# Oracle<sup>®</sup> Enterprise Manager

ORAchk Healthchecks Plug-in User's Guide 13.2.1.0 E73557-01

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Oracle Enterprise Manager ORAchk Healthchecks Plug-in User's Guide, 13.2.1.0

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# Preface

This document describes how to use the ORAchk Healthchecks plug-in to leverage features of ORAchk/Exachk for Enterprise Manager targets such as Oracle Exadata Database Machine, Exalogic Elastic Cloud, Cluster Database, Single Instance, and so forth. ORAchk provides functionality for system administrators to automate the assessment of Engineered Systems and non-Engineered Systems for known configuration problems and best practices.

# Audience

This document is intended systems and database administrators tasked with monitoring Engineered Systems products.

# **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

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# **Related Documents**

For more information, see the following documents available in My Oracle Support (https://support.oracle.com):

• Oracle Exadata Best Practices (Doc ID 757552.1):

https://support.oracle.com/rs?type=doc&id=757552.1

• Oracle Database Machine Monitoring Best Practices (Doc ID 1110675.1):

https://support.oracle.com/rs?type=doc&id=1110675.1

• ORAchk/EXAchk Master Reference (Doc ID 1969085.1):

https://support.oracle.com/rs?type=doc&id=1969085.1

# Conventions

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
monospace	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

The following text conventions are used in this document:

# What's Changed

This table provides a brief overview of the document changes for the latest publication of the *Oracle*<sup>®</sup> *Enterprise Manager ORAcheck Healthchecks Plug-in User's Guide*:

Part Number	Change Summary
E73557-01	Updated for Enterprise Manager Cloud Control 13c Release 13.2.1.0.

1

# ORAchk Healthchecks Plug-in Overview and Requirements

This chapter provides an overview description of the ORAchk plug-in and summarizes the prerequisites required before configuration.

- Overview of the ORAchk Healthchecks Plug-in
- Supported Hardware and Software Versions
- ORAchk Plug-in Prerequisites
- Downloading the ORAchk Plug-in
- Deploying the Plug-in
- Upgrading the Plug-in
- Undeploying the Plug-in

# 1.1 Overview of the ORAchk Healthchecks Plug-in

The ORAchk plug-in integrates ORAchk/Exachk with Oracle Enterprise Manager. Once installed and integrated into Oracle Enterprise Manager Cloud Control, the ORAchk plug-in yields the following benefits:

- Install and set up ORAchk/Exachk from the Enterprise Manager console instead of the command line on individual hosts.
- View ORAchk results as compliance results at the target level.
- Trending, scoring and other compliance standard framework features for ORAchk results.
- Receive notifications in case the ORAchk/EXAchk daemon goes down.

# **1.2 Supported Hardware and Software Versions**

The ORAchk plug-in supports a variety of Oracle hardware and software products:

- Supported Hardware Versions
- Supported Software Versions

## **1.2.1 Supported Hardware Versions**

The ORAchk plug-in supports Engineered Systems hardware, including all variants of Exadata Database Machine and Exalogic Elastic Cloud.

Supported hardware types include:

- Exadata (physical configuration only)
- Recovery appliance
- Exalogic (virtualized configuration)
- Exalogic (physical configuration)

Hardware types currently not supported include:

- Exadata (virtual configuration)
- Oracle SuperCluster
- Oracle Private Cloud Machine

### 1.2.2 Supported Software Versions

The ORAchk Healthchecks plug-in supports Oracle Enterprise Manager Cloud Control 12*c* Release 12.1.0.5, 13*c* Release 13.1.0.1 and higher. It also supports non-Engineered Systems hardware such as Cluster Database, Single Instance, and so forth.

# **1.3 ORAchk Plug-in Prerequisites**

The following prerequisites must be met before you can deploy the plug-in:

- **1.** Verify that your Engineered Systems hardware and software are at the supported level as described in Supported Hardware and Software Versions.
- 2. All Engineered System plug-ins should be deployed.
- **3.** InfiniBand switches and storage cells should be an Enterprise Manager-managed target for the respective engineered system.
- 4. Expect package should be installed on the hosts.

# 1.4 Downloading the ORAchk Plug-in

You can download plug-ins in online or offline mode. *Online mode* refers to an environment where you have Internet connectivity, and can download the plug-in directly through Enterprise Manager from My Oracle Support. *Offline mode* refers to an environment where you do not have Internet connectivity, or where the plug-in is not available from My Oracle Support.

See the *Managing Plug-ins* chapter in the *Oracle Enterprise Manager Cloud Control Administrator's Guide* for details on downloading the plug-in in either mode.

# 1.5 Deploying the Plug-in

You can deploy the plug-in to an Oracle Management Service instance using the Enterprise Manager Cloud Control console, or using the EM Command Line Interface (EMCLI). While the console enables you to deploy one plug-in at a time, the command line interface mode enables you to deploy multiple plug-ins at a time, thus saving plug-in deployment time and downtime, if applicable.

See the *Managing Plug-ins* chapter in the *Oracle Enterprise Manager Cloud Control Administrator's Guide* for instructions on deploying the plug-in.

# 1.6 Upgrading the Plug-in

The Self Update feature allows you to expand Enterprise Manager's capabilities by updating Enterprise Manager components whenever new or updated features become available. Updated plug-ins are made available via the Enterprise Manager Store, an external site that is periodically checked by Enterprise Manager Cloud Control to obtain information about updates ready for download.

See the *Updating Cloud Control* chapter in the *Oracle Enterprise Manager Cloud Control Administrator's Guide* for steps to update the plug-in.

# 1.7 Undeploying the Plug-in

See the *Managing Plug-ins* chapter in the *Oracle Enterprise Manager Cloud Control Administrator's Guide* for steps to undeploy the plug-in.

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# **Manage Health Checks Tools**

This chapter explains how to provision and stop the ORAchk plug-in to monitor your Engineered/non-Engineered Systems assets.

#### Warning:

You should not attempt to associate ORAchk compliance standards to targets directly, but rather follow the below process. Failing to do so will result in incorrect or no results.

The following sections are provided:

- Provisioning ORAchk
- Update the ORAchk Version

# 2.1 Provisioning ORAchk

Once the plug-in is deployed, follow the steps below to provision ORAchk/Exachk to monitor your Engineered System/Cluster or Hosts running single instance databases assets:

- **1.** All member targets of Engineered and non-Engineered System targets should be discovered and promoted before provisioning ORAchk.
- 2. From the Enterprise menu, select **Provisioning and Patching**, then **Procedure Library**.

