

Oracle® Communications Software Upgrade Procedure

Policy Management 9.9.2/11.5.x/12.1.x to 12.2 Upgrade Procedure Non-CMP Georedundancy Disabled

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CAUTION: Use only the Upgrade procedure included in the Upgrade Kit. Before upgrading any system, please access Oracle's Customer Support site and review any Technical Service Bulletins (TSBs) that relate to this upgrade. Refer to 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.

EMAIL: support@oracle.com

Software Upgrade Procedure

Oracle Communications Policy Management 9.9.2/11.5.x/12.1.x to 12.2 Upgrade Procedure Non-CMP Georedundancy Disabled
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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 9.9.2/11.5/12.1.x to Release 12.2 when georedundancy on non-CMP components (i.e., MPE/MRA/MA/BoD/Mediation) is disabled.

>Firmware Upgrades may be required, but will not be covered in this document.

The non-georedundant MPE/MRA/MA/BoD/Mediation cluster scheme only has two servers ‘Active’ and ‘Standby’ co-located on one site.

Two sites may be used in Policy Management deployments, namely, a Site1 or Primary Site and a Site2 or Secondary Site. The primary MRA/MPE/Mediation cluster of ‘Active’ & ‘Standby’ resides on Site1 while the secondary MRA/MPE/Mediation cluster of ‘Active’ & ‘Standby’ resides on Site2 for disaster recovery.

1.2 Acronyms

BoD	Bandwidth on Demand - a type of component in a cable Policy Management solution
CMP	Configuration Management Product NOTE: It usually refers to the CMP on the primary site
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
LVM	Logical Volume Manager
MA	Management Agent - a type of component in a cable Policy Management solution
MPE	Multimedia Policy Engine
MPE-LI	MPE for Lawful Intercept - a type of Multimedia Policy Engine
MPE-R	Routing MPE - a type of component in a cable Policy Management solution
MPE-S	Servicing MPE - a type of component in a cable Policy Management solution
MRA	Multiprotocol Routing Agent (also referred to as Policy Front End or PFE)
MS	Mediation Server
PC	Policy Counter
PCEF	Policy Control Enforcement Function
PCRF	Policy and Charging Rules Function – An Oracle Communications Policy Management system
PM&C	Platform Management and Configuration
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
TVOE	Tekelec Virtualization Operating Environment
UE	User Equipment
UM	Upgrade Manager – The CMP GUI pages that the operator uses to perform an upgrade
VO	Verification Office

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1.3 Terminology

Primary Site (Site1) – A site where the MPE/MRA/MA/BoD/Mediation primary cluster exists with co-located Active and Standby servers

Secondary Site (Site2) – A site where the MPE/MRA/MA/BoD/Mediation secondary cluster exists with co-located Active and Standby servers for disaster recovery

1.4 Software Release Numbering

- PMAC: 6.0.3
- TVOE: 3.0.3
- TPD: 7.0.3
- COMCOL: 6.4
- Policy Management Release 12.2
- Oracle Firmware: 3.1.5
- HP Firmware: Firmware Upgrade Pack 2.2.9

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 Path

This upgrade document supports the following upgrade paths:

1. Policy Management 9.9.2 to 12.2
2. Policy Management 11.5.x (both cable and wireless) to 12.2
3. Policy Management 12.1.x to 12.2

2.3 Upgrade Information

2.3.1 Upgrade Sequence

An upgrade procedure applies to an Active/Standby pair of servers. This pair of servers is referred to as a “cluster” or “HA cluster”. A cluster can be of different types: CMP, MRA, MPE, MA, BoD, or [Mediation](#) depending on the mode. For a CMP cluster, the cluster status may also be Primary site and/or Secondary site.

A customer deployment may consist of multiple clusters.

Required Cluster Upgrade Sequence:

Policy Server software upgrades will be performed on a cluster by cluster basis at the primary and secondary sites within the same maintenance window.

The following is the general upgrade sequence, specific procedures/steps can further be documented by an Oracle provided MOP.

The following are the steps for a Policy Management system upgrade procedure (specific process for customers will be documented by an Oracle provided MOP):

1. Upgrade PM&C Server at Site 1 – Needed if version is older than what is listed in section 1.4

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2. Upgrade PM&C Server at Site 2 – Needed if version is older than what is listed in section 1.4
3. Firmware Upgrade – If needed (not covered in this document)
4. Upgrade Primary (Site1) CMP
5. Upgrade Secondary (Site2) CMP (if applicable)
6. Upgrade MPE/MRA/MA/BoD/Mediation (see note below)

NOTE: MPE/MRA/MA/BoD/Mediation clusters can be upgraded in parallel, a maximum of 4 at a time (except for upgrades from 12.1.x where 8 clusters can be upgraded in parallel).

2.3.2 Policy Release Mixed-Version Operation & 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, a system that is running pre-12.2 release and 12.2 release in mixed configuration would support the performance and capacity of the pre-12.2 release. The mixed version Policy Management configuration would also support pre-12.2 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 MRA/MPE/MA/BoD/Mediation servers in a pre-12.2 release. In this mixed version configuration, a Release 12.2 CMP will not prevent an operator from configuring anything that can be configured 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, a 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/MA/BoD/Mediation servers is limited to parameters that are available in the previous version. Specifically:
 - Network Elements can be added

Mixed-version configurations supported

Policy Management system components on	CMP R12.2	MRA R12.2	MPE R12.2	MA R12.2	BoD 12.2	<u>Mediation</u> 12.2
CMP R9.9.2, 11.5, 12.1.x	Yes	No	No	No	No	Yes
MRA R9.9.2, 11.5, 12.1.x	Yes	Yes	Yes	N/A	N/A	Yes
MPE R9.9.2, 11.5, 12.1.x	Yes	Yes	Yes	Yes	Yes	Yes
MA 11.5	Yes	N/A	Yes	Yes	Yes	N/A
BoD 11.5	Yes	N/A	Yes	Yes	Yes	N/A
<u>MDF/MSMediation</u> 9.9.2	Yes	Yes	Yes	N/A	N/A	Yes

Note: Replication between CMP and DR-CMP is automatically disabled during upgrade of CMP and DR-CMP 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, switching over from the Active to the Standby, and upgrading the second server (i.e., the new Standby). The switchover of each cluster will have a small impact on traffic being processed at that cluster, as in the past releases upgrades.

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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 discovered during or after upgrade.

2.6 TPD Version

The Tekelec Product Distribution (TPD) version needed for this release is included in the Policy Application Software Upgrade ISO, and TPD will be upgraded to version 7.0.3 as part of this procedure.

In the case of IPM or clean install of a new server, the supported baseline TPD version 7.0.3 should be installed prior to upgrading to Policy Release 12.2.

2.7 Server Hardware Platforms

The Policy Management Release 12.2 software upgrade can be applied on any server that previously had Policy Management Release 9.9.2, 11.5, or 12.1.x

2.8 Loading Application software

For upgrade of server application software, the recommended method is to copy the application ISO images to the servers using *scp* or *ftp*. If the system is HP c-Class using a PM&C Server, the application software must also be loaded into the PM&C software management library to support new installs and FRU activities.

NOTE: PM&C is not used during the Upgrade and Backout procedures.

2.9 Required Materials and Remote Access

1. Policy 12.2 software ISO's and TPD software ISO
2. Policy 12.2 software upgrade Release Notes.
3. TVOE, PM&C upgrade/installation documentation, software ISOs and TPD ISO. (If applicable)
4. Firmware Upgrade Pack 2.2.9 (or higher) documentation and ISOs. (If applicable)
5. The capability to remote 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.*

6. 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.
7. User logins, passwords, IP addresses and other administration information.
8. VPN access to the customer's network is required if that is the only method for remote logging into the target servers. It must be also possible to access the Policy Manager GUI, and the PM&C GUI.

2.9.1 Upgrade Media

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

2.9.2 Login Users and Passwords

Logins, passwords and server IP addresses

The IP address assignments for each site, from the appropriate Oracle Network IP Site Survey/NAPD, must be available. This ensures that the necessary administration information is available prior to an upgrade.

Further, need to confirm login information for key interfaces, and document in table below.

[It is assumed that the logins may be common among the customer sites. If not, record for each site.]

NOTE: *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 permanent form.*

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Table-1: Logins, Passwords and Server IP Addresses

Item	Value
CMP servers	GUI Administrator Login User/Password:
	admusr password:
MRA/MPE servers	admusr password:
Target iLO	iLO Administrator Login: User/Password
Target OA	OA Administrator Login: User/Password
PM&C server	GUI Administrator Login User/Password:
	admusr password:
Software Upgrade Target Release ¹	Target Release Number:
	Policy 12.2 software ISO Image (.iso) filenames.

