchk for Hybrid Racks](#) (page 3-27)
Perform health checks for all the infrastructure components in an Oracle Exalogic machine in a hybrid configuration, that is, a machine on which half the nodes are running Oracle VM Server and the other half are on Oracle Linux.

Related Topics

- [Overriding Discovered Component Addresses](#) (page 3-35)
In a physical environment, the component IP addresses or host names are determined in the first run based on user input. In a virtual environment, Oracle EXAchk has an in-built mechanism to automatically discover the IP addresses or host names of all the components. These features are designed to minimize the need for end-user input.
- [Oracle ORAchk and Oracle EXAchk Command-Line Options](#) (page 1-76)
Most command-line options apply to both Oracle ORAchk and Oracle EXAchk.
- [Oracle EXAchk on Oracle Exalogic Output](#) (page 3-39)
Identify the checks that you must act immediately to remediate, or investigate further to assess the checks that might cause performance or stability issues.
- https://docs.oracle.com/cd/E18476_01/doc.220/e35316/advanced_option.htm#A132212701

3.3.5.1.1 Prerequisites for Running Health Checks on Oracle Exalogic Infrastructure

The term infrastructure is used here to indicate the compute nodes, switches, storage appliance, and, also, the Exalogic Control stack if a machine in a virtual configuration.

Before running Oracle EXAchk for the Oracle Exalogic infrastructure components, ensure to meet the following prerequisites:

- Ensure that Oracle EXAchk is installed as described in [Installing Oracle EXAchk](#).
- Before running Oracle EXAchk for the first time, make a note of the short names of the storage nodes and switches: e101sn01, e101sw-ib01, and so on. Oracle EXAchk

prompts you for these names at the start of the health check process. This is a one time prompt. Oracle EXAchk stores the names you provide, and uses the stored names for subsequent runs.

3.3.5.1.2 Running Oracle EXAchk for Physical Racks

Perform health checks for all the infrastructure components in an Oracle Exalogic machine in a physical Linux or Solaris configuration.

1. SSH as `root` to the compute node on which you installed Oracle EXAchk.
2. Go to the directory where you have installed Oracle EXAchk.

```
# cd /u01/common/general/exachk
```

3. Run the following command:

```
# ./exachk
```

When running Oracle EXAchk for the first time, the tool:

- Detects the size of the Exalogic rack
- Prompts for the host name or IP address of the switch and storage node

For information about overriding the IP addresses and host names set during the first run.

3.3.5.1.3 Running Oracle EXAchk for Virtual Racks

Perform health checks for all the infrastructure components in an Oracle Exalogic machine in a virtual configuration.

1. SSH as `root` to the vServer that hosts the Enterprise Controller.
2. Go to the directory where you have installed Oracle EXAchk.

```
# cd /u01/common/general/exachk
```

3. Run the following command:

```
# ./exachk
```

Oracle EXAchk automatically discovers the IP addresses or host names of all the components in the machine, and starts performing the health checks.

For an Exalogic machine running EECS 2.0.4 (virtual), if traffic from the `eth-admin` network is not routed to the `EoIB-external-mgmt` network when you run Oracle EXAchk from the Enterprise Controller vServer, Oracle EXAchk does not run health checks for the switches and storage heads.

On such racks, do the following to perform health checks on all the components:

1. Perform health checks for the Oracle Exalogic Control components:
 - a. SSH as `root` to the Enterprise Controller vServer.
 - b. Go to the directory where you have installed Oracle EXAchk.

```
# cd /u01/common/general/exachk
```

- c. Run the following command:

```
# ./exachk -profile control_VM
```

Oracle EXAchk reports that all the checks on the compute nodes passed. However, this command did not perform any health checks on the compute nodes, the storage appliance, and the switches.

2. Perform health checks for the physical components, such as compute nodes, storage appliance, and switches:
 - a. SSH as `root` to the compute node on which you installed Oracle EXAchk.
 - b. Ensure that passwordless SSH to the Oracle VM Manager CLI shell is enabled.
 - c. Go to the directory where you have installed Oracle EXAchk.

```
# cd /u01/common/general/exachk
```

- d. Run the following command:

```
# ./exachk -profile el_extensive
```

3.3.5.1.4 Running Oracle EXAchk for Hybrid Racks

Perform health checks for all the infrastructure components in an Oracle Exalogic machine in a hybrid configuration, that is, a machine on which half the nodes are running Oracle VM Server and the other half are on Oracle Linux.

1. SSH as `root` to the vServer that hosts the Enterprise Controller component of the Exalogic Control stack.
2. Go to the directory where you have installed Oracle EXAchk.

```
# cd /u01/common/general/exachk
```

3. Run the following command:

```
./exachk -hybrid -phy physical_node_1[,physical_node_2,...]
```

In this command, `physical_node_1`, `physical_node_2`, and so on, are the `eth-admin` IP addresses of the compute nodes running Oracle Linux.

The `-phy physical_node_1[,physical_node_2,...]` must be specified only the first time you run Oracle EXAchk with the `-hybrid` option. Oracle EXAchk stores the host names in the `exachk_exalogic.conf` file. For subsequent runs, you can run Oracle EXAchk without specifying the `-phy` option. Oracle EXAchk uses the host names stored in the `exachk_exalogic.conf` file.

3.3.5.2 Performing Health Checks for Guest vServers

Run Oracle EXAchk to perform health checks for guest vServers.

- [Prerequisites for Running Health Checks on Guest vServers](#) (page 3-28)
Before running Oracle EXAchk on guest vServers, ensure to meet the prerequisites.
- [Installing IaaS CLI and API](#) (page 3-28)
- [Additional Prerequisites for STIG-hardened vServers](#) (page 3-28)
You can harden guest vServers using the STIGfix tool. The STIGfix tool is packaged as part of the Exalogic Lifecycle Toolkit.

- [Running Oracle EXAchk for vServers That are Not STIG-hardened](#) (page 3-30)
Perform health checks for all the guest vServers that are not STIG-hardened, in a vDC on an Oracle Exalogic machine.
- [Running Oracle EXAchk for STIG-hardened vServers](#) (page 3-31)
Run Oracle EXAchk for STIG-hardened vServers.

Related Topics

- <https://support.oracle.com/rs?type=doc&id=1586312.1>

3.3.5.2.1 Prerequisites for Running Health Checks on Guest vServers

Before running Oracle EXAchk on guest vServers, ensure to meet the prerequisites.

- Install Oracle EXAchk as described in [Installing Oracle EXAchk](#).
- Install IaaS CLI and API on the vServer that hosts the Enterprise Controller. Note that the IaaS CLI and API are pre-installed on the Enterprise Controller vServer in EECS 2.0.4.

To verify this prerequisite, check whether the `/opt/oracle/iaas/cli` and `/opt/oracle/iaas/api` directories exist on the vServer. If the directories exist, then the IaaS CLI and API are installed.

3.3.5.2.2 Installing IaaS CLI and API

1. Go to <https://edelivery.oracle.com>.
 - a. Sign in by using your Oracle account.
2. Read and accept the Oracle Software Delivery Cloud Trial License Agreement and the Export Restrictions.
 - a. Click **Continue**.
3. In the **Select a Product Pack** field, select **Oracle Fusion Middleware**.
 - a. In the **Platform** field, select **Linux x86-64**.
 - b. Click **Go**.
4. In the results displayed, select **Oracle Exalogic Elastic Cloud Software 11g Media Pack**, and click **Continue**.
5. Look for Oracle Exalogic <version> IaaS Client for Exalogic Linux x86-64 (64-bit), and download the appropriate version – 2.0.4.0.0, 2.0.6.0.0, or 2.0.6.0.1 depending on the EECS release installed on the Exalogic machine.
6. Unzip the downloaded file.
7. Install both the RPMs by running the following command in the directory in which you unzipped the RPMs:

```
rpm -i *.rpm
```

3.3.5.2.3 Additional Prerequisites for STIG-hardened vServers

You can harden guest vServers using the STIGfix tool. The STIGfix tool is packaged as part of the Exalogic Lifecycle Toolkit.

Download the toolkit installer and `tar` bundle.

Refer to My Oracle Support Note for toolkit install instructions.

To run Oracle EXAchk on STIG-hardened vServers, you must perform the following prerequisites:

- Run Oracle EXAchk on STIG-hardened vServers separately from other guest vServers.
- The vServer that hosts the Enterprise Controller and the STIG-hardened guest vServers must have the same user with `sudo` privileges.

You can create these users by doing the following.

