

**Policy Management**  
**12.1.x to 12.2 Cloud Upgrade Procedure**  
**Georedundancy Enabled**

**E82623-02**

**February 2017**



**CAUTION:** Use only the upgrade procedure included in the Upgrade Kit.

**Before upgrading any system, access the Oracle Customer Support site and review any Technical Service Bulletins (TSBs) that relate to this upgrade.**

**Refer to *Appendix C* for instructions on accessing this site.**

**Contact the Oracle Customer Care Center and inform them of your upgrade plans prior to beginning this or any upgrade procedure.**

## Software Upgrade Procedure

Oracle Communications Policy Management 12.1.x to 12.2 Cloud Upgrade Procedure, Georedundancy Enabled  
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## 1. INTRODUCTION

### 1.1 Purpose and Scope

This document describes methods utilized and procedures executed to perform a software upgrade of Oracle Communications Policy Management Release 12.1.x to Release 12.2 when georedundancy is enabled.

Georedundancy as implemented in the MPE and the MRA uses the 2+1 server cluster scheme. The 2 refers to the current Active and Standby servers and the +1 refers to a third Spare server. The Spare server is added into the same cluster so that any server can assume the Active role if necessary. The Spare server is usually located in a separate geographical location in case the servers at the initial site become unavailable due to a site-wide failure. The Spare server, in most cases, would be unaffected by the same circumstances and would be able to continue to provide service as an Active server.

### 1.2 Acronyms

Acronym	Definition
BoD	Bandwidth on Demand - a type of component in a cable Policy Management solution
CMP	Configuration Management Platform
DR-CMP	Configuration Management Platform for Disaster Recovery NOTE: It refers to the CMP on the secondary site
DSR	Diameter Signaling Router
GUI	Graphical User Interface
IPM	Initial Product Manufacture
LVM	Logical Volume Manager
MPE	Multimedia Policy Engine
MPE-LI	MPE for Lawful Intercept - a type of Multimedia Policy Engine
MRA	Multiprotocol Routing Agent (also known as the Policy Front End or PFE)
OCS	Online Charging System
OOS	Out of Service
PCEF	Policy Control Enforcement Function
PCRF	Policy and Charging Rules Function—Oracle MPE
Segment	A segment is a collection of HSGWs, P-GWs, DSRs, MPEs and MRAs that provide the PCRF service. A single MPE/MRA cluster may be part of only one PCRF Segment. A CMP manages all the MPE/MRAs at multiple sites. A CMP manages one or more PCRF Segments.
TPD	Tekelec Platform Distribution
UE	User Equipment

### 1.3 Terminology

**Primary Site (Site1)**—Site where the MPE/MRA Server-A and Server-B are deployed

**Secondary Site (Site2)**—Site where the MPE/MRA Server-C is deployed.

**Spare Server or Server-C**—Server that is ready to take over from the Active server if both the Active and Standby servers fail. It is generally in a different location than the Active and Standby servers.

### 2. UPGRADE OVERVIEW

This section lists the required materials and information needed to execute Policy Management release 12.2 software upgrades.

#### 2.1 Upgrade Status Values

Status	Condition
OK	All servers are up-to-date and no alarms are present.
Info	No alarms are present, but a condition (such as out-of-date) is present that the operator should be made aware of.
Minor	At least one minor alarm is present.
Major	At least one major alarm is present.
Offline	The server cannot be reached.
Degraded	At least one server in the cluster cannot be reached.
Critical	At least one critical alarm is present.
Active	The server is active.
Standby	The server is in standby mode as part of normal operations.
Forced Standby	The server is in standby mode because it has been placed into that state via direct operator intervention or as part of the upgrade.
Offline	The server cannot be reached.
Zombie	The server is in a state where it cannot recover automatically and requires direct operator intervention.

#### 2.2 Upgrade Paths

This upgrade document supports the following upgrade paths:

1. Policy Management 12.1.x to 12.2

#### 2.3 Upgrade Information

This procedure applies to Active, Standby, and Spare servers. A group of servers is referred to as a cluster. The cluster types are CMP, MRA, and MPE.

- For a CMP cluster, there are only 2 servers (Active and Standby) in a cluster and the cluster can be either a Primary or Secondary cluster.
- For a non-CMP cluster (MRA/MPE), there can be 3 servers (Active, Standby, and Spare).

A Policy Management deployment can consist of multiple clusters.

## Software Upgrade Procedure

### 2.3.1 Required Cluster Upgrade Sequence

Policy Server software upgrades are performed on a cluster by cluster basis at the local and remote sites within the same maintenance window.

The following is the upgrade sequence, specific process are documented by an Oracle provided Maintenance Operation Procedure (MOP).

1. Upgrade Primary CMP
2. Upgrade Secondary CMP (if applicable)
3. Site 1 Segment 1—Upgrade non-CMP clusters (see note below)
4. Site 2 Segment 1—Upgrade non-CMP clusters (see note below)
5. Site 1 Segment 2—Upgrade non-CMP clusters (see note below)
6. Site 2 Segment 2—Upgrade non-CMP clusters (see note below)

**NOTE:** Up to 8 non-CMP clusters can be upgraded in parallel.

### 2.3.2 Policy Release Mixed-Version Operation and Limitation

The general expectation is that a system that is running in a mixed version configuration should support features, and perform at a level of the previous version. Thus, the system that is running pre-12.2 release and release 12.2 mixed configuration would support the performance and capacity of pre-12.2 release. The mixed version Policy Management configuration would support pre-12.2 release features.

Since the CMP is the first Policy Management system component that is upgraded to the new version, the release 12.2 CMP will be managing servers in both the previous release and release 12.2. In this mixed version configuration release 12.2 CMP will not prevent an operator from configuring anything that you could configure in a previous release and all configuration items from the previous release are still available. However, the configuration changes during the upgrade of Policy Management system are discouraged and have limited support.

In the mixed version Policy Management configuration release 12.2 CMP has the following limitations while running in a mixed version environment:

- New features must not be enabled until the upgrades of all servers managed by that CMP are completed. This also applies to using policy rules that include new conditions and actions introduced in the release.
- As a general guideline, policy rules should not be changed while running in a mixed version environment. If it is necessary to make changes to the policy rules while running in a mixed version environment changes that do not utilize new conditions and actions for the release could be installed, but should be jointly reviewed by the customer and Oracle before deployment to verify that these policies indeed do not use new conditions or actions.
- The support for configuration of MPE/MRA servers is limited to parameters that are available in the previous version. Specifically, Network Elements can be added.

## Software Upgrade Procedure

**Table 1 Mixed-version configurations supported**

Policy Management system components on	CMP R12.2	MRA R12.2	MPE R12.2
CMP 12.1.x	Yes	No	No
MRA 12.1.x	Yes	Yes	Yes
MPE 12.1.x	Yes	Yes	Yes

**NOTE:** Replication between CMP and DR-CMP is automatically disabled during upgrade of the CMP and DR-CMP from the previous release to release 12.2. The replication is automatically enabled once both active CMP and DR-CMP are upgraded to release 12.2.

### 2.4 Customer Impacts

The cluster upgrade proceeds by upgrading the standby server, then the spare server, and then switching over from the active to the standby, and upgrading the new standby. The switchover of each non-CMP cluster has a small impact on traffic being processed at that cluster.

### 2.5 Rollback/Backout

The full pre-upgrade server image is stored on the server during the upgrade, and can be restored in the event of a problem during or after upgrade.

### 2.6 Loading Application Software

For upgrade of server application software, the recommended method is to copy the application ISO images to the servers using the `scp` or `ftp` command.

### 2.7 Required Materials and Remote Access

The following materials and information are needed to execute an upgrade:

1. Policy 12.2 software ISO files
2. Policy 12.2 software Release Notes.
3. The capability to remotely login to the target server as *admusr*.  
**NOTE:** The remote login can be done through SSH, local console, or iLO maintenance port. Ensure the customer network firewall policy allows the required application and corresponded ports.
4. The capability to secure copy (`scp`) from the local workstation being used to perform this upgrade to the target server, or otherwise be able to transfer binary files to the target server.
5. User login IDs, passwords, IP addresses, and other administration information.
6. VPN access to your network is required if that is the only method for remotely logging into the target servers. It must be also possible to access the Policy Manager GUI.

#### 2.7.1 Upgrade Media

See the release notes for the list of ISO image files required for the Policy Management upgrade you are installing.

#### 2.7.2 Login User IDs and Passwords

You will need to confirm login information for key interfaces, and document the information using Table 2.

**NOTES:**



## Software Upgrade Procedure

- It is assumed that the login information may be common across sites. If not, record the information for each site.
- Consider the sensitivity of the information recorded in this table. While all of the information in the table is required to complete the upgrade, there may be security policies in place that prevent the actual recording of this information in a permanent form.

## Software Upgrade Procedure

**Table 2 Login IDs, Passwords and release Information**

Item	Value
CMP servers	GUI Administrator Login User/Password
	<b>admusr</b> password:
MPE/MRA	<b>admusr</b> password:
Software Upgrade Target Release <sup>1</sup>	Target Release Number
	Policy 12.2 software ISO image filenames

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<sup>1</sup> The ISO image filenames should match those referenced in the Release Notes for the target release.

### 3. THEORY OF OPERATION

#### 3.1 Upgrade Manager Page

The Upgrade Manager represents a significant shift from previous upgrade pages. In the past it was up to the operator, with assistance from a MOP, to know the correct sequence of server selects and menu selections. The new Upgrade Manager takes a different approach. It determines the next course of action to either

1. Begin/continue upgrading a cluster
2. Begin/continue backing out a cluster.

**IMPORTANT: There is a point implicit in the list above: upgrade is now presented from a cluster perspective, instead of a server perspective.**

The shift in perspective has a number of ramifications, most noticeably it is no longer possible to select individual servers or to bulk select a group of servers. In fact, in order to perform any operation, it is necessary to select a cluster first.

Another change is that certain operations are performed automatically on behalf of the operator. These operations are not presented to the operator as an option. However, the operator can see what has been done using the upgrade log.

Start Rollback		Start Upgrade		Current ISO: standard-upgrade-12.1.2.0.0_22.1.0					
		View Upgrade Log		Filter		Columns		Advanced	
ID	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation		
CMP Start Cluster (2 Servers)									
	chris1		Y	Standby	11.1.2.3.1.0	12.1.2.0.0_22.1.0	Initiate upgrade Completed Successfully at Feb 8, 2015 21:30:15		
	chris10		Y	Active	11.1.2.3.1.0	12.1.2.0.0_22.1.0	N/A		
TestIMPE (2 Servers)									
	chris16		Y	Active	11.1.2.3.1.0	12.1.2.0.0_22.1.0	Initiate upgrade Completed Successfully at Feb 9, 2015 10:26:15		
	chris15		Y	Standby	11.1.2.3.1.0	12.1.2.0.0_22.1.0	Initiate upgrade Completed Successfully at Feb 9, 2015 12:23:46		

Figure 1 Sample display of the Upgrade Manager page

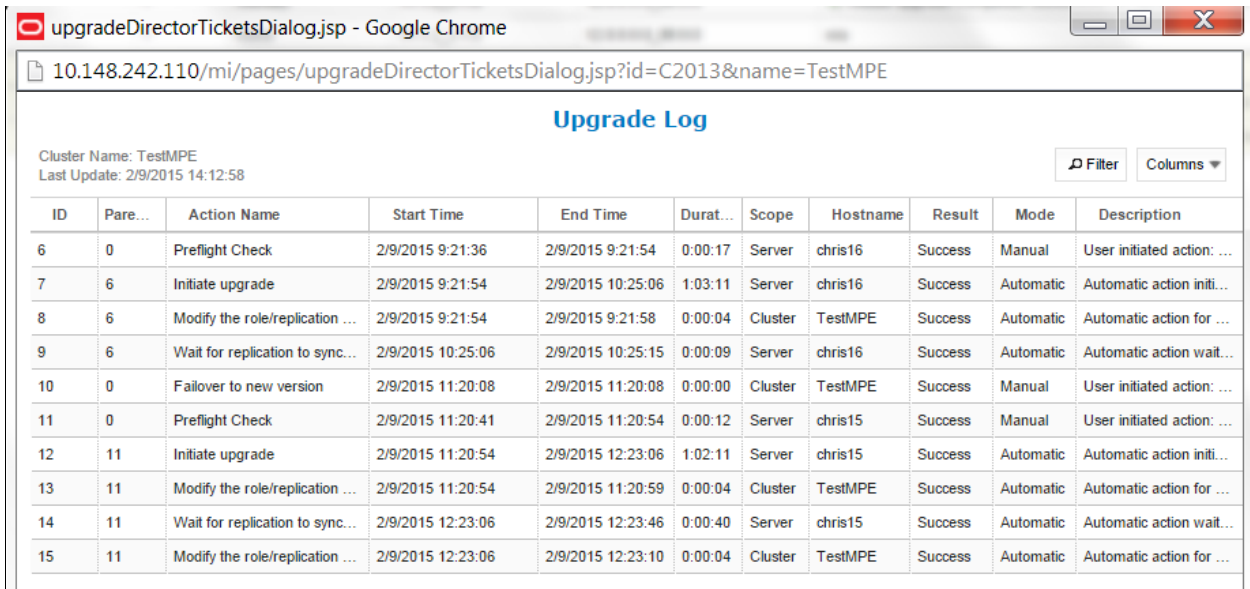
For the most part, the items in the display are self-explanatory. The following items are often used during the upgrade.

- **Start Rollback** and **Start Upgrade** buttons (upper left): If a cluster is selected and these buttons are disabled (grey), it means that there is not an appropriate action to take at this time. However, if a button is not disabled (white), then it means that there is a preferred action that can be taken to upgrade (or backout) the cluster. Normally, upgrading a cluster is a well-defined fixed procedure. However, in some cases there are a number of valid sequences. Selecting the preferred step will cause the Upgrade Director to choose the default sequence. Only use the Upgrade Manager to perform upgrades unless the instructions direct otherwise.
- **Alarm Severity:** This column is used to indicate if there are alarms associated with a server. If so, it displays the severity of the most severe alarm here. It is important to explain the intent of this column. The intent is to give a visual indication that the particular server is experiencing alarms. This is not a reason to panic: During the upgrade, it is expected that the servers raise alarms:
  - The CMP will raise alarms to indicate that it is initiating upgrade activity.
  - Servers will report alarms to indicate that their mate servers are offline.
 However, if alarms are asserted for a server, it is good practice to look at the alarms prior to initiating upgrade activity on them.
- **Up to Date:** This column is used to indicate the state of the code on the server.
  - N—Server is running old code needs to be upgraded
  - Y—Server is running new code.
  - N/A—Upgrade is not appropriate and/or the server is in a bad state

## Software Upgrade Procedure

### 3.1.1 The Upgrade Log

Within the Upgrade Manager page, the operator can access the upgrade log. This will display attributes of the various actions (manual and automatic) that have been performed on the selected cluster. It is important to note that this is NOT the audit log. The audit log is meant to track what the operator has done. This log is meant to capture the sequence of upgrade activity—whether it was initiated by an operator or automatically triggered.



ID	Pare...	Action Name	Start Time	End Time	Durat...	Scope	Hostname	Result	Mode	Description
6	0	Preflight Check	2/9/2015 9:21:36	2/9/2015 9:21:54	0:00:17	Server	chris16	Success	Manual	User initiated action: ...
7	6	Initiate upgrade	2/9/2015 9:21:54	2/9/2015 10:25:06	1:03:11	Server	chris16	Success	Automatic	Automatic action initi...
8	6	Modify the role/replication ...	2/9/2015 9:21:54	2/9/2015 9:21:58	0:00:04	Cluster	TestMPE	Success	Automatic	Automatic action for ...
9	6	Wait for replication to sync...	2/9/2015 10:25:06	2/9/2015 10:25:15	0:00:09	Server	chris16	Success	Automatic	Automatic action wait...
10	0	Failover to new version	2/9/2015 11:20:08	2/9/2015 11:20:08	0:00:00	Cluster	TestMPE	Success	Manual	User initiated action: ...
11	0	Preflight Check	2/9/2015 11:20:41	2/9/2015 11:20:54	0:00:12	Server	chris15	Success	Manual	User initiated action: ...
12	11	Initiate upgrade	2/9/2015 11:20:54	2/9/2015 12:23:06	1:02:11	Server	chris15	Success	Automatic	Automatic action initi...
13	11	Modify the role/replication ...	2/9/2015 11:20:54	2/9/2015 11:20:59	0:00:04	Cluster	TestMPE	Success	Automatic	Automatic action for ...
14	11	Wait for replication to sync...	2/9/2015 12:23:06	2/9/2015 12:23:46	0:00:40	Server	chris15	Success	Automatic	Automatic action wait...
15	11	Modify the role/replication ...	2/9/2015 12:23:06	2/9/2015 12:23:10	0:00:04	Cluster	TestMPE	Success	Automatic	Automatic action for ...

Figure 2 Upgrade Log

### 3.1.2 Optional Actions

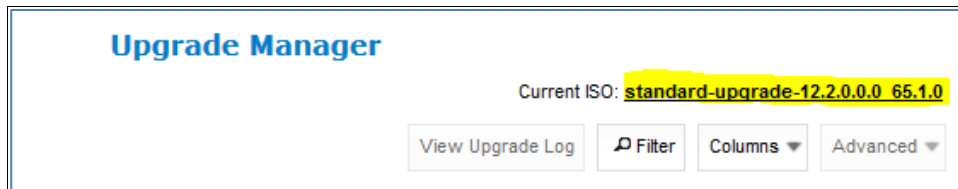
It is possible to perform every step in the upgrade process using the **Upgrade** and **Backout** buttons. When the operator clicks one of these buttons, the Upgrade Director performs the next preferred action. However, there are times that the operator may want to take a slightly different—but still legal—procedure. For example, the Upgrade Director has a preferred order in which it will upgrade a georedundant cluster. However, if the operator wanted to deviate from that default procedure—say to restrict upgrade to servers in a particular site—then they can use the optional actions menu. It is important to note that this menu will ONLY be populated with legal/reasonable actions. Actions that are wrong or inconsistent will not be displayed.

If the operator selects an optional action, they can go back to using the default/preferred at any time

### 3.1.3 The ISO Select

In the upper right hand corner, there is an item called the **Current ISO**. In some respects the term ISO is misleading. A better description might be upgrade procedure. This item shows the upgrade procedure that is being used. In common cases, this is going to be either:

- A standard (full) upgrade to version *XXX*
- An incremental upgrade to version *XXX*



## Software Upgrade Procedure

To start a new upgrade, click on this item. The Upgrade Director will search for valid upgrade procedures. In order to minimize confusion, these upgrade procedures are usually embedded within a CMP ISO file. This way, the CMP ISO file is always tied to the corresponding upgrade procedure.

When you select a new ISO file, you are telling the Upgrade Director to abandon the current upgrade procedure in favor of a new procedure.

### 3.1.4 Introducing Upgrade Director Behavior

The Upgrade Director is a component that tracks the state of the servers, cluster and system during an upgrade. From a user perspective, the Upgrade Director is hidden. However, there are conventions/operating principles that have visible effects.

#### 3.1.4.1 Alarm Philosophy

During an upgrade, the Upgrade Manager asserts (that is, generates) and displays alarms. An upgrade typically triggers multiple minor, major, and critical alarms as servers are taken out of service, go into forced standby, or fail over. This is normal and to be expected.

The Upgrade Manager clears alarms when appropriate, such as when server and cluster upgrades are complete. Table 3 lists some transient alarms that the Upgrade Manager can assert during an upgrade.

**Table 3 Transient Alarms Asserted During a Typical Upgrade**

Alarm Number	Severity	Name
31227	Critical	HA availability status failed
31283	Critical	HA Server Offline / Lost Communication with server
70001	Critical	QP_procmgr failed
70025	Critical	QP Slave database is a different version than the master
31233	Major	HA Path Down
70004	Major	QP Processes down for maintenance
31101	Minor	DB replication to slave failure
31106	Minor	DB merge to parent failure
31107	Minor	DB merge from child failure
31114	Minor	DB replication over SOAP has failed
31282	Minor	HA Management Fault
70500	Minor	System Mixed Version
70501	Minor	Cluster Mixed Version
70502	Minor	Cluster Replication Inhibited
70503	Minor	Server Forced Standby
70507	Minor	Upgrade in Progress

The Upgrade Manager will also assert an alarm if an unexpected error prevents it from continuing the upgrade. You should review all active alarms after each upgrade step to ensure that the alarms are expected. Alarms are described in the *Troubleshooting Guide*, Release 12.2, available at the Oracle Help Center.

#### 3.1.4.2 General Upgrade Procedure

In general, the upgrade of a server goes through the following steps:

## Software Upgrade Procedure

1. Preflight checks—look for certain conditions which guarantee a failed upgrade. If such conditions are detected, fail. There are two principles behind the preflight checks
  - a. It is better to fail early in a recoverable way than to fail late in an unrecoverable way.
  - b. Preflight checks are VERY narrow. This prevents false positives for an otherwise valid upgrade.
2. The upgrade itself
3. Wait for replication to synchronize.

This procedure is in place so that it should not be necessary to login to the target server to verify conditions. You should be able to stay on the **Upgrade Manager** page.

### 3.1.4.3 *Unreachable Servers*

During the course of an upgrade, servers can go unreachable. This is expected and the Upgrade Manager tries to be graceful about unreachable servers. However, if the CMP experiences a failover when another server is unreachable, this runs into limits. The promoted Upgrade Director does not have the full history/context. It will wait until it can contact the unreachable server before it will take action on the server.

### 3.1.4.4 *Reversing Directions*

In general, it should be possible to reverse directions at any time. You should be able to upgrade a server in a cluster, back it out, upgrade it, upgrade its mate, back that out, etc. In this sense, upgrade/backout should be fully reversible. However, you will not be permitted to reverse direction if there is an ongoing action: You cannot kick off a backout of a server if another server in the cluster is being upgraded. You have to wait for the upgrade to finish.

### 3.1.4.5 *Mixed version and Forced Standby*

As a general rule, if a cluster is in mixed version, then every server that is NOT running the same version as the active server needs to be in forced standby. This way, a simple failover does not cause a change in the version of code that is providing service.

**NOTE:** Forced standby is managed by the Upgrade Director and requires no user action.

### 3.1.4.6 *Failure Handling and Recovery*

Failures fall into two categories:

- Failures that the Upgrade Director is able to recover from.
- Failures that the Upgrade Director cannot automatically recover from.

Any failure should generate an UPGRADE\_OPERATION\_FAILED alarm. In such cases, the operation can be attempted again. Ideally, the operator/support would investigate the original failure before repeating. However, if the server is in an indeterminate state, the server is declared a ZOMBIE and no further action can be taken on the server. It will require direct action by support/engineering to repair.

For the current release, recovery or even deep failure diagnosis is not exposed via the GUI.

## Software Upgrade Procedure

### 4. UPGRADE PREPARATION

This section provides detailed procedures to prepare a system for upgrade execution. These procedures are executed outside a maintenance window.

**NOTE:** If Veritas NetBackup is being used on the system, see the Maintenance Operation Procedure for pre and post upgrade steps.

Overview of steps:

1. Upgrade Primary (Site1) CMP
2. Upgrade Secondary (Site2) CMP (if applicable)
3. Segment 1 Site1:
  - a. Upgrade MPE/MRA clusters
4. Segment 1 Site2:
  - a. Upgrade MPE/MRA clusters
5. Segment 2 Site1:
  - a. Upgrade MPE/MRA clusters
6. Segment 2 Site2:
  - a. Upgrade MPE/MRA clusters

## Software Upgrade Procedure

### 4.1 Pre-requisites

The following Procedure table verifies that all required prerequisite steps needed to be performed before the upgrade procedure begins.

Step	Procedure	Result
1. <input type="checkbox"/>	Verify all required materials are present	As listed in section "Required Materials and Remote Access"
2. <input type="checkbox"/>	Review Release Notes	Review Policy 12.2 Release Notes for the following information: <ul style="list-style-type: none"> <li>• Individual software components and versions included in target release.</li> <li>• New features included in target release.</li> <li>• Issues (Oracle bugs) resolved in target release.</li> <li>• Known Issues with target release.</li> <li>• Any further instructions that may be required to complete the software upgrade for the target release. In particular, the supported browsers: <b>In release 12.2, only Mozilla Firefox and Google Chrome are fully supported.</b></li> </ul>
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

### 4.2 Plan and Track Upgrades

The upgrade procedures in this document are divided into the following sequential steps:

1. Upgrade CMP clusters
2. Upgrade MPE/MRA clusters

Table 4 can be completed first before performing the upgrade, to identify the clusters to be upgraded and plan the work. It can also be used to track the completion of the upgrades, and assign work to different engineers.