¹ 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 some of the 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 ‘pulldown menu selects’. 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.

There is an important 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 bulk select a group of servers. In fact, in order to perform any operation, it is necessary to select a cluster first.

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

Current ISO: [standard-upgrade-12.0.0.0_99.9.0](#)

Start Rollback		Start Upgrade		View Upgrade Log				Filter	Columns	Advanced
Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation				
CMP Site1 Cluster (2 Servers)										
chris9		Y	Standby	11.1.2_3.1.0	12.0.0.0_99.9.0	Initiate upgrade Completed Successfully at Feb 8, 2015 21:30:15.				
chris10		Y	Active	11.1.2_3.1.0	12.0.0.0_99.9.0	n/a				
TestMPE (2 Servers)										
chris16		Y	Active	11.1.2_3.1.0	12.0.0.0_99.9.0	Initiate upgrade Completed Successfully at Feb 9, 2015 10:25:15.				
chris15		Y	Standby	11.1.2_3.1.0	12.0.0.0_99.9.0	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 fairly self-explanatory. With that said, there are three items that deserve a deeper discussion.

- Start Rollback/Start Upgrade buttons (upper left) – If these buttons are greyed out, it means that there isn’t an appropriate action to take at this time. However, if a button isn’t greyed out, 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 simply cause the upgrade director to choose the default sequence. It is strongly recommended to exclusively use these buttons to upgrade/backout a cluster.
- 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 we expect servers to raise alarms:
 - The CMP will raise alarms simply to indicate that it is initiating upgrade activity.
 - Servers will report alarms to indicate that their mate servers are offline.

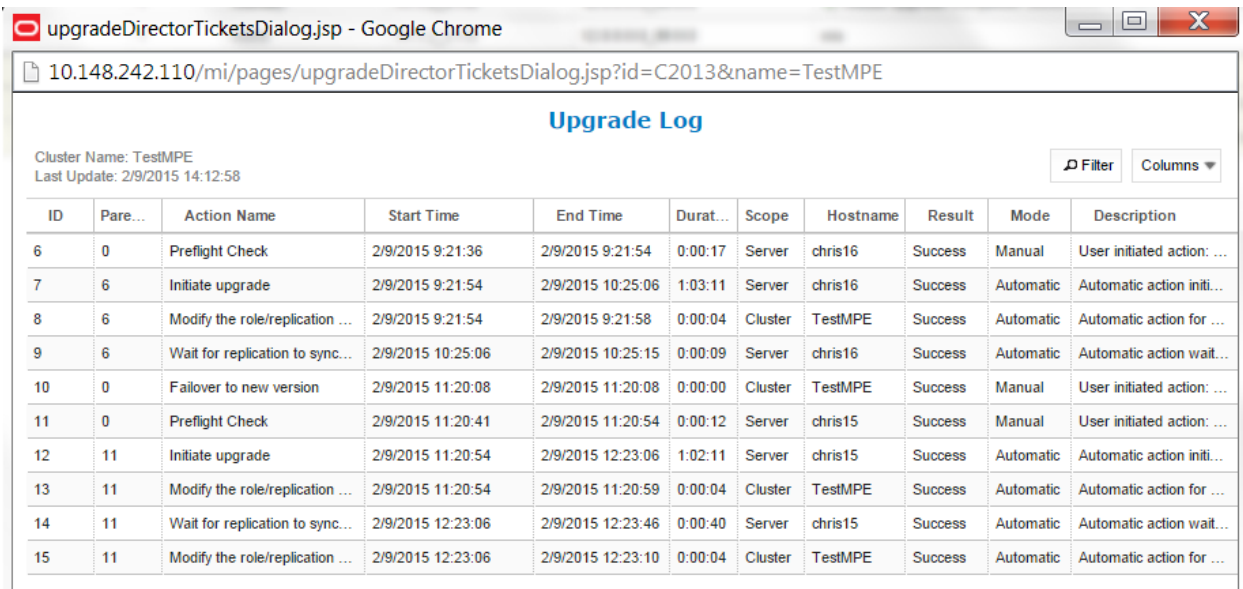
However, if alarms are asserted for a server, it is good practice to look at the alarms prior to initiating upgrade activity on them.

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- Up to Date – This column is used to indicate the state of the code on the server.
 - ‘N’ -> The server is running old code needs to be upgraded
 - ‘Y’ -> The server is running new code.
 - ‘N/A’ -> Upgrade is not appropriate and/or the server is in a bad state

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 just using the ‘upgrade’ and ‘backout’ buttons. When the operator clicks these buttons, the upgrade director will perform 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 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 pulldown menu. It is important to note that this menu will ONLY be populated with legal/reasonable actions. Actions that are wrong/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 work out to either;

“A standard (full) upgrade to version XXX”

“An incremental upgrade to version XXX”

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When the operator wants to start a new upgrade, they 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. This way, the CMP ISO is always tightly tied to the corresponding upgrade procedure.

When you select a new ISO, you are telling the upgrade director to abandon its current upgrade procedure in favor of a brand new procedure.

3.1.4 Introducing upgrade director behavior

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

3.1.4.1 Alarm philosophy

In general, the upgrade director will raise alarms if

- 1) A server is somehow impaired
- 2) There is activity expected of an operator.

The table below summarizes the alarms that can be raised in 12.2

Alarm ID	Name	Description
70500	SYSTEM_MIXED_VERSION	The servers in the topology are running different versions of software. Upgrade of the system is not complete.
70501	CLUSTER_MIXED_VERSION	The servers in the specified cluster are running different versions of software. The upgrade of the cluster is not complete.
70502	REPLICATION_INHIBITED	Replication is inhibited to the specified server. It is not receiving session information.
70503	SERVER_FORCED_STANDBY	The specified server has been placed in forced standby and cannot provide service.
70506	UPGRADE_OPERATION_FAILED	An upgrade operation failed on the specified server.
70507	UPGRADE_IN_PROGRESS	An upgrade/backout is currently in progress on the server. It may leave the cluster, become unreachable or even reboot.
70508	ZOMBIE_SERVER	The server is in an indeterminate state and needs to be repaired by support.

3.1.4.2 General upgrade procedure

In general, the upgrade of a server goes through 3 steps.

- 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. We do not want a false positive preventing 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 for an operator to login to the target server to verify conditions. They should be able to comfortably stay on the upgrade manager page.

Software Upgrade Procedure

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 newly promoted UD 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 can't 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.

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 can't 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 something that we expose 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.

Overview:

1. Upgrade TVOE & PM&C Server at Site 1 (if applicable)
2. Upgrade TVOE & PM&C Server at Site 2 (if applicable)
3. Firmware (if applicable)
4. Upgrade Primary (Site1) CMP
5. Upgrade Secondary (Site2) CMP (if applicable)

6. Segment 1 Site 1:

Upgrade MPE clusters
Upgrade MRA clusters
Upgrade ~~MDF/MS~~Mediation clusters (for R9.9.2. If needed, recommend to upgrade UDR clusters first to compatible version)

7. Segment 1 Site 2:

Upgrade MPE clusters
Upgrade MRA clusters
Upgrade ~~MDF/MS~~Mediation clusters (for R9.9.2)

8. Segment 2 Site 1:

Upgrade MPE clusters
Upgrade MRA clusters
Upgrade ~~MDF/MS~~Mediation clusters (for R9.9.2)

9. Segment 2 Site 2:

Upgrade MPE clusters
Upgrade MRA clusters
Upgrade ~~MDF/MS~~Mediation clusters (for R9.9.2)

Software Upgrade Procedure

4.1 Pre-requisites

The following Procedure 1 table verifies that all required prerequisite steps needed to be performed before the upgrade procedure begins.

Procedure 1

TVOE, PM&C and Firmware might need to be upgraded prior to Upgrade to Policy Management Release 12.2.		
Step	Procedure	
1. <input type="checkbox"/>	Verify all required materials are present	As listed in Section: "Required Materials & Remote Access"
2. <input type="checkbox"/>	Review Release Notes	Review Policy Release 12.2 for the following information: <ul style="list-style-type: none"> - Individual Software components and versions included in target release - New features included in target release - Issues (Oracle BUGs) resolved in target release - Known Issues with target release - Any further instructions that may be required to complete the Software Upgrade for the target release. In particular, the supported browsers: In release 12.2, only Mozilla Firefox and Google Chrome are fully supported.