Create the account on the vServer hosting Enterprise Controller as follows:

1. Log in to the vServer hosting Enterprise Controller as `root`.
2. Run the following scripts to create the account `ELAdmin`:

```
# useradd -d /home/ELAdmin -s /bin/bash -m ELAdmin
# echo "ELAdmin:<password>" | chpasswd
# echo "PATH=$PATH.:/usr/kerberos/sbin:/usr/kerberos/bin:/usr/local/sbin:/usr/
local/bin:/sbin:/bin:/usr/sbin:/usr/bin:/root/bin" >>/home/ELAdmin/.bashrc
# usermod -a -G oinstall ELAdmin
```

- a. Replace `password` with a password of your choice.
3. Run the `visudo` command.
 4. Under **## Allows people in group wheel to run all commands**, add the following line:

```
%ELAdmin ALL=(ALL) ALL
```

5. Under **## Same thing without a password**, add the following line:

```
%ELAdmin ALL=(ALL) NOPASSWD: ALL
```

6. Save the file.

Create the `ELAdmin` account that you created on the Enterprise Controller, on the guest vServer that is STIG-hardened as follows:

1. Log in to the vServer that is STIG-hardened.
2. Switch to the `root` user by running the following command:

```
su root
```

3. Run the following scripts to create the account `ELAdmin`:

```
# useradd -d /home/ELAdmin -s /bin/bash -m ELAdmin
# echo "ELAdmin:<password>" | chpasswd
# echo "PATH=$PATH.:/usr/kerberos/sbin:/usr/kerberos/bin:/usr/local/sbin:/usr/
local/bin:/sbin:/bin:/usr/sbin:/usr/bin:/root/bin" >>/home/ELAdmin/.bashrc
```

- a. Replace `password` with a password of your choice.
4. Run the `visudo` command.
 5. Under **## Allows people in group wheel to run all commands**, add the following line:

```
%ELAdmin ALL=(ALL) ALL
```

6. Under **## Same thing without a password**, add the following line:

```
%ELAdmin ALL=(ALL) NOPASSWD: ALL
```

7. Save the file.

3.3.5.2.4 Running Oracle EXAchK for vServers That are Not STIG-hardened

Perform health checks for all the guest vServers that are not STIG-hardened, in a vDC on an Oracle Exalogic machine.

1. SSH as `root` to the vServer that hosts the Enterprise Controller.
2. Go to the directory in which you installed Oracle EXAchK.

```
# cd /u01/common/general/exachk
```

3. Discover the IP addresses of all the guest vServers, by running the following script:

```
# ./generate_guests_list.sh
```

Note:

If the IaaS CLI and API are not installed on the vServer, the following error message is displayed:

```
IaaS API is not installed. Please consult with user guide for more
information on IaaS API installation.
```

If this error occurs, install the IaaS CLI and API, as described above and then perform this procedure from step 1.

4. When prompted, enter the `root` password.

Note:

At times, right after installing the IaaS CLI and API, when you enter the `root` password, the `generate_guests_list.sh` script may hang.

If this error occurs, complete the following steps:

- a. Set the `IAAS_HOME` and `JAVA_HOME` environment variables, by running the following commands:

```
# export IAAS_HOME="/opt/oracle/iaas/cli"
# export JAVA_HOME="/usr/java/latest/"
```

- b. Run the following command:

```
# /opt/oracle/iaas/cli/bin/akm-describe-accounts --base-url https://
localhost/ --user root
```

- c. At the prompt to accept the trust certificate, enter `yes`.
- d. Run `generate_guests_list.sh` again.

The script generates a set of `.out` files, one for each Cloud User. The files are named `guest_vm_ip_user.out`, where `user` is a Cloud User. Each `.out` file contains the IP addresses of the guest vServers created by a Cloud User.

5. Run Oracle EXAchk with the `-vmguest` option, and specify one or more `guest_vm_ip_user.out` files as arguments, depending on the users for which you want to perform health checks for guest vServers:

```
# ./exachk -vmguest guest_vm_ip_user-1.out[,guest_vm_ip_user-1.out,...]
```

3.3.5.2.5 Running Oracle EXAchk for STIG-hardened vServers

Run Oracle EXAchk for STIG-hardened vServers.

1. Log in as `root` on the vServer that hosts the Enterprise Controller.
2. Switch to the `ELAdmin` user by running the following command:

```
su - ELAdmin
```

Note:

When running Oracle EXAchk on STIG-hardened vServers, Oracle recommends using only the `ELAdmin` user which you created above.

Create the `guest_vm_ip_user.out` manually. The `guest_vm_ip_user.out` has the following format:

```
ip_address_of_stig_hardened_guest_vserver1
ip_address_of_stig_hardened_guest_vserver2
ip_address_of_stig_hardened_guest_vserver3
```

3. Run Oracle EXAchk with the `-vmguest` option, and specify one or more `guest_vm_ip_user.out` files as arguments, depending on the users for which you want to perform health checks for guest vServers:

```
# ./exachk -vmguest guest_vm_ip_user-1.out[,guest_vm_ip_user-1.out,...]
```

3.3.5.3 About the Oracle EXAchk Health Check Process

Review the Oracle EXAchk start up sequence of events.

1. At the start of the health check process, Oracle EXAchk prompts you for the names of the storage nodes and switches.

At the prompt, enter the names or IP addresses of the storage nodes and switches. This is a one time process. Oracle EXAchk remembers these values and uses them for the subsequent health checks.

```
$ ./exachk
```

```
Could not find infiniband gateway switch names from env or configuration file.
Please enter the first gateway infiniband switch name : e101sw-ib02
Could not find storage node names from env or configuration file. Please enter
the first storage server : e101sn01
```

```
Checking ssh user equivalency settings on all nodes in cluster
```

```
Node e101cn02 is configured for ssh user equivalency for root user
```

```
Node e101cn03 is configured for ssh user equivalency for root user
```

```
Node e101cn04 is configured for ssh user equivalency for root user
Node e101cn05 is configured for ssh user equivalency for root user
Node e101cn06 is configured for ssh user equivalency for root user
```

 **Note:**

Enter the host names or IP addresses for the nodes, in the sequence in which they are arranged on the machine.

- The health check tool checks the SSH user equivalency settings on all the nodes in the cluster.

Oracle EXAchk is a non-intrusive health check tool. Therefore, it does not change anything in the environment. The tool verifies the SSH user equivalency settings, assuming that it is configured on all the compute nodes on the system:

- If the tool determines that the user equivalence is not established on the nodes, it provides you an option to set the SSH user equivalency either temporarily or permanently.
- If you choose to set SSH user equivalence temporarily, then Oracle EXAchk does this during the health check. However, after the completion of the health check, Oracle EXAchk returns the system to the state in which it found.

When Oracle EXAchk prompts you to specify your preference. Enter the password for the nodes for which you are prompted. The default preference, 1, allows you to enter the `root` password once for all the nodes on each host of the Oracle Exalogic machine.

```
Using cached file /root/exachk/o_ibswitches.out for gateway infiniband switches
list ....
```

```
Using cached file /root/exachk/o_storage.out for storage nodes list ....
```

```
Checking ssh user equivalency settings on all nodes in cluster
```

```
Node 0 is configured for ssh user equivalency for root user
```

```
Node 0 is configured for ssh user equivalency for root user
```

```
root user equivalence is not setup between 2 and STORAGE SERVER.
```

- Enter 1 if you will enter root password for each STORAGE SERVER when prompted.
- Enter 2 to exit and configure root user equivalence manually and re-run `exachk`.
- Enter 3 to skip checking best practices on STORAGE SERVER.

```
Please indicate your selection from one of the above options[1-3][1]:- 1-3
```

```
Is root password same on all STORAGE SERVER?[y/n][y]
```

On confirming the option and entering the credentials to proceed, Oracle EXAchk creates various output files, log files, and collection files for collecting the data required for the health check.

Preparing to run root privileged commands on INFINIBAND SWITCH el01sw-ib04.

```
root@el01sw-ib04's password:
Collecting - Environment Test
Collecting - Ethernet over infiniband data and control SL
Collecting - Free Memory
Collecting - Gateway Configuration
Collecting - Infiniband status
Collecting - List Link Up
Collecting - Localhost Configuration in /etc/hosts
Collecting - VNICS
Collecting - Version
Collecting - configvalid
Collecting - opensm
```

Preparing to run root privileged commands on INFINIBAND SWITCH el01sw-ib05.

```
root@el01sw-ib05's password:
Collecting - Environment Test
Collecting - Ethernet over infiniband data and control SL
Collecting - Free Memory
Collecting - Gateway Configuration
Collecting - Infiniband status
Collecting - List Link Up
Collecting - Localhost Configuration in /etc/hosts
Collecting - VNICS
Collecting - Version
Collecting - configvalid
Collecting - opensm
```

3. Oracle EXAchk checks the status of the components of the Oracle Exalogic stack, such as compute nodes, storage nodes, and InfiniBand switches. Depending on the status of each component, the tool runs the appropriate collections and audit checks.

```
=====
Node name - 0
=====
WARNING => NTP is not synchronized correctly.
INFO => One or more NFS Mount Points don't sue the current recommended
NFSv4.
WARNING => One or more NFS Mount Points uses incorrect rsize or wsize.
WARNING => Virtual Memory is not tuned to the recommended configuration.
WARNING => Ypbind is not configured correctly.
WARNING => DNS service is not configured correctly.
WARNING => IP Configuration for eth0 and bond0 are not configured
correctly.
INFO => EoIB Setup is not set up.
INFO => Please verify BIOS Setting. See the Action / Repair section
for instructions.
WARNING => Lock Daemon Configuration is not configured correctly.
=====
Node name - 0
=====
WARNING => NTP is not synchronized correctly.
INFO => One or more NFS Mount Points don't sue the current recommended
NFSv4.
WARNING => One or more NFS Mount Points uses incorrect rsize or wsize.
WARNING => Virtual Memory is not tuned to the recommended configuration.
WARNING => Ypbind is not configured correctly.
WARNING => DNS service is not configured correctly.
WARNING => IP Configuration for eth0 and bond0 are not configured
```

```
correctly.
INFO =>          EoIB Setup is not set up.
INFO =>          Please verify BIOS Setting. See the Action / Repair section
for instructions.
WARNING =>       Lock Daemon Configuration is not configured correctly.
```

4. Oracle EXAchk runs in the background monitoring the progress of the command run. If any of the commands times out, Oracle EXAchk either skips or terminates that command so that the process continues. Oracle EXAchk logs such cases in the log files.