#### NOTES:

- Policy changes or configuration changes should NOT be made while the system is in mixed-version operation.
- Time estimates are for upgrade procedure without backout procedure. Backout procedure time is typically the same as, or less than the upgrade procedure.

**Table 4 Upgrade information**

Step	Procedure	Result	Engineer	Time
1. <input type="checkbox"/>	Use the following checklist to plan the cluster upgrades for the entire system.	Maintenance Windows are planned		
2. <input type="checkbox"/>	Upgrade Site1 and Site2 CMP clusters.  Each cluster will take approximately 1 and ½ hours to complete	Site Names _____ and _____		3 hrs



## Software Upgrade Procedure

Step	Procedure	Result	Engineer	Time
3. <input type="checkbox"/>	Upgrade Site1 MPE/MRA clusters for Segment-1  <b>NOTE:</b> Maximum of 8 clusters performed in parallel	Site Names _____ Cluster List:		2 hrs
4. <input type="checkbox"/>	Upgrade Site2 clusters for Segment-1  <b>NOTE:</b> Maximum of 8 clusters performed in parallel	Site Names _____ Cluster List:		2 hrs
5. <input type="checkbox"/>	Upgrade Site1 clusters for Segment-2  <b>NOTE:</b> Maximum of 8 clusters performed in parallel	Site Names _____ Cluster List:		2 hrs
6. <input type="checkbox"/>	Upgrade Site2 clusters for Segment-2  <b>NOTE:</b> Maximum of 8 clusters performed in parallel	Site Names _____ Cluster List:		2 hrs
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>				

### 4.3 Convert to Using Interval Statistics

Prior to Release 12.2, Oracle Communications Policy Management offers two methods for gathering statistics: Manual and Interval statistics. They operate as follows:

## Software Upgrade Procedure

- **Manual.** When configured to use this method, CMP records the cumulative values from the time the blade became active or the operator manually reset the statistics. Statistics which represent maximum values contain the peak value since the blade became active or was reset. This is the system default.
- **Interval.** When configured to use this method, all counters reset automatically at the beginning of every interval and write the cumulative values at the end of the interval. Statistics which represent maximum values contain the peak value which occurred during the interval. The user-definable interval length can be 5, 10, 15, 20, 30 or 60 minutes. The default interval is 15 minutes when Interval statistics is enabled.

In Oracle Communications Policy Management Release 12.2, Manual statistics will no longer be available. You must migrate to Interval statistics before upgrading to Release 12.2. Upon upgrade to R12.2, Oracle Communications Policy Management will only use Interval statistics and any Manual statistics not saved will be lost.

Statistics affected by this change will be reset to zero when migrating to Interval statistics. This affects both the information presented via the CMP GUI as well as information returned using the OSSI interface. The values for statistics which are not counters, such as active session counts, are the same in both cases. The behavior of KPIIntervalStats is the same in both cases.

It is recommended that the following actions are taken well in advance of the upgrade procedure:

1. Review your current configuration to determine which statistics method is currently being used by navigating to *GLOBAL CONFIGURATION > Global Configuration Settings > Stats Settings*
2. If *Manual* is being used, change the *Stats Reset Configuration* parameter to *Interval*.
3. Review any systems which access this information via OSSI to determine whether they must be modified.

For completeness and assuredness, it is recommended to collect *at least* 24 hours of interval statistics before upgrading to 12.2

For addition information, see the following publications:

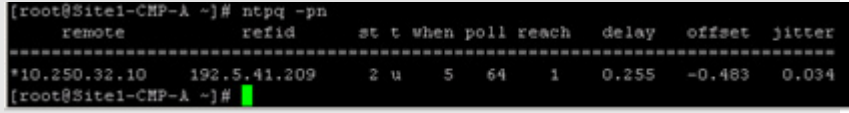
- Configuration Management Platform User's Guide
- OSSI XML Interface Definitions Reference

## 4.4 Perform System Health Check

This procedure is to determine the health and status of the servers to be upgraded and must be executed at least once within the time frame of 24 to 36 hours prior to the start of a maintenance window.

Step	Procedure	Result
1. <input type="checkbox"/>	CMP GUI Access	Open a browser to access the Primary CMP GUI on its VIP address and login to verify access.
2. <input type="checkbox"/>	View Active Alarms	Identify the cause of any existing active alarms, and determine if these may have impact on the upgrade. Export current alarms to save into a file.  <b><i>IMPORTANT: Before starting any upgrade activity, ensure that all active alarms are understood and resolved.</i></b>
3. <input type="checkbox"/>	View KPI reports	Verify that the system is running within expected parameters. Export current the KPIs into a file.

## Software Upgrade Procedure

Step	Procedure	Result
4. <input type="checkbox"/>	<p>Confirm NTP servers are reachable from all the servers (CMP, MPEs and MRAs) to be upgraded</p> <p><b>NOTE:</b> If the time across the servers is out of synch, fix it first and re-validate this step, before starting the upgrade procedures.</p>	<ol style="list-style-type: none"> <li>Validate the IP connectivity between the server and NTP servers with the <code>ping</code> command if available.</li> <li>Confirm that time is synchronized on each server using the following CLI shell command: <pre>ntpq -pn</pre>  <pre>[root@Site1-CMP-A ~]# ntpq -pn remote          refid          st t when poll reach  delay  offset jitter ----- *10.250.32.10   192.5.41.209  2 u  5  64   1   0.255 -0.483  0.034 [root@Site1-CMP-A ~]#</pre> <p>The "*" sign besides the NTP server IP indicates the NTP server is in sync.</p> </li> <li>Confirm that date is correct on each server.</li> <li>Check that BIOS clock is synced with the clock (by showing the expected time) using the following CLI shell command: <pre>hwclock</pre> </li> </ol>
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

### 4.5 Deploy Policy Upgrade Software

Software should be deployed to each Policy server `/var/TKLC/upgrade` directory, before the actual upgrade activities. This will typically be done with utilities such as SCP, WGET or SFTP. Because of the large size of the software ISO file, sufficient time should be planned to accomplish this step. For Policy Management release 12.2, each ISO image size is about 1.0 Gigabytes.

#### 4.5.1 Deploying Policy Upgrade Software to Servers

There are four possible software images used in this upgrade (CMP, MPE, MPE-LI, MRA). A single image must be deployed to the `/var/TKLC/upgrade` directory of each server to be upgraded, where the image is the correct type for that server. That is, the CMP software image must be deployed to the CMP servers, the MPE image deployed to the MPE servers, and so on.

**IMPORTANT:** *If the deployed image type (CMP, MPE, MRA, etc.) does not match the existing installed software type, the upgrade will fail. Example: An attempt to upgrade a CMP with a MPE software image will fail during the Upgrade action.*

**NOTE:** To change a server from one application type to another, the server must first be cleaned of all application software by an Install OS action using the PM&C GUI, and then the new application type installed.

Also, if multiple images are copied into the `/var/TKLC/upgrade` directory, the upgrade will fail.

#### 4.5.2 Distribute Application ISO Image Files to Servers

This procedure applies to all server types. It assumes that the ISO image files will be electronically copied to the sites to be upgraded.

**NOTE:** ISO transfers to the target systems may require a significant amount of time depending on the number of systems and the speed of the network. The ISO transfers to the target systems should be performed prior to and outside of the scheduled maintenance window. Schedule the required maintenance windows accordingly before proceeding.

##### 4.5.2.1 Manual Distribution

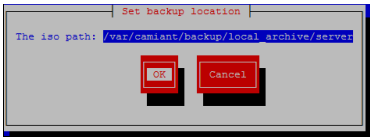
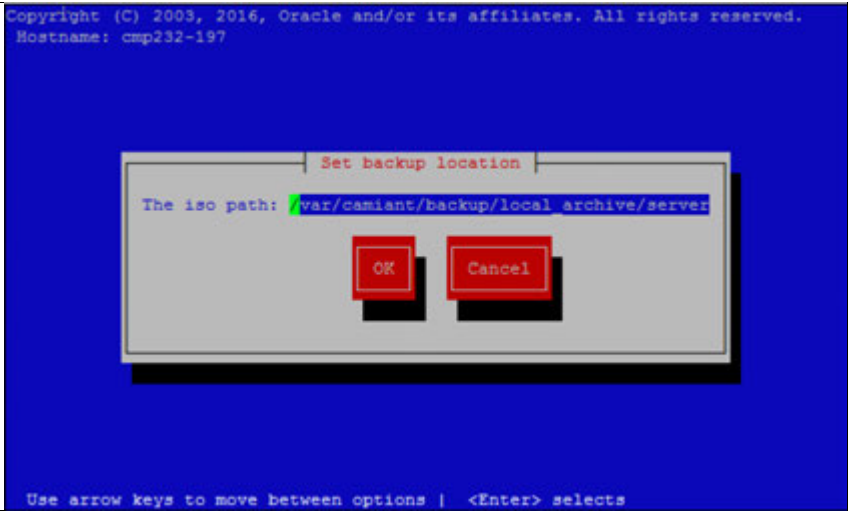
Step	Procedure	Result
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## Software Upgrade Procedure

Step	Procedure	Result
1. <input type="checkbox"/>	Transfer ISO files to Policy server.	<p>Transfer release 12.2 ISO files (CMP and non-CMP) into the <code>/var/TKLC/upgrade</code> directory on the respective server using one of the following methods:</p> <ul style="list-style-type: none"><li>• SCP/WGET command</li><li>• USB drive</li></ul> <p>If the images are on a server in the same network, <code>scp</code> the files using the CLI, for example, for CMP:</p> <ul style="list-style-type: none"><li>• Copy CMP software ISO file to ONE of the other CMP servers:</li></ul> <pre data-bbox="646 485 1442 537">\$sudo scp cmp-12.2.0.0_22.1.0-x86_64.iso user@remote_host.com:/var/TKLC/upgrade/</pre> <p>Repeat with the appropriate ISO for one server of all MPE/MRA clusters.</p> <p><b>NOTE:</b> After copying the ISO to one of the respective servers, the ISO Maintenance page will be used to distribute the ISO to the rest of the servers.</p>
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

### 4.5.3 Backups and Backup Locations

Perform the backups prior to the maintenance window period.

Step	Procedure	Result
<p>1. <input type="checkbox"/></p>	<p><b>SSH CLI/iLO:</b> Access the server to be backed up</p> <p><b>NOTE:</b> System backup is done on active CMP servers ONLY.</p>	<p><b>IMPORTANT: Server backups (for each CMP and non-CMP server, active/standby/spare), and the system backup (from the active CMP), must be collected and readily accessible for recovery operations.</b></p> <ol style="list-style-type: none"> <li>Login into the active Primary CMP server.</li> <li>Navigate to the following through platcfg utility.           <pre>\$sudo su - platcfg</pre> </li> <li><b>Policy Configuration→Backup and Restore→Server Backup</b> Provide (or use the suggested) ISO backup filename in the default backup location path of:           <pre>/var/camiant/backup/local_archive/serverbackup/&lt;filename&gt;.iso</pre>  </li> <li>Go back to the previous menu (<b>Policy Configuration→Backup and Restore</b>) and select now <b>→System Backup</b> Provide (or use the suggested) tarball backup filename in the default backup location path of:           <pre>/var/camiant/backup/local_archive/systembackup/&lt;filename&gt;.tar.gz</pre>  </li> </ol>
<p>2. <input type="checkbox"/></p>	<p><b>SSH CLI/iLO:</b> Verify the backup ISO file</p>	<p>If default location is accepted in the previous step, change to the following directory and verify the file. For example for an MPE server backup:</p> <pre>\$ cd /var/camiant/backup/local_archive/serverbackup</pre> <pre>\$ ls &lt;hostname&gt;-mpe-12.2.x.x-serverbackup-&lt;yyyy&gt;&lt;mm&gt;&lt;dd&gt;&lt;hhmm&gt;.iso</pre> <p>And for the system backup:</p> <pre>\$ cd /var/camiant/backup/local_archive/systembackup</pre> <pre>\$ ls &lt;hostname&gt;-cmp_12.2.x.x-systembackup-&lt;yyyy&gt;&lt;mm&gt;&lt;dd&gt;&lt;hhmm&gt;.tar.gz</pre>

## Software Upgrade Procedure

Step	Procedure	Result
3. <input type="checkbox"/>	Copy backup files.	1. Copy the files to remote server or local workstation/laptop. Example of a remote server copy. <pre>\$ sudo scp /var/camiant/backup/local_archive/systembackup/xx_tar.gz &lt;remoteserver_ipaddress&gt;:&lt;destinationpath&gt;</pre> 2. Remove the backup ISO file from the TPD Sever. <pre>\$sudo rm &lt;backup_filename&gt;.iso</pre>
4. <input type="checkbox"/>	Identify backup location	Backup location is: <hr/> Instructions to access to backups are as follows: <hr/> <hr/> <hr/>
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

## Software Upgrade Procedure

### 4.5.4 Changing Non-Default *root* and *admusr* Passwords

#### 4.5.4.1 Improve Password Security

The default password hash prior to Policy 12.0 is MD5. MD5 is now considered a weak hash that can be brute force cracked in a reasonable amount of time. The best hash to use is SHA512. This is currently the strongest hash supported on the platform. Due to this change, during upgrade, all non-default passwords are automatically expired. This will cause issues during upgrade from pre-12.1.1 to 12.2 and above. To prevent those issues, the following procedure has been created.

#### 4.5.4.2 Impact

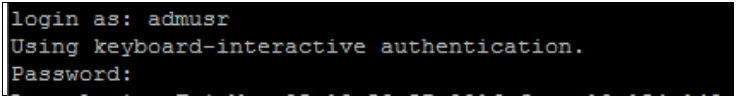
After this procedure is run, the *root* and *admusr* password will be hashed with the strongest possible method, SHA512.

This procedure only addresses *root* and *admusr* passwords. Other users should also update their password to benefit from the new hashing. If they are not changed prior to the upgrade to 12.2, they will be expired post upgrade.

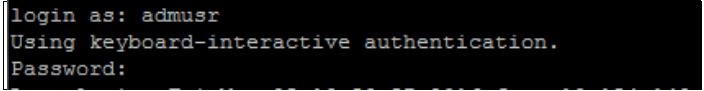
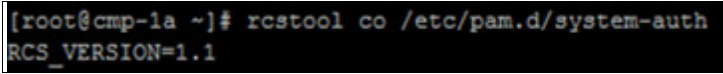
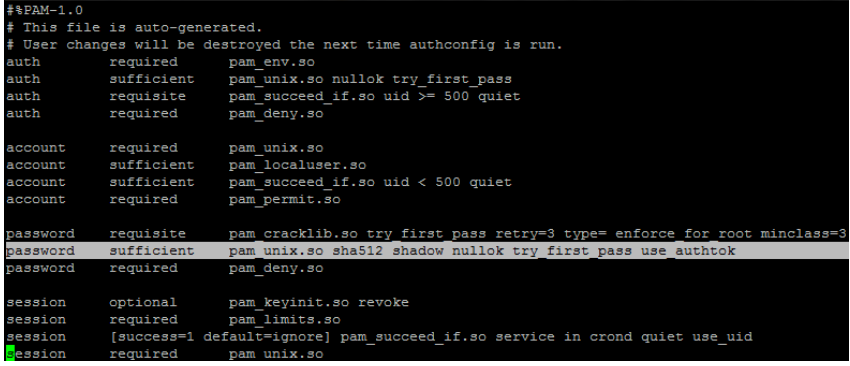
**IMPORTANT: The following procedure should be executed prior to the upgrade to 12.2 only if the *root* or *admusr* passwords are non-default.**

Order to perform the upgrade on an In-Service Policy Management system:

1. Standby CMPs
2. Active CMPs
3. Standby MPE/MRA
4. Spare MPE/MRA
5. Active MPE/MRA

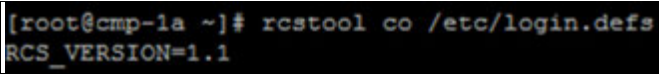
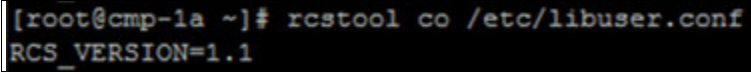
Step	Procedure	Result
1. <input type="checkbox"/>	Login to the active CMP server	<ul style="list-style-type: none"> <li>For an upgrade from 12.1.x, login as <i>admusr</i> and change to <i>root</i> using the following command:</li> </ul> <pre>\$sudo su</pre> 
2. <input type="checkbox"/>	Check the password field of <i>root</i> and <i>admusr</i>	Issue the following <pre>#egrep '^ (root admusr)' /etc/shadow</pre> <p><b>EXAMPLE OUTPUT</b></p> <pre>root:\$6\$mErKrEsA\$83n5G8dR3CgBJjMEABi6b4847EXusUnzTaWNJgEi347B.WhLbIc .Cga.nmYCdQYSNwks1CtUBi.tBSwWujUd.:16825:0:99999:7::: admusr:\$6\$mUstAfa\$gn2B8TsW1Zd7mqD333999Xd6NZnAEgyioQJ7qi4xufHSQp1s6A 5Jxhu8kjDT8dIgcYQR5Q1ZAtSN8OG.7mkyq/:16825:0:0:0:0:0</pre> <p><b>NOTES:</b></p> <ul style="list-style-type: none"> <li>If the first two characters after the colon are \$6, then this procedure is not needed on this server. Skip to the next section.</li> <li>If the first two characters after the colon are not \$6, then it is probably \$1 (MD5) and this procedure should be followed for this server. Continue on with step 3</li> </ul>

## Software Upgrade Procedure

Step	Procedure	Result
3. <input type="checkbox"/>	Order to perform the change	<p>Perform steps 4-15 on each server in the following order:</p> <ol style="list-style-type: none"> <li>Standby CMP</li> <li>Active CMP</li> <li>Standby non-CMP servers</li> <li>Spare non-CMP servers</li> <li>Active non-CMP servers</li> </ol>
4. <input type="checkbox"/>	Login to the Server	<ul style="list-style-type: none"> <li>For an upgrade from 12.1.x, login as <i>admusr</i> and change to <i>root</i> using the following command:</li> </ul> <pre>\$sudo su</pre> 
5. <input type="checkbox"/>	Checkout revisions	<p>Issue the following command:</p> <pre>#rcstool co /etc/pam.d/system-auth</pre> 
6. <input type="checkbox"/>	Modify the system-auth file	<ol style="list-style-type: none"> <li>Open the system-auth file. <pre>#vi /etc/pam.d/system-auth</pre> </li> <li>Modify the file. Change the <b>md5</b> value to <b>sha512</b> <p><b>Current Line:</b></p> <pre>password sufficient pam_unix.so md5 shadow nullok try_first_pass use_authtok</pre> <p><b>Modified Line:</b></p> <pre>password sufficient pam_unix.so sha512 shadow nullok try_first_pass use_authtok</pre>  </li> </ol>
7. <input type="checkbox"/>	Save the file	<ul style="list-style-type: none"> <li>If the file required changing: <pre>#rcstool ci /etc/pam.d/system-auth</pre> </li> <li>If the file was already configured: <pre>#rcstool unco /etc/pam.d/system-auth</pre> </li> </ul>



## Software Upgrade Procedure

Step	Procedure	Result
8. <input type="checkbox"/>	Checkout revisions for login.defs file	<pre>#rcstool co /etc/login.defs</pre> 
9. <input type="checkbox"/>	Edit login.defs file	<p><b>Shadow password suite configuration</b></p> <ol style="list-style-type: none"> <li>Open the login.defs file. <pre>#vi /etc/login.defs</pre> </li> <li>Change the encrypt method from MD5 to SHA12. <p><b>Current Line:</b></p> <pre>ENCRYPT_METHOD MD5</pre> <p><b>Modified Line:</b></p> <pre>ENCRYPT_METHOD SHA512</pre> <p><b>NOTE:</b> The line to edit is near the bottom of the file.</p> </li> <li>Comment out the following line if necessary. <pre>MD5_CRYPT_ENAB yes</pre> </li> </ol>
10. <input type="checkbox"/>	Save the File	<ul style="list-style-type: none"> <li>If the file required changing <pre>#rcstool ci /etc/login.defs</pre> </li> <li>If the file already was configured <pre>#rcstool unco /etc/login.defs</pre> </li> </ul>
11. <input type="checkbox"/>	Checkout revisions for the libuser.conf file	<p>Checkout the file.</p> <pre># rcstool co /etc/libuser.conf</pre> 
12. <input type="checkbox"/>	Edit the libuser.conf file	<p>Open the libuser.conf file and change the crypt style from md5 to sha12</p> <pre>#vi /etc/libuser.conf</pre> <ul style="list-style-type: none"> <li>Current Line: <pre>crypt_style = md5</pre> </li> <li>Modified Line: <pre>crypt_style = sha512</pre> </li> </ul> <p><b>NOTE:</b> The line to edit is close to the top of the file.</p> <p>After setting the password, the passwords are now successfully encrypted and are using SHA512 (the strongest hash algorithm).</p>
13. <input type="checkbox"/>	Save the File	<ul style="list-style-type: none"> <li>If the file required changing <pre>#rcstool ci /etc/libuser.conf</pre> </li> <li>If the file already was configured <pre>#rcstool unco /etc/libuser.conf</pre> </li> </ul>

## Software Upgrade Procedure

Step	Procedure	Result
14. <input type="checkbox"/>	Set the admusr and root passwords	<ul style="list-style-type: none"><li>• For root user <code>#passwd root</code></li><li>• For admusr user: <code>#passwd admusr</code></li></ul> <p><b>NOTE:</b> After setting the password, the passwords are now successfully encrypted and are using SHA512 (the strongest hash algorithm).</p>
15. <input type="checkbox"/>	Verify	Logout of the current session and then login using the new password credentials.
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

## 5. UPGRADE CMP CLUSTERS (12.1.X TO 12.2)

This procedure will upgrade the Site1 CMP cluster first, and if needed, upgrade the Site2 CMP cluster in a single maintenance window.

### 5.1 Upgrade CMP Clusters Overview

1. Upgrade Primary (Site1) CMP cluster
  - a. Start upgrade on the standby server
  - b. Failover
  - c. Continue upgrade
2. Upgrade Secondary (Site2) CMP cluster
  - d. Start upgrade on the standby server
  - e. Failover
  - f. Continue upgrade

This procedure should not be service affecting, but it is recommended to perform this in a Maintenance window.

It is assumed that the CMPs may be deployed as 2 georedundant clusters, identified as Site1 and Site2 as displayed on the CMP GUI. When deployed as such, one site is designated as the Primary Site (which is the site that is managing the Policy system), and the other is as Secondary site (this site is ready to become Primary site, if needed).

If the System is deployed with only ONE CMP, then the upgrade of the Secondary CMP can be skipped.