The Provisioning page displays the Deployment Procedure Manager.

Tip:

The Procedure Library contains tools or *procedures* that enable you to enact best practices for effective monitoring and management of your Oracle products.

**3.** On the Provisioning page, select the **Provision ORAchk/Exachk** procedure and click **Launch**, as shown in Figure 2-1:

 $\bigcirc$ 

Provision ORAchk/Exachk Manage Health Check tools

Manage ORAchk/Exachk Manage Health Check tools

Provis	sioning									
Deploy	ment Proce	dure Manager								
Proced	lure Library	Procedure Activity	Recycle Bin							
Launch	1	GO E	dit Procedure Definition	. Create Like Lau	Inch			Previous 1-2	Last	Nex
Select	Procedure	Туре			Parent	Version	Last Updated	Description	Modified By	Owr
0	Analysis Proce Exadata Tarq		Oracle Software		None	15.10	Nov 7, 2015 4:40:16 PM UTC	Analysis Procedure For Exadata Targets	Oracle	Ora
	Patching Sieb	el targets Patch	Oracle Software		None	12.46	Nov 7, 2015 4:36:30 PM UTC	Test Procedure for analyzing Siebel patch.	Oracle	Ora
$\bigcirc$										

None 1.0

None 1.0

4. After you click Launch, the Provision ORAchk/Exachk wizard begins with the Target and Frequency, as shown in Figure 2-2. On this page, you must set up ORAchk/Exachk for the selected target.

Nov 7, 2015 4:32:29 PM UTC Integrates the newly set up instance with targets.

Nov 7, 2015 4:32:29 PM UTC Procedure to manage already provisioned instances. Oracle Oracle

Oracle Oracle

Figure 2-2 Target Selection for ORAchk/Exachk Provisioning

Target and Frequency	Configuration Confirmation				
Provision ORA	chk/Exachk: Target and Frequency	Back	Step 1 of 3	Next	Cancel
	is to set up ORAchk/Exachk tool on system targets to enable com ool, see My Oracle Support Note 1969085.1.	npliance standards on	the member	targets	. For more
Target and Free	quency Selection				
All member targets of t	he system should be discovered and promoted before set up.				
System Type					
	<b>IP</b> Always pick the largest target containing the system type. If a host is host or cluster is part of an engineered system, then pick the appropriate engineered system.		k the "cluster"	system tj	/pe. If a
System Target Name	<no selected.="" system="" targets=""></no>				
Host Credential	<no credentials="" selected.=""></no>				
Install Location	<no location="" selected.=""></no>				
	A subdirectory called "orachk" will be created in this location.				
Daemon Schedule	🔲 Monday 🛄 Tuesday 🛄 Wednesday 🛄 Thursday 🛄 Friday 🛄	Saturday 📝 Sunday			
	Start time 2 A V hours				

Enter the following information:

a. Select a System Type. The target type list is presented for the systems supported by ORAchk/Exachk.

Click the drop-down menu and make a selection of an appropriate system, as shown in Figure 2-3:

Figure 2-3 Select a System Type for ORAchk/Exachk Provisioning

	-
Cluster	
Exalogic Elastic Cloud	
Exalytics System	
Host	
Oracle Exadata Database Machine	
Recovery Appliance	

Based on target type selection, more inputs may be needed. For example, if you select Oracle Exadata Database Machine, then you may have to select **Cluster** because one instance of Exachk is required per cluster.

#### Tip:

Always pick the highest available system type in the topology. If the host is part of cluster, then pick **cluster** system type. If the host or cluster is part of an engineered system, then pick the appropriate engineered system type.

**b.** After you select the system type, select the **System Target Name**. Click the search icon and select a target name from the list. In the example shown in Figure 2-4, if you select an Exadata Databse Machine target type, then all available targets are shown in the list:

Figure 2-4	Select a Target Name for ORAchk/Exachk Provisioning

earch
IS
t

Note:

Only targets that have already been discovered by Enterprise Manager will appear in this list.

- **c.** If the system type you select has a cluster, then choose the cluster on which you want to configure Exachk. One instance of Exachk is needed for each cluster. Select a cluster name from the **Cluster** drop-down menu.
- **d.** Set the Host Credential. Click the search icon and select either **Preferred** or **Named** in the pop-up window, as shown in Figure 2-5:

# Figure 2-5 Select Preferred or Named Credentials for ORAchk/Exachk Provisioning

Host Credentials								
Enter RDBMS owner or root credentials.								
Credential	Preferred Interview Name	1 🔘 New						
Credential Name	NC_HOST_2015-10-13-1	82020 🔻						
	Attribute	Value						
Credential	UserName	oracle						
Details	Password	*****						
	More Details							
		OK Cancel						

If the credentials are not set for the target, then click **New** and enter the information as shown in Figure 2-6:

Host Credentials									
Enter host credentials to configure ORAchk.									
Credential	Preferred	🔘 Named 🔘 N	ew						
* UserName									
* Password									
* Confirm Password									
	Save As Orac	le ORAchk User							
	Set As Preferred (	Credentials							
B	Test								
			OK Cancel						

Figure 2-6 Set New Credentials for ORAchk/Exachk Provisioning

- e. The Install Location should then be populated (by default) with the location for where the orachk subdirectory will be created. Click the search icon to change the location.
- **f.** Set the Daemon Schedule. Select the day and the time you want to begin. By default, the schedule is set for 2 am Sunday morning.

Click **Next** to begin the configuration. Provisioning processing takes about 5 minutes.

- **5.** On the Configuration page (Figure 2-7), enter the following configuration information:
  - **General Configuration:** Verify the CRS home directory. The ORAchk/Exachk wizard will pre-populate this field with the necessary information.
  - **Cell Cluster Configuration:** Select an option to evaluate the best practices on the storage cells of a cluster or to skip the checks for the storage cells.

#### Note:

For evaluating best practices on the storage cells of a cluster, root level privileges are required on the cells. You can select an option to use the same root password on all storage cells. Otherwise, enter the password for each storage cell.

• InfiniBand Configuration: Select an option to evaluate the best practices on the InfiniBand switch of the cluster or to skip the checks on the InfiniBand switch.