If Oracle EXAchk stops running for any reason, it cannot resume or restart automatically. You must start Oracle EXAchk afresh. However, before running Oracle EXAchk again, complete the following steps:

- Verify whether the previous Oracle EXAchk process has been terminated, by running the following command:

```
# ps -ef | grep exachk
```

If the Oracle EXAchk process is still running, terminate it by running the following command:

```
# kill pid
```

In this command `pid` is the process ID of the Oracle EXAchk process that you want to terminate.

- Verify if `/tmp/.exachk/`, the temporary directory generated by Oracle EXAchk during the previous run is deleted. If the directory still exists, delete it.
5. When Oracle EXAchk completes the health check, it produces an HTML report and a zip file.

3.3.5.4 Running Oracle EXAchk in Silent Mode

When you run Oracle EXAchk in silent mode, it does not perform health checks for storage nodes and InfiniBand switches.

To run `root` privilege checks, Oracle EXAchk uses the `root_exachk.sh` script.

Before running Oracle EXAchk in silent mode, ensure to meet the following prerequisites:

1. Configure SSH user equivalence for the `root` user from the compute node on which Oracle EXAchk is staged to all the other compute nodes on which you plan to run the health check tool.

To verify SSH user equivalence, log in by using the Oracle software owner credentials and run the SSH command.

For example:

```
$ ssh -o NumberOfPasswordPrompts=0 -o StrictHostKeyChecking=no -l oracle
e101cn01 "echo \"oracle user equivalence is setup correctly\""
```

In this example, `oracle` is the Oracle software owner, and `e101cn01` is the compute node host name.

If the SSH user is not properly configured on the compute nodes, the tool displays the following message:

```
Permission denied (publickey,gssapi-with-mic,password)
```

Upgrading Multiple Nodes Simultaneously section in My Oracle Support Note 1446396.1, for more information about configuring passwordless login.

2. (required only for the `-s` option) Add the following line to the `sudoers` file on each compute node by using the `visudo` command:

```
oracle ALL=(root) NOPASSWD:/tmp/root_exachk.sh
```

Related Topics

- [Running Health Checks On-Demand](#) (page 1-27)
Usually, health checks run at scheduled intervals. However, Oracle recommends that you run health checks on-demand when needed.
- [Using Oracle ORAchk and Oracle EXAchk to Automatically Check for Risks and System Health](#) (page 1-16)
Oracle recommends that you use the daemon process to schedule recurring health checks at regular intervals.
- <https://support.oracle.com/rs?type=doc&id=1446396.1>

3.3.5.5 Overriding Discovered Component Addresses

In a physical environment, the component IP addresses or host names are determined in the first run based on user input. In a virtual environment, Oracle EXAchk has an in-built mechanism to automatically discover the IP addresses or host names of all the components. These features are designed to minimize the need for end-user input.

However, if the components were entered incorrectly during the first run or the auto-discovery mechanism fails to identify the components correctly, then do the following to override the values:

- If you are running Oracle EXAchk from a compute node, then do the following:
 - To override the names of the IB switches, edit or create the file `o_ibswitches.out` in the directory that contains the `exachk` binary. The file should contain a list of host names of the NM2-GW switches, each on a separate line.
 - To override the names of the storage components, edit or create the file `o_storage.out` in the directory that contains the `exachk` binary. The file should contain a list of host names of the storage heads, each on a separate line.
 - To override the names of the compute nodes, add the environment variable named `RAT_CLUSTERNODES`, and specify a list of the host names separated by a space, as the value of the variable.

```
export RAT_CLUSTERNODES="e101cn01 e101cn02 e101cn03 e101cn04"
```

- If you are running Oracle EXAchk from the vServer that hosts the Enterprise Controller component of the Exalogic Control stack, you must use a file named `exachk_exalogic.conf` to define the names of the components.

The `exachk.zip` contains the following templates for `exachk_exalogic.conf` in the `templates` subdirectory:

- `exachk_exalogic.conf.tmpl_full`
- `exachk_exalogic.conf.tmpl_half`
- `exachk_exalogic.conf.tmpl_quarter`

– `exachk_exalogic.conf.tmpl_eight`

Copy the template that corresponds to the size of your Exalogic machine to the directory that contains the `exachk` binary, and rename the template file to `exachk_exalogic.conf`.

Modify `exachk_exalogic.conf` to match your IP address schema.

 **Note:**

Oracle recommends that you create a copy of the `exachk_exalogic.conf` file that Oracle EXAchk generates the first time when the system is fully populated and functional, so that you can use the file later.

3.3.5.6 Setting Environment Variables for Local Issues

Oracle EXAchk attempts to derive all the data it needs from the environment in which it is run.

However, at times, the tool does not work as expected due to local system variations. In such cases, you can use local environment variables to override the default behavior of Oracle EXAchk.

Table 3-7 Oracle EXAchk Environment Variables

Environment Variables	Description	Example
RAT_OS	Enables the utility to verify the platform information.	For a 64-bit Oracle Enterprise Linux 5 machine, with x86 architecture, use the following command to set the <code>RAT_OS</code> variable: <code>export RAT_OS=LINUX8664OELRHEL5</code> For a 64-bit Oracle Solaris 11 machine, with x86 architecture, use the following command to set the <code>RAT_OS</code> variable: <code>export RAT_OS=SOLARISX866411</code>
RAT_SHELL	Redirects Oracle EXAchk to the default secure shell location.	<code>export RAT_SHELL="/usr/bin/ssh -q"</code>
RAT_SCP	Redirects Oracle EXAchk to the default secure copy (SCP) location.	<code>export RAT_SCP="/usr/bin/scp -q"</code>

Table 3-7 (Cont.) Oracle EXAchk Environment Variables

Environment Variables	Description	Example
RAT_LOCALONLY	If set to 1, then directs Oracle EXAchk to perform health checks on only the compute node from which Oracle EXAchk is run; that is, Oracle EXAchk skips the checks for the storage nodes, the switches, and all the compute nodes other than one from which it is run.	To direct Oracle EXAchk to perform health checks on only the compute node from which Oracle EXAchk is run, use the following command: <pre>export RAT_LOCALONLY=1</pre>
RAT_CELLS	Directs Oracle EXAchk to run checks on one of the two storage nodes. If the names of the storage nodes are non-standard, then edit the <code>theo_storage.out</code> file that is located in the same directory where Oracle EXAchk is installed, and specify the name of the storage node.	To direct Oracle EXAchk to run checks on the second storage node, use the following command: <pre>export RAT_CELLS="e101sn02"</pre>

Table 3-7 (Cont.) Oracle EXAchk Environment Variables

Environment Variables	Description	Example
RAT_SWITCHES	Directs Oracle EXAchk to run checks on subsets of the InfiniBand switches, in addition to the default checks on the InfiniBand switches. If the names of the switches are non-standard, then edit the <code>theo_ibswitches.out</code> file that is located in the same directory where Oracle EXAchk is installed, and specify the names of the switches.	To direct Exact to run on the InfiniBand switch <code>e101sw-ib02</code> and its subsets, use the following command: <pre>export RAT_IBSWITCHES="e101sw-ib02"</pre>
RAT_CLUSTERNODES	Directs Oracle EXAchk to run checks on specific nodes.	On a quarter rack, which has eight compute nodes, use the following command to list the compute nodes on which the health check needs to be performed: <pre>export RAT_CLUSTERNODES="e101cn01 e101cn02 e101cn03 e101cn04 e101cn05 e101cn06 e101cn07 e101cn08"</pre>
RAT_ELRACKTYPE	Indicates whether the machine is an eighth rack (0), quarter rack (1), half rack (2), or full rack (3).	To specify that the system is a full rack, use the following command: <pre>export RAT_ELRACKTYPE="3"</pre>

 **Note:**

In a virtual configuration, when running Oracle EXAchk from the vServer that hosts the Enterprise Controller component of the Exalogic Control stack, do not use the `RAT_CELLS`, `RAT_SWITCHES`, and `RAT_CLUSTERNODES` variables to override the storage node, switches, and compute nodes for which Oracle EXAchk should perform health checks. Instead, use the `exachk_exalogic.conf` file.

Related Topics

- [Overriding Discovered Component Addresses](#) (page 3-35)
In a physical environment, the component IP addresses or host names are determined in the first run based on user input. In a virtual environment, Oracle EXAchk has an in-built mechanism to automatically discover the IP addresses or host names of all the components. These features are designed to minimize the need for end-user input.

3.3.5.7 External ZFS Storage Appliance

For Exalogic systems, support has been added to run health checks on External ZFS Storage appliances. The results of these checks are displayed in the **External ZFS Storage Appliance** of the report.

Figure 3-8 External ZFS Storage Appliance

Status	Type	Message	Status On	Details
WARNING	External ZFS Storage Appliance Check	LZARC Header Size exceeds the recommended 12.5% of the total memory limit.	myserver3, myservers4	View
WARNING	External ZFS Storage Appliance Check	Datasets Check failed.	myserver3	View
WARNING	External ZFS Storage Appliance Check	NFS v4 Delegation is enabled	myserver3, myservers4	View

3.3.6 Oracle EXAchk on Oracle Exalogic Output

Identify the checks that you must act immediately to remediate, or investigate further to assess the checks that might cause performance or stability issues.

Reading and Interpreting the Oracle EXAchk HTML Report

You can view the Oracle EXAchk HTML report in a browser by using an HTTP URL as shown in the following example:

```
http://e101sn01/export/common/general/exachk/exachk_e101cn01_053112_101705/exachk_e101cn01_053112_101705.html
```

In this example, *e101sn01* is the name of the storage node, *e101cn01* is the name of the compute node on which the share is mounted, and *053112_101705* is the date and time stamp for the report.