Identify the CMP sites to be upgraded, and verify which site is the Primary site and which site is the Secondary site:

CMP Sites	Operator Site Name	Topology Site Designation (Site1 or Site2)	CMP Server-A	CMP Server-B
Primary Site			Server-A Hostname _____	Server-B Hostname _____
			Server-A IP Address _____	Server-B IP Address _____
			Server-A HA Status _____	Server-B HA Status _____
Secondary Site			Server-A Hostname _____	Server-B Hostname _____
			Server-A IP Address _____	Server-B IP Address _____
			Server-A HA Status _____	Server-B HA Status _____

**IMPORTANT:**

- Site1 CMP MUST be upgraded to the new release first, before the Site2 CMP
- CMP servers MUST be upgraded first, before the non-CMP clusters

#### 5.1.1 Upgrade Primary CMP Cluster

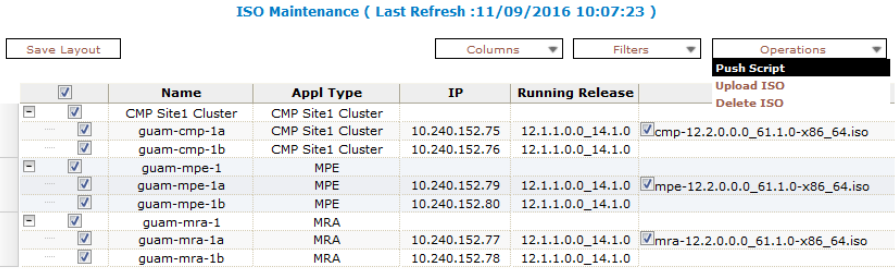
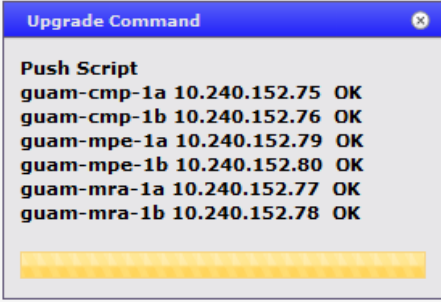
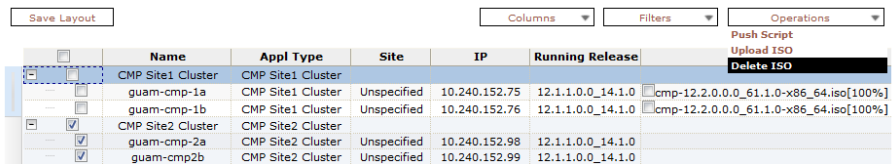
Step	Procedure	Result
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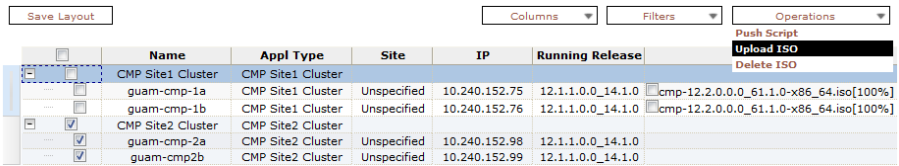
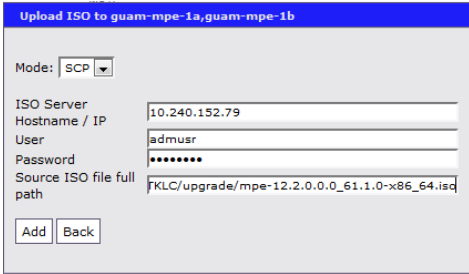
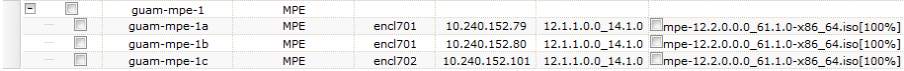
## Software Upgrade Procedure

Step	Procedure	Result
4. <input type="checkbox"/>	<b>SSH CLI Primary Active CMP: Exchange Keys</b>	<ul style="list-style-type: none"> <li>Exchange keys to all servers from the Site1 (Primary) Active CMP. Login as <i>admusr</i> user and execute the following command:</li> </ul> <pre>\$sudo qpSSHKeyProv.pl --prov</pre> <pre>[admusr@guam-cmp-1a ~]\$ sudo qpSSHKeyProv.pl -prov</pre> <p>The password of admusr in topology:</p> <ul style="list-style-type: none"> <li>Enter the password for user <i>admusr</i></li> <li>Ensure that the keys are exchanged successfully with all the server clusters:</li> </ul> <pre>Connecting to admusr@guam-cmp-1a ... Connecting to admusr@guam-mpe-1b ... Connecting to admusr@guam-mra-1b ... Connecting to admusr@guam-mpe-1a ... Connecting to admusr@guam-cmp-1b ... Connecting to admusr@guam-mra-1a ...  [1/6] Provisioning SSH keys on guam-cmp-1a ... [2/6] Provisioning SSH keys on guam-mra-1b ... [3/6] Provisioning SSH keys on guam-mpe-1b ... [4/6] Provisioning SSH keys on guam-mpe-1a ... [5/6] Provisioning SSH keys on guam-cmp-1b ... [6/6] Provisioning SSH keys on guam-mra-1a ...  SSH keys are OK.</pre>

## Software Upgrade Procedure

Step	Procedure	Result																																																												
5. <input type="checkbox"/>	<p><b>CMP GUI:</b> Push the Release 12.2 upgrade scripts to all servers</p>	<p><b>Upgrade → ISO Maintenance</b></p> <ul style="list-style-type: none"> <li>Select all the servers in the topology as shown.</li> <li>Under <b>Operations</b> menu, select the <b>“Push Script”</b> operation.</li> </ul>  <p style="text-align: center;">ISO Maintenance ( Last Refresh :11/09/2016 10:07:23 )</p> <table border="1" data-bbox="553 436 1442 619"> <thead> <tr> <th></th> <th>Name</th> <th>Appl Type</th> <th>IP</th> <th>Running Release</th> <th></th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/></td> <td>CMP Site1 Cluster</td> <td>CMP Site1 Cluster</td> <td></td> <td></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>guam-cmp-1a</td> <td>CMP Site1 Cluster</td> <td>10.240.152.75</td> <td>12.1.1.0.0_14.1.0</td> <td><input checked="" type="checkbox"/> cmp-12.2.0.0.0_61.1.0-x86_64.iso</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>guam-cmp-1b</td> <td>CMP Site1 Cluster</td> <td>10.240.152.76</td> <td>12.1.1.0.0_14.1.0</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>guam-mpe-1</td> <td>MPE</td> <td></td> <td></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>guam-mpe-1a</td> <td>MPE</td> <td>10.240.152.79</td> <td>12.1.1.0.0_14.1.0</td> <td><input checked="" type="checkbox"/> mpe-12.2.0.0.0_61.1.0-x86_64.iso</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>guam-mpe-1b</td> <td>MPE</td> <td>10.240.152.80</td> <td>12.1.1.0.0_14.1.0</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>guam-mra-1</td> <td>MRA</td> <td></td> <td></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>guam-mra-1a</td> <td>MRA</td> <td>10.240.152.77</td> <td>12.1.1.0.0_14.1.0</td> <td><input checked="" type="checkbox"/> mra-12.2.0.0.0_61.1.0-x86_64.iso</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>guam-mra-1b</td> <td>MRA</td> <td>10.240.152.78</td> <td>12.1.1.0.0_14.1.0</td> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> <li>At the popup warning to execute Push Script click <b>“OK”</b> to continue the operation.</li> <li>After a minute or so, a successful popup window similar to this should appear:</li> </ul>  <pre> Upgrade Command Push Script guam-cmp-1a 10.240.152.75 OK guam-cmp-1b 10.240.152.76 OK guam-mpe-1a 10.240.152.79 OK guam-mpe-1b 10.240.152.80 OK guam-mra-1a 10.240.152.77 OK guam-mra-1b 10.240.152.78 OK     </pre>		Name	Appl Type	IP	Running Release		<input checked="" type="checkbox"/>	CMP Site1 Cluster	CMP Site1 Cluster				<input checked="" type="checkbox"/>	guam-cmp-1a	CMP Site1 Cluster	10.240.152.75	12.1.1.0.0_14.1.0	<input checked="" type="checkbox"/> cmp-12.2.0.0.0_61.1.0-x86_64.iso	<input checked="" type="checkbox"/>	guam-cmp-1b	CMP Site1 Cluster	10.240.152.76	12.1.1.0.0_14.1.0		<input checked="" type="checkbox"/>	guam-mpe-1	MPE				<input checked="" type="checkbox"/>	guam-mpe-1a	MPE	10.240.152.79	12.1.1.0.0_14.1.0	<input checked="" type="checkbox"/> mpe-12.2.0.0.0_61.1.0-x86_64.iso	<input checked="" type="checkbox"/>	guam-mpe-1b	MPE	10.240.152.80	12.1.1.0.0_14.1.0		<input checked="" type="checkbox"/>	guam-mra-1	MRA				<input checked="" type="checkbox"/>	guam-mra-1a	MRA	10.240.152.77	12.1.1.0.0_14.1.0	<input checked="" type="checkbox"/> mra-12.2.0.0.0_61.1.0-x86_64.iso	<input checked="" type="checkbox"/>	guam-mra-1b	MRA	10.240.152.78	12.1.1.0.0_14.1.0	
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6. <input type="checkbox"/>	<p><b>CMP GUI Access into Primary CMP Server—</b> Remove old ISO files from servers.</p>	<p><b>Upgrade → ISO Maintenance</b></p> <ol style="list-style-type: none"> <li>Select the servers that show old ISO files.</li> <li>Select the server cluster and select <b>Operations →Delete ISO</b> to remove any older ISO files.</li> </ol>  <table border="1" data-bbox="553 1266 1442 1386"> <thead> <tr> <th></th> <th>Name</th> <th>Appl Type</th> <th>Site</th> <th>IP</th> <th>Running Release</th> <th></th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/></td> <td>CMP Site1 Cluster</td> <td>CMP Site1 Cluster</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>guam-cmp-1a</td> <td>CMP Site1 Cluster</td> <td>Unspecified</td> <td>10.240.152.75</td> <td>12.1.1.0.0_14.1.0</td> <td><input checked="" type="checkbox"/> cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>guam-cmp-1b</td> <td>CMP Site1 Cluster</td> <td>Unspecified</td> <td>10.240.152.76</td> <td>12.1.1.0.0_14.1.0</td> <td><input checked="" type="checkbox"/> cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>CMP Site2 Cluster</td> <td>CMP Site2 Cluster</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>guam-cmp-2a</td> <td>CMP Site2 Cluster</td> <td>Unspecified</td> <td>10.240.152.98</td> <td>12.1.1.0.0_14.1.0</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>guam-cmp-2b</td> <td>CMP Site2 Cluster</td> <td>Unspecified</td> <td>10.240.152.99</td> <td>12.1.1.0.0_14.1.0</td> <td></td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>Click <b>OK</b> to continue and wait until seeing the successful deletion message</li> <li>Wait until the ISO Maintenance page is refreshed and the ISO column doesn't show any old ISOs.</li> </ol>		Name	Appl Type	Site	IP	Running Release		<input checked="" type="checkbox"/>	CMP Site1 Cluster	CMP Site1 Cluster					<input checked="" type="checkbox"/>	guam-cmp-1a	CMP Site1 Cluster	Unspecified	10.240.152.75	12.1.1.0.0_14.1.0	<input checked="" type="checkbox"/> cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]	<input checked="" type="checkbox"/>	guam-cmp-1b	CMP Site1 Cluster	Unspecified	10.240.152.76	12.1.1.0.0_14.1.0	<input checked="" type="checkbox"/> cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]	<input checked="" type="checkbox"/>	CMP Site2 Cluster	CMP Site2 Cluster					<input checked="" type="checkbox"/>	guam-cmp-2a	CMP Site2 Cluster	Unspecified	10.240.152.98	12.1.1.0.0_14.1.0		<input checked="" type="checkbox"/>	guam-cmp-2b	CMP Site2 Cluster	Unspecified	10.240.152.99	12.1.1.0.0_14.1.0												
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## Software Upgrade Procedure

Step	Procedure	Result
7. <input type="checkbox"/>	<p>CMP GUI: Distribute ISO files to CMP/MPE /MRA/etc., servers</p> <p><b>NOTE:</b> This step depends on the ISO file type. Distribute ISO files accordingly.</p>	<p><b>Upgrade → ISO Maintenance</b></p> <ol style="list-style-type: none"> <li>Filter by server type (optional, but preferred step)</li> <li>One application at a time, select one server type (CMP, MPE, etc.) to be upgraded.           <p><b>NOTE:</b> The ISO files for each application type must already be copied over to at least one server.</p> </li> <li>Select <b>Operations → Upload ISO</b></li> </ol>  <ol style="list-style-type: none"> <li>Fill in the dialog with the following information:           <p>Mode: Select <b>SCP</b></p> <p>ISO Server Hostname/IP: &lt;IP_address_where_ISO_files_are_located&gt;</p> <p>User: admusr</p> <p>Password: &lt;admusr_password_for_the_server&gt;</p> <p>Source ISO file full path: /var/TKLC/upgrade/ &lt;server_type_iso_filename&gt;</p> </li> </ol>  <ol style="list-style-type: none"> <li>Click <b>Add</b>.</li> </ol> <p>When completed, the ISO column will be populated with the ISO filename and a notification of [100%]</p>  <p>Repeat for all cluster types.</p>

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8. <input type="checkbox"/>	<b>CMP GUI:</b> Verify ISO distribution to all the server	<p><b>Upgrade → ISO Maintenance</b></p> <ul style="list-style-type: none"> <li>Verify that the release 12.2 ISO file of the correct type is shown for each server.</li> <li>When completed, the ISO column is populated with the ISO filename and a notification of [100%]</li> </ul> <p><b>NOTE:</b> For those servers where the ISO file was copied from the local machine, there will not be a 100% indicator. This indicator is only available when transferring ISO files using the ISO management feature.</p> <table border="1" data-bbox="548 464 1446 737"> <thead> <tr> <th>Name</th> <th>Appl Type</th> <th>Site</th> <th>IP</th> <th>Running Release</th> <th>ISO</th> </tr> </thead> <tbody> <tr> <td>CMP Site1 Cluster</td> <td>CMP Site1 Cluster</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>guam-cmp-1a</td> <td>CMP Site1 Cluster</td> <td>Unspecified</td> <td>10.240.152.75</td> <td>12.1.1.0.0_14.1.0</td> <td>cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>guam-cmp-1b</td> <td>CMP Site1 Cluster</td> <td>Unspecified</td> <td>10.240.152.76</td> <td>12.1.1.0.0_14.1.0</td> <td>cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>CMP Site2 Cluster</td> <td>CMP Site2 Cluster</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>guam-cmp-2a</td> <td>CMP Site2 Cluster</td> <td>Unspecified</td> <td>10.240.152.98</td> <td>12.1.1.0.0_14.1.0</td> <td>cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>guam-cmp-2b</td> <td>CMP Site2 Cluster</td> <td>Unspecified</td> <td>10.240.152.99</td> <td>12.1.1.0.0_14.1.0</td> <td>cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>guam-mpe-1</td> <td>MPE</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>guam-mpe-1a</td> <td>MPE</td> <td>encl701</td> <td>10.240.152.79</td> <td>12.1.1.0.0_14.1.0</td> <td>mpe-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>guam-mpe-1b</td> <td>MPE</td> <td>encl701</td> <td>10.240.152.80</td> <td>12.1.1.0.0_14.1.0</td> <td>mpe-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>guam-mpe-1c</td> <td>MPE</td> <td>encl702</td> <td>10.240.152.101</td> <td>12.1.1.0.0_14.1.0</td> <td>mpe-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>guam-mra-1</td> <td>MRA</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>guam-mra-1a</td> <td>MRA</td> <td>encl701</td> <td>10.240.152.77</td> <td>12.1.1.0.0_14.1.0</td> <td>mra-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>guam-mra-1b</td> <td>MRA</td> <td>encl701</td> <td>10.240.152.78</td> <td>12.1.1.0.0_14.1.0</td> <td>mra-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>guam-mra-1c</td> <td>MRA</td> <td>encl702</td> <td>10.240.152.100</td> <td>12.1.1.0.0_14.1.0</td> <td>mra-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> </tbody> </table>	Name	Appl Type	Site	IP	Running Release	ISO	CMP Site1 Cluster	CMP Site1 Cluster					guam-cmp-1a	CMP Site1 Cluster	Unspecified	10.240.152.75	12.1.1.0.0_14.1.0	cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]	guam-cmp-1b	CMP Site1 Cluster	Unspecified	10.240.152.76	12.1.1.0.0_14.1.0	cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]	CMP Site2 Cluster	CMP Site2 Cluster					guam-cmp-2a	CMP Site2 Cluster	Unspecified	10.240.152.98	12.1.1.0.0_14.1.0	cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]	guam-cmp-2b	CMP Site2 Cluster	Unspecified	10.240.152.99	12.1.1.0.0_14.1.0	cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]	guam-mpe-1	MPE					guam-mpe-1a	MPE	encl701	10.240.152.79	12.1.1.0.0_14.1.0	mpe-12.2.0.0.0_61.1.0-x86_64.iso[100%]	guam-mpe-1b	MPE	encl701	10.240.152.80	12.1.1.0.0_14.1.0	mpe-12.2.0.0.0_61.1.0-x86_64.iso[100%]	guam-mpe-1c	MPE	encl702	10.240.152.101	12.1.1.0.0_14.1.0	mpe-12.2.0.0.0_61.1.0-x86_64.iso[100%]	guam-mra-1	MRA					guam-mra-1a	MRA	encl701	10.240.152.77	12.1.1.0.0_14.1.0	mra-12.2.0.0.0_61.1.0-x86_64.iso[100%]	guam-mra-1b	MRA	encl701	10.240.152.78	12.1.1.0.0_14.1.0	mra-12.2.0.0.0_61.1.0-x86_64.iso[100%]	guam-mra-1c	MRA	encl702	10.240.152.100	12.1.1.0.0_14.1.0	mra-12.2.0.0.0_61.1.0-x86_64.iso[100%]
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9. <input type="checkbox"/>	<b>Primary Active CMP:</b> ssh to primary active CMP and copy iso to /var/camiant/iso	<ol style="list-style-type: none"> <li>Logon to the primary active CMP as <i>admusr</i> and copy the 12.2 ISO file to the /var/camiant/iso directory:  <pre>\$sudo cp /var/TKLC/upgrade/cmp-12.2.x.x.iso /var/camiant/iso/</pre> </li> <li>Verify the copy by using the following command:  <pre>\$ ls /var/camiant/iso/</pre> </li> </ol>																																																																																										



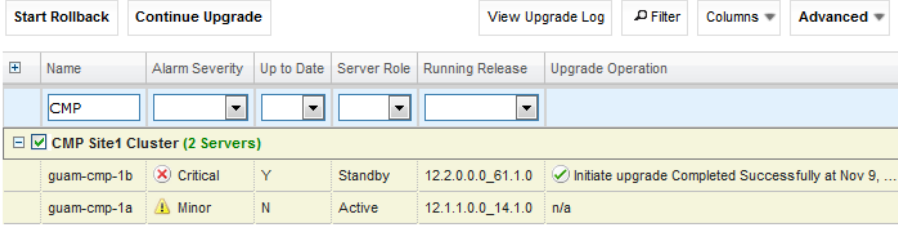
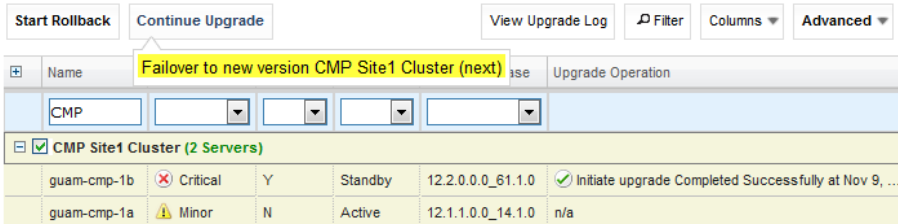
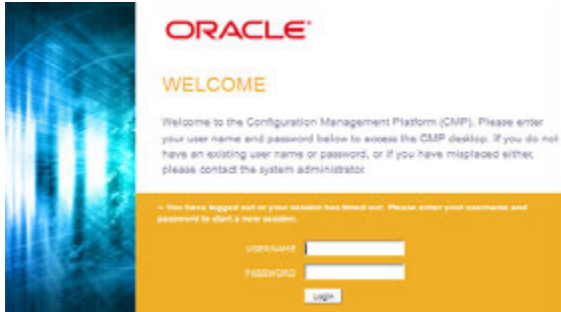
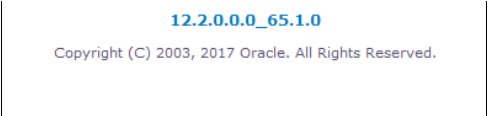
## Software Upgrade Procedure

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10. <input type="checkbox"/>	CMP GUI: Locate the new 12.2 upgrade manual	<p><b>Upgrade → Upgrade Manager</b></p> <ol style="list-style-type: none"> <li>Select the <b>Current ISO</b>. In this case it is labeled Install Kit.           <div data-bbox="581 289 1409 420" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;"><b>Upgrade Manager</b></p> <p style="text-align: right;">Current ISO: <b>Install Kit</b></p> <p>Start Rollback   Start Upgrade   View Upgrade Log   Filter   Columns   Advanced</p> </div> <p>A dialog box with a description of the ISO file that was copied into the /var/camiant/iso directory opens.</p> </li> <li>Highlight the ISO file and click the “Select incremental-upgrade-12.2...” button located in the bottom right-hand corner of the window.           <div data-bbox="613 571 1380 856" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;"><b>Select ISOs</b></p> <p>Last Updated: 11/9/2016 11:10:49 <span style="float: right;">Filter   Columns</span></p> <p>Please select one of the following options:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Label</th> <th>Release</th> <th>File Path</th> <th>Description</th> </tr> </thead> <tbody> <tr style="background-color: #e0e0e0;"> <td>incremental-upgrade...</td> <td>12.2.0.0.0_61.1.0</td> <td>/var/camiant/iso/cmp-12.2.0.0.0_61.1.0-x86_64.iso</td> <td>This kit is used to perform ...</td> </tr> </tbody> </table> <p style="text-align: right; margin-top: 10px;">Select incremental-upgrade-12.2.0.0.0_61.1.0 ISO</p> </div> </li> <li>When the confirmations message displays, click <b>OK</b>.           <p>Within a few seconds, the Up to Date column transition from Y (meaning up-to-date) or N (meaning needs upgrade).</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th><input type="checkbox"/></th> <th>Name</th> <th>Alarm Severity</th> <th style="background-color: yellow;">Up to Date</th> <th>Server Role</th> <th>Running Release</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/></td> <td colspan="2"><b>CMP Site1 Cluster (2 Servers)</b></td> <td></td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td>guam-cmp-1b</td> <td></td> <td style="background-color: yellow;">N</td> <td>Standby</td> <td>12.1.1.0.0_14.1.0</td> </tr> <tr> <td><input type="checkbox"/></td> <td>guam-cmp-1a</td> <td></td> <td style="background-color: yellow;">N</td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> </tr> </tbody> </table> </li> </ol>	Label	Release	File Path	Description	incremental-upgrade...	12.2.0.0.0_61.1.0	/var/camiant/iso/cmp-12.2.0.0.0_61.1.0-x86_64.iso	This kit is used to perform ...	<input type="checkbox"/>	Name	Alarm Severity	Up to Date	Server Role	Running Release	<input type="checkbox"/>	<b>CMP Site1 Cluster (2 Servers)</b>					<input type="checkbox"/>	guam-cmp-1b		N	Standby	12.1.1.0.0_14.1.0	<input type="checkbox"/>	guam-cmp-1a		N	Active	12.1.1.0.0_14.1.0
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<p>11. <input type="checkbox"/></p>	<p><b>CMP GUI:</b> Upgrade Primary CMP cluster</p> <p><b>NOTE:</b> This will take approximately 30 minutes to complete.</p>	<p><b>Upgrade → Upgrade Manager</b></p> <p><b>NOTE:</b> The <b>Filter</b> button can be used to show only the CMP servers. Enter in CMP in the Name field.</p> <div data-bbox="553 325 1446 651" style="border: 1px solid #ccc; padding: 5px;"> <p style="text-align: right;">Current ISO: <a href="#">incremental-upgrade-12.2.0.0.0 61.1.0</a></p> <p>Start Rollback Start Upgrade View Upgrade Log <b>Filter</b> Columns Advanced</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Name</th> <th>Alarm Severity</th> <th>Up to Date</th> <th>Server Role</th> <th>Running Release</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td>CMP</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="6">CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td>guam-cmp-1b</td> <td></td> <td>N</td> <td>Standby</td> <td>12.1.1.0.0_14.1.0</td> <td>n/a</td> </tr> <tr> <td>guam-cmp-1a</td> <td></td> <td>N</td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> <td>n/a</td> </tr> </tbody> </table> </div> <ol style="list-style-type: none"> <li>1. Select the checkbox for the Primary CMP Server cluster</li> <li>2. Click <b>Start Upgrade</b>.</li> </ol> <div data-bbox="812 745 1182 856" style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;"> <p>Start Rollback Start Upgrade</p> <p>Initiate upgrade CMP-2 (next) Up to Server R</p> <p>cmp</p> <p>CMP Site1 Cluster (2 Servers)</p> </div> <ol style="list-style-type: none"> <li>3. Click <b>OK</b> to confirm and continue with the operation.</li> </ol> <p>The specific action taken will be determined by the Upgrade Manager and based on the specific version change being performed.</p> <p>This will continue to upgrade the standby server only in the CMP cluster</p> <p>The Upgrade Operation column shows a progress bar along with the upgrade activities.</p> <div data-bbox="787 1075 1205 1209" style="border: 1px solid #ccc; padding: 5px; margin: 10px 0;"> <p>Upgrade Operation</p> <p>[Step 2/3] 0% Initiate upgrade - Upgrading server (Elapsed Time: 0:0...</p> <p>Initiate upgrade Completed Successfully at Sep 18, 2015 14:10:18.</p> </div> <p>Upgrade Operation will change to completed when done.</p> <p>During the upgrade activities, the following alarms may be generated and considered normal reporting events.</p> <p><b>Expected Critical alarm</b></p> <ul style="list-style-type: none"> <li>31283 Lost Communication with server</li> <li>31227 HA availability status failed</li> <li>70025 QP Slave database is a different version than the master</li> <li>70001 QP_procmgr failed</li> </ul> <p><b>Expected Major Alarm</b></p> <ul style="list-style-type: none"> <li>70004 QP Processes down for maintenance</li> </ul> <p><b>Expected Minor Database replication Alarms</b></p> <ul style="list-style-type: none"> <li>70503 Server Forced Standby</li> <li>70507 Upgrade In Progress</li> <li>70500 System Mixed Version</li> <li>70501 Cluster Mixed Version</li> <li>31106 Database merge to parent failure</li> <li>31107 Database merge from child failure</li> <li>31101 Database replication to slave failure</li> <li>31114 DB replication over SOAP has failed</li> <li>31282 HA Management Fault</li> </ul> <div data-bbox="553 2032 1446 2074" style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p>Start Rollback Continue Upgrade View Upgrade Log Filter Columns Advanced</p> </div>	Name	Alarm Severity	Up to Date	Server Role	Running Release	Upgrade Operation	CMP						CMP Site1 Cluster (2 Servers)						guam-cmp-1b		N	Standby	12.1.1.0.0_14.1.0	n/a	guam-cmp-1a		N	Active	12.1.1.0.0_14.1.0	n/a
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Upgrade is complete on the first CMP server in the cluster when the 'Initiate upgrade Completed successfully at...' message appears in the Upgrade Operation column.