4.2 TVOE and PM&C Server Upgrade

Policy Release 12.2 requires PM&C version 6.0.3 to support the IPM of TPD 7.0.3 on c-Class blades.

PM&C shall IPM TPD on a c-Class if the blade is newly introduced either for disaster recovery (DR) or adding new blades to an enclosure (e.g. capacity expansion).

Appendix A describes in detail the upgrade of TVOE and PM&C.

4.3 Firmware Upgrade

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

4.4 Plan and Track Upgrades

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

1. Upgrade TVOE and PM&C Server and deploy firmware upgrade if necessary
2. Upgrade CMP cluster(s)
3. Upgrade non-CMP clusters

The following table 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 procedures without backout procedure. Backout procedure time is typically same as, or less than the upgrade procedure.

Step	Procedure	Result	Engineer	Time
------	-----------	--------	----------	------

Software Upgrade Procedure

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 Site A and Site B TVOE/PM&C	Site Names _____ & _____		3 hrs
3. <input type="checkbox"/>	Upgrade Site1 and Site2 CMP clusters	Site Names _____ & _____		3 hrs
4. <input type="checkbox"/>	Upgrade Site1 non-CMP clusters for Segment-1	Site Names _____ Cluster List:		2 hrs
5. <input type="checkbox"/>	Upgrade Site2 clusters for Segment-1	Site Names _____ Cluster List:		2 hrs
6. <input type="checkbox"/>	Upgrade Site1 clusters for Segment-2	Site Names _____ Cluster List:		2 hrs

Software Upgrade Procedure

Step	Procedure	Result	Engineer	Time
7. <input type="checkbox"/>	Upgrade Site2 clusters for Segment-2	Site Names _____ Cluster List:		2 hrs

Software Upgrade Procedure

4.5 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:

- **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.

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

4.6 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 24-36 hours prior to the start of a maintenance window.

Step	Procedure	Result
1. <input type="checkbox"/>	CMP GUI access	Open a supported browser (i.e., Mozilla Firefox or Google Chrome) 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. IMPORTANT: <i>Before starting any upgrade activity, please ensure that all Active Alarms are well understood and resolved.</i>
3. <input type="checkbox"/>	View KPI reports	Verify that the system is running within expected parameters. Export current KPIs to save into a file.

Software Upgrade Procedure

Step	Procedure	Result
4. <input type="checkbox"/>	<p>Confirm NTP servers reachable from all the servers (CMP and non-CMP) to be upgraded</p> <p>NOTE: <i>If the time across the servers is out of synch, fix it first and re-validate this step, before starting the upgrade procedures.</i></p>	<ul style="list-style-type: none">- Validate the IP connectivity between the server and NTP servers with command <i>ping</i>.- Confirm that time is synchronized on each server with CLI shell command of: <pre>ntpq -np</pre>- Confirm the date is correct on each server.- Check that BIOS clock is sync'd with the clock using the shell command: <pre>hwclock</pre>

Software Upgrade Procedure

4.7 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/SFTP or, post release 12.0, also using the Upgrade Manager. Because of the large size of the software ISOs, sufficient time should be planned to accomplish this step. For Policy Release 12.2, each ISO image size is about 1.0 Gigabytes.

4.7.1 Deploying Policy Upgrade Software to Servers

There are several possible software images in this upgrade (CMP, MPE, MPE-LI, MRA, MA, BoD, **MDF/MSMediation**). A single image must be deployed to the upgrade (`/var/TKLC/upgrade`) directory of each server to be upgraded, where the image is the correct type for that server. i.e., the new CMP software image must be deployed to the CMP servers, the new MPE image deployed to the MPE servers, the MRA image deployed to the MRA servers and so on.

IMPORTANT: *If the deployed image type (CMP, MPE, MRA, **MDF/MSMediation**, 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 via the PM&C GUI, and then the new application type installed.*].

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

4.7.2 Copy ISO image files to the Management Server (PM&C)

NOTE: Not all Policy Management systems use a PM&C server, if that is the case, skip to the next section.

This procedure transfers software upgrade ISO files to the PM&C servers at each site to be upgraded, and loads ISO files into the PM&C Software Image repository. This is done as a placeholder for future use of the software.

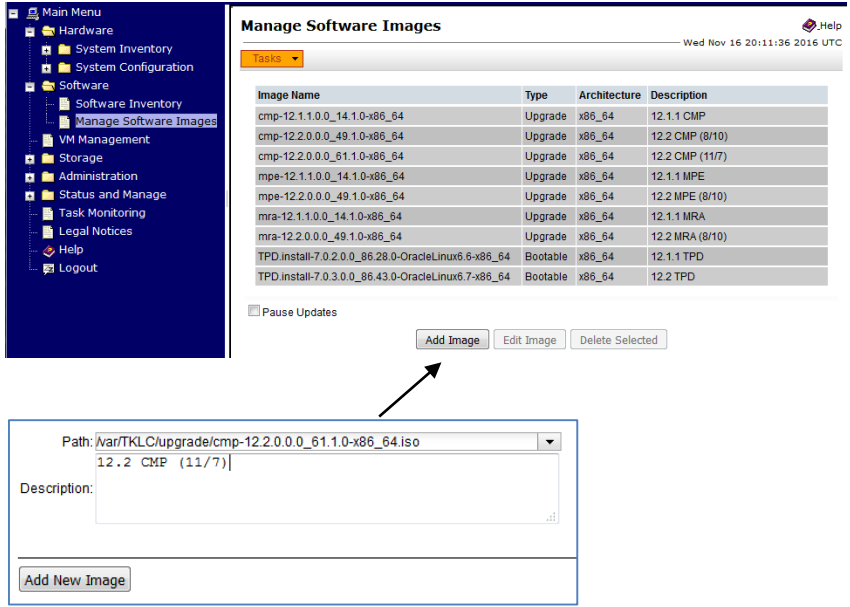
PM&C is not used for the upgrade activities. The purpose of this step is to be prepared for server recovery activities in case a server needs to be re-installed with software.

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, outside of, the scheduled maintenance window. Schedule the required maintenance windows accordingly before proceeding.*

NOTE: *Because the ISO images are large, the procedure includes instructions to check space available in the `/var/TKLC/upgrade` directory before copying the ISOs to this directory. After the “Add Image” action on the PM&C, the ISO images are registered in PM&C, and stored in the `/var/TKLC/smac/image/repository` directory which is very large.*

Step	Procedure	Result
1. <input type="checkbox"/>	PM&C GUI: Verify no Release 12.2 ISO files exist.	<ul style="list-style-type: none">Log on to the PM&C Server GUI Software → Manage Software Images <ul style="list-style-type: none">Confirm no release 12.2 ISO files already exist. If there are, remove them.

Software Upgrade Procedure

Step	Procedure	Result
2. <input type="checkbox"/>	SSH to PM&C server as admusr	<ul style="list-style-type: none"> Log on as admusr to the PM&C server. Change target directory to <i>/var/TKLC/upgrade</i> and ensure there is at least of 3.0 GB free disk space available. <pre>\$cd /var/TKLC/upgrade</pre> <pre>\$df -h /var/TKLC</pre> <p>NOTE: There may be ISOs in the <i>/var/TKLC/upgrade</i> directory, they can be removed to free up disk space or added to the PM&C repository.</p>
3. <input type="checkbox"/>	Copy Release 12.2 ISO files to the target directory in the PM&C server	<ul style="list-style-type: none"> Transfer all required Release 12.2 ISO files (CMP, MPE/MPE-Li, MRA, MA, BoD, MDF/MSMediation) into directory <i>/var/TKLC/upgrade</i> via either the following methods – <ul style="list-style-type: none"> SCP/WGET command in the following steps outline in this Procedure USB drive
4. <input type="checkbox"/>	PM&C GUI: Adding the new Release 12.2 ISO files	<p>Software → Manage Software Images</p> <ul style="list-style-type: none"> Click “Add Image” to select the ISO files that are just transferred into PM&C server.  <p>Click OK on the pop-up</p>

Software Upgrade Procedure

Step	Procedure	Result																
5. <input type="checkbox"/>	PM&C GUI: Verify the new ISO files are added successfully	<p>Software → Manage Software Images</p> <ul style="list-style-type: none"> The status of the image being added can be monitored via the “Task Monitoring” menu with the screen display as the following: <div style="border: 1px solid black; padding: 5px;"> <p>Background Task Monitoring Mon Sep 28 13:43:25 2015</p> <p>Filter ▼</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>ID</th> <th>Task</th> <th>Target</th> <th>Status</th> <th>State</th> <th>Running Time</th> <th>Start Time</th> <th>Progress</th> </tr> </thead> <tbody> <tr> <td>610</td> <td>Add Image</td> <td></td> <td>Done: cmp-12.1.0.0.0_35.1.0.x86_64</td> <td>COMPLETE</td> <td>0:00:20</td> <td>2015-09-28 13:43:09</td> <td>100%</td> </tr> </tbody> </table> </div> <p>NOTE: the newly added ISO files are now stored in directory <i>/var/TKLC/smac/image/repository</i></p>	ID	Task	Target	Status	State	Running Time	Start Time	Progress	610	Add Image		Done: cmp-12.1.0.0.0_35.1.0.x86_64	COMPLETE	0:00:20	2015-09-28 13:43:09	100%
ID	Task	Target	Status	State	Running Time	Start Time	Progress											
610	Add Image		Done: cmp-12.1.0.0.0_35.1.0.x86_64	COMPLETE	0:00:20	2015-09-28 13:43:09	100%											

Software Upgrade Procedure

4.7.3 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, outside of, the scheduled maintenance window. Schedule the required maintenance windows accordingly before proceeding.