The following is specific to Oracle EXAchk on Oracle Exalogic:

Table 3-8 Oracle EXAchk on Oracle Exalogic Message Definitions

Message Status	Description or Possible Impact	Action to be Taken
FAIL	Shows checks that did not pass due to issues.	Address the issue immediately.

Table 3-8 (Cont.) Oracle EXAchk on Oracle Exalogic Message Definitions

Message Status	Description or Possible Impact	Action to be Taken
WARNING	Shows checks that might cause performance or stability issues if not addressed.	Investigate the issue further.
ERROR	Shows errors in system components.	Take corrective measures, and restart Oracle EXAchk.
INFO	Indicates information about the system.	Read the information displayed in these checks, and follow the instructions provided, if any.

System-Wide Firmware and Software Versions

This section lists the firmware and software versions of all the components for which the health check was performed.

Skipped Nodes

This section lists components for which Oracle EXAchk did not perform any health check. Skipped components are those that, typically, Oracle EXAchk cannot access.

The following table lists the typical situations when Oracle EXAchk skips a component and the solutions for each situation:

Table 3-9 Oracle EXAchk on Oracle Exalogic Skipped Nodes

Situation	Solution
The IP address of the component is incorrect or the host name cannot be resolved.	Update <code>exachk_exalogic.conf</code> or the <code>o*.out</code> files, as appropriate, with the correct IP addresses, and run Oracle EXAchk again.
The component is not running.	Ping or SSH to the component. If the ping or SSH command fails, ensure that the component is started. Then, run Oracle EXAchk again.
The network is congested and slow, causing an SSH time-out.	Try increasing the value of the environment variable, <code>RAT_TIMEOUT</code> , and run Oracle EXAchk again.
The component is overloaded and low on memory, causing a password time-out.	Try increasing the value of the environment variable, <code>RAT_PASSWORDCHECK_TIMEOUT</code> , and run Oracle EXAchk again.

Comparing Component Versions in Two Oracle EXAchk Collections

You can use the `-exadiff` option of Oracle EXAchk to compare two Oracle EXAchk collections. When you use this option, Oracle EXAchk generates a comparison report in HTML format, highlighting the differences in the versions of the infrastructure components, hardware, firmware, and software between the two reports. The two

Oracle EXAchk reports can be for different Oracle Exalogic racks or at different points in time for the same rack, such as before and after upgrading the rack.

To compare two Oracle EXAchk collections, complete the following steps:

1. Identify the two Oracle EXAchk collections, zip files that you want to compare.
2. If the collections do not exist on the host, compute node or vServer on which you are running Oracle EXAchk, then copy the collections to the host.
3. Run the following command:

```
./exachk -exadiff collection_1 collection_2
```

In this command, `collection_1` and `collection_2` are the full paths and names of the two collections that you want to compare. You can specify either the collection zip file or the directory in which the zip file has been extracted.

4. Wait for the command to finish running.

After comparing the two collections, Oracle EXAchk saves the results of the comparison in an HTML file named `rack_comparison_date_time.html`, for example, `rack_comparison_131219_213435.html`.

You can view the HTML report in a browser by using an HTTP URL as shown in the following example:

Example 3-1 Comparing Component Versions in Two Oracle EXAchk Collections

```
http://e101sn01/export/common/general/exachk/rack_comparison_131219_213435.html
```

In this example, `e101sn01` is the name of the active storage node, `/common/general` is the share in which the Oracle EXAchk reports are stored, and `131219_213435` is the date and time stamp for the report.

Related Topics

- [How to Remove Checks from an Existing HTML Report](#) (page 1-49)
Hide individual findings from the report using **Remove findings** .
- [Comparing Two Reports](#) (page 1-55)
Oracle ORAchk and Oracle EXAchk automatically compare the two most recent HTML reports and generate a third diff report, when run in automated daemon mode.
- [HTML Report Output](#) (page 1-36)
- [Setting Environment Variables for Local Issues](#) (page 3-36)
Oracle EXAchk attempts to derive all the data it needs from the environment in which it is run.
- https://docs.oracle.com/cd/E18476_01/doc.220/e35316/install_upgrade.htm#CIAGCAJD

3.3.7 Oracle EXAchk on Oracle Exalogic Command-Line Options

List of command-line options applicable to Oracle Exalogic.

Command Options Applicable to Oracle Exalogic

Table 3-10 Command Options Applicable to Oracle Exalogic

Option	Purpose and Syntax
-clusternodes	Performs checks on only the specified compute nodes and all the other components, and exclude the unspecified compute nodes. Syntax: <pre>./exachk -clusternodes cn_1[,cn_2,...]</pre>
-diff	Compares two Oracle EXAchk HTML reports and generate an HTML report showing the changes in the health of the Exalogic rack between Oracle EXAchk runs. Syntax: <pre># ./exachk -diff report1 report2 [-outfile compared_report.html]</pre>
-exadiff	Compares two Oracle EXAchk zip collections and generate an HTML report showing the differences in the versions of the infrastructure components, hardware, firmware, and software between the two reports. The two Oracle EXAchk reports can be for different Exalogic racks or at different points in time for the same rack, such as before and after upgrading the rack. Syntax: <pre>./exachk -exadiff exachk_collection_zip_1 exachk_collection_zip_2</pre>
-f	Performs checks on already collected data. Syntax: <pre>./exachk -f report_name</pre>
-vmguest	Performs checks for guest vServers as well. Syntax: <pre>./exachk -vmguest conf_file_1[,conf_file_2,...]</pre>
-hybrid	Performs checks on physical nodes as well in a hybrid rack. Syntax: <pre>./exachk -hybrid</pre>
-localonly	Perform checks for only the host on which Oracle EXAchk is running. Syntax: <pre>./exachk -localonly</pre>

Table 3-10 (Cont.) Command Options Applicable to Oracle Exalogic

Option	Purpose and Syntax
-nopass	Excludes passed checks from the HTML report. Syntax: <code>./exachk -nopass</code>
-o v	Displays results for all checks, including those that passed. Syntax: <code>./exachk -o v</code>
-phy	Use this option along with -hybrid, to specify the physical nodes in a hybrid rack. Syntax: <code>./exachk -hybrid -phy node_1[,node_2,...]</code>
-profile	Performs specific checks or checks for specific components. Syntax: <code>./exachk -profile profile_name</code>
-s or -S	See Supported Profiles for the -profile option, for more details. Runs Oracle EXAchk in silent mode. Syntax: <code>./exachk -s</code>
-v	Displays the version of the tool. Syntax: <code>./exachk -v</code>

Supported Profiles for the -profile Option**Table 3-11 Supported Profiles for the -profile option**

Profile	Description
control_VM	Runs health checks for only the Oracle Exalogic control components.

Table 3-11 (Cont.) Supported Profiles for the -profile option

Profile	Description
el_extensive	In addition to the standard set of checks, run the following checks that are useful for a freshly installed or upgraded machine: <ul style="list-style-type: none"> • Verify whether the BIOS on the compute nodes is configured correctly. • Verify whether PCI 64-bit resource allocation setting on the compute nodes is disabled. • In Oracle VM Manager, for each server pool name, verify whether VM Start Policy is set to Start on current server.
switch	Runs checks for the switches.
virtual_infra	Runs checks for the Oracle Exalogic virtual infrastructure. This check is applicable to only Oracle Exalogic machines in a virtual configuration.
zfs	Runs checks for the storage appliance.

 **Note:**

Before running Oracle EXAchk with the `el_extensive` profile, verify whether passwordless SSH has been enabled for the CLI shell of Oracle VM Manager.

- [Verifying and Enabling Passwordless SSH to the Oracle VM Manager CLI \(page 3-45\)](#)
Before running Oracle EXAchk with the `el_extensive` profile, you must verify whether passwordless SSH is enabled for the CLI shell of Oracle VM Manager.

Related Topics

- https://docs.oracle.com/cd/E18476_01/doc.220/e35316/using_exachk_rep.htm#A132214788
- https://docs.oracle.com/cd/E18476_01/doc.220/e35316/using_exachk_rep.htm#CHDHJGEC
- https://docs.oracle.com/cd/E18476_01/doc.220/e35316/running_exachk.htm#A1004260302
- https://docs.oracle.com/cd/E18476_01/doc.220/e35316/running_exachk.htm#BEJFHFFD
- https://docs.oracle.com/cd/E18476_01/doc.220/e35316/advanced_option.htm#CHDHHICE

3.3.7.1 Verifying and Enabling Passwordless SSH to the Oracle VM Manager CLI

Before running Oracle EXAchk with the `el_extensive` profile, you must verify whether passwordless SSH is enabled for the CLI shell of Oracle VM Manager.

To do this, try logging in through SSH to the Oracle VM Manager CLI shell by running the following command on the host running the Oracle VM Manager vServer:

```
# ssh -l admin host_name_of_localhost -p 10000
```

`host_name_of_localhost` is the host name of the localhost.

If you can log in without having to enter a password, that is, if the `ovm>` prompt is displayed, then passwordless SSH is enabled.

If a password prompt is displayed, do the following:

1. Enter the password for the admin user, default is `welcome1`.
2. Log out from the `ovm>` shell, and try logging in again through SSH. If the password prompt continues to display, then passwordless SSH is not enabled. To enable passwordless SSH to the Oracle VM Manager CLI, complete the following steps:

- a. SSH as root to the vServer that hosts the Oracle VM Manager.
- b. Ensure that the `ssh` agent is running:

```
# eval 'ssh-agent'
```

The output is similar to following example: `Agent pid 18529`

- c. Generate a public/private key pair:

```
# ssh-keygen -t rsa -f ~/.ssh/admin
```

If the `ssh` agent is not running, the following error message is displayed:
`Could not open a connection to your authentication agent.`

When prompted for a pass phrase, press **Enter**.