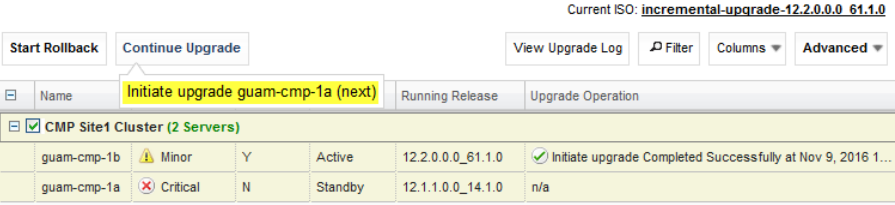
## Software Upgrade Procedure

Step	Procedure	Result
12. <input type="checkbox"/>	<b>CMP GUI:</b> Verify that the upgrade is successful	<p><b>Upgrade → Upgrade Manager</b></p> <p>View the cluster.</p> <p>Verify the following information:</p> <ul style="list-style-type: none"> <li>The standby server is on 12.2</li> <li>The other server in the cluster is on 12.1.x</li> <li>The Up to Date column shows Y for the 12.2 server and N for the 12.0 server.</li> </ul> 
13. <input type="checkbox"/>	<b>CMP GUI:</b> Continue to upgrade CMP cluster	<p><b>Upgrade → Upgrade Manager</b></p> <ol style="list-style-type: none"> <li>Select the checkbox for the Primary CMP Server cluster</li> <li>Click <b>Continue Upgrade</b>. Notice the message 'Failover to new version...'</li> </ol>  <ol style="list-style-type: none"> <li>Click <b>OK</b> to confirm and continue with the operation.</li> </ol> <p>The specific action will take a minute to complete.</p>
14. <input type="checkbox"/>	<b>CMP GUI:</b> Login to the CMP server VIP	<p>Close the current CMP GUI browser tab and reopen another browser tab with the same CMP VIP address.</p> <p>The Policy Management release 12.2 CMP GUI login form should appear as shown—login and password credentials are the same as the pre-upgrade.</p> 
15. <input type="checkbox"/>	<b>CMP GUI:</b> Verify new Policy Management release	<p>Navigate to <b>Help→About</b>. Verify the release displayed is 12.2</p> 

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16. <input type="checkbox"/>	<b>CMP GUI: Critical alarms</b>	<p>Critical alarm <b>70025, QP Slave database is a different version than the master</b>, is seen until the SQL Database matches the master (12.2). This alarm is expected and remains until all CMP servers are upgraded to the same version.</p> <p><b>Current Critical Alarms</b></p> <table border="1" data-bbox="643 354 1352 508"> <thead> <tr> <th colspan="4">3 Alarms found, displaying all Alarms.</th> </tr> <tr> <th>Occurrence</th> <th>Severity</th> <th>Alarm ID</th> <th>Text</th> </tr> </thead> <tbody> <tr> <td>Sep 28, 2015 07:44 PM EDT</td> <td>Critical</td> <td>70025</td> <td>The MySQL slave has a different schema version than the master.</td> </tr> <tr> <td>Sep 28, 2015 07:44 PM EDT</td> <td>Critical</td> <td>70025</td> <td>The MySQL slave has a different schema version than the master.</td> </tr> <tr> <td>Sep 28, 2015 07:44 PM EDT</td> <td>Critical</td> <td>70025</td> <td>The MySQL slave has a different schema version than the master.</td> </tr> </tbody> </table> <p><b>Current Minor Alarms</b></p> <table border="1" data-bbox="647 569 1346 718"> <thead> <tr> <th colspan="4">3 Alarms found, displaying all Alarms.</th> </tr> <tr> <th>Occurrence</th> <th>Severity</th> <th>Alarm ID</th> <th>Text</th> </tr> </thead> <tbody> <tr> <td>Sep 28, 2015 07:43 PM EDT</td> <td>Minor</td> <td>70503</td> <td>The server is in forced standby</td> </tr> <tr> <td>Sep 28, 2015 07:43 PM EDT</td> <td>Minor</td> <td>70501</td> <td>The Cluster is running different versions of software</td> </tr> <tr> <td>Sep 28, 2015 07:43 PM EDT</td> <td>Minor</td> <td>70500</td> <td>The system is running different versions of software</td> </tr> </tbody> </table> <p><b>NOTE:</b> The Upgrade Manager will show alarms as well.</p>	3 Alarms found, displaying all Alarms.				Occurrence	Severity	Alarm ID	Text	Sep 28, 2015 07:44 PM EDT	Critical	70025	The MySQL slave has a different schema version than the master.	Sep 28, 2015 07:44 PM EDT	Critical	70025	The MySQL slave has a different schema version than the master.	Sep 28, 2015 07:44 PM EDT	Critical	70025	The MySQL slave has a different schema version than the master.	3 Alarms found, displaying all Alarms.				Occurrence	Severity	Alarm ID	Text	Sep 28, 2015 07:43 PM EDT	Minor	70503	The server is in forced standby	Sep 28, 2015 07:43 PM EDT	Minor	70501	The Cluster is running different versions of software	Sep 28, 2015 07:43 PM EDT	Minor	70500	The system is running different versions of software
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17. <input type="checkbox"/>	<b>CMP GUI: Verify the Policy Management release 12.2 CMP is Active</b>	<p><b>Upgrade → Upgrade Manager</b></p> <p>Verify the following</p> <ul style="list-style-type: none"> <li>Active server is running release 12.2</li> <li>Standby server is on the previous release</li> </ul> <table border="1" data-bbox="555 959 1446 1081"> <thead> <tr> <th>Name</th> <th>Alarm Severity</th> <th>Up to Date</th> <th>Server Role</th> <th>Running Release</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td colspan="6">CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td>guam-cmp-1b</td> <td>Minor</td> <td>Y</td> <td>Active</td> <td>12.2.0.0_0_61.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 9, 2...</td> </tr> <tr> <td>guam-cmp-1a</td> <td>Critical</td> <td>N</td> <td>Standby</td> <td>12.1.1.0.0_14.1.0</td> <td>n/a</td> </tr> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Running Release	Upgrade Operation	CMP Site1 Cluster (2 Servers)						guam-cmp-1b	Minor	Y	Active	12.2.0.0_0_61.1.0	Initiate upgrade Completed Successfully at Nov 9, 2...	guam-cmp-1a	Critical	N	Standby	12.1.1.0.0_14.1.0	n/a																
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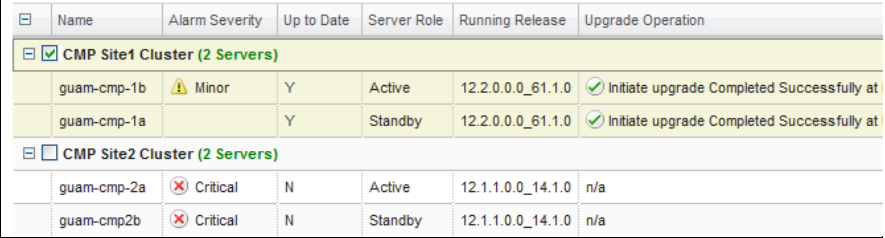
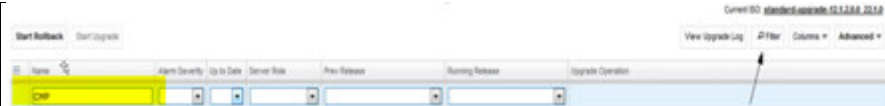
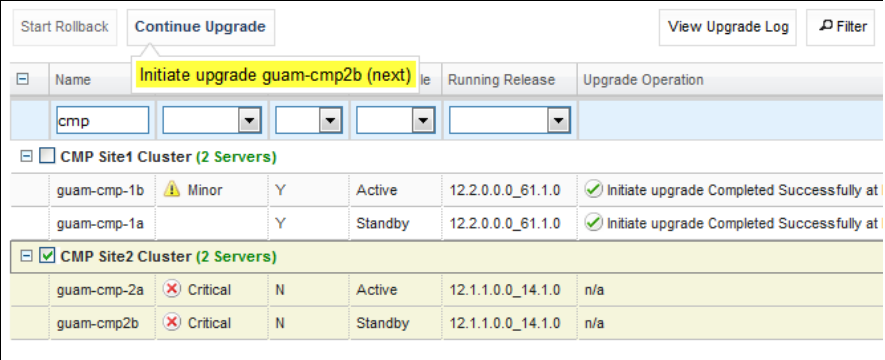
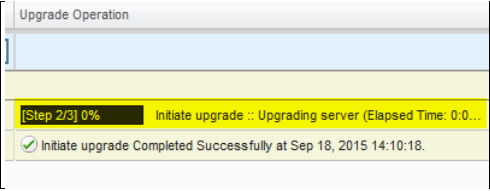
## Software Upgrade Procedure

Step	Procedure	Result
18. <input type="checkbox"/>	<p><b>CMP GUI:</b> Complete the upgrade of the Primary CMP cluster</p> <p><b>NOTE:</b> Remaining CMP server will take approximately 30 minutes to complete.</p>	<p><b>Upgrade → Upgrade Manager</b></p> <ol style="list-style-type: none"> <li>Select the checkbox for the Primary CMP Server cluster</li> <li>Click <b>Continue Upgrade</b>. Notice the message 'Initiate upgrade &lt;standbyserver&gt; (next)' when hovering over the button.</li> </ol>  <ol style="list-style-type: none"> <li>Click <b>OK</b> to continue the upgrade on the remaining server in the CMP cluster</li> </ol> <p><b>NOTE:</b> The server that is being upgraded will go into an OOS state.</p> <p><b>Expected Critical Alarms</b></p> <ul style="list-style-type: none"> <li><b>31227</b> HA availability status failed</li> <li><b>31283</b> Lost Communication with server</li> <li><b>70001</b> QP_procmgr failed</li> <li><b>70025</b> QP Slave database is a different version than the master</li> </ul> <p><b>Expected Major Alarm</b></p> <ul style="list-style-type: none"> <li><b>70004</b> QP Processes down for maintenance</li> </ul> <p><b>Expected Minor Alarms</b></p> <ul style="list-style-type: none"> <li><b>70503</b> Server Forced Standby</li> <li><b>70507</b> Upgrade In Progress</li> <li><b>70500</b> System Mixed Version</li> <li><b>70501</b> Cluster Mixed Version</li> <li><b>31114</b> DB replication over SOAP has failed</li> <li><b>31106</b> Database merge to parent failure</li> <li><b>31107</b> Database merge from child failure</li> <li><b>31101</b> Database replication to slave failure</li> <li><b>31282</b> HA Management Fault</li> </ul>

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19. <input type="checkbox"/>	CMP GUI: Tracking the upgrade complete	<p><b>Upgrade → Upgrade Manager</b></p> <p>The last step in the upgrade for the first CMP cluster will be to wait for replication to complete.</p> <p>With the CMP cluster checkbox still checked, click on the “View Upgrade Log” button, a popup window will appear where you can verify that synchronization has taken place:</p> <p style="text-align: center;"><b>Upgrade Log</b></p> <p>Cluster Name: CMP Site1 Cluster Last Update: 11/10/2016 9:01:00</p> <table border="1"> <thead> <tr> <th>ID</th> <th>Parent ID</th> <th>Action Name</th> <th>Duration</th> <th>Scope</th> <th>Hostname</th> <th>Result</th> <th>Mode</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> <td>Preflight Check</td> <td>0:00:15</td> <td>Server</td> <td>guam-cmp-1b</td> <td>Success</td> <td>Manual</td> </tr> <tr> <td>2</td> <td>1</td> <td>Upgrading server</td> <td>0:22:00</td> <td>Server</td> <td>guam-cmp-1b</td> <td>Success</td> <td>Automatic</td> </tr> <tr> <td>3</td> <td>1</td> <td>Modify the role/replication attributes of the server</td> <td>0:00:01</td> <td>Cluster</td> <td>CMP Site1 Cluster</td> <td>Success</td> <td>Automatic</td> </tr> <tr> <td>4</td> <td>1</td> <td>Wait for replication to synchronize</td> <td>0:00:09</td> <td>Server</td> <td>guam-cmp-1b</td> <td>Success</td> <td>Automatic</td> </tr> <tr> <td>5</td> <td>0</td> <td>Failover to new version</td> <td>0:00:00</td> <td>Cluster</td> <td>CMP Site1 Cluster</td> <td>Success</td> <td>Manual</td> </tr> <tr> <td>6</td> <td>0</td> <td>Preflight Check</td> <td>0:00:15</td> <td>Server</td> <td>guam-cmp-1a</td> <td>Success</td> <td>Manual</td> </tr> <tr> <td>7</td> <td>6</td> <td>Upgrading server</td> <td>0:21:50</td> <td>Server</td> <td>guam-cmp-1a</td> <td>Success</td> <td>Automatic</td> </tr> <tr> <td>8</td> <td>6</td> <td>Modify the role/replication attributes of the server</td> <td>0:00:01</td> <td>Cluster</td> <td>CMP Site1 Cluster</td> <td>Success</td> <td>Automatic</td> </tr> <tr> <td>9</td> <td>6</td> <td>Wait for replication to synchronize</td> <td>0:00:29</td> <td>Server</td> <td>guam-cmp-1a</td> <td>Success</td> <td>Automatic</td> </tr> <tr> <td>10</td> <td>6</td> <td>Modify the role/replication attributes of the server</td> <td>0:00:01</td> <td>Cluster</td> <td>CMP Site1 Cluster</td> <td>Success</td> <td>Automatic</td> </tr> </tbody> </table>	ID	Parent ID	Action Name	Duration	Scope	Hostname	Result	Mode	1	0	Preflight Check	0:00:15	Server	guam-cmp-1b	Success	Manual	2	1	Upgrading server	0:22:00	Server	guam-cmp-1b	Success	Automatic	3	1	Modify the role/replication attributes of the server	0:00:01	Cluster	CMP Site1 Cluster	Success	Automatic	4	1	Wait for replication to synchronize	0:00:09	Server	guam-cmp-1b	Success	Automatic	5	0	Failover to new version	0:00:00	Cluster	CMP Site1 Cluster	Success	Manual	6	0	Preflight Check	0:00:15	Server	guam-cmp-1a	Success	Manual	7	6	Upgrading server	0:21:50	Server	guam-cmp-1a	Success	Automatic	8	6	Modify the role/replication attributes of the server	0:00:01	Cluster	CMP Site1 Cluster	Success	Automatic	9	6	Wait for replication to synchronize	0:00:29	Server	guam-cmp-1a	Success	Automatic	10	6	Modify the role/replication attributes of the server	0:00:01	Cluster	CMP Site1 Cluster	Success	Automatic
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9	6	Wait for replication to synchronize	0:00:29	Server	guam-cmp-1a	Success	Automatic																																																																																			
10	6	Modify the role/replication attributes of the server	0:00:01	Cluster	CMP Site1 Cluster	Success	Automatic																																																																																			
20. <input type="checkbox"/>	CMP GUI: Verify the status of upgraded CMP server.	<p><b>Upgrade Manager → Upgrade Manager</b></p> <table border="1"> <thead> <tr> <th>Name</th> <th>Alarm Severity</th> <th>Up to Date</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td colspan="7"><b>✓ CMP Site1 Cluster (2 Servers)</b></td> </tr> <tr> <td>guam-cmp-1b</td> <td>Minor</td> <td>Y</td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> <td>✓ Initiate upgrade Completed Successfully at...</td> </tr> <tr> <td>guam-cmp-1a</td> <td></td> <td>Y</td> <td>Standby</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> <td>✓ Initiate upgrade Completed Successfully at...</td> </tr> </tbody> </table> <p>Successful upgrade status will show the following for both servers in the Primary CMP cluster:</p> <ul style="list-style-type: none"> <li>• 12.2 in the Running Release column for both servers</li> <li>• A Y in the Up to Date column</li> </ul> <p style="text-align: center;"><u>Active or Standby state for both servers in the Primary CMP cluster.</u></p>	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation	<b>✓ CMP Site1 Cluster (2 Servers)</b>							guam-cmp-1b	Minor	Y	Active	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	✓ Initiate upgrade Completed Successfully at...	guam-cmp-1a		Y	Standby	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	✓ Initiate upgrade Completed Successfully at...																																																												
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guam-cmp-1a		Y	Standby	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	✓ Initiate upgrade Completed Successfully at...																																																																																				
21. <input type="checkbox"/>	Proceed to next upgrade procedure	<p>Verify the following information:</p> <ul style="list-style-type: none"> <li>• Primary Site1 is running release 12.2</li> <li>• Secondary Site is on release 12.1.x</li> <li>• Proceed to the next procedure to upgrade the secondary CMP cluster.</li> </ul> <p style="text-align: center;"><b>THIS PROCEDURE HAS BEEN COMPLETED</b></p>																																																																																								

### 5.1.2 Upgrade Secondary CMP Cluster

Step	Procedure	Result																																										
1. <input type="checkbox"/>	<p><b>CMP GUI:</b> Verify status of CMP cluster</p>	<p><b>Upgrade → Upgrade Manager</b></p> <ul style="list-style-type: none"> <li>Primary CMP is completely upgraded to 12.2</li> <li>Secondary CMP cluster is on 12.1.x</li> </ul>  <table border="1"> <thead> <tr> <th>Name</th> <th>Alarm Severity</th> <th>Up to Date</th> <th>Server Role</th> <th>Running Release</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td colspan="6"><b>CMP Site1 Cluster (2 Servers)</b></td> </tr> <tr> <td>guam-cmp-1b</td> <td>Minor</td> <td>Y</td> <td>Active</td> <td>12.2.0.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> <tr> <td>guam-cmp-1a</td> <td></td> <td>Y</td> <td>Standby</td> <td>12.2.0.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> <tr> <td colspan="6"><b>CMP Site2 Cluster (2 Servers)</b></td> </tr> <tr> <td>guam-cmp-2a</td> <td>Critical</td> <td>N</td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> <td>n/a</td> </tr> <tr> <td>guam-cmp-2b</td> <td>Critical</td> <td>N</td> <td>Standby</td> <td>12.1.1.0.0_14.1.0</td> <td>n/a</td> </tr> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Running Release	Upgrade Operation	<b>CMP Site1 Cluster (2 Servers)</b>						guam-cmp-1b	Minor	Y	Active	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at	guam-cmp-1a		Y	Standby	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at	<b>CMP Site2 Cluster (2 Servers)</b>						guam-cmp-2a	Critical	N	Active	12.1.1.0.0_14.1.0	n/a	guam-cmp-2b	Critical	N	Standby	12.1.1.0.0_14.1.0	n/a
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guam-cmp-2a	Critical	N	Active	12.1.1.0.0_14.1.0	n/a																																							
guam-cmp-2b	Critical	N	Standby	12.1.1.0.0_14.1.0	n/a																																							
2. <input type="checkbox"/>	<p><b>CMP GUI:</b> Upgrade Secondary CMP cluster</p> <p><b>NOTE:</b> This will take approximately 30 minutes to complete.</p>	<p><b>Upgrade → Upgrade Manager</b></p> <p><b>NOTE:</b> The <b>Filter</b> button can be used to show only the CMP servers. Enter CMP on the Name field.</p>  <ol style="list-style-type: none"> <li>Select the checkbox for the Secondary CMP Server cluster at Site2</li> <li>Click <b>Continue Upgrade</b>. When hovering over the button, it will read 'Initiate upgrade &lt;site2_standby&gt; (next)'</li> </ol>  <ol style="list-style-type: none"> <li>Click <b>OK</b> to confirm and continue with the operation.</li> </ol> <p>The specific action taken will be determined by the Upgrade Manager and based on the specific version change being performed.</p> <p>This will continue to upgrade the standby server only in the CMP cluster</p> <p>The Upgrade Operation column shows a progress bar along with the upgrade activities.</p>  <p>During the upgrade activities, the following alarms may be generated and considered normal reporting events:</p>																																										

## Software Upgrade Procedure

		<p><b>Expected Critical alarm</b></p> <p><b>31283</b> Lost Communication with server  <b>70001</b> QP_procmgr failed  <b>70025</b> QP Slave database is a different version than the master</p> <p><b>Expected Major Alarm</b></p> <p><b>70004</b> QP Processes down for maintenance</p> <p><b>Expected Minor Alarms</b></p> <p><b>70503</b> Server Forced Standby  <b>70507</b> Upgrade In Progress  <b>70500</b> System Mixed Version  <b>70501</b> Cluster Mixed Version  <b>31114</b> DB replication over SOAP has failed  <b>31106</b> Database merge to parent failure  <b>31107</b> Database merge from child failure  <b>31101</b> Database replication to slave failure  <b>31282</b> HA Management Fault</p> <p>Upgrade is complete on the standby server of the Site2 CMP cluster when the 'Initiate upgrade Completed successfully at...' message appears in the Upgrade Operation column.</p> <table border="1"> <thead> <tr> <th colspan="7">CMP Site2 Cluster (2 Servers)</th> </tr> </thead> <tbody> <tr> <td>guam-cmp-2a</td> <td></td> <td>Critical</td> <td>N</td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> <td>n/a</td> </tr> <tr> <td>guam-cmp2b</td> <td></td> <td></td> <td>Y</td> <td>Standby</td> <td>12.2.0.0.0_61.1.0</td> <td> Initiate upgrade Completed Successfully at I</td> </tr> </tbody> </table>	CMP Site2 Cluster (2 Servers)							guam-cmp-2a		Critical	N	Active	12.1.1.0.0_14.1.0	n/a	guam-cmp2b			Y	Standby	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at I
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guam-cmp2b			Y	Standby	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at I																	
<p>3. <input type="checkbox"/></p>	<p><b>CMP GUI:</b> Continue upgrade of the Secondary CMP cluster</p>	<p><b>Upgrade → Upgrade Manager</b></p> <ol style="list-style-type: none"> <li>Select the checkbox for the Secondary CMP Server cluster at Site2</li> <li>Click <b>Continue Upgrade</b>. Notice the message 'Failover to new version CMP Site2 Cluster'</li> </ol> <div data-bbox="565 1081 1453 1417"> <p>The screenshot shows the Upgrade Manager interface. At the top, there are buttons for 'Start Rollback', 'Continue Upgrade', 'View Upgrade Log', and 'Filter'. Below this is a table with columns for Name, Status, and Upgrade Operation. A yellow tooltip points to the 'Continue Upgrade' button with the text 'Failover to new version CMP Site2 Cluster (next)'. The table shows three clusters: 'CMP Site1 Cluster (2 Servers)' with servers 'guam-cmp-1b' (Active, Minor alarm) and 'guam-cmp-1a' (Standby); and 'CMP Site2 Cluster (2 Servers)' with servers 'guam-cmp-2a' (Active, Critical alarm) and 'guam-cmp2b' (Standby). The 'Upgrade Operation' column for 'guam-cmp2b' shows a success message.</p> </div> <ol style="list-style-type: none"> <li>Click <b>OK</b> to confirm and continue with the operation.</li> </ol> <p>The failover will take about a minute to complete. Wait until the upgraded server is active, running 12.2 as shown below.</p>																					



## Software Upgrade Procedure

Start Rollback		Continue Upgrade		View Upgrade Log		Filter	
Name	Alarm Severity	Up to Date	Server Role	Running Release	Upgrade Operation		
cmp							
CMP Site1 Cluster (2 Servers)							
guam-cmp-1b	Minor	Y	Active	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at		
guam-cmp-1a		Y	Standby	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at		
CMP Site2 Cluster (2 Servers)							
guam-cmp-2a	Critical	N	Standby	12.1.1.0.0_14.1.0	n/a		
guam-cmp2b		Y	Active	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at		

- Select the checkbox for the Secondary CMP Server cluster at Site2
- Click **Continue Upgrade**. When hovering over the button, the message will display the next action, which is upgrading the remaining CMP in standby, still running 12.1.x.