#### Note:

For evaluating best practices on the InfiniBand switch of a cluster, root level privileges are required. You can select an option to use the same root password on all InfiniBand switches. Otherwise, enter the password for each InfiniBand switch.



C- Target and Fre	equency	Configuration	Confirmation					
Provisio	n ORAch	k/Exachk: C	onfiguration		Back	Step 2 of 3	Submit	Cancel
Enter the follo	wing configur	ation information:						
General	Configur	ation						
CRS Home	/u01/app/11	2.0.3/grid						
Cell Clus	ter Conf	iguration						
For evaluating options:	) best practice	es on the storage ce	lls of a cluster, root level	privileges are required on	the cells	s. Select one	of the follov	ving
Specify respectively respectively respectively.	oot password	for each storage ce	11					
Skip che	cking best pra	actices on storage c	ells					
InfiniBan	d Config	uration						
For evaluating following optic	• • • • • • • • • • • • • • • • • • • •	es on the InfiniBand	switches of a cluster, roo	t level privileges are requi	red on th	ie switches. S	Select one	ofthe
Specify re	oot password	for each InfiniBand	switch					
Skip che	cking best pra	actices on InfiniBand	l switch					

#### 6. Click Submit.

- **7.** On the Confirmation page, the Exachk setup begins. Click **Show Status** to view the setup details as the process continues.
- 8. Click Finish.

#### Note:

Repeat these steps for each Engineered Systems target to set up ORAchk.

The steps described above can vary from engineered system to system. The questions/details asked for will vary.

# 2.2 Update the ORAchk Version

ORAchk versions will be made available through the Self Update feature of Enterprise Manager. To update the ORAchk plug-in:

• Stop the ORAchk Daemon

• Update Entities

#### 2.2.1 Stop the ORAchk Daemon

Once ORAchk has been set up as the daemon, you can stop it, as needed:

**1.** From the Enterprise menu, select **Provisioning and Patching**, then **Procedure Library**.

The Provisioning page displays showing the Deployment Procedure Manager.

**2.** On the Provisioning page, select the **Manage ORAchk/Exachk Services** procedure and click **Launch** as shown in Figure 2-8:

Figure 2-8 Manage ORAchk/Exachk

Provis	ioning									
eployn	nent Proced	ure Man	ager							
Procedu	ure Library	Procedure A	Activity Recycle Bin							
	es are best pract e to fit your envi		d by Oracle for various	s Provisioning and Patching	tasks. Proced	dures crea	ted by Oracle cannot be edited	, but can be extended using 'Create Like', so that you o	can custom	ize the
Sea	arch Text Fields			Go	Advanced	Search				
Launch		Go	Edit Procedure De	efinition Create Like	Launch			Previous 1-2	5 of 84 🗔	Next
Launan		00	Lait Hoccuare Do	Circuite Like	Edditer				Last Modified	
Select	Procedure		Туре		Parent	Version	Last Updated	Description	By	Owner
0	Analysis Proced Exadata Target		Patch Oracle Software	2	None	15.10	Nov 7, 2015 4:40:16 PM UTC	Analysis Procedure For Exadata Targets	Oracle	Oracle
0	Patching Siebel	targets	Patch Oracle Software	1	None	12.46	Nov 7, 2015 4:36:30 PM UTC	Test Procedure for analyzing Siebel patch.	Oracle	Orade
0	Delete Oracle G Infrastructure/D Software		User Defined		None	1.0	Nov 7, 2015 4:35:04 PM UTC	This procedure deletes Oracle Grid Infrastructure/Oracle Database Software for versions 11g Release 2 and higher from given virtual Hosts.	Orade	Oracle
0	Provision ORAct	nk/Exachk	Manage Health Check	tools	None	1.0	Nov 7, 2015 4:32:29 PM UTC	Provisions and starts ORAchk/Exachk instance. Integrates the newly set up instance with targets.	Oracle	Orade
۲	Manage ORAch	k/Exachk	Manage Health Check	tools	None	1.0	Nov 7, 2015 4:32:29 PM UTC	Procedure to manage already provisioned instances.	Orade	Oracle

**3.** On the Manage ORAchk Services page, a list of all targets monitored by the ORAchk plug-in is displayed, as shown in Figure 2-9:

Figure 2-9 Targets Monitored by ORAchk/Exachk

Manage ORAchk/Exach	hk: Services				Cancel
Search					
	or which ORAchk/Exachk instances have been set u	p. To perform an operation on an	instance, highlight	the row and select an operation.	
-	System Type	Version	Status	Host Credentials	Install Location
Target Name cluzdira08	System Type Recovery Appliance	Version	Status STARTED	Host Credentials	Install Location
Target Name	System Type				
Target Name cluzdira08	System Type Recovery Appliance	12.1.0.2.5_20151023	STARTED	NC_HOST_2015-10-29-210810	/u01/app/oracle/product/ravigu_main/orachk /u01/app/oracle/product/remmimat/orachk
Target Name cluzdira08 host1.example.com	System Type Recovery Appliance Host	12.1.0.2.5_20151023 12.1.0.2.5_20151028	STARTED	NC_HOST_2015-10-29-210810 MYUSER_SUDO	/u01/app/oracle/product/ravigu_main/orachk

The table contains the following information:

- **Target Name:** The target name as recognized by Enterprise Manager.
- **System Type:** The type of the system you set during the provisioning (see Provisioning ORAchk).
- Version: The release version of the ORAchk plug-in running for a particular target.

• **Status:** The current monitoring status of the plug-in. The status field is provided to help users track progress of setup activities and are described below:

**Provisioned** – Tool bits have been staged on mentioned location. However, configuration data has not been provided to start the daemon process.

**Processing** – Daemon setup is in progress.

**Collection Enabled** – OMS has been configured to collect Orachk/Exachk results for the system target (or cluster target wherever applicable). Configuration Extensions feature of the platform is used to collect Orachk/Exachk results.

**Started** – The setup process is complete.

Stopped – The Orachk services has been stopped successfully.

Terminal states are **Provisioned**, **Started**, and **Stopped**. If a procedure activity has failed and the status in not amongst these terminal states, refer to Troubleshooting the ORAchk Plug-in to recover.

- Host Credentials: The host credentials of the target that were last used during the provisioning. This user must have the privileges to stop the ORAchk plug-in.
- Location: The directory location of the ORAchk plug-in.
- **4.** Select the target you want to exclude from ORAchk monitoring and click **Stop Service**. A stop job will be submitted to Enterprise Manager.