The keys are generated and stored in the `~/.ssh/` directory. The `admin` file contains the private key and the `admin.pub` file contains the public key.

- d. Add the private key to the authentication agent:

```
# ssh-add ~/.ssh/admin  
Identity added: /home/user/.ssh/admin (/home/user/.ssh/admin)
```

Copy the public key to the `.ssh` directory in the oracle user's home directory:

```
# cp ~/.ssh/admin.pub /home/oracle/.ssh/
```

- e. Append the file containing the public key, that is, `admin.pub` to the `ovmcli_authorized_keys` file:

```
# cd /home/oracle/.ssh/# cat admin.pub >> ovmcli_authorized_keys
```

- f. SSH as the admin user to the Oracle VM Manager CLI:

```
# ssh -l admin localhost -p 10000
```

At the prompt to continue connecting, enter **yes**.

At the prompt for the password, enter the admin user's password.

The following shell is displayed: `ovm>`

For subsequent logins, the newly established passwordless SSH channel is used.

3.3.8 Troubleshooting Oracle EXAchk on Oracle Exalogic

Troubleshoot and fix Oracle EXAchk on Oracle Exalogic issues.

Refer to My Oracle Support Note 1478378.1 for the latest known issues specific to Oracle EXAchk on Oracle Exalogic.

Contacting Support with Oracle EXAchk Report

1. Run Oracle EXAchk with the `-profile el_extensive` option to include a larger set of health checks in the generated HTML report:

```
./exachk -profile el_extensive
```

Contact Support with Oracle EXAchk result bundle as needed for further assistance.

2. To get assistance from Oracle Support on problems related to running Oracle EXAchk or issues related to generating complete Oracle EXAchk report, run the Oracle EXAchk command with `-debug` option:

```
./exachk -debug
```

Contact Support with the resulting output `zip` file.

Related Topics

- [Setting Environment Variables for Local Issues](#) (page 3-36)
Oracle EXAchk attempts to derive all the data it needs from the environment in which it is run.
- [Oracle ORAchk and Oracle EXAchk Command-Line Options](#) (page 1-76)
Most command-line options apply to both Oracle ORAchk and Oracle EXAchk.
- [Troubleshooting Oracle ORAchk and Oracle EXAchk](#) (page 1-198)
Follow the steps explained in this section to troubleshoot and fix Oracle ORAchk and Oracle EXAchk related issues.
- <https://support.oracle.com/rs?type=doc&id=1478378.1>

3.4 Oracle SuperCluster

This section explains the features and tasks specific to Oracle EXAchk on Oracle SuperCluster.

- [Scope and Supported Platforms for Running Oracle EXAchk on Oracle SuperCluster](#) (page 3-47)
Oracle EXAchk is an invaluable aid in keeping your system up-to-date and recording changes, as well as providing baselines for support analysis in the event such data is required to resolve a Service Request.

- [Installing and Deploying Oracle EXAchk on Oracle SuperCluster](#) (page 3-47)
Follow these procedures to install and deploy Oracle EXAchk on Oracle SuperCluster.
- [Oracle EXAchk on Oracle SuperCluster Usage](#) (page 3-49)
Perform health checks from GZ / primary LDOM, or NGZ.
- [Oracle EXAchk on Oracle SuperCluster Command-Line Options](#) (page 3-52)
List of command-line options specific to Oracle EXAchk on Oracle SuperCluster.
- [Troubleshooting Oracle EXAchk on SuperCluster](#) (page 3-53)
Troubleshoot and fix issues related to Oracle EXAchk on Oracle SuperCluster.

Related Topics

- [Oracle ORAchk and Oracle EXAchk Common Features and Tasks](#) (page 1-1)

3.4.1 Scope and Supported Platforms for Running Oracle EXAchk on Oracle SuperCluster

Oracle EXAchk is an invaluable aid in keeping your system up-to-date and recording changes, as well as providing baselines for support analysis in the event such data is required to resolve a Service Request.

Refer to My Oracle Support Note 2053185.1 for the latest scope and supported platforms specific to Oracle EXAchk on Oracle SuperCluster:

Related Topics

- <https://support.oracle.com/rs?type=doc&id=2053185.1>

3.4.2 Installing and Deploying Oracle EXAchk on Oracle SuperCluster

Follow these procedures to install and deploy Oracle EXAchk on Oracle SuperCluster.

Installation

- Run Oracle EXAchk from the primary ldom as `root` user or `root` privileged user. Oracle EXAchk discovers all Oracle RAC and database instances, compute nodes, storage servers, and InfiniBand switches in the fabric.
- Run Oracle EXAchk in a database zone or virtualized environment. Oracle EXAchk collects data from one or all database instances and Oracle RAC nodes.

Notes and considerations

If you install and run Oracle EXAchk as `root`, it collects connectivity data from the GZ to the storage cells and other nodes. Oracle EXAchk collects only collect database and Oracle RAC data if run as `root` user or `root` privileged user from within the nodes or zones on which the database and Oracle RAC software is installed.

By default, there should be no need to set environment variables or run as any other user than `root` or `root` privileged user. However, there may be exceptions when one is asked to run it in some debug or extraordinary fashion by an Oracle Support Analyst.

By default, the output destination is `/opt/oracle.SupportTools/exachk`. Set the environment variable `RAT_OUTPUT` to change this, for example,

```
export RAT_OUTPUT=/opt/oracle.SupportTools/exachk/output
```

Merge multiple collections into one file for ease of uploading to My Oracle Support for analysis.

 **Note:**

In zones, there is an issue with discovery and you must explicitly set the `RAT_ORACLE_HOME` and `RAT_GRID_HOME` environment variables in some remote cases.

- [Deploying Oracle EXAchk on Oracle SuperCluster](#) (page 3-48)

Related Topics

- [Merging Reports](#) (page 1-58)
Merging reports is useful in role-separated environments where different users are run different subsets of checks and then you want to view everything as a whole.
- [Installing Oracle ORAchk and Oracle EXAchk](#) (page 1-3)
Follow these procedures to install Oracle ORAchk and Oracle EXAchk.

3.4.2.1 Deploying Oracle EXAchk on Oracle SuperCluster

1. Download the latest version of Oracle EXAchk into `/opt/oracle.SupportTools` directory on the primary `node/LDOM` of the Oracle SuperCluster.
 - a. Backup or remove if you have already installed Oracle EXAchk.
 - b. Download the latest version of the Oracle EXAchk on Oracle SuperCluster deployment script `deploy_exachk.sh`.
 - c. Move the downloaded file into the `/opt/oracle.SupportTools` directory.
2. Use the `deploy_exachk.sh` script to deploy and install Oracle EXAchk into the `/opt/oracle.SupportTools/exachk` directory in the primary `ldom` and in each zone.

 **Note:**

Repeat this action for each of the other LDOMs.

Example of what a zone's `/opt/oracle.SupportTools` looks like when this is finished:

```
total 68
drwxr-xr-x  7 root   root       10 Oct 14 19:27 .
drwxr-xr-x  8 root   sys        8 Oct  7 22:06 ..
drwxr-xr-x  3 root   root       21 Oct 14 19:27 Exachk.old
drwxr-xr-x  3 root   root       23 Oct 14 19:06 Exachk
drwxr-xr-x  2 root   root        7 Oct  5 20:52 em
lrwxrwxrwx  1 root   root       14 Oct 14 19:27 exachk -> Exachk
drwxr-xr-x  2 root   root        6 Oct  7 20:43 onecommand
-rw-r--r--  1 root   root     40830 Oct  7 20:30 resourcecontrol
```

Manual or Standalone Installation

1. Manually install Oracle EXAchk on each host or LDOM or zone as follows:

```
root@abc5db01:/opt/oracle.SupportTools# mv exachk Exachk.old
root@abc5db01:/opt/oracle.SupportTools# mkdir exachk
root@abc5db01:/opt/oracle.SupportTools# unzip exachk_121024_bundle.zip -d exachk
root@abc5db01:/opt/oracle.SupportTools# unzip exachk/exachk.zip -d exachk
```

2. Check the version.

```
# /opt/oracle.SupportTools/exachk/exachk -v
```

Note if root RSA keys are set up for ssh, then this is an example of an easy way to check all zones in a given LDOM:

```
root@abc5db01:/opt/oracle.SupportTools# zoneadm list | grep -v global > zone_list
root@abc5db01:/opt/oracle.SupportTools# hostname >> zone_list
root@abc5db01:/opt/oracle.SupportTools# /opt/oracle.supercluster/bin/dcli -g
zone_list -l root /opt/*Tools/exachk/exachk -v
abc5db01z1:
abc5db01z1: EXACHK  VERSION: 12.1.0.2.6_20160208
abc5db01z2:
abc5db01z2: EXACHK  VERSION: 12.1.0.2.6_20160208
abc5db01z3:
abc5db01z3: EXACHK  VERSION: 12.1.0.2.6_20160208
abc5db01z4:
abc5db01z4: EXACHK  VERSION: 12.1.0.2.6_20160208
abc5db01:
abc5db01: EXACHK  VERSION: 12.1.0.2.6_20160208
```

Related Topics

- <https://support.oracle.com/rs?type=doc&id=2053185.1>

3.4.3 Oracle EXAchk on Oracle SuperCluster Usage

Perform health checks from GZ / primary LDOM, or NGZ.