Start Rollback		Continue Upgrade		View Upgrade Log		Filter	
Name	Alarm Severity	Up to Date	Server Role	Running Release	Upgrade Operation		
cmp							
CMP Site1 Cluster (2 Servers)							
guam-cmp-1b	Minor	Y	Active	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at		
guam-cmp-1a		Y	Standby	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at		
CMP Site2 Cluster (2 Servers)							
guam-cmp-2a	Critical	N	Standby	12.1.1.0.0_14.1.0	n/a		
guam-cmp2b		Y	Active	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at		

- Click **OK** to confirm and continue with the operation.

During the upgrade activities, the following alarms may be generated and considered normal reporting events.

### Expected Critical alarm

- 31283** Lost Communication with server
- 70001** QP\_procmgr failed
- 70025** QP Slave database is a different version than the master

### Expected Major Alarm

- 70004** QP Processes down for maintenance

### Expected Minor Alarms

- 70503** Server Forced Standby
- 70507** Upgrade In Progress
- 70500** System Mixed Version
- 70501** Cluster Mixed Version
- 31114** DB replication over SOAP has failed
- 31106** Database merge to parent failure
- 31107** Database merge from child failure
- 31101** Database replication to slave failure
- 31282** HA Management Fault

## Software Upgrade Procedure

<p>4. <input type="checkbox"/></p>	<p><b>CMP GUI:</b> Verify that the upgrade completed successfully.</p>	<p><b>Upgrade → Upgrade Manager</b></p> <p>Successful upgrade status will show release 12.2 in the Running Release column and the Upgrade Operation.</p> <p>The Upgrade Operation column will show 'Initiate Upgrade Completed Successfully at..' with the correct date and time.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 5px;"> <p>Start Rollback    Start Upgrade    <span style="float: right;">View Upgrade Log    Filter</span></p> </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Name</th> <th style="width: 15%;">Alarm Severity</th> <th style="width: 10%;">Up to Date</th> <th style="width: 10%;">Server Role</th> <th style="width: 15%;">Running Release</th> <th style="width: 35%;">Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td>cmp</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="6"> <input type="checkbox"/> <b>CMP Site1 Cluster (2 Servers)</b> </td> </tr> <tr> <td>guam-cmp-1b</td> <td>Minor</td> <td>Y</td> <td>Active</td> <td>12.2.0.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> <tr> <td>guam-cmp-1a</td> <td></td> <td>Y</td> <td>Standby</td> <td>12.2.0.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> <tr> <td colspan="6"> <input checked="" type="checkbox"/> <b>CMP Site2 Cluster (2 Servers)</b> </td> </tr> <tr> <td>guam-cmp-2a</td> <td></td> <td>Y</td> <td>Standby</td> <td>12.2.0.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> <tr> <td>guam-cmp2b</td> <td></td> <td>Y</td> <td>Active</td> <td>12.2.0.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Running Release	Upgrade Operation	cmp						<input type="checkbox"/> <b>CMP Site1 Cluster (2 Servers)</b>						guam-cmp-1b	Minor	Y	Active	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at	guam-cmp-1a		Y	Standby	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at	<input checked="" type="checkbox"/> <b>CMP Site2 Cluster (2 Servers)</b>						guam-cmp-2a		Y	Standby	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at	guam-cmp2b		Y	Active	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at
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guam-cmp2b		Y	Active	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at																																													
<p>5. <input type="checkbox"/></p>	<p><b>CMP GUI:</b> Verify alarms</p>	<p><b>System Wide Reports → Alarms → Active Alarms</b></p> <p><b><u>Expected Minor Alarms</u></b></p> <p><b>70500 System Mixed Version</b></p>																																																
<p>6. <input type="checkbox"/></p>	<p>Procedure is complete.</p>	<p>Verify the following information:</p> <ul style="list-style-type: none"> <li>All CMP clusters upgrades are complete and running release 12.2</li> <li>All MRA and MPE clusters are running release 12.1.x</li> </ul> <p>The Policy Management system is running in mixed-version mode.</p>																																																
<p><b>THIS PROCEDURE HAS BEEN COMPLETED</b></p>																																																		

## Software Upgrade Procedure

### 6. UPGRADE NON-CMP CLUSTERS (MPE, MRA)

The following procedures will upgrade a site/segment containing one or more MPE, MRA clusters.

#### NOTES:

- An upgrade of up to 8 clusters can be running at the same time.
- Different cluster types can be upgraded at the same time.

### 6.1 Upgrade Preparation

#### 6.1.1 Configuration Preparation

Step	Procedure	Result
1. <input type="checkbox"/>	<b>CMP GUI:</b> Access into CMP server	Use the supported browser to login as the <i>admin</i> user or as a user with administrative privileges.
2. <input type="checkbox"/>	<b>CMP GUI:</b> Verify current Upgrade Manager status and software release 12.2 ISO files	<b>Upgrade → Upgrade Manager</b> <ul style="list-style-type: none"><li>• Verify that all CMP clusters have both Active, Standby status.</li><li>• Verify that all MPE and MRA clusters have an Active, Standby, and Spare server.</li><li>• Verify that Policy Management release 12.2 ISO files are available for all CMP, MPE, and MRA clusters. One ISO per Server</li><li>• Verify that the CMP cluster is upgraded successfully and running Policy Management release 12.2</li></ul>
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

## Software Upgrade Procedure

### 6.2 Upgrade MRA and MPE Servers

This procedure will upgrade one or more clusters (MPE and/or MRA).

This procedure is applicable for a 12.1.x upgrade to 12.2.

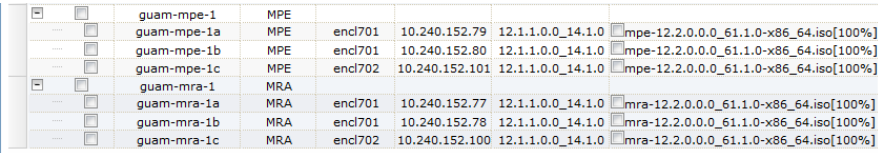
This section can be replicated for each site/segment to be upgraded, allowing you to add cluster and site specific information.

The upgrade procedure is essentially the same for an MRA cluster and an MPE cluster.

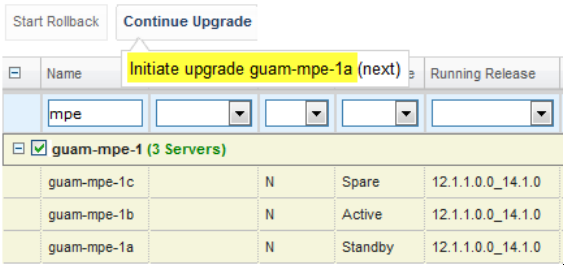
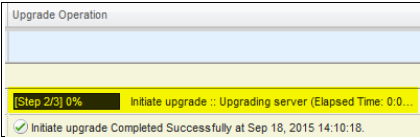
1. Select and start upgrade on the standby server
2. Failover
3. Re-apply configuration
4. Continue to upgrade the spare server
5. Continue upgrade on remaining server
6. (MPE only) Re-apply configuration one MPE cluster at a time

#### NOTES:

- All CMP clusters must be upgraded to Policy Management release 12.2 prior to executing the following procedures.
- Eight (8) clusters can be running the upgrade at one time.
- Only ONE cluster can be selected for upgrade activity, bulk selection of servers is not supported in release 12.2.

Step	Procedure	Result																																																						
1. <input type="checkbox"/>	<b>CMP GUI:</b> Health Checks on the MPE/MRA servers to be upgraded	<p>Perform the following:</p> <ol style="list-style-type: none"> <li>1. Check for current active alarms</li> <li>2. Reset MPE/MRA counters to make a baseline                             <ul style="list-style-type: none"> <li>- For the MPE: <b>Policy Server</b>→<b>Configuration</b>→&lt;server_name&gt;→<b>Reports</b> → <b>Reset Counters</b></li> <li>- For the MRA: <b>MRA</b>→<b>Configuration</b>→&lt;server_name&gt;→<b>Reports</b> → <b>Reset Counters</b></li> </ul> </li> <li>3. Go to the KPI Dashboard and capture a screenshot. <b>System Wide Reports</b> → <b>KPI Dashboard</b></li> </ol>																																																						
2. <input type="checkbox"/>	<b>CMP GUI:</b> Verify upgrade status of selected MPE/MRA site/segment	<p><b>Upgrade</b> → <b>Upgrade Manager</b></p> <p>Verify information for the MRA/MPE servers:</p> <ul style="list-style-type: none"> <li>• Current release 12.1.x installed</li> <li>• Active/Standby/Spare status</li> <li>• ISO version to be deployed is 12.2.</li> <li>• Verify the current ISO files are 12.2 by going to <b>Upgrade</b>→<b>ISO Maintenance</b></li> </ul>  <table border="1"> <thead> <tr> <th>Server Name</th> <th>Type</th> <th>IP</th> <th>Release</th> <th>ISO File</th> <th>Status</th> </tr> </thead> <tbody> <tr> <td>guam-mpe-1</td> <td>MPE</td> <td>encl701</td> <td>12.1.1.0.0_14.1.0</td> <td>mpe-12.2.0.0_61.1.0-x86_64.iso</td> <td>[100%]</td> </tr> <tr> <td>guam-mpe-1a</td> <td>MPE</td> <td>encl701</td> <td>12.1.1.0.0_14.1.0</td> <td>mpe-12.2.0.0_61.1.0-x86_64.iso</td> <td>[100%]</td> </tr> <tr> <td>guam-mpe-1b</td> <td>MPE</td> <td>encl701</td> <td>12.1.1.0.0_14.1.0</td> <td>mpe-12.2.0.0_61.1.0-x86_64.iso</td> <td>[100%]</td> </tr> <tr> <td>guam-mpe-1c</td> <td>MPE</td> <td>encl702</td> <td>10.240.152.101</td> <td>mpe-12.2.0.0_61.1.0-x86_64.iso</td> <td>[100%]</td> </tr> <tr> <td>guam-mra-1</td> <td>MRA</td> <td>encl701</td> <td>12.1.1.0.0_14.1.0</td> <td>mra-12.2.0.0_61.1.0-x86_64.iso</td> <td>[100%]</td> </tr> <tr> <td>guam-mra-1a</td> <td>MRA</td> <td>encl701</td> <td>10.240.152.77</td> <td>mra-12.2.0.0_61.1.0-x86_64.iso</td> <td>[100%]</td> </tr> <tr> <td>guam-mra-1b</td> <td>MRA</td> <td>encl701</td> <td>10.240.152.78</td> <td>mra-12.2.0.0_61.1.0-x86_64.iso</td> <td>[100%]</td> </tr> <tr> <td>guam-mra-1c</td> <td>MRA</td> <td>encl702</td> <td>10.240.152.100</td> <td>mra-12.2.0.0_61.1.0-x86_64.iso</td> <td>[100%]</td> </tr> </tbody> </table>	Server Name	Type	IP	Release	ISO File	Status	guam-mpe-1	MPE	encl701	12.1.1.0.0_14.1.0	mpe-12.2.0.0_61.1.0-x86_64.iso	[100%]	guam-mpe-1a	MPE	encl701	12.1.1.0.0_14.1.0	mpe-12.2.0.0_61.1.0-x86_64.iso	[100%]	guam-mpe-1b	MPE	encl701	12.1.1.0.0_14.1.0	mpe-12.2.0.0_61.1.0-x86_64.iso	[100%]	guam-mpe-1c	MPE	encl702	10.240.152.101	mpe-12.2.0.0_61.1.0-x86_64.iso	[100%]	guam-mra-1	MRA	encl701	12.1.1.0.0_14.1.0	mra-12.2.0.0_61.1.0-x86_64.iso	[100%]	guam-mra-1a	MRA	encl701	10.240.152.77	mra-12.2.0.0_61.1.0-x86_64.iso	[100%]	guam-mra-1b	MRA	encl701	10.240.152.78	mra-12.2.0.0_61.1.0-x86_64.iso	[100%]	guam-mra-1c	MRA	encl702	10.240.152.100	mra-12.2.0.0_61.1.0-x86_64.iso	[100%]
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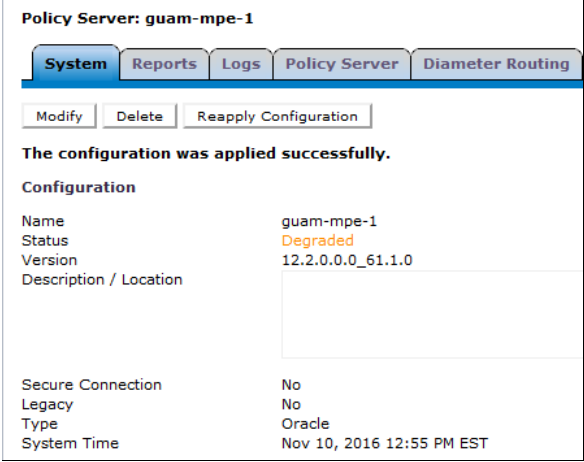
## Software Upgrade Procedure

Step	Procedure	Result
<p>3. <input type="checkbox"/></p>	<p><b>CMP GUI:</b> Upgrade clusters</p> <p><b>NOTE:</b> The upgrade of a single server takes approximately 40 minutes to complete.</p>	<p><b>NOTE:</b> Start the upgrade on ONE cluster. Wait until the upgrade starts, and then continue with the next cluster and so on. Up to 8 clusters may be running upgrade at any time.</p> <p><b>Upgrade → Upgrade Manager</b></p> <ol style="list-style-type: none"> <li>1. Select the checkbox for the cluster to be upgraded, it can be an MRA or MPE</li> <li>2. Click <b>Continue Upgrade</b></li> </ol>  <p>3. Click <b>OK</b> to confirm and continue with the operation. It will begin to upgrade the standby server of that cluster.</p> <p>Wait until the cluster reports OOS before selecting the next cluster</p> <p>Follow the progress in the Upgrade Operation column.</p>  <p>During the upgrade activities, the following alarms may be generated and considered normal reporting events.</p> <p><b>Expected Critical Alarms</b></p> <ul style="list-style-type: none"> <li>31283 Lost Communication with server</li> <li>70001 QP_procmgr failed</li> <li>31227 HA availability status failed</li> </ul> <p><b>Expected Major Alarm</b></p> <ul style="list-style-type: none"> <li>70004 QP Processes down for maintenance</li> <li>31233 High availability path loss of connectivity</li> </ul> <p><b>Expected Minor Alarms</b></p> <ul style="list-style-type: none"> <li>70503 Server Forced Standby</li> <li>70507 Upgrade In Progress</li> <li>70500 System Mixed Version</li> <li>70501 Cluster Mixed Version</li> <li>31114 DB replication over SOAP has failed</li> <li>31106 Database merge to parent failure</li> <li>31107 Database merge from child failure</li> <li>31101 Database replication to slave failure</li> <li>31282 HA Management Fault</li> <li>78001 Rsync Failed</li> </ul> <p>Upgrade is complete on the first server in the cluster when the 'Initiate upgrade completed successfully at...' message appears in the Upgrade Operation column. The server will go back to Standby state when the upgrade completes.</p>

## Software Upgrade Procedure

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		<div data-bbox="574 210 1458 342"> <table border="1"> <thead> <tr> <th colspan="7">guam-mpe-1 (3 Servers)</th> </tr> </thead> <tbody> <tr> <td>guam-mpe-1c</td> <td></td> <td>N</td> <td>Spare</td> <td>12.1.1.0.0_14.1.0</td> <td>n/a</td> <td></td> </tr> <tr> <td>guam-mpe-1b</td> <td></td> <td>N</td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> <td>Initiate backout Completed Successfully at</td> <td></td> </tr> <tr> <td>guam-mpe-1a</td> <td></td> <td>Y</td> <td>Standby</td> <td>12.2.0.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> <td></td> </tr> </tbody> </table> </div> <p>During the upgrade activities, the following alarms may be generated and considered normal reporting events.</p> <p>Alarm <b>31224—HA configuration error</b> (major) will be raised noting that there is a configuration error. This will clear a few minutes after the upgrade completes on the first server. The following minor alarms may be present:</p> <p><b>Expected Minor Alarms</b></p> <p><b>78001</b> Rsync Failed  <b>70500</b> System Mixed Version  <b>70501</b> Cluster Mixed Version  <b>70503</b> Server Forced Standby</p>	guam-mpe-1 (3 Servers)							guam-mpe-1c		N	Spare	12.1.1.0.0_14.1.0	n/a		guam-mpe-1b		N	Active	12.1.1.0.0_14.1.0	Initiate backout Completed Successfully at		guam-mpe-1a		Y	Standby	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at																													
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4.	<div data-bbox="298 716 537 932"> <p><input type="checkbox"/> <b>CMP GUI:</b> Continue to upgrade the MRA/MPE clusters. Next operation is a <b>failover</b></p> <p><b>NOTE:</b> 8 clusters can be running the upgrade process at one time.</p> </div>	<div data-bbox="574 716 1458 1533"> <p>Fail over <b>ONE</b> cluster at a time and wait until the upgraded server becomes active before moving on to the next cluster.</p> <p><b>Upgrade → Upgrade Manager</b></p> <ol style="list-style-type: none"> <li>Select the checkbox for the cluster being upgraded (it can be an MRA or MPE)</li> <li>Click <b>Continue Upgrade</b>. When hovering over the button, it will say 'Failover to new version...'</li> </ol> <div data-bbox="727 947 1292 1209"> <table border="1"> <thead> <tr> <th colspan="7">guam-mpe-1 (3 Servers)</th> </tr> </thead> <tbody> <tr> <td>guam-mpe-1c</td> <td></td> <td>N</td> <td>Spare</td> <td>12.1.1.0.0_14.1.0</td> <td></td> <td></td> </tr> <tr> <td>guam-mpe-1b</td> <td></td> <td>N</td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> <td></td> <td></td> </tr> <tr> <td>guam-mpe-1a</td> <td></td> <td>Y</td> <td>Standby</td> <td>12.2.0.0.0_61.1.0</td> <td></td> <td></td> </tr> </tbody> </table> </div> <ol style="list-style-type: none"> <li>Click <b>OK</b> to confirm and continue with the operation. It will start to failover the cluster.</li> </ol> <p>Wait until failover completes before failing over the next cluster, this will take a minute or two to complete. Verify the 12.2 server is now active. The process is complete when there is an active/standby at site 1 and spare at site 2.</p> <div data-bbox="727 1398 1292 1533"> <table border="1"> <thead> <tr> <th colspan="7">guam-mpe-1 (3 Servers)</th> </tr> </thead> <tbody> <tr> <td>guam-mpe-1c</td> <td>⚠ Minor</td> <td>N</td> <td>Spare</td> <td>12.1.1.0.0_14.1.0</td> <td></td> <td></td> </tr> <tr> <td>guam-mpe-1b</td> <td>⚠ Minor</td> <td>N</td> <td>Standby</td> <td>12.1.1.0.0_14.1.0</td> <td></td> <td></td> </tr> <tr> <td>guam-mpe-1a</td> <td>⚠ Minor</td> <td>Y</td> <td>Active</td> <td>12.2.0.0.0_61.1.0</td> <td></td> <td></td> </tr> </tbody> </table> </div> </div>	guam-mpe-1 (3 Servers)							guam-mpe-1c		N	Spare	12.1.1.0.0_14.1.0			guam-mpe-1b		N	Active	12.1.1.0.0_14.1.0			guam-mpe-1a		Y	Standby	12.2.0.0.0_61.1.0			guam-mpe-1 (3 Servers)							guam-mpe-1c	⚠ Minor	N	Spare	12.1.1.0.0_14.1.0			guam-mpe-1b	⚠ Minor	N	Standby	12.1.1.0.0_14.1.0			guam-mpe-1a	⚠ Minor	Y	Active	12.2.0.0.0_61.1.0		
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## Software Upgrade Procedure

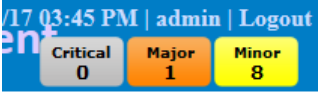

Step	Procedure	Result						
<p>5. <input type="checkbox"/></p>	<p><b>CMP GUI:</b> Reapply configuration on MPE/MRA cluster that completed the upgrade successfully.</p>	<p>For MPE: <b>PolicyServer</b> → <b>Configuration</b> → <b>&lt;MPE_cluster_name&gt;</b> → <b>System</b></p> <p>For MRA: <b>MRA</b> → <b>configuration</b> → <b>&lt;MRA_cluster&gt;</b> → <b>System</b></p> <p>The selected cluster will show status “Degraded” as it has different releases for the Active and Standby servers. It may display “Config mismatch” as well. This is expected.</p> <ol style="list-style-type: none"> <li>Click <b>Reapply Configuration</b></li> </ol> <p><b>NOTE:</b> A progress bar appears for the MPE reapply configuration only The MRA reapply configuration does not display the progress bar.</p>  <ol style="list-style-type: none"> <li>Note the version is successfully changed to the upgraded release 12.2.</li> </ol> <p><b>NOTE:</b> The status will appear as Degraded as the servers are still in different releases.</p> 						
<p>6. <input type="checkbox"/></p>	<p><b>CMP GUI:</b> Current alarms</p>	<p>At this point of the upgrade activities, the following alarms may be generated and considered normal reporting events.</p> <p><b><u>Expected Critical alarm</u></b></p> <p>None</p> <p><b><u>Expected Major Alarm</u></b></p> <p><b>78001</b> Rsync Failed</p> <table border="1" data-bbox="618 1423 1463 1476"> <thead> <tr> <th>Severity</th> <th>Alarm ID</th> <th>Text</th> </tr> </thead> <tbody> <tr> <td>Major</td> <td>78001</td> <td>Transfer of Policy jar files failed</td> </tr> </tbody> </table> <p><b><u>Expected Minor Alarms</u></b></p> <p><b>70503</b> Server Forced Standby  <b>70502</b> Cluster Replication Inhibited  <b>70500</b> System Mixed Version  <b>70501</b> Cluster Mixed Version  <b>71402</b> Connectivity Lost  <b>31101</b> Database replication to slave failure</p>	Severity	Alarm ID	Text	Major	78001	Transfer of Policy jar files failed
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## Software Upgrade Procedure

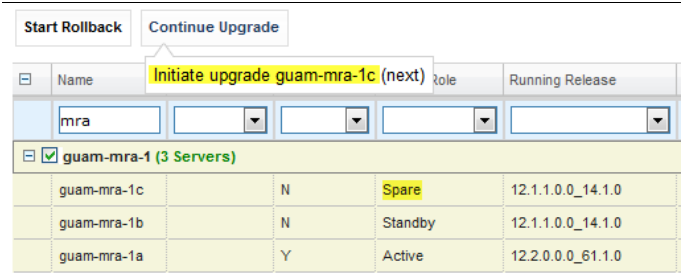
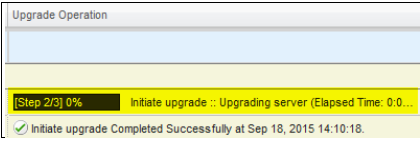
Step	Procedure	Result
7. <input type="checkbox"/>	CMP GUI: Verify traffic becomes active within 90 seconds	<p><b>Upgrade Manager → System Maintenance</b></p> <p>If traffic is active, go to step 9.</p> <p>If traffic does not become active within 90 seconds:</p> <ul style="list-style-type: none"> <li>• Select the checkbox for the partially upgraded cluster, and select <b>Operations → Rollback</b>.</li> <li>• The pre-12.2 MPE server should become active and resume handling traffic.</li> </ul>
8. <input type="checkbox"/>	CMP GUI: Reapply configuration	<ol style="list-style-type: none"> <li>1. <b>Policy Server → Configuration → &lt;mpe_cluster name&gt; → System tab</b> or <b>MRA → Configuration → &lt;mra_cluster name&gt; → System tab</b></li> <li>2. Click <b>Reapply Configuration</b></li> </ol> <ul style="list-style-type: none"> <li>• Verify that the version is changed back to 12.1.x, and the action report success.</li> <li>• If NOT, stop and contact Oracle support to back out of the partially upgraded cluster.</li> </ul>