Figure 2-10 Stop ORAchk

Manage ORAchk/Exachk: Services	Finish	Show Status
Stop ORAchk is in progress.		
o monitor the status click on "Show Status" button.		

**5.** Click **Show Status** to see the progression, as shown in Figure 2-11. The Procedure Steps show each part of the stop process. A check mark indicates that the step is complete.

#### Figure 2-11 Status of Stop Job

Provi	sioning			
Proce	dure Activity: stopOrachk 1446831			
⊿ © E	Elapsed Time: 10 seconds			
	Run stopOrachk 1446831	Schedu	led Nov 6, 2015 9:35:58 AM PST	Elapsed Time 10 seconds
PI	rocedure Manage ORAchk/Exachk	Start Da	ate Nov 6, 2015 9:35:58 AM PST	Execution Id 23A03438B8E569B9
	Owner SYSMAN	Last Updat	ted Nov 6, 2015 9:36:06 AM PST	
	Status Running	Completed Da	ate	
Proce	dure Steps			
View •	Show All Steps	-	() Information	
Selec	Name	Status	Select an execution step from the F	Procedure Steps tree on the left to see the details.
	▲ Iterates over list of targets	٩		
	◢ host1.example.com	0		
•	Disable compliance standards evaluations	~		
	Disable results collection	~		
	Stop instance	٩		

# 2.2.2 Update Entities

Three entities must be updated to use the latest version of ORAchk:

- 1. Updating Diagnostic Tools Updates Entity
- 2. Updating Compliance Content Entity
- 3. Updating ORAchk Metadata Entity

After applying these entities, every subsequent setup will use the new ORAchk. Older instances will continue to use older version of ORAchk.

#### 2.2.2.1 Updating Diagnostic Tools Updates Entity

This entity is used for updating ORAchk binaries:

**1.** Download the available update for Support Tool entity. Figure 2-12 shows an example of what the ORAchk entries will look like:

Figure 2-12 Support Tools Updates Example

ORAC	ILE.	Enterprise Manag	ger Cl	loud Control 13c			
Self Upda Self Update > S Support T	Support To						
Actions 🔻	👌 Dow	nload 🔞 Apply	₽	Search Description	1	٠	
Status		Tool Name	Ver	sion	Vendor	Size(MB)	Description
👌 Download	led	ORAchk 12.1.0.2.4	13.1	1.0.0.0	ORACLE	7.834	ORAchk Kit version 12.1.0.2.4

- **2.** Download the available update of other two entities. This is to ensure that all updates related to ORAchk versions are applied together.
- **3.** Apply the update and verify in software library if correct version has been updated (Figure 2-13).

Figure 2-13 Software Library Example

	View Entity: ORAchk I			Stage / Edit., OK
		Set Directives		
Descript Ty Subty Parent Direct Matu	rity Production tus Ready	5		
Other Attri			Value	Description
Name			value	
-	Version		12.1.0.2.4_20150305	Product Version of the software component
Name				Product Version of the software component Product the software component represents
Name Product			12.1.0.2.4_20150305	

#### 2.2.2.2 Updating Compliance Content Entity

All new/modified ORAchk compliance standards and rules will be shipped using this entity:

1. Download the available update for Support Tool entity. Figure 2-14 shows how the ORAchk entries will look:

Figure 2-14 Self Update Compliance Content Updates Example

3 Self Update Self Update > Compli Compliance C	iance Content Content Updates								
Actions 👻 👌	Download 🙈 Apply 🚱	Compliance Content	Search Description	•					
Status	Name				Version	Vendør 🔻	Size(MB)	Description	
👌 Downloaded	Exalogic Compliance C	ontent for ORAchk v12.1.0.2	2.4		13.1.0.0.0	ORACLE	0.001	Exalogic Compliance Content for ORAchk v12.1.0.2.4	
Downloaded	Exalytics Compliance C	ontent for ORAchk v12.1.0.	2.4		13.1.0.0.0	ORACLE	0.001	Exalytics Compliance Content for ORAchk v12.1.0.2.4	
Past Activities									
Actions	Status	Name		Version		Administrator		Start Time	Elapse Time(Se
				13.1.0.0.0		SYSMAN		Jul 31, 2015 3:05:06 PM IST	1.6
Download	Succeeded	Exalogic C	ompliance Content for ORAchk v12.1	13.1.0.0.0		OT OWNER		JUI 31, 2015 3.05.00 PM IST	15

**2.** Apply these updates.

### 2.2.2.3 Updating ORAchk Metadata Entity

This entity is used to keep mapping of ORAchk checks on Enterprise Manager targets:

1. Download the available update. Figure 2-15 shows a sample entry:

Figure 2-15 Self Update ORAchk Metadata Updates Example

ORACL	Enterpris	e Manager	Cloud Cont	rol 13c					
3 Self Update									
Self Update > ORA									
	tadata Updat								
Actions	b Download 🏼 🚳	Apply	Search D	escription		•			
Status	Supported ORAchk Version	d Vers	ion	Vendor	Size(MB)	Description			
🕹 Downloaded	12.1.0.2.4	13.1.	0.0.0	Oracle	0.000	ORAchk Integration Metada	ata for ORAchk v12.1.0.2.4		
Past Activities									
Actions		Status		Supported ORAcl	hk Version	Version	Administrator	Start Time	Elapsed Time(Sec)
Download		Succeeded		12.1.0.2.4		13.1.0.0.0	SYSMAN	Jul 31, 2015 3:05:32 PM IST	0.25
Available		Succeeded		12.1.0.2.4		13.1.0.0.0	SYSMAN	Jul 31, 2015 3:05:32 PM IST	0.06

**2.** Apply these updates.

# **Using the ORAchk Plug-in**

This chapter describes how to use the ORAchk plug-in, including how to access compliance results and general troubleshooting steps.

The following sections are provided:

- Accessing Compliance Results Details
- Compliance Standards for All Supported System Types
- Self Updates
- Troubleshooting the ORAchk Plug-in

# 3.1 Accessing Compliance Results Details

The Compliance Results shows a listing of all targets including targets that are 100% compliant to a particular standard and targets that have compliance issues. ORAchk results are included in this list to show any Engineered Systems target that may be out of compliance.