Performing Health Checks from GZ / Primary LDOM

```
root@abc5db01:/opt/oracle.SupportTools/exachk# ./exachk
exachk did not find the inventory location on abc5db01 from environment.Does
abc5db01 have Oracle software installed [y/n][n]?n
```

Checking ssh user equivalency settings on all nodes in cluster

Node abc5db02 is configured for ssh user equivalency for root user

Node abc5db03 is configured for ssh user equivalency for root user

Node abc5db04 is configured for ssh user equivalency for root user
<snip>

Performing Health Checks from non-GZ local zone, aka NGZ

```
root@abc4db01:/opt/oracle.SupportTools/exachk# zlogin abc4db01z2
[Connected to zone 'abc4db01z2' pts/10]
Oracle Corporation      SunOS 5.11          11.1    April 2014
root@abc4db01z2:~# cd /opt/*Tools
```

```
root@abc4db01z2:/opt/oracle.SupportTools# cd exachk
root@abc4db01z2:/opt/oracle.SupportTools/exachk# ./exachk
```

Checking ssh user equivalency settings on all nodes in cluster
<snip>

- [Merging Collections](#) (page 3-50)
Merge multiple collections into one file and upload it to an SR through `curl`.
- [Automated Daemon Mode Operation](#) (page 3-51)
Follow these specific advanced setup instructions when using Oracle EXAchk on Oracle SuperCluster.

3.4.3.1 Merging Collections

Merge multiple collections into one file and upload it to an SR through `curl`.



Note:

Specify the `-force` option after the comma-delimited file list.

```
root@abc4db01:/opt/oracle.SupportTools/exachk# ./exachk -merge
exachk_abc4db01_090715_214648.zip,
/zoneHome/abc4db01z1/root/opt/oracle.SupportTools/exachk/
exachk_abc4db01z1_abc4z1_090415_183027.zip,/zoneHome/abc4db01z2/root/opt/
oracle.SupportTools/exachk/exachk_abc4db01z2_abc4z2_090715_211212.zip,
/zoneHome/abc4db01z3/root/opt/oracle.SupportTools/exachk/
exachk_abc4db01z3_dbm01_031015_212416.zip
-force
Merging following collections:
```

```
    exachk_abc4db01_090715_214648.zip
      /zoneHome/abc4db01z1/root/opt/oracle.SupportTools/exachk/
exachk_abc4db01z1_abc4z1_090415_183027.zip
      /zoneHome/abc4db01z2/root/opt/oracle.SupportTools/exachk/
exachk_abc4db01z2_abc4z2_090715_211212.zip
      /zoneHome/abc4db01z3/root/opt/oracle.SupportTools/exachk/
exachk_abc4db01z3_dbm01_031015_212416.zip
```

```
Started merging exachk_orlt4db01_090715_214648.zip
```

```
.....
.....
```

```
Started merging /zoneHome/abc4db01z1/root/opt/oracle.SupportTools/exachk/
exachk_abc4db01z1_abc4z1_090415_183027.zip
```

```
.....
.....
.....
```

```
Started merging /zoneHome/abc4db01z2/root/opt/oracle.SupportTools/exachk/
exachk_abc4db01z2_abc4z2_090715_211212.zip
```

```
.....
.....
.....
```

```

Started merging /zoneHome/abc4db01z3/root/opt/oracle.SupportTools/exachk/
exachk_abc4db01z3_dbm01_031015_212416.zip
.....
.....
.....
<snip>
Detailed report (html) - /opt/oracle.SupportTools/exachk/
exachk_abc4db01_090715_214648_merge/exachk_abc4db01_090715_214648_merge.html

UPLOAD(if required) - /opt/oracle.SupportTools/exachk/
exachk_abc4db01_090715_214648_merge.zip

root@abc4db01:/opt/oracle.SupportTools/exachk#

```

Related Topics

- [Merging Reports](#) (page 1-58)
Merging reports is useful in role-separated environments where different users are run different subsets of checks and then you want to view everything as a whole.

3.4.3.2 Automated Daemon Mode Operation

Follow these specific advanced setup instructions when using Oracle EXAchk on Oracle SuperCluster.

Before you schedule automated health check runs, set the following environment variables as follows:

```

export RAT_TIMEOUT=120
export RAT_ROOT_TIMEOUT=600
export RAT_PASSWORDCHECK_TIMEOUT=30
export RAT_OUTPUT=/opt/oracle.SupportTools/exachk/output
export RAT_COPY_EM_XML_FILES=1

```

Note:

Create a file with these commands because they are required to be set anytime you restart the daemon.

1. Set the `AUTORUN_SCHEDULE` environment variable as follows:

```

AUTORUN_SCHEDULE * * * * :- Automatic run at specific time
- - - - -
| | | |
| | | +----- day of week (0 - 6) (0 to 6 are
| | |          Sunday to Saturday)
| | +----- month (1 - 12)
| +----- day of month (1 - 31)
+----- hour (0 - 23)

```

For example, to run on 5th of every month at 2 AM:

```
./exachk -set "AUTORUN_SCHEDULE=2 5 * *"
```

2. Check the results.

```
./exachk -get all
```

3. Set the daemon and `inittab`.

```
./exachk -initsetup
```

 **Note:**

If the preceding action produces an error, then wait for one or two minutes before running the next command to give `init` time to respawn the process.

4. Check if the daemon is running.

```
./exachk -d nextautorun
```

3.4.4 Oracle EXAchk on Oracle SuperCluster Command-Line Options

List of command-line options specific to Oracle EXAchk on Oracle SuperCluster.

Table 3-12 Oracle SuperCluster Command-Line Options

Option	Description
<code>-cells <i>cells</i></code>	<p>Pass comma-delimited list of storage server names to limit to subset of storage servers.</p> <p>Alternatively, set the <code>RAT_CELLS</code> environment variable with a space-delimited list of cells:</p> <p>For example:</p> <pre>export RAT_CELLS="randomcel01 randomcel06"</pre> <p>Or</p> <pre>export RAT_CELLS=randomcel01</pre>
<code>-ibswitches <i>switches</i></code>	<p>Pass comma-delimited list of InfiniBand switch names to limit to subset of InfiniBand switches.</p> <p>Alternatively, set the <code>RAT_IBSWITCHES</code> environment variable with a space-delimited list of switches:</p> <p>For example:</p> <pre>export RAT_IBSWITCHES="randomsw-ib1 randomsw-ib3"</pre> <p>Or</p> <pre>export RAT_CELLS=randomsw-ib2</pre>

To lock and unlock the cell, use the `-unlockcells` and `-lockcells` options:

```
./exachk -unlockcells all | -cells comma-delimited list of names or IP addresses of cells
```

```
./exachk -lockcells all | -cells comma-delimited list of names or IP addresses of cells
```

3.4.5 Troubleshooting Oracle EXAchk on SuperCluster

Troubleshoot and fix issues related to Oracle EXAchk on Oracle SuperCluster.

Refer to My Oracle Support Note 2053185.1 for the latest known issues specific to Oracle EXAchk on Oracle SuperCluster.

Related Topics

- [Troubleshooting Oracle ORAchk and Oracle EXAchk](#) (page 1-198)
Follow the steps explained in this section to troubleshoot and fix Oracle ORAchk and Oracle EXAchk related issues.
- <https://support.oracle.com/rs?type=doc&id=2053185.1>

3.5 Oracle Exalytics

This section explains the features and tasks specific to Oracle EXAchk on Oracle Exalytics.

- [Scope and Supported Platforms for Running Oracle EXAchk on Oracle Exalytics](#) (page 3-53)
Oracle EXAchk for Oracle Exalytics is a health check tool that audits important configuration settings within an Oracle Exalytics machine.
- [Prerequisites for Running Oracle EXAchk on Oracle Exalytics](#) (page 3-54)
- [Installing Oracle EXAchk on Oracle Exalytics](#) (page 3-54)
Follow these procedures to install Oracle EXAchk on Oracle Exalytics.
- [Oracle EXAchk on Oracle Exalytics Usage](#) (page 3-55)
Oracle EXAchk runs the appropriate collections and audit checks based on the status of the components.
- [Oracle EXAchk on Oracle Exalytics Output](#) (page 3-55)
Identify the checks that you must act immediately to remediate, or investigate further to assess the checks that might cause performance or stability issues.
- [Running Subsets of Checks](#) (page 3-56)
You can run Oracle EXAchk using a specific profile. A profile contains selective sets of checks pertaining to specific components.
- [Troubleshooting Oracle EXAchk on Oracle Exalytics](#) (page 3-57)
Troubleshoot and fix issues related to Oracle EXAchk on Oracle Exalytics.

Related Topics

- [Oracle ORAchk and Oracle EXAchk Common Features and Tasks](#) (page 1-1)

3.5.1 Scope and Supported Platforms for Running Oracle EXAchk on Oracle Exalytics

Oracle EXAchk for Oracle Exalytics is a health check tool that audits important configuration settings within an Oracle Exalytics machine.

Oracle EXAchk examines the following components:

- Server

- Operating System, Firmware, BIOS
- Ethernet network, InfiniBand switches
- RAM, hard disks
- Software installed on the machine - OBIEE and TimesTen

Run Oracle EXAchk in the following conditions:

- Before and after deploying an Oracle Exalytics machine
- As part of the monthly maintenance program for an Oracle Exalytics machine
- Before and after making any changes in the system configuration
- Before and after any planned maintenance activity
- For troubleshooting hardware or software failures
- For troubleshooting performance degradation

Supported Platforms

- **Machine:** Oracle Exalytics In-Memory Machine
- **Operating systems:** Oracle Exalytics Base Image 1.0.0.5.0 and later



Note:

Virtualization is not supported for Oracle EXAchk on Oracle Exalytics.