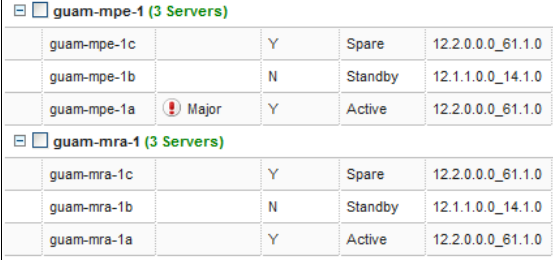
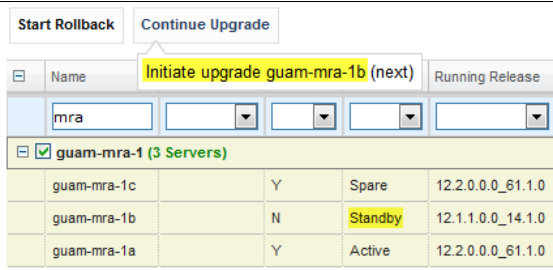
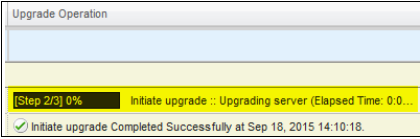
## Software Upgrade Procedure

Step	Procedure	Result												
<p>9. <input type="checkbox"/></p>	<p><b>CMP GUI: 78001 Major Alarm</b></p>	<p>During the upgrade activities, <i>Major</i> alarm 78001 in particular may be generated. And even though it's a normal event, the alarm will not clear by itself. Before continuing we should make sure that the alarm is cleared.</p> <p>Click on the Major alarms button in the upper right part to display the alarms:</p>  <p>Now click on the binoculars icon on the right to display details about the 78001 Major alarm</p> <table border="1" data-bbox="570 590 1450 653"> <thead> <tr> <th>Occurrence</th> <th>Severity</th> <th>Alarm ID</th> <th>Text</th> <th>OAM VIP</th> <th>Server</th> </tr> </thead> <tbody> <tr> <td>Jan 05, 2017 04:19 PM EST</td> <td>Major</td> <td>78001</td> <td>Transfer of Policy jar files failed</td> <td></td> <td>pcrf-mpe-b 10.240.166.37</td> </tr> </tbody> </table> <p>You should see in the last line of the details that the reason for the major alarm is "Version check failed".</p> <div data-bbox="570 793 1162 1157" style="border: 1px solid black; padding: 5px;"> <p><b>Date/Time</b> Jan 05, 2017 04:19 PM EST  <b>Severity</b> Major  <b>Text</b> Transfer of Policy jar files failed  <b>Count</b> 1  <b>First Occurrence</b> Jan 05, 2017 04:19 PM EST  <b>Last Occurrence</b> Jan 05, 2017 04:19 PM EST  <b>Server</b> pcrf-mpe-b,10.240.166.37  <b>Details</b> RSYNC: Policy jar files sync to standby failed.  Reason: Version check failed</p> <p style="text-align: center;"><input type="button" value="Cancel"/></p> </div> <p>If you see a different reason, stop and contact My Oracle Support.</p> <p>If you see the "Version check failed" reason, continue here.</p> <p>Navigate to System Wide Reports &gt; Alarms &gt; Active Alarms and select the 78001 Major alarm</p>  <p>Click on the trash can icon on the right to clear this alarm.</p>	Occurrence	Severity	Alarm ID	Text	OAM VIP	Server	Jan 05, 2017 04:19 PM EST	Major	78001	Transfer of Policy jar files failed		pcrf-mpe-b 10.240.166.37
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Jan 05, 2017 04:19 PM EST	Major	78001	Transfer of Policy jar files failed		pcrf-mpe-b 10.240.166.37									
<p>10. <input type="checkbox"/></p>	<p><b>CMP GUI:</b> Continue upgrade of the MRA/MPE clusters. Next operation is initiate upgrade on the Standby server</p>	<p>Continue the upgrade on ONE cluster first, when the server goes into OOS, continue with the next cluster and so on.</p> <p><b>NOTE:</b> Up to 8 clusters can be running the upgrade process at one time.</p> <p><b>Upgrade → Upgrade Manager</b></p> <ol style="list-style-type: none"> <li>Select the checkbox for a cluster. <ul style="list-style-type: none"> <li>Select one cluster at a time</li> <li>Can be an either an MRA or MPE cluster</li> </ul> </li> <li>Click <b>Continue Upgrade</b>. When hovering over the button, it will read 'Initiate</li> </ol>												

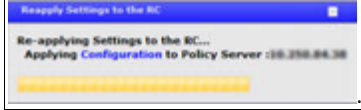
## Software Upgrade Procedure

Step	Procedure	Result
		<p>upgrade...' on the spare server</p>  <p>3. Click <b>OK</b> to confirm and continue with the operation.            Wait until the cluster reports OOS before selecting the next cluster            Follow the progress in the Upgrade Operation column.</p>  <p>During the upgrade activities, the following alarms may be generated and considered normal reporting events—these will be cleared after the MPE cluster is completely upgraded.</p> <p><b><u>Expected Critical Alarms</u></b></p> <p><b>31283</b> Lost Communication with server  <b>31227</b> HA availability status failed  <b>70001</b> QP_procmgr failed</p> <p><b><u>Expected Major Alarm</u></b></p> <p><b>70004</b> QP Processes down for maintenance</p> <p><b><u>Expected Minor Alarms</u></b></p> <p><b>70503</b> Server Forced Standby  <b>70507</b> Upgrade In Progress  <b>70500</b> System Mixed Version  <b>70501</b> Cluster Mixed Version  <b>70502</b> Cluster Replication Inhibited</p> <p>Upgrade is complete on the spare server in the georedundant cluster when:</p> <ul style="list-style-type: none"> <li>• The message 'Initiate upgrade Completed Successfully...' shows in the Upgrade Operation column.</li> <li>• The server goes back to the Spare state.</li> <li>• The Up to Date column shows a Y (YES).</li> </ul> <p>The Active and Spare servers are on release 12.2 and the current Standby will be on the previous release</p>

## Software Upgrade Procedure

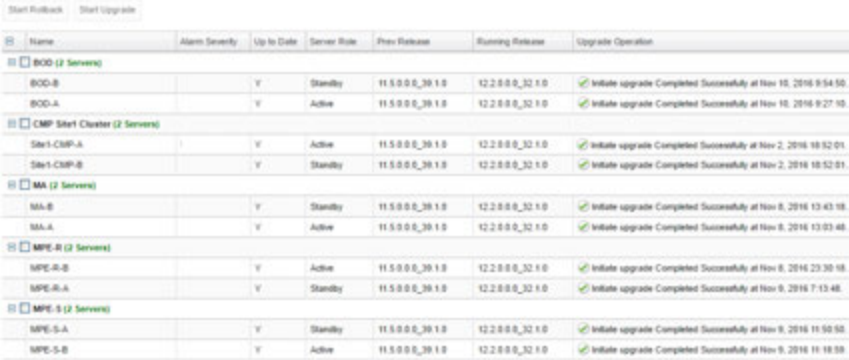

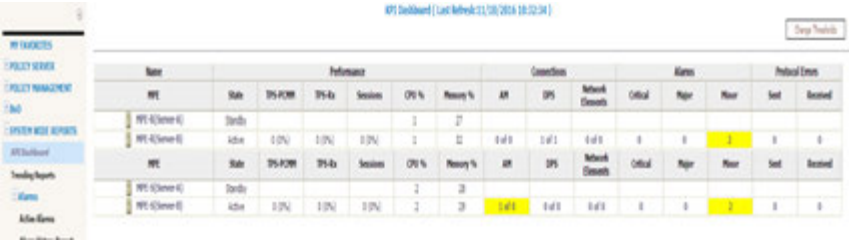
Step	Procedure	Result
		
<p>11. <input type="checkbox"/></p>	<p><b>CMP GUI:</b> Continue to upgrade the MRA/MPE clusters. Next operation is Initiate upgrade on the standby server</p>	<p>Continue the upgrade on ONE cluster first, when the server goes into OOS, continue with the next cluster and so on. Up to 8 clusters for 12.1.x may be running the upgrade at one time.</p> <p><b>Upgrade → Upgrade Manager</b></p> <ol style="list-style-type: none"> <li>Select the checkbox for a cluster <ul style="list-style-type: none"> <li>Select one cluster at a time</li> <li>Can be an either an MRA or MPE cluster</li> </ul> </li> <li>Click <b>Continue Upgrade</b>. When hovering over the button, the message will display the next action, which is to initiate the upgrade of the standby server.</li> </ol>  <ol style="list-style-type: none"> <li>Click <b>OK</b> to confirm and continue with the operation. It will begin the final server upgrade of the cluster</li> </ol> <p>Wait until the cluster reports OOS before selecting the next cluster</p> <p>Follow the progress in the Upgrade Operation column.</p>  <p>During the upgrade activities, the following alarms may be generated and considered normal reporting events—these will be cleared after the MPE cluster is completely upgraded.</p> <p><b>Expected Critical Alarms</b></p> <ul style="list-style-type: none"> <li><b>31283</b> Lost Communication with server</li> <li><b>31227</b> HA availability status failed</li> <li><b>70001</b> QP_procmgr failed</li> </ul> <p><b>Expected Major Alarm</b></p> <ul style="list-style-type: none"> <li><b>70004</b> QP Processes down for maintenance</li> </ul> <p><b>Expected Minor Alarms</b></p> <ul style="list-style-type: none"> <li><b>70503</b> Server Forced Standby</li> <li><b>70507</b> Upgrade In Progress</li> </ul>

## Software Upgrade Procedure

Step	Procedure	Result																																																																																																									
		<p><b>70500</b> System Mixed Version  <b>70501</b> Cluster Mixed Version  <b>78001</b> Rsync Failed  <b>70502</b> Cluster Replication Inhibited  <b>31114</b> DB replication over SOAP has failed  <b>31106</b> Database merge to parent failure  <b>31107</b> Database merge from child failure  <b>31101</b> Database replication to slave failure  <b>31102</b> Database replication from master failure  <b>31113</b> DB replication manually disabled</p> <p>Upgrade is complete on the third server in the georedundant cluster when:</p> <ul style="list-style-type: none"> <li>The completed successfully message shows in the Upgrade Operation column.</li> <li>The server goes back to the Standby state.</li> <li>The Up to Date column shows a Y (YES)</li> </ul> <table border="1"> <thead> <tr> <th colspan="7">guam-mra-1 (3 Servers)</th> </tr> <tr> <th>Name</th> <th>Alarm Severity</th> <th>Up to Date</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td>guam-mra-1c</td> <td></td> <td>Y</td> <td>Spare</td> <td>12.2.0.0_61.1.0</td> <td>12.2.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> <tr> <td>guam-mra-1b</td> <td></td> <td>Y</td> <td>Standby</td> <td>12.2.0.0_61.1.0</td> <td>12.2.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> <tr> <td>guam-mra-1a</td> <td></td> <td>Y</td> <td>Active</td> <td>12.2.0.0_61.1.0</td> <td>12.2.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> </tbody> </table> <p>All clusters are now running release 12.2</p>	guam-mra-1 (3 Servers)							Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation	guam-mra-1c		Y	Spare	12.2.0.0_61.1.0	12.2.0.0_61.1.0	Initiate upgrade Completed Successfully at	guam-mra-1b		Y	Standby	12.2.0.0_61.1.0	12.2.0.0_61.1.0	Initiate upgrade Completed Successfully at	guam-mra-1a		Y	Active	12.2.0.0_61.1.0	12.2.0.0_61.1.0	Initiate upgrade Completed Successfully at																																																																						
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12. <input type="checkbox"/>	<b>CMP GUI: (MPE only)</b> Reapply configuration on the fully upgraded MPE clusters.	<p><b>MPE only</b></p> <ol style="list-style-type: none"> <li><b>PolicyServer</b> → <b>Configuration</b> → <b>&lt;MPE_cluster&gt;</b> → <b>System</b></li> <li>Click <b>Reapply Configuration</b></li> </ol> <p><b>NOTE:</b> A progress bar appears for the MPE reapply configuration.</p> 																																																																																																									
13. <input type="checkbox"/>	Repeat steps 1–12, as applicable, for the next MPE or MRA clusters	Proceed with next cluster(s)																																																																																																									
14. <input type="checkbox"/>	Upgrade Completed	<p>At this point all servers have been upgraded.</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Alarm Severity</th> <th>Up to Date</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <th colspan="7">CMP Site1 Cluster (2 Servers)</th> </tr> <tr> <td>guam-cmp-1b</td> <td></td> <td>Y</td> <td>Active</td> <td>12.1.1.0_14.1.0</td> <td>12.2.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> <tr> <td>guam-cmp-1a</td> <td></td> <td>Y</td> <td>Standby</td> <td>12.1.1.0_14.1.0</td> <td>12.2.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> <tr> <th colspan="7">CMP Site2 Cluster (2 Servers)</th> </tr> <tr> <td>guam-cmp-2a</td> <td></td> <td>Y</td> <td>Standby</td> <td>12.1.1.0_14.1.0</td> <td>12.2.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> <tr> <td>guam-cmp-2b</td> <td></td> <td>Y</td> <td>Active</td> <td>12.1.1.0_14.1.0</td> <td>12.2.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> <tr> <th colspan="7">guam-mpe-1 (3 Servers)</th> </tr> <tr> <td>guam-mpe-1c</td> <td></td> <td>Y</td> <td>Spare</td> <td>12.1.1.0_14.1.0</td> <td>12.2.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> <tr> <td>guam-mpe-1b</td> <td></td> <td>Y</td> <td>Standby</td> <td>12.1.1.0_14.1.0</td> <td>12.2.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> <tr> <td>guam-mpe-1a</td> <td></td> <td>Y</td> <td>Active</td> <td>12.1.1.0_14.1.0</td> <td>12.2.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> <tr> <th colspan="7">guam-mra-1 (3 Servers)</th> </tr> <tr> <td>guam-mra-1c</td> <td></td> <td>Y</td> <td>Spare</td> <td>12.1.1.0_14.1.0</td> <td>12.2.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> <tr> <td>guam-mra-1b</td> <td></td> <td>Y</td> <td>Standby</td> <td>12.1.1.0_14.1.0</td> <td>12.2.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> <tr> <td>guam-mra-1a</td> <td></td> <td>Y</td> <td>Active</td> <td>12.1.1.0_14.1.0</td> <td>12.2.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation	CMP Site1 Cluster (2 Servers)							guam-cmp-1b		Y	Active	12.1.1.0_14.1.0	12.2.0.0_61.1.0	Initiate upgrade Completed Successfully at	guam-cmp-1a		Y	Standby	12.1.1.0_14.1.0	12.2.0.0_61.1.0	Initiate upgrade Completed Successfully at	CMP Site2 Cluster (2 Servers)							guam-cmp-2a		Y	Standby	12.1.1.0_14.1.0	12.2.0.0_61.1.0	Initiate upgrade Completed Successfully at	guam-cmp-2b		Y	Active	12.1.1.0_14.1.0	12.2.0.0_61.1.0	Initiate upgrade Completed Successfully at	guam-mpe-1 (3 Servers)							guam-mpe-1c		Y	Spare	12.1.1.0_14.1.0	12.2.0.0_61.1.0	Initiate upgrade Completed Successfully at	guam-mpe-1b		Y	Standby	12.1.1.0_14.1.0	12.2.0.0_61.1.0	Initiate upgrade Completed Successfully at	guam-mpe-1a		Y	Active	12.1.1.0_14.1.0	12.2.0.0_61.1.0	Initiate upgrade Completed Successfully at	guam-mra-1 (3 Servers)							guam-mra-1c		Y	Spare	12.1.1.0_14.1.0	12.2.0.0_61.1.0	Initiate upgrade Completed Successfully at	guam-mra-1b		Y	Standby	12.1.1.0_14.1.0	12.2.0.0_61.1.0	Initiate upgrade Completed Successfully at	guam-mra-1a		Y	Active	12.1.1.0_14.1.0	12.2.0.0_61.1.0	Initiate upgrade Completed Successfully at
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## 7. POST UPGRADE HEALTH CHECK

**NOTE:** This section is used when the entire topology is running release 12.2

Step	Procedure	Result
1. <input type="checkbox"/>	<b>CMP GUI:</b> Verify the upgrade is successful on all CMP/MA clusters.	<p><b>Upgrade → Upgrade Manager</b></p> <p>View the Up to Date, Running Release, and Upgrade Operation columns and verify they read “Y”, “12.2...”, and “Initiate upgrade completed successfully at...” respectively, for all servers in all clusters.</p> 
2. <input type="checkbox"/>	<b>CMP GUI:</b> View current alarms	<p>Navigate to <b>System Wide Reports→Alarms→Active Alarms</b></p> <p>Verify that all alarms due to the upgrade have been cleared.</p> 
3. <input type="checkbox"/>	<b>CMP GUI:</b> View current KPIs	<p>Navigate to <b>System Wide Reports→KPI Dashboard</b></p> <p>Make sure everything looks normal.</p> 

## Software Upgrade Procedure

Step	Procedure	Result																																										
4. <input type="checkbox"/>	CMP GUI: Replication stats	<p>Navigate to <b>System Wide Reports</b>→<b>Others</b>→<b>MPE/MRA Rep Stats</b> (for a wireless system)</p> <p>Navigate to <b>System Wide Reports</b>→<b>Others</b>→<b>MPE/BOD Rep Stats</b> (for a cable system)</p> <p>Verify all clusters and servers are in OK state.</p> <p>Wireless:</p> <table border="1" data-bbox="605 420 1440 594"> <thead> <tr> <th>Cluster Name</th> <th>Server Type</th> <th>Cluster State</th> <th>Blade State</th> <th>Sync State</th> <th>Replication Delta(Min:Sec)</th> </tr> </thead> <tbody> <tr> <td>☐ guam-mpe-1</td> <td>MPE</td> <td>✓ OK</td> <td>---</td> <td>---</td> <td>0:0.504</td> </tr> <tr> <td>guam-mpe-1b (Active) -&gt; guam-mpe-1a (Standby)</td> <td>MPE</td> <td>---</td> <td>✓ OK</td> <td>✓ OK</td> <td>0:0.504</td> </tr> <tr> <td>guam-mpe-1b (Active) -&gt; guam-mpe-1c (Spare)</td> <td>MPE</td> <td>---</td> <td>✓ OK</td> <td>✓ OK</td> <td>0:0.499</td> </tr> <tr> <td>☐ guam-mra-1</td> <td>MRA</td> <td>✓ OK</td> <td>---</td> <td>---</td> <td>0:0.5</td> </tr> <tr> <td>guam-mra-1b (Active) -&gt; guam-mra-1a (Standby)</td> <td>MRA</td> <td>---</td> <td>✓ OK</td> <td>✓ OK</td> <td>0:0.498</td> </tr> <tr> <td>guam-mra-1b (Active) -&gt; guam-mra-1c (Spare)</td> <td>MRA</td> <td>---</td> <td>✓ OK</td> <td>✓ OK</td> <td>0:0.5</td> </tr> </tbody> </table>	Cluster Name	Server Type	Cluster State	Blade State	Sync State	Replication Delta(Min:Sec)	☐ guam-mpe-1	MPE	✓ OK	---	---	0:0.504	guam-mpe-1b (Active) -> guam-mpe-1a (Standby)	MPE	---	✓ OK	✓ OK	0:0.504	guam-mpe-1b (Active) -> guam-mpe-1c (Spare)	MPE	---	✓ OK	✓ OK	0:0.499	☐ guam-mra-1	MRA	✓ OK	---	---	0:0.5	guam-mra-1b (Active) -> guam-mra-1a (Standby)	MRA	---	✓ OK	✓ OK	0:0.498	guam-mra-1b (Active) -> guam-mra-1c (Spare)	MRA	---	✓ OK	✓ OK	0:0.5
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<b>THIS PROCEDURE HAS BEEN COMPLETED</b>																																												

### 8. BACKOUT (ROLLBACK)

This procedure is executed if an issue is found during the upgrade, as well as post-upgrade which impacts network performance.

The Policy system will be backed out to the previous release.

Oracle strongly recommends consulting My Oracle Support before initiating the backout procedure. They will determine the appropriate course of recovery options.

#### 8.1 Backout Sequence

The backout sequence order is the reverse of the upgrade order. The following is the overall backout sequence:

1. Back out the non-CMP (MPE/MRA) clusters (from both Site1 and Site2, if applicable)
2. Back out the Secondary CMP cluster (if applicable)
3. Back out the Primary CMP cluster

During a backout, it is important to control what version of the software is currently active. This control needs to be maintained even if there are unexpected failures.

**NOTE:** In the case of a non-CMP clusters, the upgrade/backout is NOT complete until the operator performs a Reapply Configuration from the CMP. The MRA/MPE can still operate, but may not be fully functional.

#### 8.2 Pre-requisites

1. No new policies or features have been configured or executed on the upgraded release.
2. The CMP cluster cannot backout if other non-CMP Policy servers are still on the upgraded release.

#### 8.3 Backout of Fully Upgraded Cluster

Prior to executing this procedure, Oracle recommends first consulting My Oracle Support to discuss the next appropriate course of actions.

This procedure is used to backout a cluster that has been fully upgraded. At the end of this procedure, all servers of the target cluster will be on a pre-12.2 release with Active, Standby, or Spare status.

Expected pre-conditions:

1. The primary active CMP is on release 12.2
2. The cluster servers to be backed out are on release 12.2

##### 8.3.1 Backout Sequence

This procedure applies to a cluster. The non-CMP cluster types (MRA, MPE) will be in georedundant mode with active, standby and spare servers. CMP clusters may be in Site1 or Site2.

**NOTE:** It is possible, and desirable, to backout multiple clusters in parallel. However, in order to do this, each cluster must start the backout procedure one at a time, staggering by about 1 minute each.

###### 8.3.1.1 Overview on Backout/Rollback MRA/MPE cluster

The following sequence will preserve the cluster as a georedundant MRA/MPE cluster.

1. Back out of the standby server
2. Back out of the spare server
3. Fail over
4. Reapply the configuration

## Software Upgrade Procedure

5. Back out of the new standby server

### **8.3.1.2 Backout Secondary CMP (if applicable)**

**NOTE:** At this time, all MPEs and MRAs must already be backed out to the previous release.

Use the CMP GUI (Upgrade Manager) to backout the Secondary CMP cluster

### **8.3.1.3 Backout Primary CMP**

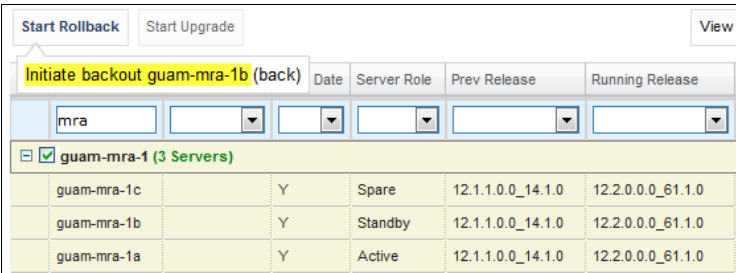
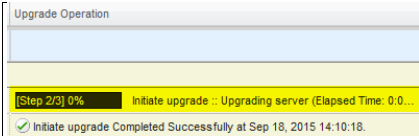
Use the CMP GUI (Upgrade Manager) to backout the CMP cluster.

## **8.3.2 Backout of a Partially Upgraded Cluster**

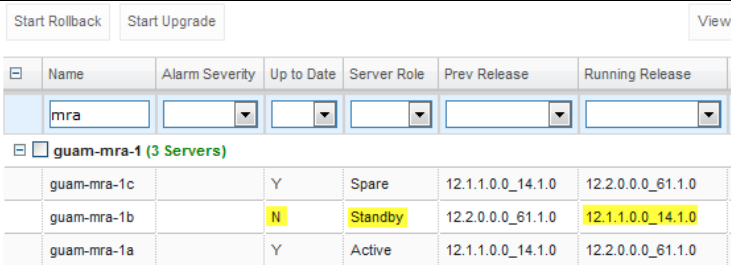
A partially upgraded cluster occurs when the version is not correct or the success message does not appear. If this happens, contact Oracle Support and report a partially upgraded cluster.