Step	Procedure	Result
1. <input type="checkbox"/>	Transfer ISOs to Policy Servers.	<p>- Transfer release 12.2 ISO files (CMP and non-CMP) into the directory /var/TKLC/upgrade on the respective server via either of the following methods -</p> <ul style="list-style-type: none"> - SCP/WGET command OR - USB drive <p><u>OR, if the images are on a server on the same network, scp via CLI.</u></p> <p>Copy CMP software ISO to ONE of the other CMP servers: <code>\$sudo scp 872-* <cmp-12.2x>:/var/TKLC/upgrade/</code></p> <p>Copy MPE software ISO to ONE of the other MPE servers: <code>\$sudo scp 872-* <mpe-12.2x>:/var/TKLC/upgrade/</code></p> <p>Copy MPE-Li software ISO to ONE of the other MPE-Li servers: <code>\$sudo scp 872-* <mpe-Li-12.2x>:/var/TKLC/upgrade/</code></p> <p>Copy MRA software ISO to ONE of the other MRA servers: <code>\$sudo scp 872-* <mra-12.2x>:/var/TKLC/upgrade/</code></p> <p>Copy MDF/MSMediation software ISO to ONE of the other Mediation servers: <code>\$sudo scp 872-* <mediation-12.2.x.x.x>:/var/TKLC/upgrade/</code></p> <p><u>NOTE: After copying the ISO to one of the respective servers, the ISO Maintenance option will be used to upload to the rest of the servers.</u></p> <p>THIS PROCEDURE HAS BEEN COMPLETED</p>

Software Upgrade Procedure

Step	Procedure	Result
4. <input type="checkbox"/>	Identify backup location	Backup location is: _____ Instructions to access to backups are as follows: _____ _____ _____
THIS PROCEDURE HAS BEEN COMPLETED		

4.7.5 Changing Non-Default *root* and *admusr* Passwords

4.7.5.1 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 may cause issues during upgrade from pre-12.1 to 12.2 and above. To prevent those issues, the following procedure has been created.

4.7.5.2 Impact

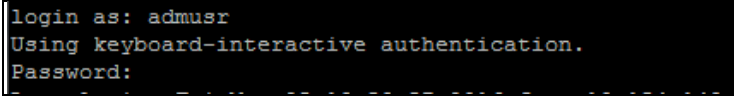
After this procedure is run, the *root* and *admusr* password will be hashed with the strongest possible method, SHA512.

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.

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 this procedure on an 'In-Service' Policy Management

1. Standby CMPs
2. Active CMPs
3. Standby MPEs/MRAs/MAs/BoDs
4. Active MPEs/MRAs/MAs/BoDs

Step	Procedure	Result
1. <input type="checkbox"/>	Login to the every server	<ul style="list-style-type: none"> • For an upgrade from 11.5/12.1.x, login as <i>admusr</i> and change to <i>root</i> using the following command: <pre>\$sudo su</pre>  • For an upgrade from 9.9.2, login as <i>root</i>. <pre>[root@derek local]# ssh root@10.113.0.31</pre> <pre>root@10.113.0.31's password: █</pre>

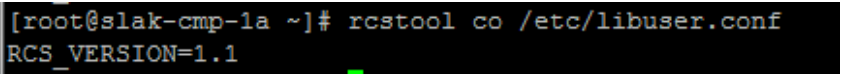
Software Upgrade Procedure

Step	Procedure	Result
2. <input type="checkbox"/>	Check the password field of root and admusr	<p>Issue the following</p> <pre>#egrep '^^(root admusr)' /etc/shadow</pre> <p>Example output:</p> <pre>root:\$6\$mErKrEsA\$83n5G8dR3CgBJjMEABi6b4847EXusUnzTaWNJgEi347B.WhLbIc.Cga.nmYCdQYSNwkt1CtUBi.tBSwWujUd.:16825:0:99999:7::: admusr:\$6\$mUstAfa\$gn2B8TsW1Zd7mqD333999Xd6NznAEgyioQJ7qi4xufHSQpls6A5Jxhu8kjDT8dIgcYQR5Q1ZAtSN8OG.7mkyq/:16825::::</pre> <p><u>If the first two characters after the colon ':' is \$6, then this procedure is not needed on this server. Skip to the next section.</u></p> <p><u>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 4</u></p>
3. <input type="checkbox"/>	Order to perform the change	<p>Perform steps 4-17 in the following order:</p> <ol style="list-style-type: none"> 1. Standby CMPs 2. Active CMPs 3. Standby non-CMP servers 4. Active non-CMP servers
4. <input type="checkbox"/>	Login to the server as admusr	<ul style="list-style-type: none"> • For an upgrade from 11.5/12.1.x, login as <i>admusr</i> and change to <i>root</i> using the following command: <pre>\$sudo su</pre> <pre>login as: admusr Using keyboard-interactive authentication. Password:</pre> • For an upgrade from 9.9.2, login as <i>root</i>. <pre>[root@derek local]# ssh root@10.113.0.31 root@10.113.0.31's password: █</pre>
5. <input type="checkbox"/>	Checkout revisions	<p>Issue the following command</p> <pre>#rcstool co /etc/pam.d/system-auth</pre> <pre>[root@slak-cmp-1a ~]# rcstool co /etc/pam.d/system-auth RCS_VERSION=1.1 [root@slak-cmp-1a ~]# vi /etc/pam.d/system-auth</pre>

Software Upgrade Procedure

Step	Procedure	Result
6. <input type="checkbox"/>	Modify the 'system-auth' file	<p>Open the <i>system-auth</i> file:</p> <pre>#vi /etc/pam.d/system-auth</pre> <p>Modify the file. Change the following line from md5 to sha512</p> <p>Modify the below line with sha512 instead of md5 (Current line indicates currently configured in server. Modified Line indicates modification which needs to be implemented)</p> <p><u>Current Line:</u></p> <pre>password sufficient pam_unix.so md5 shadow nullok try_first_pass use_authtok</pre> <p><u>Modified Line:</u></p> <pre>password sufficient pam_unix.so sha512 shadow nullok try_first_pass use_authtok</pre> <pre>##PAM-1.0 # This file is auto-generated. # User changes will be destroyed the next time authconfig is run. auth required pam_env.so auth sufficient pam_unix.so nullok try_first_pass auth requisite pam_succeed_if.so uid >= 500 quiet auth required pam_deny.so account required pam_unix.so account sufficient pam_localuser.so account sufficient pam_succeed_if.so uid < 500 quiet account required pam_permit.so password requisite pam_cracklib.so try_first_pass retry=3 type= enforce for_root minclass=3 password sufficient pam_unix.so sha512 shadow nullok try_first_pass use_authtok password required pam_deny.so session optional pam_keyinit.so revoke session required pam_limits.so session [success=1 default=ignore] pam_succeed_if.so service in crond quiet use_uid session required pam_unix.so</pre>
7. <input type="checkbox"/>	Save the file	<p>If the file required changing</p> <pre>#rcstool ci /etc/pam.d/system-auth</pre> <p>if the file was already configured</p> <pre>#rcstool unco /etc/pam.d/system-auth</pre>
8. <input type="checkbox"/>	Checkout revisions for 'login.defs'	<pre>#rcstool co /etc/login.defs</pre> <pre>[root@slak-cmp-1a ~]# rcstool co /etc/login.defs RCS_VERSION=1.1</pre>
9. <input type="checkbox"/>	Edit login.defs	<p>(Shadow password suite configuration)</p> <p>Open the <i>login.defs</i> file:</p> <pre>#vi /etc/login.defs</pre> <p>Modify the below line with SHA512 instead of MD5</p> <p><u>Current Line:</u> ENCRYPT_METHOD MD5</p> <p><u>Modified Line:</u> ENCRYPT_METHOD SHA512</p> <p>NOTE: The line to edit is at the bottom of the file</p> <p>Comment out the following line if necessary:</p> <pre>MD5_CRYPT_ENAB yes</pre>