You can access the Compliance Results for ORAchk/Exachk by:

- Accessing ORAchk/Exachk Compliance Results through the Enterprise Menu
- Accessing ORAchk/Exachk Compliance Results through the Target Home Page
- Accessing ORAchk/Exachk Compliance Framework Details through the Compliance Dashboard
- Compliance Content for Optional Targets

## 3.1.1 Accessing ORAchk/Exachk Compliance Results through the Enterprise Menu

To view the Compliance Results for ORAchk/Exachk:

1. From the Enterprise menu, select Compliance, then select Results (Figure 3-1):

* •		
Summary		
Monitoring Job Reports		
Configuration		
Compliance	►	Dashboard
Provisioning and Patching	Þ	Results
Quality Management My Oracle Support	•	Library Real-Time Observations
Cloud Chargeback Consolidation Planner	•	

Figure 3-1 Compliance Results Menu

**2.** The Compliance Results page displays showing the evaluation results for all targets (Figure 3-2). By default, the Compliance Standards and Evaluation Results are shown.

Figure 3-2 Evaluation Results

mpliance Frameworks Compliance Standards Targel Comp	liance									
Evaluation Results Errors										
Search View     Show Details     Manage Violations										
Compliance Standards	Applicable To	Compliance		Target aluatio		Vi	olatio	ns	Average Score	(96)
comprehect standards	Applicable to	Standard State	8	Δ		8		<u>A</u> ,	Arenage score	11
Exachk Cluster ASM Best Practices For Oracle Exadata Database Machine	Cluster ASM	Production	0	0	1	0	0	0	1	100
Exachk Oracle Exadata Storage Server Best Practices For Oracle Exadata Database Machine	Oracle Exadata Storage	Production	0	0	3	0	0	0	1	100
Exachk Systems Infrastructure Switch Best Practices For Oracle Exadeta Database Machine	Systems Infrastructure S	Production	0	0	3	0	0	0	1	100
Exachk Cluster Best Practices For Oracle Exadata Database Machine	Cluster	Production	0	0	1	0	0	0	1	100
Exachk Host Best Practices For Oracle Exadata Database Machine	Host	Production	0	0	2	2	2	13		99
Exachk Automatic Storage Management Best Practices For Oracle Exadata Database Machine	Automatic Storage Mana	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 S	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

**3.** To limit the results to ORAchk or Exachk, expand the Search area, enter **ORAchk%** or **Exachk%** in the Compliance Standard field, and click **Search**. The page will refresh and show the filtered compliance standards (Figure 3-3):

Compliance Standard       Exacht/s       Target Hamo         Average Compliance Score       100       100       0       0       100       Average Compliance Score       100       Average Compliance Score       100       Average Compliance Score       Imaget Hamo       I	Ipliance Frameworks Compliance	Standards Target Compliance											
Match @ All @ Ary         Compliance Standard       Exach/46       Target Hame       Image I fame       I	aluation Results Errors												
Average Compliance Score       100       Target Type       Image Violation         Verver Image Compliance Score       Manage Violations       Average Compliance Standards       Manage Violations         Verver Image Compliance Standards       Manage Violations       Compliance Standards State       Target Type       Image Violations       Image Violations </th <th></th>													
Compliance Standards       Agenced Exadata       Search       Rest         Exachk Cluster ASM Best Practices For Oracle Exadata       Database Machine       Cluster ASM       Production       0       1       0       0       0       10         Exachk Cluster ASM Best Practices For Oracle Exadata       Database Machine       Cluster ASM       Production       0       0       3       0       0       0       10       0       0       10	Compliance Standard	Exachk%	Target Name										
	Average Compliance Score	100	Target Type				•						
											Advanced	Search	Reset
Compliance Standards       Applicable To       Compliance Standard State       Compliance Standard State Standard State Standard State Standard													
Standard State       Col       A       P       Col       A	View 🔻 👓 Show Details 🥒	Manage Violations											
Exachk Oracle Exadata Storage Sever Best Practices For Oracle Exadata Database Machine       Oracle Exadata Storage Sever       Production       0       0       3       0		Manage Violations	Applicable To		Target	Evaluat	tions	v	olatio	ns		Average	Score M
Exach: Systems Infrastructure Switch Best Practices For Oracie Exadata Database Machine       Systems Infrastructure Switch       Production       0 <td></td> <td>Manage Violations</td> <td>Applicable To</td> <td></td> <td>-</td> <td>Evaluat</td> <td>tions</td> <td>-</td> <td>olatio</td> <td></td> <td>-</td> <td>Average S</td> <td>Score (%</td>		Manage Violations	Applicable To		-	Evaluat	tions	-	olatio		-	Average S	Score (%
Exachk Cluster Best Practices For Oracle Exadata Database Machine       Cluster       Production       0       0       1       0       0       0       10         Exachk Host Best Practices For Oracle Exadata Database Machine       Host       Production       00       0       2       2       2       13       0 <td>Compliance Standards</td> <td>-</td> <td></td> <td>Standard State</td> <td>8</td> <td>▲</td> <td>tions</td> <td>8</td> <td>▲</td> <td>А,</td> <td></td> <td>Average S</td> <td></td>	Compliance Standards	-		Standard State	8	▲	tions	8	▲	А,		Average S	
Exacht Host Best Practices For Oracle Exadata Database Machine     Host     Production     0     0     2     2     1       Exacht Automatic Storage Management Best Practices For Oracle Exadata Database Machine     Automatic Storage Management     Production     0     0     2     2     1     0       Exacht Automatic Storage Management Best Practices For Oracle Exadata Database Machine     Cluster Database     Production     0     0     1     5     3     1	Compliance Standards Exachk Cluster ASM Best Practice	s For Oracle Exadela Delabase Machine	Cluster ASM	Standard State Production	0	▲ 0	1	0	▲ 0	<b>A</b> ,		Average S	10
Exacht Automatic Storage Management Best Practices For Oracle Exadata Database Machine       Automatic Storage Management       Production       0       0       2       2       1       0       1       9         Exacht Automatic Storage Management Best Practices For Oracle Exadata Database Machine       Cluster Database       Production       0       0       1       5       3       1	Compliance Standards Exachk Cluster ASM Best Practice Exachk Oracle Exadata Storage S	o For Oraclo Exadata Databaso Machino erver Best Practices For Oracle Exadata Database Machine	Cluster ASM Oracle Exadata Storage Server	Standard State Production Production	0	▲ 0	1 3	0	▲ 0 0	0 0		Average 5	Score (% 104 104 104
Exachk Cluster Database Best Practices For Oracle Exadata Database Machine Cluster Database Production 0 0 1 5 3 1	Compliance Standards Exachi: Cluster ASM Best Practice Exachi: Oracle Exadate Storage S Exachi: Systems Infrastructure Sw	s For Oraclo Exadata Databaso Machino erver Best Practices For Oracle Exadata Database Machine ilch Best Practices For Oracle Exadata Database Machino	Cluster ASM Oracle Exadata Storage Server Systems Infrastructure Switch	Standard State Production Production Production	0 0	▲ 0 0	1 3 3	0 0 0	▲ 0 0	▲ 0 0		Average S	101
	Compliance Standards Exachic Cluster ASM Best Practice Exachic Oracle Exadata Storage S Exachic Systems Infrastructure Sw Exachic Cluster Best Practices For	s For Oraclo Exadata Database Machino erver Best Practices For Oracle Exadata Database Machine ilch Best Practices For Oracle Exadata Database Machino r Oracle Exadata Database Machine	Cluster ASM Oracle Exadata Storage Server Systems Infrastructure Switch Cluster	Standard State Production Production Production Production	0 0 0 0	0     0     0     0	1 3 3 1	2 0 0 0	▲ 0 0 0	▲ 0 0 0		Average S	10
Exachi: Oracle High Availability Service Best Practices For Oracle Exadata Database Machine Oracle High Availability Service Production 0 0 2 2 0 0	Compliance Standards Exacht Cluster ASM Best Practice Exacht Oracle Exadata Storage 3 Exacht Oracle Exadata Storage 3 Exacht Cluster Best Practices For Exacht Cluster Best Practices For O	s For Oracle Exadeta Database Machine erver Best Practices For Oracle Exadeta Database Machine ilth Best Practices For Oracle Exadeta Database Machine r Oracle Exadeta Database Machine rade Exadeta Database Machine	Cluster ASM Oracle Exadsta Storage Server Systems Infrastructure Switch Cluster Host	Standard State Production Production Production Production	0 0 0 0 0	0     0     0     0     0	1 3 3 1 2	0 0 0 0 0 2	▲ 0 0 0	0 0 0 0 13		Average S	10 10 10 10
	Compliance Standards Exacht Cluster ASM Best Practice Exacht Chrade Exadata Storage S Exacht Systems Infrastructurge S Exacht Cluster Best Practices For Exacht Host Best Practices For Exacht Automatic Storage Manag	e For Oracle Exadata Database Machine ever Best Practices For Oracle Exadata Database Machine ilch Best Practices For Oracle Exadata Database Machine Oracle Exadata Database Machine errent Best Practices For Oracle Exadata Database Machine	Cluster ASM Oracle Exadata Storage Server Systems Infrastructure Switch Cluster Host Automatic Storage Management	Standard State Production Production Production Production Production Production	0 0 0 0 0 0 0	▲ 0 0 0 0 0	1 3 3 1 2	0 0 0 0 2 2	A       0       0       0       0       2       1			Average S	10 10 10 10 9