3.5.2 Prerequisites for Running Oracle EXAchk on Oracle Exalytics

1. If OBIEE was not installed by Domain Management Utility (DOMU), then you must set the `RAT_BI_HOMES` environment variable before running Oracle EXAchk.

```
$ export RAT_BI_HOMES=location of BI Middleware homes
```

2. Specify multiple BI homes installed on the machine in a space-delimited list.

For example:

```
$ export RAT_BI_HOMES=/u01/app/oracle/product/fmw /u02/app/oracle/product/fmw
```



Note:

If you run Oracle EXAchk using the `TimesTen` profile, then you need not set the `RAT_BI_HOMES` environment variable.

3. To view Oracle EXAchk related environment variables that are already configured on the system:

```
$ env | grep RAT
```

3.5.3 Installing Oracle EXAchk on Oracle Exalytics

Follow these procedures to install Oracle EXAchk on Oracle Exalytics.

1. Log in to the machine as the `root` user.
2. Create a directory to hold the Oracle EXAchk binaries.
For example:

```
$ mkdir /opt/exalytics/exachk
```
3. Go to the `/opt/exalytics/exachk` directory.
4. Download the `exachk.zip` file to the `/opt/exalytics/exachk` directory.
5. Extract the contents of the `exachk.zip` file.

```
$ unzip exachk.zip
```

Related Topics

- [Installing Oracle ORAchk and Oracle EXAchk](#) (page 1-3)
Follow these procedures to install Oracle ORAchk and Oracle EXAchk.

3.5.4 Oracle EXAchk on Oracle Exalytics Usage

Oracle EXAchk runs the appropriate collections and audit checks based on the status of the components.

1. Log in to the machine as the `root` user.
2. Go to the directory where you installed Oracle EXAchk.
For example:

```
$ cd /opt/exalytics/exachk
```

3. Start Oracle EXAchk.

```
$ ./exachk
```

Oracle EXAchk checks the status of the components of the Oracle Exalytics machine. Depending on the status of each component, the tool runs the appropriate collections and audit checks. When Oracle EXAchk completes the health check, it produces an HTML report and a zip file. You can use the `zip` file to log a service request with My Oracle Support.

Note:

Do not rename any of the Oracle EXAchk output report files or folders.

Related Topics

- [Oracle ORAchk and Oracle EXAchk Command-Line Options](#) (page 1-76)
Most command-line options apply to both Oracle ORAchk and Oracle EXAchk.

3.5.5 Oracle EXAchk on Oracle Exalytics Output

Identify the checks that you must act immediately to remediate, or investigate further to assess the checks that might cause performance or stability issues.

The following is specific to Oracle EXAchk on Oracle Exalytics:

Oracle EXAchk Summary

This section of the report summarizes the key data collected from the Oracle EXAchk environment:

- Operating system and Kernel version
- System identifier
- Base image version
- Compute node name
- Version of Oracle EXAchk
- Version of TimesTen
- Collection folder
- Date when the check was run

Oracle EXAchk on Oracle Exalytics Message Definitions

Table 3-13 Oracle EXAchk on Oracle Exalytics Message Definitions

Message Status	Description or Possible Impact	Action to be Taken
FAIL	Shows checks that did not pass due to issues.	Address the issue immediately.
WARNING	Shows checks that might cause performance or stability issues if not addressed.	Investigate the issue further.
INFO	Indicates information about the system.	Read the information displayed in these checks and follow the instructions provided, if any.

Related Topics

- [How to Remove Checks from an Existing HTML Report](#) (page 1-49)
Hide individual findings from the report using **Remove findings** .
- [Understanding and Managing Reports and Output](#) (page 1-32)
Oracle ORAchk and Oracle EXAchk generate a detailed HTML report with findings and recommendations.
- [HTML Report Output](#) (page 1-36)
- [Comparing Two Reports](#) (page 1-55)
Oracle ORAchk and Oracle EXAchk automatically compare the two most recent HTML reports and generate a third diff report, when run in automated daemon mode.

3.5.6 Running Subsets of Checks

You can run Oracle EXAchk using a specific profile. A profile contains selective sets of checks pertaining to specific components.

To run Oracle EXAchk using a profile:

```
$ ./exachk -profile profile_name
```

Oracle supports the following profiles for Oracle EXAchk on Oracle Exalytics:

Table 3-14 Profiles Supported for Oracle EXAchk on Oracle Exalytics

Profile	Description
obiee	Using this profile, you can run Oracle EXAchk to do a selective check of the OBIEE software component.
timesten	Using this profile, you can run Oracle EXAchk to do a selective check of the TimesTen software component.

3.5.7 Troubleshooting Oracle EXAchk on Oracle Exalytics

Troubleshoot and fix issues related to Oracle EXAchk on Oracle Exalytics.

If you face any problems running Oracle EXAchk, then create a service request through My Oracle Support.

Refer to My Oracle Support Note 1566134.1 for the latest known issues specific to Oracle EXAchk on Oracle Exalytics.

- [Runtime Command Timeouts](#) (page 3-57)
- [Error Messages in exachk_error.log](#) (page 3-58)

Related Topics

- [Oracle ORAchk and Oracle EXAchk Command-Line Options](#) (page 1-76)
Most command-line options apply to both Oracle ORAchk and Oracle EXAchk.
- [Troubleshooting Oracle ORAchk and Oracle EXAchk](#) (page 1-198)
Follow the steps explained in this section to troubleshoot and fix Oracle ORAchk and Oracle EXAchk related issues.
- <https://support.oracle.com/rs?type=doc&id=1566134.1>
- <http://support.oracle.com>

3.5.7.1 Runtime Command Timeouts

Description: During the health check process, if a particular compute node, storage server, or switch does not respond to the health check command within a pre-defined duration, Oracle EXAchk terminates that command.

Cause: To prevent the program from freezing, Oracle EXAchk automatically terminates commands that exceed default timeouts. On a busy system, Oracle EXAchk terminates commands when the target of the check does not respond within the default timeout.

Action: To avoid runtime command timeouts from occurring during health checks, ensure that you run the tool when there is least load on the system.

3.5.7.2 Error Messages in `exachk_error.log`

Description: Most of these errors do not indicate any serious problems with Oracle EXAchk or the system.

Action: To prevent these errors from appearing on the screen and cluttering the display, Oracle EXAchk directs them to the `exachk_error.log` file. You need not report any of these errors to Oracle Support.

3.6 Oracle Big Data Appliance

This section explains the features and tasks specific to Oracle EXAchk on Oracle Big Data Appliance.

- [Scope and Supported Platforms for Running Oracle EXAchk on Oracle Big Data Appliance](#) (page 3-58)
Oracle EXAchk for Oracle Big Data Appliance supports all Oracle Big Data Appliance versions later than 2.0.1.
- [Installing Oracle EXAchk on the Oracle Big Data Appliance](#) (page 3-59)
Follow these procedures to install Oracle EXAchk on the Oracle Big Data Appliance.
- [Oracle EXAchk on Oracle Big Data Usage](#) (page 3-60)
Run the `exachk -h` command to view the list of options supported for Oracle Big Data Appliance.
- [Oracle EXAchk on Oracle Big Data Output](#) (page 3-63)
Identify the checks that you must act immediately to remediate, or investigate further to assess the checks that can cause performance or stability issues.
- [Troubleshooting Oracle EXAchk on Oracle BigData Appliance](#) (page 3-64)
In addition to the base troubleshooting, the following are also applicable to Oracle EXAchk on Oracle BigData.

Related Topics

- [Oracle ORAchk and Oracle EXAchk Common Features and Tasks](#) (page 1-1)

3.6.1 Scope and Supported Platforms for Running Oracle EXAchk on Oracle Big Data Appliance

Oracle EXAchk for Oracle Big Data Appliance supports all Oracle Big Data Appliance versions later than 2.0.1.

Oracle EXAchk for Oracle Big Data Appliance audits important configuration settings within an Oracle Big Data Appliance. Oracle EXAchk examines the following components:

- CPU
- Hardware, firmware, and BIOS
- Operating System kernel parameters, system packages
- Ethernet network, InfiniBand switches

- RAM, hard disks
- Software Installed

Goals for Oracle Big Data Appliance Health Checks

1. Provide a mechanism to check the complete health of an Oracle Big Data Appliance on a proactive and reactive basis.
2. Provide a “recommendation engine” for best practices and tips to fix Oracle Big Data Appliance known issues.

Recommended Validation Frequency

Oracle recommends validating Oracle Big Data Appliance immediately after initial deployment, before and after any change, and at least once a quarter as part of planned maintenance operations. The runtime duration of Oracle EXAchk depends on the number of nodes to check, CPU load, network latency, and so on.

 **Note:**

Plan to run Oracle EXAchk when there is less load on the Oracle Big Data Appliance. This helps you avoid runtime timeouts during health checks.

3.6.2 Installing Oracle EXAchk on the Oracle Big Data Appliance

Follow these procedures to install Oracle EXAchk on the Oracle Big Data Appliance.

1. Download the `exachk.zip` file to a directory on the Oracle Big Data Appliance, as `root` user.
2. Extract the contents of `exachk.zip`.

```
$ unzip exachk.zip
```

3. (recommended) Add the location of the `exachk` executable to the `/root/.bash_profile` file so that you can run Oracle EXAchk from anywhere.