Software Upgrade Procedure

Step	Procedure	Result
10. <input type="checkbox"/>	Save the File	<p><i>If the file required changing</i></p> <pre>#rcstool ci /etc/login.defs</pre> <p><i>if the file already was configured</i></p> <pre>#rcstool unco /etc/login.defs</pre>
11. <input type="checkbox"/>	Checkout revisions for 'libuser.conf	<pre># rcstool co /etc/libuser.conf</pre> 
12. <input type="checkbox"/>	Edit libuser.conf	<p>Open the <i>libuser.conf</i> file:</p> <pre>#vi /etc/libuser.conf</pre> <p>Modify the below line with <i>sha512</i> instead of <i>md5</i></p> <p><u>Current Line:</u> crypt_style = md5</p> <p><u>Modified Line:</u> crypt_style = sha512</p> <p><u>NOTE:</u> The line to edit is close to the top of the file.</p>
13. <input type="checkbox"/>	Save the File	<p><i>If the file required changing</i></p> <pre>#rcstool ci /etc/libuser.conf</pre> <p><i>if the file already was configured</i></p> <pre>#rcstool unco /etc/libuser.conf</pre>
14. <input type="checkbox"/>	Set the admusr and root passwords	<p>For root user</p> <pre>#passwd root</pre> <p>For admusr user</p> <pre>#passwd admusr</pre>
15. <input type="checkbox"/>	Verify	Logout of the current session and re-login using the new password credentials.
THIS PROCEDURE HAS BEEN COMPLETED		

5. PRE-UPGRADE TASKS (9.9.2 TO 12.2)

5.1 Accepting Previous Upgrade

This is ONLY applicable if any previous Policy Management upgrade on all clusters has not been accepted, otherwise skip this section and go directly to the next section. If a previous upgrade was not accepted, after the first server of a cluster is upgraded, upgrade of the second server will fail validation.

Use **Accept Upgrade** to accept the previous upgrade. This function removes backout information, so once the upgrade is accepted for any server in a cluster, that cluster cannot be rolled back.

This procedure has to be done during Maintenance hours to avoid any possible interruption to the Policy operation. Some of the steps may impact the Session processing during the execution.

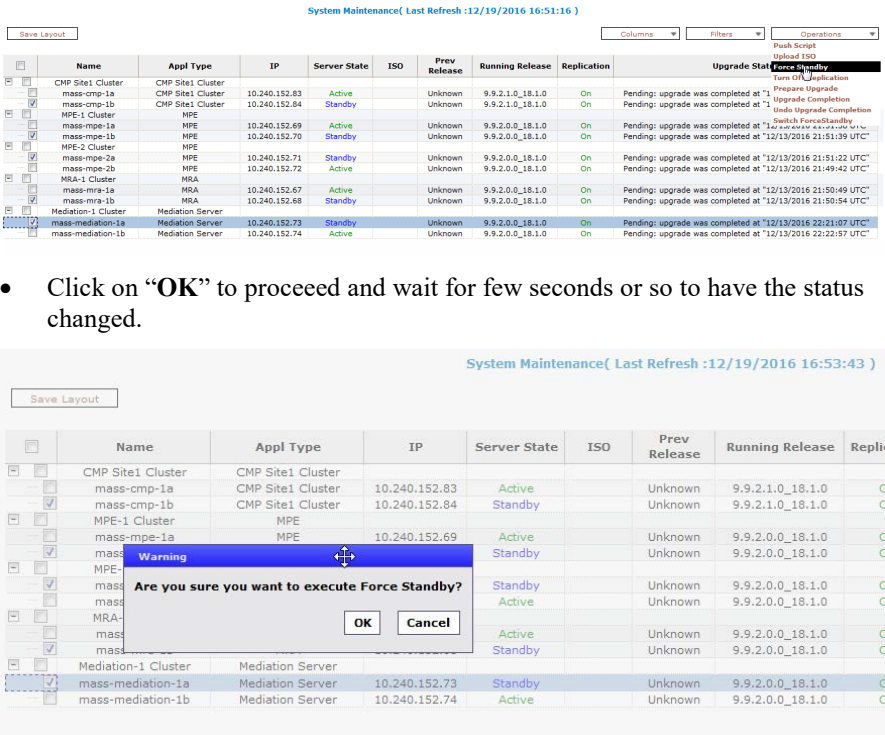
NOTE: If a server fails after an upgrade is accepted, you must accept the upgrade again for the replacement server. This procedure accepts the previous upgrade for a cluster.

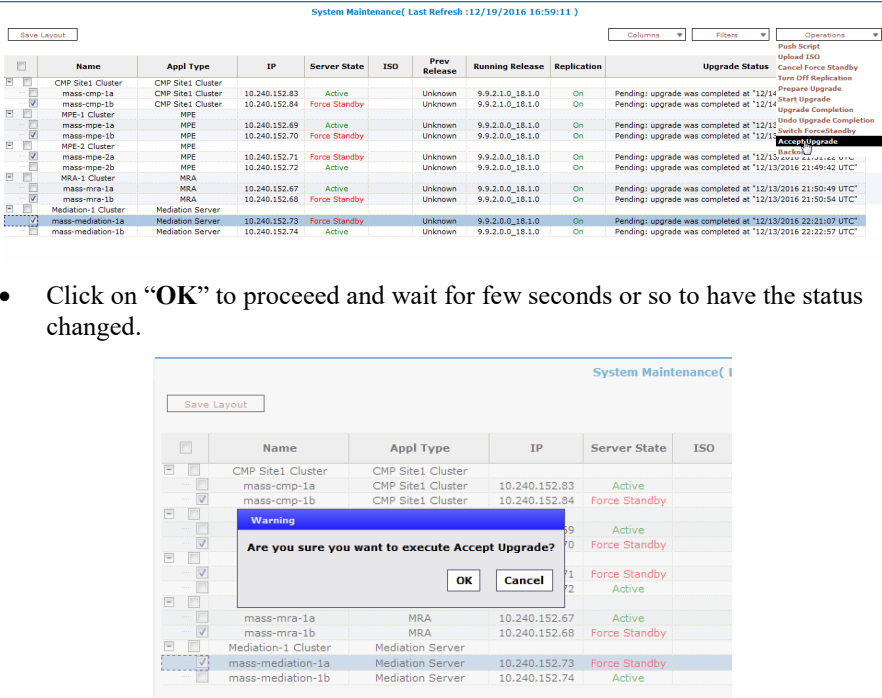
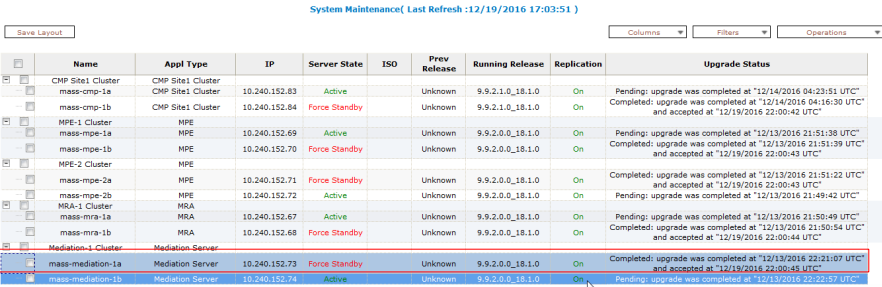
PREREQUISITES: If a server's upgrade status is **Pending** and the **Alarm 32532 (Upgrade Pending Accept/Reject)** is active as shown in the screenshot below, then this procedure is required for the clusters. Otherwise, skip this section and goto the next procedure of performing CMP clusters upgrade.