**4.** Click a link in the Compliance Standards column to view details about the standard (Figure 3-4). In the navigation tree, all rules for the standard are listed.

Figure 3-4 Results by Target

ompliance Results > Exachk Oracle Ex	adata Storage	Server Best Practic	es For Oracle Exada	ata Database Machine							
xachk Oracle Exadata S	-				atabase Machine						
Exachk Oracle Exadata Storage :	-				ices For Oracle Exac	ata Database Mac	hine (Co	ompl	iance	Standard)	
Verify there are no memory (	Summary	Trend Overview	Violations								
RAID controller version on s	Target 6.	corecard		Rule Evaluations							
Set "mpt_cmd_retry_count="""	larget o	corecard		Rule Evaluations							
Exadata celldisk predictive f:											
▶ Configure Storage Server al <sup>#</sup>			Compliant								
Verify storage server disk co		3	Critical Warning	282							
Exadata storage server root			Error		Warning Minor Warning Error						
Exadata storage server syst	Targ	gets By Severity		Rule Evaluations							
Verify RAID Controller Batter	Result By	Target Result F	ly Compliance Stand	dard Rule							
Verify RAID Controller Batter											
Verify Electronic Storage Mor	Target	Hama				Required Dat	a V	liolatio	ns	Score (%)	Last Evaluation Date           Nov 10, 2015           Nev 10, 2015           Nev 10, 2015
Verify celldisk configuration (	laiger	name				Available	8	4	<b>A</b> ,	Score (A)	Date
Exadata Critical Issue EX11	host1.e	example.com				Yes	0	0	0	100	Nov 10, 2015
Exadata Critical Issue EX9	host2.6	example.com				Yes	0	0	0	100	Nov 10, 2015
Exadata Critical Issue EX12	host3.e	example.com				Yes	0	0	0	100	Nov 10, 2015
	0										
Verify Exadata Smart Flash (											

# 3.1.2 Accessing ORAchk/Exachk Compliance Results through the Target Home Page

To access Compliance Results for ORAchk/Exachk from the target home page:

1. From the target's menu, select **Compliance**, then select **Results**:

ho	ost1 <sup>©</sup>		
sta e	Exalogic Elastic Cloud 👻		
	Home		
ନ୍ଦ୍ର	Home - Open in new window		
:	Monitoring	►	
	Diagnostics	•	
	Members	Þ	;
	Configuration	►	
	Compliance	•	Results
	Target Setup	►	Standard Associations
	Target Sitemap		Real-time Observations
	Target Information		

Figure 3-5 Target Menu - Compliance Results

**2.** The Compliance Results page shows all ORAchk/Exachk evaluation results for the target (Figure 3-6):

Figure 3-6 ORAchk Results for a Single Target

-	Exalogic-host1 🕲											
t	🔠 Exalogic Elastic Cloud 🔻											
E	xalègic-hest1 ⇒ Compliance Results											
Com	pliance Results											
Com	Compliance Frameworks Compliance Standards Target C	mpliance										
Eva	luation Results Errors											
	▲ Search latch @ All . Any											
	Compliance Standard											
	Average Compliance Score 100											
	iew 🔻 👓 Show Details 🥒 Manage Violations									Advanced	Search	Reset
	iew	Applicable To	Compliance	T Eva	arget luatio	t ons	Vie	olation	15		verage	Score (%)
		hippineasie to	Standard State	8	▲		8	▲	4			
	Exachk Best Practices For Exalogic Elastic Cloud	Exalogic Elastic Cloud	Production	0	0	1	0	0	0			100

**3.** Click a link in the Compliance Standards column to view details about the standard (Figure 3-7) as it applies to the target. In the navigation tree, all rules for the standard are listed.