For example:

From:

```
# User specific environment and startup programs  
PATH=$PATH:$HOME/bin
```

To:

```
# User specific environment and startup programs  
PATH=$PATH:$HOME/bin: path to exachk
```

If `exachk` is installed in `/root/exachk_home`, then update the `/root/.bash_profile` file as follows:

```
PATH=$PATH:$HOME/bin:/root/exachk_home
```

3.6.3 Oracle EXAchk on Oracle Big Data Usage

Run the `exachk -h` command to view the list of options supported for Oracle Big Data Appliance.

 **Note:**

Run Oracle EXAchk as `root` from `node1` of the Oracle Big Data Appliance cluster.

Most data collection options require password for each InfiniBand switch. This is required, if there is no SSH user equivalency from running compute node to switch.

1. To view the command options, run the following command as `root` or non-root user:

```
./exachk -h

Usage : ./exachk [-abvhpfmsuSo:c:t:]
-a      All (Perform best practice check and recommended patch check)
-b      Best Practice check only. No recommended patch check
-h      Show usage
-v      Show version
...
```

List of Oracle EXAchk options supported for Oracle Big Data Appliance:

```
-a      (Perform best practice check and recommended patch check. This is
the default option. If no options are specified exachk runs with -a)
-b      Best Practice check only. No recommended patch check
-h      Show usage
-v      Show version
-m      exclude checks for Maximum Availability Architecture (MAA)
scorecards(see user guide for more details)
-o      Argument to an option. if -o is followed by v,V,Verbose,VERBOSE or
Verbose, it will print checks which passes on the screen
        if -o option is not specified,it will print only failures on
screen. for eg: exachk -a -o v
        -clusternodes
            Pass comma separated node names to run exachk only on subset of
nodes.
        -localonly
            Run exachk only on local node.

        -debug Run exachk in debug mode. Debug log will be generated.
            eg:- ./exachk -debug
            Output goes to stdout as well as generated log files

        -nopasd Skip PASS'ed check to print in exachk report and upload to
database.

        -noscore Do not print healthscore in HTML report.
        -diff <Old Report> <New Report> [-outfile <Output HTML>]
            Diff two exachk reports. Pass directory name or zip file or html
report file as <Old Report> & <New Report>
```

```

-<initsetup|initrmsetup|initcheck|initpresetup>
    initsetup      : Setup auto restart. Auto restart functionality
automatically brings up exachk daemon when node starts
    initrmsetup   : Remove auto restart functionality
    initcheck     : Check if auto restart functionality is setup or not
-d <start|start -debug|stop|status|info|stop_client|nextautorun>
    start         : Start the exachk daemon
    start -debug  : Start the exachk daemon in debug mode
    stop         : Stop the exachk daemon
    status       : Check if the exachk daemon is running
-daemon
    run exachk only if daemon is running

-nodaemon
    Dont use daemon to run exachk

-set
    configure exachk daemon parameter like
"param1=value1;param2=value2... "

    Supported parameters are:-

    AUTORUN_FLAGS <flags> : exachk flags to use for auto runs.

    example: exachk -set "AUTORUN_FLAGS=-profile sysadmin" to run
sysadmin profile every 12 hours

    exachk -set "AUTORUN_FLAGS=-profile dba" to run dba
profile once every 2 days.

    NOTIFICATION_EMAIL : Comma separated list of email addresses used
for notifications by daemon if mail server is configured.

    PASSWORD_CHECK_INTERVAL <number of hours> : Interval to verify
passwords in daemon mode

    collection_retention <number of days> : Purge exachk collection
directories and zip files older than specified days.
-unset <parameter>
    unset the parameter
    example: exachk -unset "AUTORUN_SCHEDULE"

-get parameter | all
    Print the value of parameter
-excludeprofile
    Pass specific profile.
    List of supported profiles is same as for -profile.

-merge
    Pass comma separated collection names(directory or zip files) to
merge collections and prepare single report.
    eg:- ./exachk -merge
exachk_hostname1_db1_120213_163405.zip,exachk_hostname2_db2_120213_164826.zip
-profile Pass specific profile.
    List of supported profiles for BDA:
switch          Infiniband switch checks
sysadmin        sysadmin checks

-ibswitches
    Pass comma separated infiniband switch names to run exachk only on
selected infiniband switches.

```

 **Note:**

If you run any other profiles that are not listed above, then Oracle EXAchk returns an error as follows:

```
<profile_name> is not supported component. EXAchk will run generic checks
for components identified from environment
```

For example, to perform all checks including best practice checks and recommendations, run:

```
# ./exachk -a
```

 **Note:**

If you do not specify any options, then Oracle EXAchk runs with the `-a` by default.

Output looks similar to the following:

```
Checking ssh user equivalency settings on all nodes in cluster
Node <BDANode01> is configured for ssh user equivalency for root user
...
Node <BDANode0n> is configured for ssh user equivalency for root user

Copying plug-ins
. . . . .
. . . . .

9 of the included audit checks require root privileged data collection on INFINIBAND
SWITCH .

1. Enter 1 if you will enter root password for each INFINIBAND SWITCH when prompted
2. Enter 2 to exit and to arrange for root access and run the exachk later.
3. Enter 3 to skip checking best practices on INFINIBAND SWITCH

Please indicate your selection from one of the above options for INFINIBAND
SWITCH[1-3][1]:- 1

Is root password same on all INFINIBAND SWITCH ?[y/n][y]y

Enter root password for INFINIBAND SWITCH :-

Verifying root password.
. . .

*** Checking Best Practice Recommendations (PASS/WARNING/FAIL) ***

Collections and audit checks log file is
/<dir>/exachk_<BDANode0x_040414_091246/log/exachk.log
```

```

Starting to run exachk in background on <BDANode01>
...
Starting to run exachk in background on <BDANode0n>

=====
Node name - <BDANode01>
=====

Collecting - Verify ASR configuration check via ASREXACHECK

Starting to run root privileged commands in background on INFINIBAND SWITCH
<RackName>sw-ib1.

Starting to run root privileged commands in background on INFINIBAND SWITCH
<RackName>sw-ib2.

Starting to run root privileged commands in background on INFINIBAND SWITCH
<RackName>sw-ib3.

Collections from INFINIBAND SWITCH:
-----
Collecting - Infiniband Switch NTP configuration
Collecting - Infiniband switch HOSTNAME configuration
Data collections completed. Checking best practices on BDANode01>
-----
-
...

Copying results from <BDANode02> and generating report. This might take a while. Be
patient.

=====
Node name - <BDANode02>
=====

Collecting - Verify ASR configuration check via ASREXACHECK

Data collections completed. Checking best practices on BDANode02>
-----
-
...
-----

Detailed report (html) - /<dir>/exachk_<BDANode01>_040414_091246/
exachk_<BDANode01>_040414_091246.html

UPLOAD(if required) - /<dir>/exachk_<BDANode01>_040414_091246.zip

```

3.6.4 Oracle EXAchk on Oracle Big Data Output

Identify the checks that you must act immediately to remediate, or investigate further to assess the checks that can cause performance or stability issues.

The following message statuses are specific to Oracle EXAchk on Oracle Big Data:

Oracle EXAchk on Oracle Big Data Message Definitions

Table 3-15 Oracle EXAchk on Oracle Big Data Message Definitions

Message Status	Description or Possible Impact	Action to be Taken
FAIL	Shows checks that did not pass due to issues.	Address the issue immediately.
WARNING	Shows checks that can cause performance or stability issues if not addressed.	Investigate the issue further.
INFO	Indicates information about the system.	Read the information displayed in these checks and follow the instructions provided, if any.

Related Topics

- [How to Remove Checks from an Existing HTML Report](#) (page 1-49)
Hide individual findings from the report using **Remove findings** .
- [HTML Report Output](#) (page 1-36)
- [Comparing Two Reports](#) (page 1-55)
Oracle ORAchk and Oracle EXAchk automatically compare the two most recent HTML reports and generate a third diff report, when run in automated daemon mode.
- [Health Check Catalog](#) (page 1-61)
The Health Check Catalogs list the health checks that are included within Oracle ORAchk or Oracle EXAchk.

3.6.5 Troubleshooting Oracle EXAchk on Oracle BigData Appliance

In addition to the base troubleshooting, the following are also applicable to Oracle EXAchk on Oracle BigData.

If you face any problems running Oracle EXAchk, then create a service request through My Oracle Support.

Refer to My Oracle Support Note 1643715.1 for the latest known issues specific to Oracle EXAchk on Oracle BigData Appliance:

- [Timeouts Checking Switches](#) (page 3-64)

Related Topics

- [Runtime Command Timeouts](#) (page 3-57)
- <https://support.oracle.com/rs?type=doc&id=1643715.1>

3.6.5.1 Timeouts Checking Switches

If there is a slow SSH on a given switch, then Oracle EXAchk throws an error:

```
Starting to run root privileged commands in background on INFINIBAND SWITCH  
<cluster>sw-ib1.
```

```
Timed out  
Unable to create temp directory on <cluster>sw-ib1
```

```
Skipping root privileged commands on INFINIBAND SWITCH <cluster> sw-ib1 is  
available but SSH is blocked.
```

To resolve, increase the SSH timeout using Oracle EXAchk environment variable.

1. Reset the environment variable RAT_PASSWORDCHECK_TIMEOUT:

```
# set RAT_PASSWORDCHECK_TIMEOUT=40
```

2. Rerun Oracle EXAchk.

```
# ./exachk -a
```

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