CMP GUI: *System Wide Reports → Alarms → Active Alarms*

Dec 14, 2016 05:35 PM EST	Minor	32532	Server Upgrade Pending Accept/Reject		mass-mediation-1b 10.240.152.74	
Dec 14, 2016 05:27 PM EST	Minor	32532	Server Upgrade Pending Accept/Reject		mass-mediation-1a 10.240.152.73	

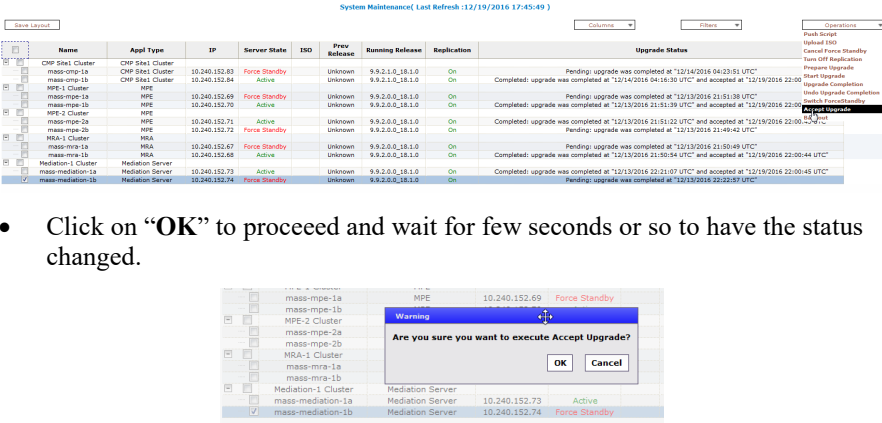
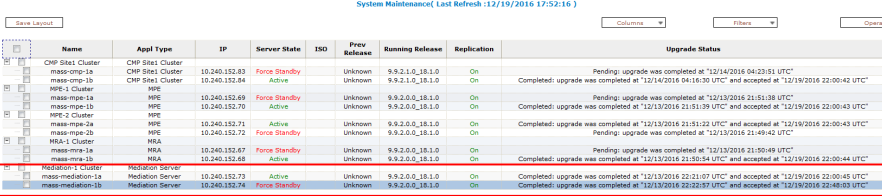
Step	Procedure	Result
1. <input type="checkbox"/>	CMP GUI: Verify Alarm Status.	<p>Upgrade → System Maintenance</p> <ul style="list-style-type: none"> Confirm the existing Alarm 32532 (Upgrade Pending Accept/Reject) as shown in the example below, and note the impacted clusters.

Step	Procedure	Result
2. <input type="checkbox"/>	<p>CMP GUI: Put the impacted server into force-standby</p>	<p>Upgrade → System Maintenance → Operations → Force-Standby</p> <ul style="list-style-type: none"> Check the Standby server of the impacted cluster with the Alarm 32532 and select the “Force-Standby” operation as shown in the example below -  <ul style="list-style-type: none"> Click on “OK” to proceed and wait for few seconds or so to have the status changed. <ul style="list-style-type: none"> Verify that the server is now in “Force Standby” status as highlighted in the example below -

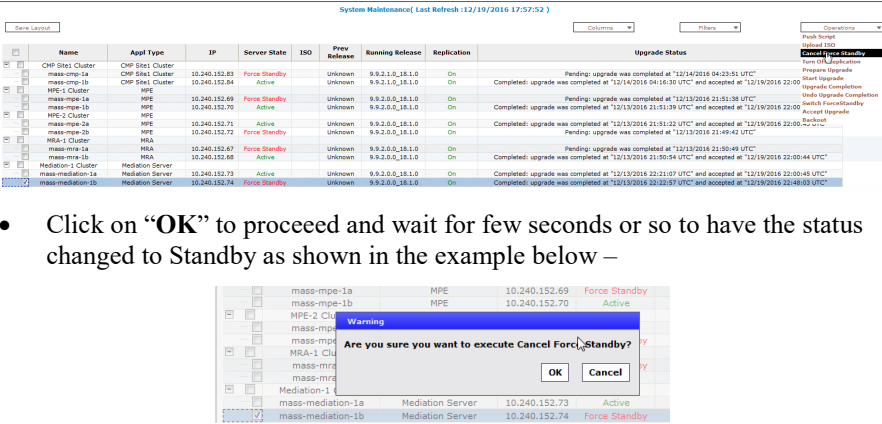
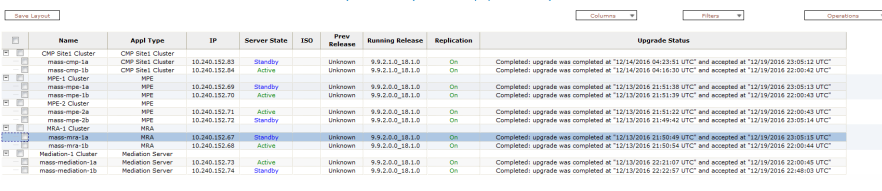
Step	Procedure	Result
<p>3. <input type="checkbox"/></p>	<p>CMP GUI: Accept the upgrade on the “Force Standby” server</p>	<p>Upgrade → System Maintenance → Operations → Accept Upgrade</p> <ul style="list-style-type: none"> Check the server with the “Force Standby” status and select the “Accept Upgrade” operation as shown in the example below -  <ul style="list-style-type: none"> Click on “OK” to proceed and wait for few seconds or so to have the status changed. <p>NOTE: Once the Accept Upgrade is completed, the alarm 32532 (Upgrade Pending Accept/Reject) on the impacted servers is cleared, while the rests are still having those alarms which require to continue of following steps to clear them.</p> <ul style="list-style-type: none"> Verify the highlighted server is associated with “<i>Completed: upgrade was completed at <timestamp> and accepted at <timestamp></i>” message as shown in the example below - 
<p>4. <input type="checkbox"/></p>	<p>CMP GUI: Switch the “Force-Standby” servers</p>	<p>Upgrade → System Maintenance → Operations → Switch ForceStandby</p> <ul style="list-style-type: none"> Check the server with the “Force Standby” status and select the “Switch ForceStandby” operation as shown in the example below -

Software Upgrade Procedure

Step	Procedure	Result
		<div> </div> <ul style="list-style-type: none"> Click on “OK” to proceed and wait for a minute or so to have the status changed. <div> </div> <p>NOTE: The previously Forced-Standby server becomes the active server now and the previously active server becomes the Forced-Standby server now.</p> <p>During this time, there will be a Critical Alarm 70001 raised as expected and will be cleared after the successful switchover. There could be Policy session processing interruption.</p>

Step	Procedure	Result
<p>5. <input type="checkbox"/></p>	<p>CMP GUI: Accept the upgrade on the newly switched “Force Standby” server</p>	<p>Upgrade → System Maintenance → Operations → Accept Upgrade</p> <ul style="list-style-type: none"> Check the server with the “Force Standby” status and select the “Accept Upgrade” operation as shown in the example below -  <ul style="list-style-type: none"> Click on “OK” to proceed and wait for few seconds or so to have the status changed. <p>NOTE: Once the Accept Upgrade is completed, the alarm 32532 (Upgrade Pending Accept/Reject) on the impacted servers is cleared similar to the last step, while the rests are still having those alarms which require to continue of following steps to clear them.</p> <ul style="list-style-type: none"> Verify both servers of this same cluster are now associated with the “Completed: upgrade was completed at <timestamp> and accepted at <timestamp>” message as shown in the example below - 

Software Upgrade Procedure

Step	Procedure	Result
<p>6. <input type="checkbox"/></p>	<p>CMP GUI: Cancel Force-Standby on the server</p>	<p>Upgrade → System Maintenance → Operations → Cancel Force-Standby</p> <ul style="list-style-type: none"> Check the server with the “Force Standby” status and select the “Cancel Force-Standby” operation as shown in the example below -  <ul style="list-style-type: none"> Click on “OK” to proceed and wait for few seconds or so to have the status changed to Standby as shown in the example below – <ul style="list-style-type: none"> Verify that the server shown in the highlighted Upgrade Status message as shown in the example below -
<p>7. <input type="checkbox"/></p>	<p>Continue to perform Accept Upgrade to the rest of the impacted clusters</p>	<ul style="list-style-type: none"> Repeat steps (2) – (6) for every cluster that requires this procedure. All Alarm 32532 (Upgrade Pending Accept/Reject) should be cleared once the Accept Upgrade procedure applied to all impacted clusters as shown in the example below – 

6. UPGRADE CMP CLUSTERS (9.9.2 TO 12.2)

Following the upgrade sequence outlined in previous Section 2.3, the Primary CMP cluster will be upgraded first, and followed by the Secondary CMP cluster (**if applicable**). If the Policy system is deployed with only one CMP cluster, then the subsequent upgrade sequence of the Secondary CMP cluster can be skipped.