Exalogic Elastic Cloud 🔻						
/Exalogic-host1 > Compliance Results > Exachk1	-	Elastic Cloud				
kachk Best Practices For Exalogi	c Elastic Cloud					
	Exachk Best Pra	ctices For Exalo	gic Elast	tic Cloud	(Compliance Standa	rd)
Exachk Best Practices For Exalogic Elastic Cloud	Summary Trend Oven	view Violations				
NTP Configuration Consistency with Physical			_			
NTP Configuration for Compute Nodes	Target Scorecard		Rule Eva	luations		
Firmware Version Consistency in Storage No						
NTP Configuration for Control vServers		Compliant			Compliant Critical	
NTP Configuration Consistency with Oracle V		Warning			Warning Minor Warning	
OVS Repo Consistency	Targets By Seve		Rule	Evaluations	Error	
Hostname Consistency with DNS on Oracle *				Evaluations		
Is Exachk configured	Result By Target Re	esult By Compliance Stan	dard Rule			
Is Exachk collection state		Required Data	Violat	ions		Last Evaluation
	Target Name	Available	Ο 🔺	4	Score (%)	Date
	/Exalogic-host1	Ves	0 0	0		Oct 21, 2015

Figure 3-7 Target Compliance Standard Details

# 3.1.3 Accessing ORAchk/Exachk Compliance Framework Details through the Compliance Dashboard

To access the compliance framework details through the compliance dashboard:

1. From the **Enterprise** menu, select **Compliance**, then select **Dashboard** as shown in Figure 3-8:

Summary		
Monitoring	►	
Job	►	
Reports	►	
Configuration	►	
Compliance	►	Dashboard
Provisioning and Patching	•	Results
Quality Management	•	Library
My Oracle Support	►	Real Time Observations
Cloud	×	

Figure 3-8 Dashboard Menu

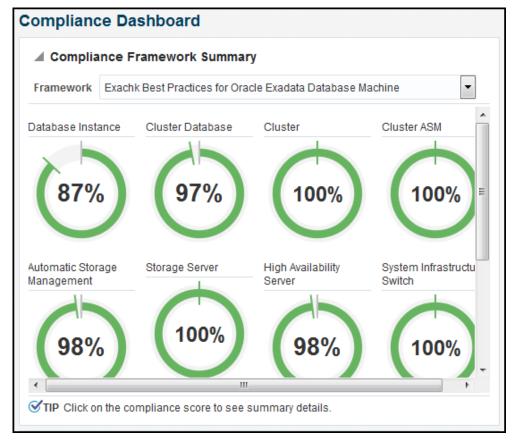
2. On the Compliance Dashboard page, select a Framework from the drop-down menu (for example, select Exachk Best Practices for Oracle Exadata Database Machine) as shown in Figure 3-9:

Figure 3-9 Select Framework

Complia	nce Framework Summary
Framework	PCI DSS (Version 2.0) - Example Only
	Certification
	Exachk Best Practices for Oracle Exadata Database Machine
No Active	Exachk Best Practices for Recovery Appliance
	Oracle 11.2g Database Security Technical Implementation Guide (STIG)
	Oracle Engineered Systems Compliance
	Oracle Generic Compliance Framework
	Oracle Identity Management Compliance
	PCI DSS (Version 2.0) - Example Only
	Security Technical Implementation Guide (STIG)
	Security Technical Implementation Guides (STIGs)
	Support Policy

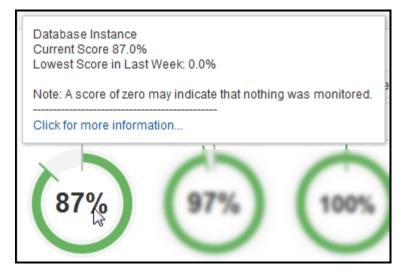
**3.** The Compliance Framework Summary will refresh with a graphic overview of the components of the framework you have selected (Figure 3-10). These dials provide a high-level overview of the system component, including the score:





**4.** Click a dial to see additional information (Figure 3-11):

Figure 3-11 Dial Details



- **5.** In the Compliance Summary section, there are three areas where you can drill down for details:
  - **Frameworks** shows the Compliance Frameworks you have selected (Figure 3-12):

Figure 3-12 Compliance Summary: Frameworks

Complian	ce Summary	
rameworks	Standards Targets	
Use 🔍 C	ompliance Score 🔘 Violations 🗠 View Trends	
Name		Average Compliance Score (%)

• **Standards** show all of the best practices standards being monitored for your target (Figure 3-13):

ameworks	Standards	Targets	
Use 🖲 C	compliance Sc	ore 🔘 Violations 🖂 View Trend	s
Name			Average Compliance Score (%)
Exachk D	atabase Insta	nce Best Practices For Oracle Ex	87
Exachk C	luster Databa	se Best Practices For Oracle Exa	97
Exachk A	utomatic Stora	age Management Best Practices F	97
Exachk C	racle High Ava	ailability Service Best Practices Fo	98
		tices For Oracle Exadata Databas	99

Figure 3-13 Compliance Summary: Standards

• **Targets** show the compliance score for the targets monitored by ORAchk/ Exachk (Figure 3-14):

Figure 3-14 Compliance Summary: Targets

Compliance Summar	у		
rameworks Standards	Targets		
Use 🔘 Compliance Sc	ore 🔘 Vic	olations 🖂 View Trend	s »
Target Name	1	Target Type	Average Compliance Score (%)
host1.example.com	F	Host	99
		Host	99

For additional target types to appear in this section, click >> and select the target types from the list (Figure 3-15):

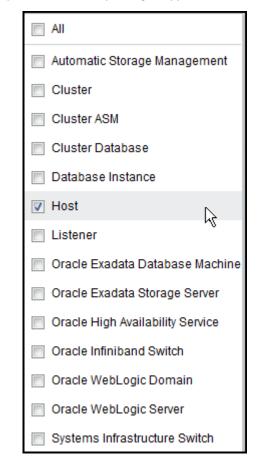


Figure 3-15 Compliance Summary: Target Types

# 3.1.4 Compliance Content for Optional Targets

The ORAchk Healthchecks plug-in registers compliance content for all supported target types. In cases where users have not deployed optional plug-ins that ships some of the supported target types, compliance content will not be registered for such types.