### 8.3.3 Backout Fully Upgraded MPE/MRA Cluster

Step	Procedure	Result																																																																																										
<p>1. <input type="checkbox"/></p>	<p><b>CMP GUI:</b> Verify the status of affected clusters</p>	<p><b>Upgrade → Upgrade Manager</b></p> <p>Confirm status of the cluster to be backed out:</p> <ul style="list-style-type: none"> <li>• Primary CMP is on release 12.2</li> <li>• MPE/MRA is on release 12.2</li> <li>• Up to Date column shows Y for all servers</li> </ul> <p><b>EXAMPLE</b></p> <table border="1" data-bbox="656 562 1382 1058"> <thead> <tr> <th>Name</th> <th>Alarm Severity</th> <th>Up to Date</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> </tr> </thead> <tbody> <tr> <td colspan="6"><b>[-] CMP Site1 Cluster (2 Servers)</b></td> </tr> <tr> <td>guam-cmp-1b</td> <td></td> <td>Y</td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> </tr> <tr> <td>guam-cmp-1a</td> <td></td> <td>Y</td> <td>Standby</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> </tr> <tr> <td colspan="6"><b>[-] CMP Site2 Cluster (2 Servers)</b></td> </tr> <tr> <td>guam-cmp-2a</td> <td></td> <td>Y</td> <td>Standby</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> </tr> <tr> <td>guam-cmp2b</td> <td></td> <td>Y</td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> </tr> <tr> <td colspan="6"><b>[-] guam-mpe-1 (3 Servers)</b></td> </tr> <tr> <td>guam-mpe-1c</td> <td></td> <td>Y</td> <td>Spare</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> </tr> <tr> <td>guam-mpe-1b</td> <td></td> <td>Y</td> <td>Standby</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> </tr> <tr> <td>guam-mpe-1a</td> <td></td> <td>Y</td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> </tr> <tr> <td colspan="6"><b>[-] guam-mra-1 (3 Servers)</b></td> </tr> <tr> <td>guam-mra-1c</td> <td></td> <td>Y</td> <td>Spare</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> </tr> <tr> <td>guam-mra-1b</td> <td></td> <td>Y</td> <td>Standby</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> </tr> <tr> <td>guam-mra-1a</td> <td></td> <td>Y</td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> </tr> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	<b>[-] CMP Site1 Cluster (2 Servers)</b>						guam-cmp-1b		Y	Active	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	guam-cmp-1a		Y	Standby	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	<b>[-] CMP Site2 Cluster (2 Servers)</b>						guam-cmp-2a		Y	Standby	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	guam-cmp2b		Y	Active	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	<b>[-] guam-mpe-1 (3 Servers)</b>						guam-mpe-1c		Y	Spare	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	guam-mpe-1b		Y	Standby	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	guam-mpe-1a		Y	Active	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	<b>[-] guam-mra-1 (3 Servers)</b>						guam-mra-1c		Y	Spare	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	guam-mra-1b		Y	Standby	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	guam-mra-1a		Y	Active	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0
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<p>2. <input type="checkbox"/></p>	<p><b>CMP GUI:</b> Rollback standby server—MPE/MRA</p> <p><b>NOTE:</b> The backout of a single server takes approximately 40 minutes to complete.</p> <p><b>NOTE:</b> Up to 8 clusters can be backed out at the same time, selecting one at a time.</p>	<p><b>Upgrade → Upgrade Manager</b></p> <ol style="list-style-type: none"> <li>1. Select the checkbox for the cluster. <ul style="list-style-type: none"> <li>- Select one cluster at a time.</li> <li>- Can be an MRA or MPE cluster.</li> </ul> </li> <li>2. Click <b>Start Rollback</b>. When hovering over the button, it will inform you of the server to backout, in this case it will be the current standby server.</li> </ol>  <ol style="list-style-type: none"> <li>3. Click <b>OK</b> to confirm and continue with the operation. It will begin the backout process.</li> </ol> <p>Follow the progress in the Upgrade Operation column.</p> 																																																																																										

## Software Upgrade Procedure

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		<p>The server backing out will go into the OOS state and the spare server will now take over as standby.</p> <p>Wait until the server goes to an OOS state before selecting the next cluster to backout.</p> <p>During the backout activities, the following alarms may be generated and considered normal reporting events. The alarms will be cleared after the cluster is completely backed out.</p> <p><b><u>Expected Critical Alarms</u></b></p> <p><b>31283</b> Lost Communication with server  <b>31227</b> HA availability status failed  <b>70001</b> QP_procmgr failed</p> <p><b><u>Expected Major Alarm</u></b></p> <p><b>70004</b> QP Processes down for maintenance  <b>78001</b> Rsync Failed  <b>31233</b> HA Path Down</p> <p><b><u>Expected Minor Alarms</u></b></p> <p><b>70503</b> Server Forced Standby  <b>70507</b> Upgrade In Progress  <b>70500</b> System Mixed Version  <b>70501</b> Cluster Mixed Version  <b>70502</b> Cluster Replication Inhibited  <b>31114</b> DB replication over SOAP has failed  <b>31106</b> Database merge to parent failure  <b>31107</b> Database merge from child failure  <b>31101</b> Database replication to slave failure  <b>31102</b> Database replication from master failure  <b>31113</b> DB replication manually disabled  <b>31282</b> HA Management Fault</p> <p>Backout is complete when the following message 'Initiate backout completed successfully at...' shows in the Upgrade Operation column. The server will be running a pre-12.2 release and return to standby with an N in the Up to Date column.</p>  <table border="1" data-bbox="656 1329 1382 1591"> <thead> <tr> <th colspan="2">Start Rollback</th> <th colspan="2">Start Upgrade</th> <th colspan="3">View</th> </tr> <tr> <th>Name</th> <th>Alarm Severity</th> <th>Up to Date</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> </tr> </thead> <tbody> <tr> <td>mra</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="7">guam-mra-1 (3 Servers)</td> </tr> <tr> <td>guam-mra-1c</td> <td></td> <td>Y</td> <td>Spare</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> </tr> <tr> <td>guam-mra-1b</td> <td></td> <td>N</td> <td>Standby</td> <td>12.2.0.0.0_61.1.0</td> <td>12.1.1.0.0_14.1.0</td> </tr> <tr> <td>guam-mra-1a</td> <td></td> <td>Y</td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> </tr> </tbody> </table>	Start Rollback		Start Upgrade		View			Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	mra						guam-mra-1 (3 Servers)							guam-mra-1c		Y	Spare	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	guam-mra-1b		N	Standby	12.2.0.0.0_61.1.0	12.1.1.0.0_14.1.0	guam-mra-1a		Y	Active	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0
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3. <input type="checkbox"/>	<p><b>CMP GUI:</b> Continue the backout of the MRA/MPE clusters. Next operation is initiate backout on the spare server</p> <p><b>NOTE:</b> Up to 8 clusters can be backed out at the same time, selecting one at a</p>	<p>Select the partially backed out cluster.</p> <p><b>Upgrade → Upgrade Manager</b></p> <ol style="list-style-type: none"> <li>Click <b>Continue Rollback</b>. When hovering over the button, it will inform you it will initiate backout on the spare server.</li> </ol>																																												

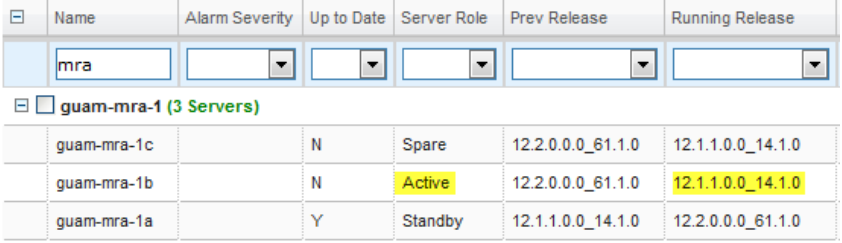
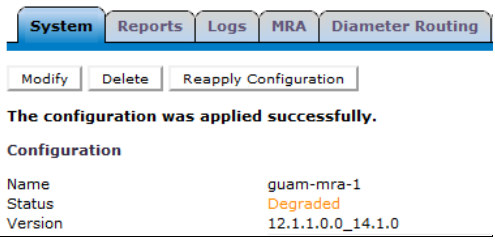
## Software Upgrade Procedure

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	time.	<div data-bbox="685 212 1349 451" style="border: 1px solid gray; padding: 5px; margin-bottom: 10px;"> <p>Continue Rollback Resume Upgrade View</p> <p>Initiate backout guam-mra-1c (back) Date Server Role Prev Release Running Release</p> <p>mra [ ] [ ] [ ] [ ] [ ] [ ]</p> <p><input checked="" type="checkbox"/> guam-mra-1 (3 Servers)</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Date</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> </tr> </thead> <tbody> <tr> <td>guam-mra-1c</td> <td>Y</td> <td>Spare</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> </tr> <tr> <td>guam-mra-1b</td> <td>N</td> <td>Standby</td> <td>12.2.0.0.0_61.1.0</td> <td>12.1.1.0.0_14.1.0</td> </tr> <tr> <td>guam-mra-1a</td> <td>Y</td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> </tr> </tbody> </table> </div> <p>2. Click <b>OK</b> to confirm and continue with the operation.</p> <p>Follow the progress in the Server Role column. The Server will show OOS in the server role until the backout completes.</p> <p>During the backout activities, the following alarms may be generated and considered normal reporting events—these will be cleared after the cluster is completely backed out.</p> <p><b>Expected Critical Alarms</b></p> <ul style="list-style-type: none"> <li><b>31283</b> Lost Communication with server</li> <li><b>31227</b> HA availability status failed</li> <li><b>70001</b> QP_procmgr failed</li> </ul> <p><b>Expected Major Alarm</b></p> <ul style="list-style-type: none"> <li><b>78001</b> Rsync Failed</li> <li><b>70004</b> QP Processes down for maintenance</li> <li><b>31233</b> HA Path Down</li> <li><b>31126</b> Audit blocked</li> </ul> <p><b>Expected Minor Alarms</b></p> <ul style="list-style-type: none"> <li><b>70503</b> Server Forced Standby</li> <li><b>70507</b> Upgrade In Progress</li> <li><b>70500</b> System Mixed Version</li> <li><b>70501</b> Cluster Mixed Version</li> <li><b>78001</b> Rsync Failed</li> <li><b>70502</b> Cluster Replication Inhibited</li> <li><b>31114</b> DB replication over SOAP has failed</li> <li><b>31106</b> Database merge to parent failure</li> <li><b>31107</b> Database merge from child failure</li> <li><b>31101</b> Database replication to slave failure</li> <li><b>31102</b> Database replication from master failure</li> <li><b>31113</b> DB replication manually disabled</li> <li><b>31282</b> HA Management Fault</li> </ul> <p>Backout is complete when the “Initiate backout completed successfully at...” message shows in the Upgrade Operation column. The spare server will go back to running a pre-12.2 release.</p> <div data-bbox="685 1612 1349 1852" style="border: 1px solid gray; padding: 5px;"> <p>Continue Rollback Resume Upgrade View</p> <p><input checked="" type="checkbox"/> Name Alarm Severity Up to Date Server Role Prev Release Running Release</p> <p>mra [ ] [ ] [ ] [ ] [ ] [ ]</p> <p><input checked="" type="checkbox"/> guam-mra-1 (3 Servers)</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Alarm Severity</th> <th>Up to Date</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> </tr> </thead> <tbody> <tr> <td>guam-mra-1c</td> <td>N</td> <td></td> <td>Spare</td> <td>12.2.0.0.0_61.1.0</td> <td>12.1.1.0.0_14.1.0</td> </tr> <tr> <td>guam-mra-1b</td> <td>N</td> <td></td> <td>Standby</td> <td>12.2.0.0.0_61.1.0</td> <td>12.1.1.0.0_14.1.0</td> </tr> <tr> <td>guam-mra-1a</td> <td>Y</td> <td></td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> </tr> </tbody> </table> </div>	Name	Date	Server Role	Prev Release	Running Release	guam-mra-1c	Y	Spare	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	guam-mra-1b	N	Standby	12.2.0.0.0_61.1.0	12.1.1.0.0_14.1.0	guam-mra-1a	Y	Active	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	guam-mra-1c	N		Spare	12.2.0.0.0_61.1.0	12.1.1.0.0_14.1.0	guam-mra-1b	N		Standby	12.2.0.0.0_61.1.0	12.1.1.0.0_14.1.0	guam-mra-1a	Y		Active	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0
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<p>4. <input type="checkbox"/></p>	<p><b>CMP GUI:</b> Continue the backout of the MRA/MPE clusters. Next operation is failover to previous release.</p> <p><b>NOTE:</b> Up to 8 clusters can be backed out at the same time, selecting one at a time.</p>	<ol style="list-style-type: none"> <li>Select the cluster to backout. Current state of the cluster should be as follows: <ul style="list-style-type: none"> <li>Spare server on previous release</li> <li>Standby server on previous release</li> <li>Active server on release 12.2</li> </ul> <p><b>Upgrade → Upgrade Manager</b></p> </li> <li>Click <b>Continue Rollback</b>. When hovering over the button, it will inform you that fail over to the old version will occur <div data-bbox="683 506 1349 747" data-label="Image"> <table border="1"> <thead> <tr> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> </tr> </thead> <tbody> <tr> <td>Spare</td> <td>12.2.0.0_61.1.0</td> <td>12.1.1.0.0_14.1.0</td> </tr> <tr> <td>Standby</td> <td>12.2.0.0_61.1.0</td> <td>12.1.1.0.0_14.1.0</td> </tr> <tr> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0_61.1.0</td> </tr> </tbody> </table> </div> </li> <li>Click <b>OK</b> to confirm and continue with the operation. It will begin to fail over. Wait until the server fails over before selecting the next cluster. This will take a minute or two. <p><b>Expected Critical Alarms</b></p> <p><b>31283</b> Lost Communication with server  <b>31227</b> HA availability status failed  <b>70001</b> QP_procmgr failed</p> <p><b>Expected Major Alarm</b></p> <p><b>70004</b> QP Processes down for maintenance  <b>31233</b> HA Path Down  <b>31126</b> Audit blocked</p> <p><b>Expected Minor Alarms</b></p> <p><b>70503</b> Server Forced Standby  <b>70507</b> Upgrade In Progress  <b>70500</b> System Mixed Version  <b>70501</b> Cluster Mixed Version  <b>78001</b> Rsync Failed  <b>70502</b> Cluster Replication Inhibited  <b>31114</b> DB replication over SOAP has failed  <b>31106</b> Database merge to parent failure  <b>31107</b> Database merge from child failure  <b>31101</b> Database replication to slave failure  <b>31102</b> Database replication from master failure  <b>31113</b> DB replication manually disabled  <b>31282</b> HA Management Fault</p> <p>State of the cluster will look like the following when the failover completes. The active server is now running the previous release:</p> </li> </ol>	Server Role	Prev Release	Running Release	Spare	12.2.0.0_61.1.0	12.1.1.0.0_14.1.0	Standby	12.2.0.0_61.1.0	12.1.1.0.0_14.1.0	Active	12.1.1.0.0_14.1.0	12.2.0.0_61.1.0
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## Software Upgrade Procedure

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		 <table border="1" data-bbox="605 216 1442 457"> <thead> <tr> <th>Name</th> <th>Alarm Severity</th> <th>Up to Date</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> </tr> </thead> <tbody> <tr> <td>mra</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="6">guam-mra-1 (3 Servers)</td> </tr> <tr> <td>guam-mra-1c</td> <td></td> <td>N</td> <td>Spare</td> <td>12.2.0.0.0_61.1.0</td> <td>12.1.1.0.0_14.1.0</td> </tr> <tr> <td>guam-mra-1b</td> <td></td> <td>N</td> <td>Active</td> <td>12.2.0.0.0_61.1.0</td> <td>12.1.1.0.0_14.1.0</td> </tr> <tr> <td>guam-mra-1a</td> <td></td> <td>Y</td> <td>Standby</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> </tr> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	mra						guam-mra-1 (3 Servers)						guam-mra-1c		N	Spare	12.2.0.0.0_61.1.0	12.1.1.0.0_14.1.0	guam-mra-1b		N	Active	12.2.0.0.0_61.1.0	12.1.1.0.0_14.1.0	guam-mra-1a		Y	Standby	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0
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5. <input type="checkbox"/>	<p><b>CMP GUI:</b> Reapply the configuration to the MPE/MRA cluster that completed the failover successfully.</p>	<p>For MPE: <b>Policy Server</b> → <b>Configuration</b> → <b>&lt;MPE_cluster&gt;</b> → <b>System</b></p> <p>For MRA: <b>MRA</b> → <b>Configuration</b> → <b>&lt;MRA_cluster&gt;</b> → <b>System</b></p> <p>The selected cluster will have the status shown as Degraded running release 12.2</p> <ol style="list-style-type: none"> <li>Click <b>Reapply Configuration</b>. <ul style="list-style-type: none"> <li>The MPE opens a popup box showing the progress of the reapply process.</li> <li>The MRA will not show anything.</li> </ul> </li> <li>Note the version is successfully changed to the previous release:</li> </ol>  <p><b>NOTE:</b> The status still showing Degraded is a normal reporting event because the servers currently have different releases.</p>																																				

# Software Upgrade Procedure

Step	Procedure	Result
6. <input type="checkbox"/>	<p><b>CMP GUI:</b> Complete backout of cluster(s)</p> <p><b>NOTE:</b> The backout of a single server takes approximately 30 minutes to complete.</p>	<p><b>Upgrade → Upgrade Manager</b></p> <ol style="list-style-type: none"> <li>Select the partially upgraded cluster to backout.</li> <li>Click <b>Continue Rollback</b>. When hovering over the button, it will inform you of the current standby server to be backed out:           <div data-bbox="651 352 1382 621" data-label="Image"> <p>The screenshot shows the 'Continue Rollback' button highlighted. Below it is a table with columns: Server Role, Prev Release, and Running Release. The table lists three servers: mra-1c (Spare), mra-1b (Active), and mra-1a (Standby). The 'mra-1a' server is highlighted in yellow, indicating it is the current standby server to be backed out.</p> </div> </li> <li>Click <b>OK</b> to confirm and continue with the operation. It will begin the backout process.</li> </ol> <p>Follow the progress in the Upgrade Operation column.</p> <div data-bbox="794 751 1239 961" data-label="Image"> <p>The screenshot shows the 'Upgrade Operation' column with two green checkmarks and messages: 'Initiate backout Completed Successfully at Nov 23, 2016 11:04:16.' and 'Initiate backout Completed Successfully at Nov 23, 2016 10:26:06.'. A progress bar at the bottom indicates '[Step 1/2] 2%' and 'Initiate backout :: Backing out server upgrade'.</p> </div> <p>During the backout activities, the following alarms may be generated and considered normal reporting events—these will be cleared after the cluster is completely backed out.</p> <p><b>Expected Critical Alarms</b></p> <ul style="list-style-type: none"> <li><b>31283</b> Lost Communication with server</li> <li><b>31227</b> HA availability status failed</li> <li><b>70001</b> QP_procmgr failed</li> </ul> <p><b>Expected Major Alarm</b></p> <ul style="list-style-type: none"> <li><b>70004</b> QP Processes down for maintenance</li> <li><b>31233</b> HA Path Down</li> <li><b>31126</b> Audit blocked</li> </ul> <p><b>Expected Minor Alarms</b></p> <ul style="list-style-type: none"> <li><b>70503</b> Server Forced Standby</li> <li><b>70507</b> Upgrade In Progress</li> <li><b>70500</b> System Mixed Version</li> <li><b>70501</b> Cluster Mixed Version</li> <li><b>78001</b> Rsync Failed</li> <li><b>70502</b> Cluster Replication Inhibited</li> <li><b>31114</b> DB replication over SOAP has failed</li> <li><b>31106</b> Database merge to parent failure</li> <li><b>31107</b> Database merge from child failure</li> <li><b>31101</b> Database replication to slave failure</li> <li><b>31102</b> Database replication from master failure</li> <li><b>31113</b> DB replication manually disabled</li> <li><b>31282</b> HA Management Fault</li> </ul> <p>Backout of the server is complete when the 'Initiate backout completed successfully' message shows in the Upgrade Operation column. All of the servers will be on the pre-12.2 release and show active/standby/spare</p>

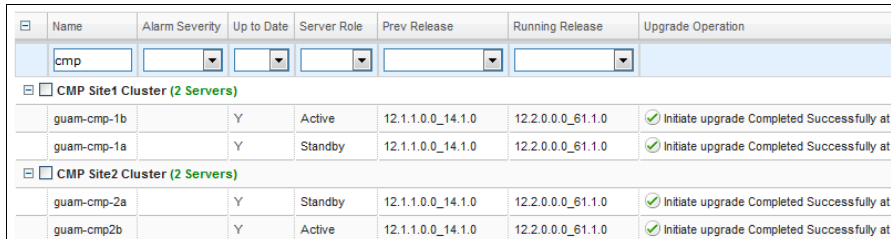
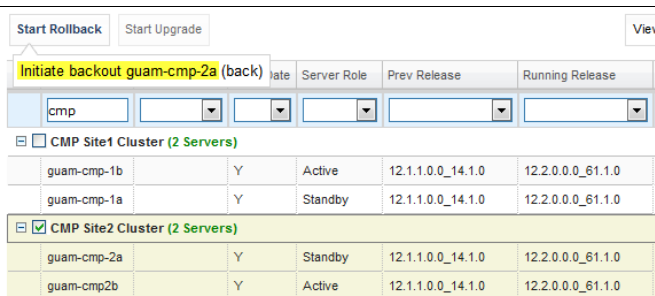
Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation
mra						
<b>guam-mra-1 (3 Servers)</b>						
guam-mra-1c		N	Spare	12.2.0.0.0_61.1.0	12.1.1.0.0_14.1.0	✓ Initiate backout Completed Successfully at
guam-mra-1b		N	Active	12.2.0.0.0_61.1.0	12.1.1.0.0_14.1.0	✓ Initiate backout Completed Successfully at

## Software Upgrade Procedure

Step	Procedure	Result
7. <input type="checkbox"/>	Current alarms	Minor alarms expected:  <b>31282</b> HA Management Fault <b>78001</b> Rsync Failed <b>70500</b> System Mixed Version
8. <input type="checkbox"/>		Repeat this Procedure for remainder of MPE and MRA servers, if not fully backed out yet.
9. <input type="checkbox"/>	Final Syscheck	Another Syscheck on all the backed out servers can be performed to ensure all modules are still operationally OK before progressing to the next Procedure.
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

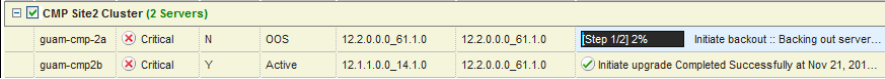
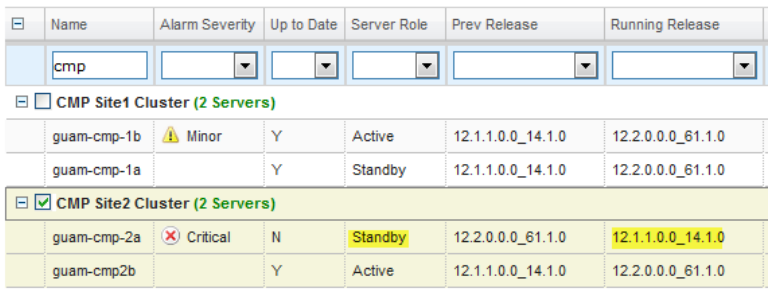
### 8.3.4 Backout Fully Upgraded Secondary CMP Cluster

**NOTE:** The Secondary CMP Site2 cluster to be backed out first using the Upgrade Manager—followed by the Primary CMP Site1 cluster.

Step	Procedure	Result
1. <input type="checkbox"/>	<p><b>CMP GUI:</b> Verify the status of the CMP clusters</p>	<p><b>Upgrade → System Maintenance</b></p> <p>Confirm status of the cluster to be backed out</p> <ul style="list-style-type: none"> <li>Primary CMP is on release 12.2</li> <li>All other non-CMP clusters are on pre-12.2</li> <li>Up to Date column shows Y for all servers</li> </ul> <p><b>NOTE:</b> The <b>Filter</b> button can be used to show only the CMP servers. Enter CMP in the Name field.</p> 
2. <input type="checkbox"/>	<p><b>CMP GUI:</b> backout secondary CMP cluster</p> <p><b>NOTE:</b> The backout of a single server takes approximately 40 minutes to complete.</p>	<p><b>Upgrade → Upgrade Manager</b></p> <ol style="list-style-type: none"> <li>Select the checkbox for the secondary CMP cluster</li> <li>Click <b>Start Rollback</b>. When hovering over the button, it will inform you that the standby server will be backed out.</li> </ol> 

## Software Upgrade Procedure

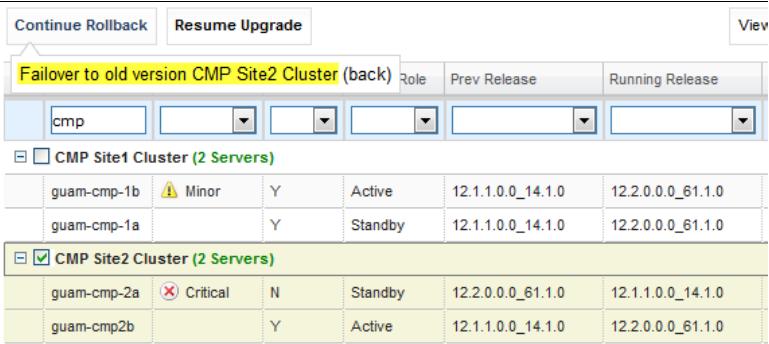
**NOTE:** The Secondary CMP Site2 cluster to be backed out first using the Upgrade Manager—followed by the Primary CMP Site1 cluster.