NOTE: Existing Release 9.9.2 deployment doesn't have the Secondary CMP cluster installed, so there will be NO upgrade procedure for it.

6.1 Upgrade CMP Clusters Overview

Upgrade Sequence For Primary CMP cluster

- 1) Use the CMP GUI – System Maintenance (9.9.2) place Primary Standby CMP server into Frc-Stby
- 2) Use the CMP GUI – System Maintenance (9.9.2), to upgrade the Primary Frc-Stby CMP server
- 3) Use the CMP GUI – System Maintenance (9.9.2), to perform Switch Frc-Stby on the Primary CMP cluster
- 4) Log back into the CMP GUI and upgrade the remaining Primary CMP's Frc-Stby server using the 12.2 Upgrade Manager (UM)

Upgrade Sequence For Secondary CMP cluster (if applicable)

- 1) Use the CMP GUI, Upgrade → Upgrade Manager and upgrade the Secondary CMP cluster
 - a. Start Upgrade
 - b. Continue Upgrade -- Failover
 - c. Continue Upgrade

This procedure should not be service affecting, but it is recommended to perform during the Maintenance hours.

It is assumed that the CMPs may be deployed as 2 Geo-Redundant 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).

Identify the CMPs sites to be upgraded here, and verify which sites are Primary and Secondary:

CMP Sites Status	Operator Site Name	Site Designation from Topology Form (Site1 or Site2)
------------------	--------------------	--

Primary Site

Secondary Site

Note the Information on this CMP cluster:

Cluster Name _____
Server-A Hostname _____
Server-A IP _____
Server-A Status _____

Software Upgrade Procedure

Server-B Hostname _____

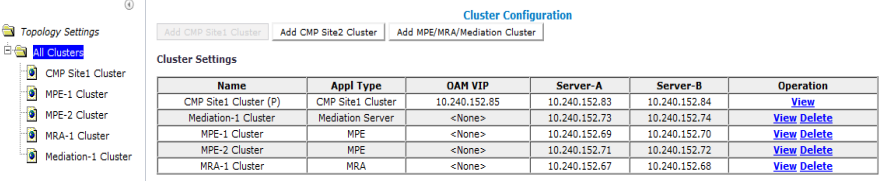
Server-B IP _____

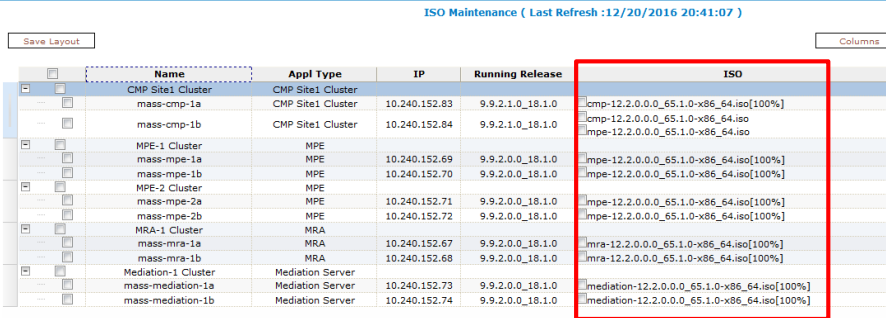
Server-B Status _____

IMPORTANT:

- CMP servers **MUST** be upgraded first, before the MPE, MRA and Mediation (~~MDF/MS~~) clusters
- Primary CMP cluster **MUST** be upgraded to the new release first, before the Secondary CMP cluster (if applicable)

6.1.1 Upgrade Primary CMP Cluster

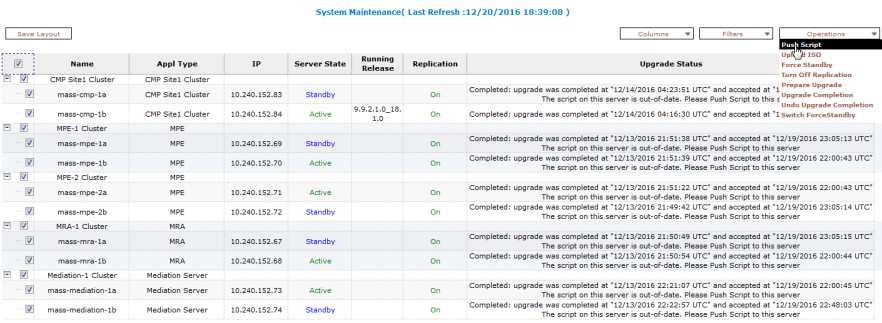
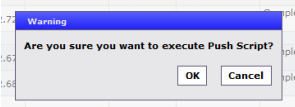
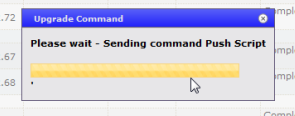
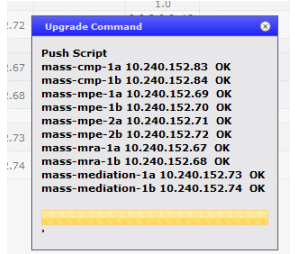
Step	Procedure	Result																																				
1. <input type="checkbox"/>	CMP GUI: Verify Alarm status.	<p>System Wide Reports → Alarms → Active Alarms</p> <ul style="list-style-type: none"> • Confirm that any existing Alarm displayed on the Primary active CMP server is well understood and no impact to the Upgrade procedure. • Capture a screenshot and save it into a file for reference. 																																				
2. <input type="checkbox"/>	CMP GUI: Identify and Record the CMP cluster(s)	<p>Platform Settings → TOPOLOGY Settings</p>  <p>The screenshot shows the 'Cluster Configuration' section of the GUI. It includes a table with the following data:</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Appl Type</th> <th>OAM VIP</th> <th>Server-A</th> <th>Server-B</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>CMP Site1 Cluster (P)</td> <td>CMP Site1 Cluster</td> <td>10.240.152.85</td> <td>10.240.152.83</td> <td>10.240.152.84</td> <td>View</td> </tr> <tr> <td>Mediation-1 Cluster</td> <td>Mediation Server</td> <td><None></td> <td>10.240.152.73</td> <td>10.240.152.74</td> <td>View Delete</td> </tr> <tr> <td>MPE-1 Cluster</td> <td>MPE</td> <td><None></td> <td>10.240.152.69</td> <td>10.240.152.70</td> <td>View Delete</td> </tr> <tr> <td>MPE-2 Cluster</td> <td>MPE</td> <td><None></td> <td>10.240.152.71</td> <td>10.240.152.72</td> <td>View Delete</td> </tr> <tr> <td>MRA-1 Cluster</td> <td>MRA</td> <td><None></td> <td>10.240.152.67</td> <td>10.240.152.68</td> <td>View Delete</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • Note the Primary CMP cluster will be labelled as a “(P)”, and <i>if applicable</i>, the Secondary CMP cluster will be labelled as a “(S)” • Save the screenshot for future reference. 	Name	Appl Type	OAM VIP	Server-A	Server-B	Operation	CMP Site1 Cluster (P)	CMP Site1 Cluster	10.240.152.85	10.240.152.83	10.240.152.84	View	Mediation-1 Cluster	Mediation Server	<None>	10.240.152.73	10.240.152.74	View Delete	MPE-1 Cluster	MPE	<None>	10.240.152.69	10.240.152.70	View Delete	MPE-2 Cluster	MPE	<None>	10.240.152.71	10.240.152.72	View Delete	MRA-1 Cluster	MRA	<None>	10.240.152.67	10.240.152.68	View Delete
Name	Appl Type	OAM VIP	Server-A	Server-B	Operation																																	
CMP Site1 Cluster (P)	CMP Site1 Cluster	10.240.152.85	10.240.152.83	10.240.152.84	View																																	
Mediation-1 Cluster	Mediation Server	<None>	10.240.152.73	10.240.152.74	View Delete																																	
MPE-1 Cluster	MPE	<None>	10.240.152.69	10.240.152.70	View Delete																																	
MPE-2 Cluster	MPE	<None>	10.240.152.71	10.240.152.72	View Delete																																	
MRA-1 Cluster	MRA	<None>	10.240.152.67	10.240.152.68	View Delete																																	