For example, for target types such as TimesTen Database for Exalytics System, Oracle ZFS Storage Appliance target for Exalogic System, and so forth, if you deploy such plug-ins later, then you can download the compliance content from Self update and apply later.

#### Note:

Compliance contents for the same ORAchk version should be deployed as available in the Software library.

# 3.2 Compliance Standards for All Supported System Types

The following sections list the compliance standards for all supported system types:

- Oracle Exadata Database Machine Compliance Standards
- Exalogic Elastic Cloud Compliance Standards
- Exalytics System Compliance Standards

- Cluster Compliance Standards
- Recovery Appliance Compliance Standards
- Host Compliance Standards

# 3.2.1 Oracle Exadata Database Machine Compliance Standards

- Exachk Cluster Best Practices For Oracle Exadata Database Machine
- Exachk Oracle High Availability Service Best Practices For Oracle Exadata Database Machine
- Exachk Host Best Practices For Oracle Exadata Database Machine
- Exachk Database Instance Best Practices For Oracle Exadata Database Machine
- Exachk Oracle Exadata Storage Server Best Practices For Oracle Exadata Database Machine
- Exachk Oracle Infiniband Switch Best Practices For Oracle Exadata Database Machine
- Exachk Systems Infrastructure Switch Best Practices For Oracle Exadata Database Machine
- Exachk Cluster ASM Best Practices For Oracle Exadata Database Machine
- Exachk Automatic Storage Management Best Practices For Oracle Exadata Database Machine
- Exachk Cluster Database Best Practices For Oracle Exadata Database Machine

## 3.2.2 Exalogic Elastic Cloud Compliance Standards

- Exachk Best Practices For Exalogic Elastic Cloud
- Exachk Host Best Practices For Exalogic Elastic Cloud
- Exachk Oracle Infiniband Switch Best Practices For Exalogic Elastic Cloud
- Exachk Systems Infrastructure Switch Best Practices For Exalogic Elastic Cloud
- Exachk Oracle ZFS Storage Server Best Practices For Exalogic Elastic Cloud
- Exachk Oracle VM Guest Best Practices For Exalogic Elastic Cloud
- Exachk Oracle VM Server Best Practices For Exalogic Elastic Cloud
- Exachk Sun ZFS Storage 7000 Best Practices For Exalogic Elastic Cloud

### 3.2.3 Exalytics System Compliance Standards

- Exachk Best Practices For Exalytics System
- Exachk Host Best Practices For Exalytics System
- Exachk Oracle BI Instance Best Practices For Exalytics System
- Exachk TimesTen In Memory Database 11g Best Practices For Exalytics System

### 3.2.4 Cluster Compliance Standards

- ORAchk Best Practices For Cluster
- ORAchk Oracle High Availability Service Best Practices For Cluster
- ORAchk Host Best Practices For Cluster
- ORAchk Database Instance Best Practices For Cluster
- ORAchk Automatic Storage Management Best Practices For Cluster
- ORAchk Cluster Database Best Practices For Cluster

#### 3.2.5 Recovery Appliance Compliance Standards

- Exachk Cluster Best Practices For Recovery Appliance
- Exachk Oracle High Availability Service Best Practices For Recovery Appliance
- Exachk Host Best Practices For Recovery Appliance
- Exachk Database Instance Best Practices For Recovery Appliance
- Exachk Oracle Exadata Storage Server Best Practices For Recovery Appliance
- Exachk Oracle Infiniband Switch Best Practices For Recovery Appliance
- Exachk Systems Infrastructure Switch Best Practices For Recovery Appliance
- Exachk Automatic Storage Management Best Practices For Recovery Appliance
- Exachk Cluster Database Best Practices For Recovery Appliance

#### 3.2.6 Host Compliance Standards

- ORAchk Oracle High Availability Service Best Practices For Host
- ORAchk Best Practices For Host
- ORAchk Database Instance Best Practices For Host
- ORAchk Automatic Storage Management Best Practices For Host

# 3.3 Self Updates

The regular updates for compliance standards, for each ORAchk/Exachk release, will be provided through Enterprise Manager Cloud Control's Self Update feature. For every ORAchk/Exachk release, the following self update downloads will be available:

- ORAchk/Exachk Generic Compliance Content
- Exachk Exalogic Compliance Content
- Exachk Exalogic Virtualization Compliance Content
- Exachk Exalogic Sun ZFS Compliance Content
- Exachk Exalytics Compliance Content

• Exachk Exalytics TimesTen Compliance Content

All updates are organized into multiple downloads to allow users to choose among these depending upon the applicability for an Enterprise Manager instance. For example, all users may not need the Exalytics update because they do not have an Exalytics target.

# 3.4 Troubleshooting the ORAchk Plug-in

This section describes common problems you may encounter with the ORAchk plugin, including:

- Special Purpose Compliance Rules
- Failures in Provisioning the ORAchk/Exachk Procedure Activity

### 3.4.1 Special Purpose Compliance Rules

Two compliance rules, which are available in the ORAchk plug-in, help users to self service some of the issues that your system may encounter:

• "Is ORAchk configured" or "Is Exachk Configured"

This rule aids in identifying if users associate the compliance standard meant for ORAchk/Exachk directly with a target. The ORAchk/Exachk standards can be associated only using deployment steps explained in Provisioning ORAchk.

• "Is Exachk collection stale" or "Is ORAchk collection stale"

This rule violates if ORAchk/Exachk results are older than the expected date (based on configuration frequency). Incidents will be created whenever this compliance rule is violated.

## 3.4.2 Failures in Provisioning the ORAchk/Exachk Procedure Activity

**Problem:** Deployment procedure activities can fail due to environment issues in target system or incorrect information provided by the user.

**Resolution:** Depending upon the situation, correct remedial actions can be taken. Primarily these actions involve retrying the activities from failed step or recover from failed setup attempts by using stop Orachk service and start the provisioning process from beginning.

To facilitate the latter, the system allows users to stop Orachk irrespective of the state of the instance. It automatically skips the steps depending upon the failure point during provisioning activity.

Moreover, multiple stop activities can be submitted in succession. For example, if users provide a wrong password in the "stop Orachk" activity, which caused failures in third step, they can submit another activity by providing correct password.

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