Step	Procedure	Result
		<p>3. Click <b>OK</b> to confirm and continue with the operation. It will begin to backout. The server will go into an OOS server Role</p> <p>Follow the progress in the Upgrade Operation column.</p>  <p>During the backout activities, the following alarms may be generated and considered normal reporting events—these will be cleared after the cluster is completely backed out.</p> <p><b>Expected Critical Alarms</b></p> <ul style="list-style-type: none"> <li><b>31283</b> Lost Communication with server</li> <li><b>31227</b> HA availability status failed</li> <li><b>70001</b> QP_procmgr failed</li> <li><b>70025</b> The MySQL slave has a different schema version than the master.</li> </ul> <p><b>Expected Major Alarm</b></p> <ul style="list-style-type: none"> <li><b>70004</b> QP Processes down for maintenance</li> <li><b>31233</b> HA Path Down</li> <li><b>31126</b> Audit blocked</li> </ul> <p><b>Expected Minor Alarms</b></p> <ul style="list-style-type: none"> <li><b>70503</b> Server Forced Standby</li> <li><b>70507</b> Upgrade In Progress</li> <li><b>70500</b> System Mixed Version</li> <li><b>70501</b> Cluster Mixed Version</li> <li><b>78001</b> Rsync Failed</li> <li><b>70502</b> Cluster Replication Inhibited</li> <li><b>31114</b> DB replication over SOAP has failed</li> <li><b>31106</b> Database merge to parent failure</li> <li><b>31107</b> Database merge from child failure</li> <li><b>31101</b> Database replication to slave failure</li> <li><b>31102</b> Database replication from master failure</li> <li><b>31113</b> DB replication manually disabled</li> <li><b>31282</b> HA Management Fault</li> </ul> <p>Backout of the server is complete when the “Initiate backout completed successfully at...” message shows in the Upgrade Operation column. The server will go back to standby state and show the previous release.</p> 
3. <input type="checkbox"/>	<b>CMP GUI:</b> Continue the backout. Next operation is failover	<p><b>Upgrade → Upgrade Manager</b></p> <ol style="list-style-type: none"> <li>1. Select the checkbox for the Secondary CMP cluster</li> <li>2. Click <b>Continue Rollback</b>. When hovering over the button, it will inform you it will fail</li> </ol>



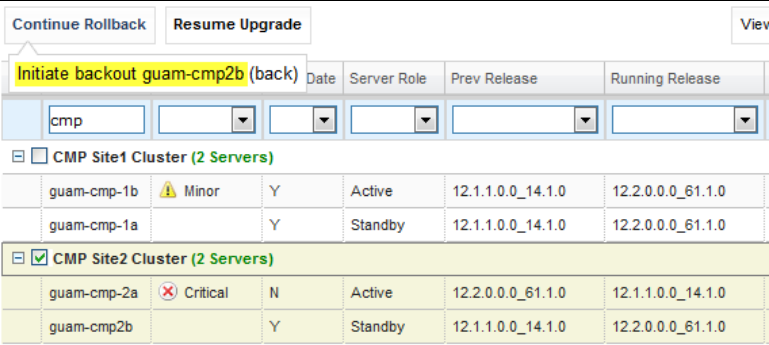
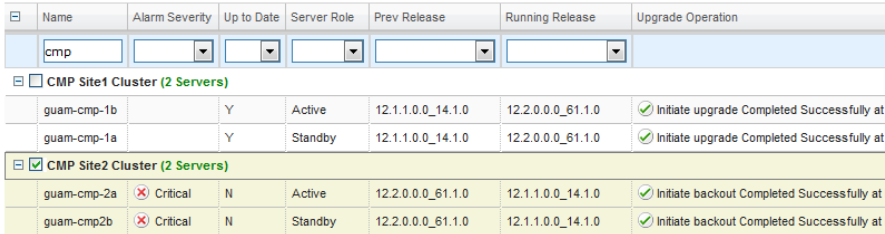
## Software Upgrade Procedure

**NOTE:** The Secondary CMP Site2 cluster to be backed out first using the Upgrade Manager—followed by the Primary CMP Site1 cluster.

Step	Procedure	Result
		<p>over to the previous version.</p>  <p>3. Click <b>OK</b> to confirm and continue with the operation. It will begin the failover process. Wait until the previous release becomes active before continuing</p> <p><b><u>Expected Critical Alarm</u></b></p> <p><b>70025</b> QP Slave database is a different version than the master</p> <p><b><u>Expected Minor Alarms</u></b></p> <p><b>70503</b> Server Forced Standby  <b>70501</b> Cluster Mixed Version  <b>78001</b> Rsync Failed  <b>70500</b> System Mixed Version</p>

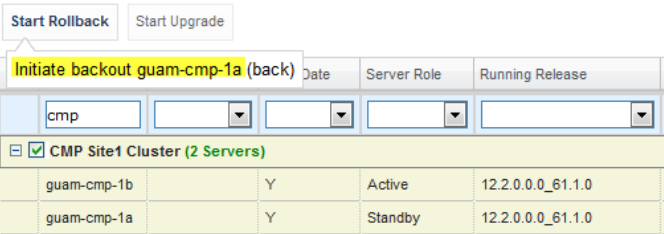
## Software Upgrade Procedure

**NOTE:** The Secondary CMP Site2 cluster to be backed out first using the Upgrade Manager—followed by the Primary CMP Site1 cluster.

Step	Procedure	Result
4. <input type="checkbox"/>	<p><b>CMP GUI:</b> Continue the backout. Next operation is initiate backout</p>	<p><b>Upgrade → Upgrade Manager</b></p> <ol style="list-style-type: none"> <li>Select the checkbox for the Secondary CMP cluster</li> <li>Click <b>Continue Rollback</b>. When hovering over the button, it will inform you it will back out the new standby server.</li> </ol>  <ol style="list-style-type: none"> <li>Click <b>OK</b> to confirm and continue with the operation. It will begin the failover process. Follow the progress of the status in the Upgrade Operation column.</li> </ol> <p><b><u>Expected Critical alarm</u></b></p> <p><b>70025</b> QP Slave database is a different version than the master</p> <p><b><u>Expected Minor Alarms</u></b></p> <p><b>70500</b> System Mixed Version</p> <p>The procedure is completed when both servers in the Secondary CMP are in the previous release.</p> 
<p><b>THIS PROCEDURE HAS BEEN COMPLETED</b></p>		

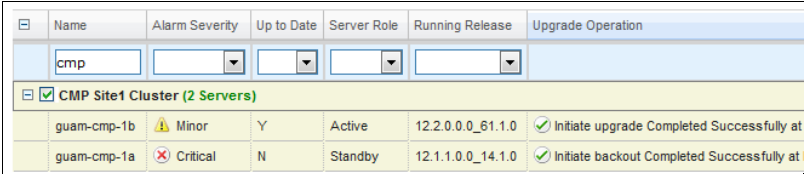
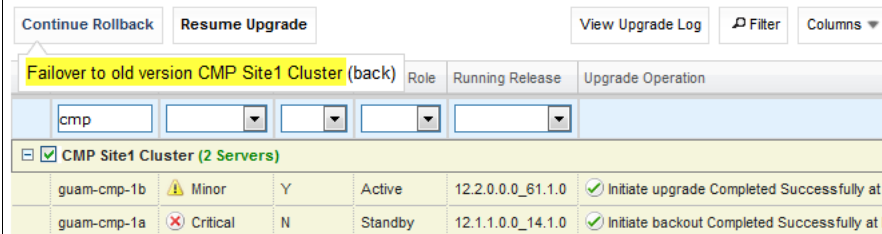
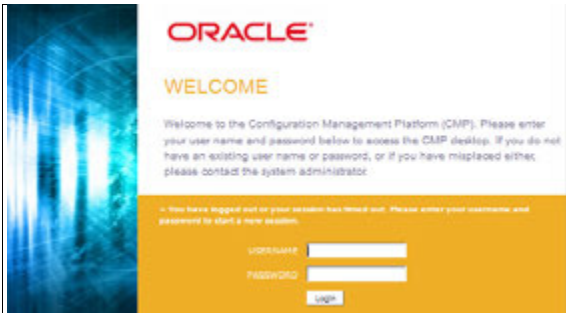
### 8.3.5 Backout Fully Upgraded Primary CMP Cluster

**NOTE:** The Secondary CMP Site2 cluster to be backed out first using the Upgrade Manager—followed by the Primary CMP Site1 cluster.

Step	Procedure	Result																																										
1. <input type="checkbox"/>	<p><b>CMP GUI:</b> Verify the status of the CMP clusters</p>	<p><b>Upgrade Manager → System Maintenance</b></p> <p>Confirm status of the cluster to be backed out:</p> <ul style="list-style-type: none"> <li>Primary Active CMP is on release 12.2</li> <li>Secondary CMP cluster is on pre-12.2 release</li> <li>Up to Date column shows Y for all servers in the primary CMP cluster</li> </ul> <table border="1"> <thead> <tr> <th>Name</th> <th>Alarm Severity</th> <th>Up to Date</th> <th>Server Role</th> <th>Running Release</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td colspan="6"><b>CMP Site1 Cluster (2 Servers)</b></td> </tr> <tr> <td>guam-cmp-1b</td> <td></td> <td>Y</td> <td>Active</td> <td>12.2.0.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> <tr> <td>guam-cmp-1a</td> <td></td> <td>Y</td> <td>Standby</td> <td>12.2.0.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at</td> </tr> <tr> <td colspan="6"><b>CMP Site2 Cluster (2 Servers)</b></td> </tr> <tr> <td>guam-cmp-2a</td> <td>Critical</td> <td>N</td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> <td>Initiate backout Completed Successfully at</td> </tr> <tr> <td>guam-cmp2b</td> <td>Critical</td> <td>N</td> <td>Standby</td> <td>12.1.1.0.0_14.1.0</td> <td>Initiate backout Completed Successfully at</td> </tr> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Running Release	Upgrade Operation	<b>CMP Site1 Cluster (2 Servers)</b>						guam-cmp-1b		Y	Active	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at	guam-cmp-1a		Y	Standby	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at	<b>CMP Site2 Cluster (2 Servers)</b>						guam-cmp-2a	Critical	N	Active	12.1.1.0.0_14.1.0	Initiate backout Completed Successfully at	guam-cmp2b	Critical	N	Standby	12.1.1.0.0_14.1.0	Initiate backout Completed Successfully at
Name	Alarm Severity	Up to Date	Server Role	Running Release	Upgrade Operation																																							
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<b>CMP Site2 Cluster (2 Servers)</b>																																												
guam-cmp-2a	Critical	N	Active	12.1.1.0.0_14.1.0	Initiate backout Completed Successfully at																																							
guam-cmp2b	Critical	N	Standby	12.1.1.0.0_14.1.0	Initiate backout Completed Successfully at																																							
2. <input type="checkbox"/>	<p><b>CMP GUI:</b> backout standby Primary CMP cluster</p> <p><b>NOTE:</b> backout of one server will take approximately 40 minutes to complete.</p>	<p><b>Upgrade → Upgrade Manager</b></p> <ol style="list-style-type: none"> <li>Select the checkbox for the Primary CMP cluster (you can use the Filter button to show the CMP clusters only)</li> <li>Click <b>Start Rollback</b>. When hovering over the button, it will inform you of the server to get backed out.</li> </ol>  <ol style="list-style-type: none"> <li>Click <b>OK</b> to confirm and continue with the operation. It will begin to backout. The server will go into an OOS Server Role</li> </ol> <p>Follow the progress of the status in the Upgrade Operation column.</p> <p>During the backout activities, the following alarms may be generated and considered normal reporting events—these will be cleared after the cluster is completely backed out.</p> <p><b>Expected Critical Alarms</b></p> <ul style="list-style-type: none"> <li><b>31283</b> Lost Communication with server</li> <li><b>31227</b> HA availability status failed</li> <li><b>70001</b> QP_procmgr failed</li> <li><b>31236</b> HA Link Down</li> </ul> <p><b>Expected Major Alarm</b></p> <ul style="list-style-type: none"> <li><b>70004</b> QP Processes down for maintenance</li> <li><b>31233</b> HA Path Down</li> </ul> <p><b>Expected Minor Alarms</b></p> <ul style="list-style-type: none"> <li><b>31114</b> DB replication over SOAP has failed</li> <li><b>31106</b> Database merge to parent failure</li> </ul>																																										

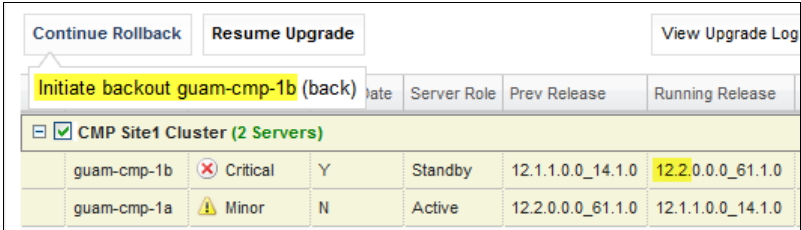
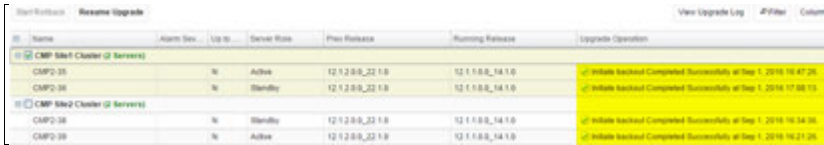
## Software Upgrade Procedure

**NOTE:** The Secondary CMP Site2 cluster to be backed out first using the Upgrade Manager—followed by the Primary CMP Site1 cluster.

Step	Procedure	Result
		<p> <b>31107</b> Database merge from child failure  <b>31101</b> Database replication to slave failure  <b>31102</b> Database replication from master failure  <b>31113</b> DB replication manually disabled  <b>70503</b> Server Forced Standby  <b>70507</b> Upgrade In Progress  <b>70500</b> System Mixed Version  <b>70501</b> Cluster Mixed Version  <b>78001</b> Rsync Failed  <b>70502</b> Cluster Replication Inhibited                 </p> <p>Backout of the server is complete when the 'initiate backout completed successfully' message shows in the Upgrade Operation column. The server will go back to standby state and show the previous release.</p> 
3. <input type="checkbox"/>	<b>CMP GUI:</b> Continue the backout. Next operation is failover	<p><b>Upgrade → Upgrade Manager</b></p> <ol style="list-style-type: none"> <li>Select the checkbox for the Primary CMP cluster</li> <li>Click <b>Continue Rollback</b>. When hovering over the button, it will inform you it will fail over.</li> </ol>  <ol style="list-style-type: none"> <li>Click <b>OK</b> to confirm and continue with the operation. It will begin the failover process.</li> </ol> <p>Failover takes a couple minutes.</p>
4. <input type="checkbox"/>	<b>CMP GUI:</b> Log back in to the Primary CMP VIP	<p>After failover, you will be required to log back in to the CMP GUI using the Primary CMP VIP.</p> 

## Software Upgrade Procedure

**NOTE:** The Secondary CMP Site2 cluster to be backed out first using the Upgrade Manager—followed by the Primary CMP Site1 cluster.

Step	Procedure	Result
5. <input type="checkbox"/>	<b>CMP GUI:</b> Verify release	Navigate to <b>Help</b> → <b>About</b> . Verify the release number is not 12.2 anymore.
6. <input type="checkbox"/>	<p><b>CMP GUI (12.1.x):</b> Continue the backout of the Primary CMP cluster</p> <p><b>NOTE:</b> The backout of one server takes approximately 40 minutes to complete.</p>	<p><b>Upgrade → Upgrade Manager</b></p> <ol style="list-style-type: none"> <li>Select the checkbox for the Primary CMP cluster</li> <li>Click <b>Continue Rollback</b>. When hovering over the button, it will inform you of the server to back out. In this case, it will be the current standby server still running 12.2.</li> </ol>  <ol style="list-style-type: none"> <li>Click <b>OK</b> to confirm and continue with the operation. It will begin to backout. Server will go in an OOS server Role</li> </ol> <p>Follow the progress in the Upgrade Operation column.</p> <p>During the backout activities, the following alarms may be generated and are considered normal reporting events. These will be cleared after the cluster is completely backed out.</p> <p><b>Expected Critical Alarms</b></p> <ul style="list-style-type: none"> <li><b>31283</b> Lost Communication with server</li> <li><b>31227</b> HA availability status failed</li> <li><b>70001</b> QP_procmgr failed</li> </ul> <p><b>Expected Major Alarm</b></p> <ul style="list-style-type: none"> <li><b>70004</b> QP Processes down for maintenance</li> </ul> <p><b>Expected Minor Alarms</b></p> <ul style="list-style-type: none"> <li><b>70503</b> Server Forced Standby</li> <li><b>70507</b> Upgrade In Progress</li> <li><b>70500</b> System Mixed Version</li> <li><b>70501</b> Cluster Mixed Version</li> <li><b>78001</b> Rsync Failed</li> <li><b>70502</b> Cluster Replication Inhibited</li> <li><b>31114</b> DB replication over SOAP has failed</li> <li><b>31106</b> Database merge to parent failure</li> <li><b>31107</b> Database merge from child failure</li> <li><b>31101</b> Database replication to slave failure</li> <li><b>31102</b> Database replication from master failure</li> <li><b>31113</b> DB replication manually disabled</li> </ul> <p>Backout of the server is complete when the following message (initiate backout completed successfully) shows in the Upgrade Operation column. The server will go back to standby state and show the previous release.</p> 

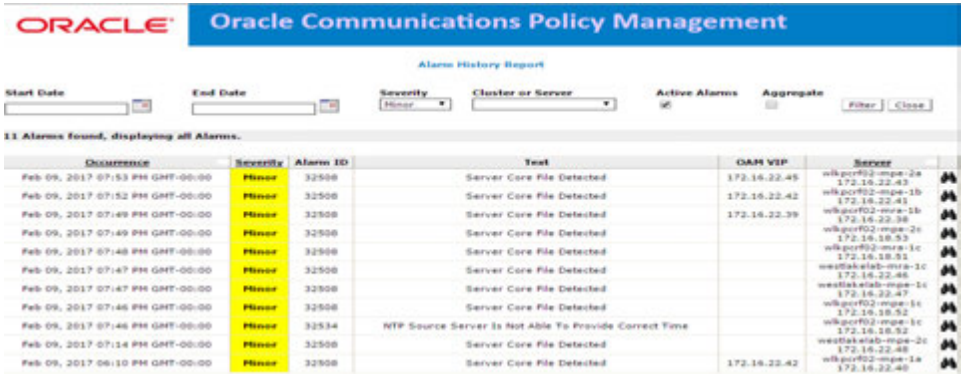
# Software Upgrade Procedure

**NOTE:** The Secondary CMP Site2 cluster to be backed out first using the Upgrade Manager—followed by the Primary CMP Site1 cluster.

Step	Procedure	Result
7. <input type="checkbox"/>	Final syscheck	A syscheck on all the backed out servers, can be performed to ensure all modules are still operationally OK before progressing to the next procedure.
<b>THIS PROCEDURE HAS BEEN COMPLETED</b>		

## APPENDIX A. CORRECTING SERVER CORE FILE DETECTED ALARMS

### Appendix A: Correcting Server Core File Detected Alarms

<p><b>S</b> <b>T</b> <b>E</b> <b>P</b> <b>#</b></p>	<p>After the upgrades, if old core file detected alarms are generated, this procedure corrects these alarms.</p> <p>This procedure should be performed during a maintenance window.</p> <p>Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.</p> <p>IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.</p> <p>NOTE: THIS PROCEDURE SHOULD TAKE APPROXIMATELY 10 MINUTES PER BLADE OR RMS SERVER.</p>	
<p>1. <input type="checkbox"/></p>	<p><b>CMP GUI: Login into the CMP GUI using VIP address as 'admin' or user with admin privileges</b></p>	<p>Login into the PCRF CMP GUI as <b>'admin'</b> using the VIP IP Address</p>
<p>2. <input type="checkbox"/></p>	<p><b>CMP GUI: Verify active alarms</b></p>	<p>In the upper right hand corner of the GUI, click on Minor alarms and check if <b>'Server Core File Detected'</b> alarm(s) are present.</p>  <p>If <b>'Server Core File Detected'</b> alarms are present, then proceed to the next step, otherwise <b>Stop</b> and there is no need to perform this procedure.</p>
<p>3. <input type="checkbox"/></p>	<p><b>CMP GUI: Note down the server IP(s) for which 'Server Core File Detected' alarm was generated</b></p>	<p>Note down the server IP addresses for which <b>'Server Core File Detected'</b> alarm was generated.</p>
<p>4. <input type="checkbox"/></p>	<p><b>SSH CLI: Login to each of the servers and verify that core files are present</b></p>	<p>Login as <b>'admusr'</b> to each of the noted servers using SSH</p> <p>Change the user to <b>'root'</b> and change directory to <b>/var/TKLC/core</b></p> <pre>\$ sudo su - # cd /var/TKLC/core</pre>

## Software Upgrade Procedure

### Appendix A: Correcting Server Core File Detected Alarms

		<pre># ls</pre> <p>Example:</p> <pre>core.java.9499 core.java.9499.bt</pre> <pre># ls /var/camiant/cores</pre> <p>Example:</p> <pre>core.java.9499</pre> <p>Note: Where '9499' is the java's <b>proc_id</b> and will be different for each server.</p>
<p>5.</p> <input type="checkbox"/>	<p><b>SSH CLI:</b> cat the <b>core.java.&lt;proc_id&gt;.bt</b> file</p>	<p>'cat' the <b>core.java.&lt;proc_id&gt;.bt</b> file and verify that the core file was generated by 'java' due to 'Program terminated with signal 3'</p> <pre># cd /var/TKLC/core</pre> <pre># cat core.java.&lt;proc_id&gt;.bt</pre> <p>Note: User may need to scroll up</p> <p><b>Example below:</b></p> <pre>=====</pre> <pre>[New Thread 9499]</pre> <pre>[New Thread 9571]</pre> <pre>Core was generated by `/usr/java/jdk1.7.0_72/bin/java -</pre> <pre>Djava.util.logging.config.file=/opt/camiant/tom'.</pre> <pre>Program terminated with signal 3, Quit.</pre> <pre>#0  0x00000039eba0822d in ?? ()</pre> <pre>=====</pre> <p>If the reason was due to 'Program terminated with signal 3', proceed to the next step; otherwise if the reason was something else then Contact Oracle Support.</p>
<p>6.</p> <input type="checkbox"/>	<p><b>SSH CLI:</b> Remove the corresponding core files</p>	<p>Remove the following files:</p> <ul style="list-style-type: none"> <li>- /var/camiant/cores/corefile.java.&lt;proc_id&gt;</li> <li>- /var/TKLC/core/corefile.java.&lt;proc_id&gt;.bt</li> <li>- /var/TKLC/core/ corefile.java.&lt;proc_id&gt;</li> </ul> <pre># cd /var/camiant/cores</pre> <pre># rm -rf core.java.&lt;proc_id&gt;</pre> <pre># cd /var/TKLC/core</pre> <pre># rm -rf core.java.&lt;proc_id&gt;.bt</pre> <pre># rm -rf core.java.&lt;proc_id&gt;</pre>



**Software Upgrade Procedure**

**Appendix A: Correcting Server Core File Detected Alarms**

		<pre># exit \$</pre>
7. <input type="checkbox"/>	<b>CMP GUI:</b> Verify alarms	On the CMP GUI, verify that the corresponding <b>'Server Core File Detected'</b> alarms have been cleared.
<b>This procedure has been completed.</b>		

### **APPENDIX B. ACCESSING THE ORACLE CUSTOMER SUPPORT SITE AND HOTLINES**

Access to the Oracle Customer Support site is restricted to current Oracle customers only. This section describes how to log into the Oracle Customer Support site and link to Oracle Support Hotlines

1. Log into the Oracle Customer Support site at <https://support.oracle.com>
2. Refer Oracle Support Hotlines <http://www.oracle.com/us/support/contact/index.html> and <http://www.oracle.com/us/corporate/acquisitions/tekelec/support/index.html>