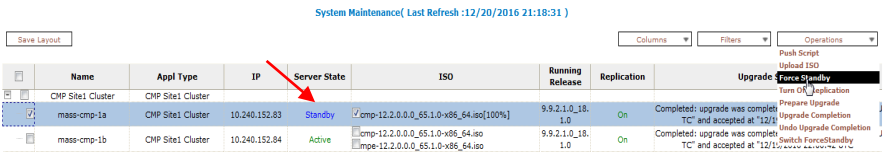
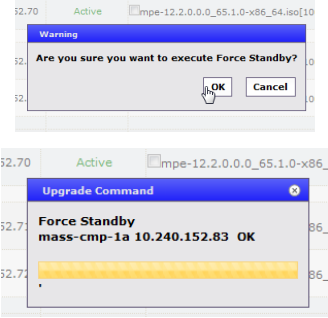
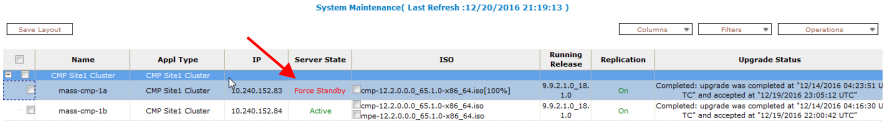
Step	Procedure	Result
3. <input type="checkbox"/>	<p>CMP GUI: Verify status of Primary CMP cluster</p>	<p>Upgrade Manager → System Maintenance</p> <ul style="list-style-type: none"> Confirm the Primary CMP cluster has the following – <ol style="list-style-type: none"> The servers have both the Active and Standby status Running Release of 9.9.2.0.0_18.1.0 version. <p>NOTE: <i>The CMP is on the patch version labelled as “9.9.2.1.0_18.1.0 “</i></p> <ol style="list-style-type: none"> Replication ON Corresponding Release 12.2 ISO files have already been copied¹ to all cluster types (CMP/MRA/MPE/Mediation) as shown in the screenshot example below – <p>NOTE: <i>Assuming the Release 12.2 ISO files were already successfully transferred from Section 4.6 Procedure.</i></p> 
4. <input type="checkbox"/>	<p>SSH CLI Primary Active CMP: Acquire Release 12.2 upgrade scripts and Exchange SSH keys</p>	<ul style="list-style-type: none"> Login to Active Primary CMP with “root” privilege. Mount the Release 12.2 CMP ISO as shown in the example below - <pre># mount -o loop /var/TKLCL/upgrade/<R12.2 CMP ISO filename> /mnt/upgrade/</pre> Copy the upgrade scripts with the following commands - <pre># cp /mnt/upgrade/upgrade/policyScripts/*.pl /opt/camiant/bin</pre> Unmount the /mnt/upgrade NFS link <pre># cd /</pre> <pre># umount /mnt/upgrade</pre> Exchange SSH keys with the rest of clusters with login as “admusr” with the following shell command and expected results as shown in the screenshot example below – <pre># qpSSHKeyProv.pl --prov --user=admusr</pre>

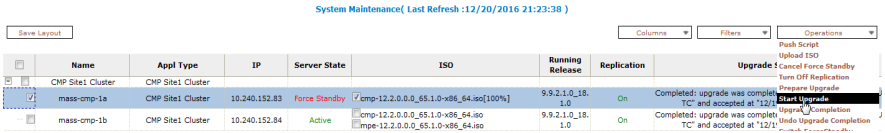
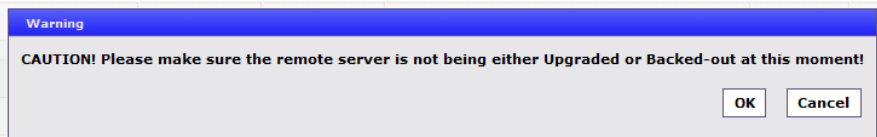
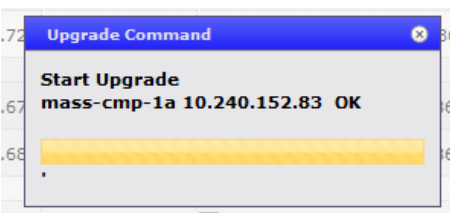
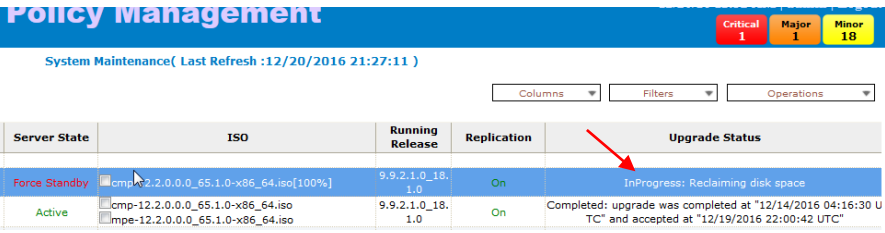
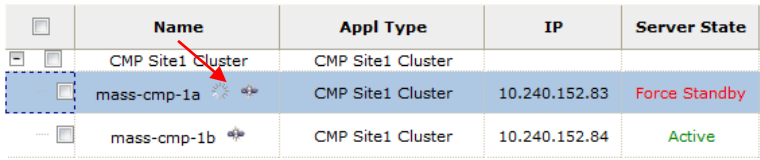
Software Upgrade Procedure

Step	Procedure	Result
		<pre>[root@mass-cmp-1b /]# ./qpSSHKeyProv.pl --prov --user=admusr The password of admusr in topology: Connecting to admusr@mass-mra-1b ... Connecting to admusr@mass-mpe-2b ... Connecting to admusr@mass-cmp-1a ... Connecting to admusr@mass-mpe-2a ... Connecting to admusr@mass-cmp-1b ... Connecting to admusr@mass-mpe-1a ... Connecting to admusr@mass-mediation-1b ... Connecting to admusr@mass-mediation-1a ... Connecting to admusr@mass-mpe-1b ... Connecting to admusr@mass-mra-1a ... [1/10] Provisioning SSH keys on mass-mpe-2b ... [2/10] Provisioning SSH keys on mass-mra-1b ... [3/10] Provisioning SSH keys on mass-cmp-1a ... [4/10] Provisioning SSH keys on mass-mpe-2a ... [5/10] Provisioning SSH keys on mass-cmp-1b ... [6/10] Provisioning SSH keys on mass-mpe-1a ... [7/10] Provisioning SSH keys on mass-mediation-1b ... [8/10] Provisioning SSH keys on mass-mediation-1a ... [9/10] Provisioning SSH keys on mass-mpe-1b ... [10/10] Provisioning SSH keys on mass-mra-1a ... SSH keys are OK.</pre>

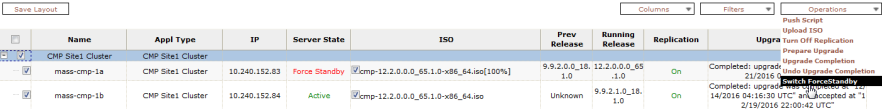
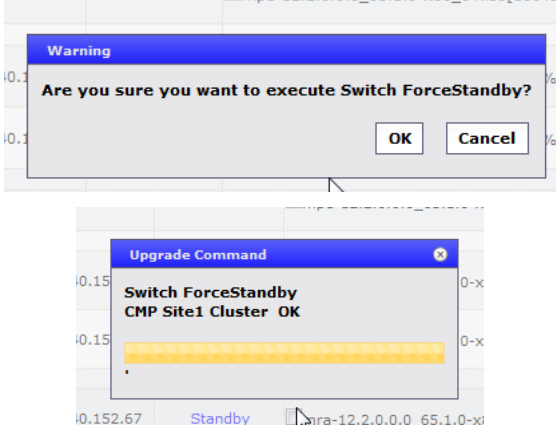
Software Upgrade Procedure

Step	Procedure	Result
5. <input type="checkbox"/>	<p>CMP GUI: Push the Release 12.2 upgrade scripts to all clusters in the segment topology</p>	<p>Upgrade Manager → ISO Maintenance</p> <ul style="list-style-type: none"> Check all the clusters in the Topology as shown and select “Push Scripts” Operation.  <ul style="list-style-type: none"> Click “OK” to continue the operation.   <ul style="list-style-type: none"> Script push operation successful as shown in the example below – 

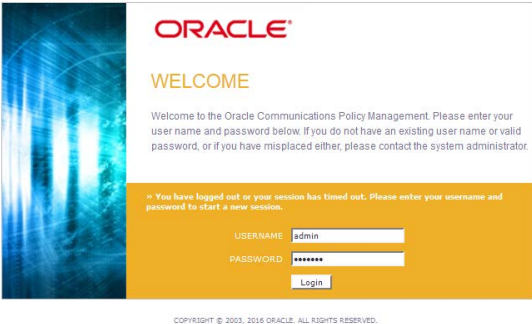

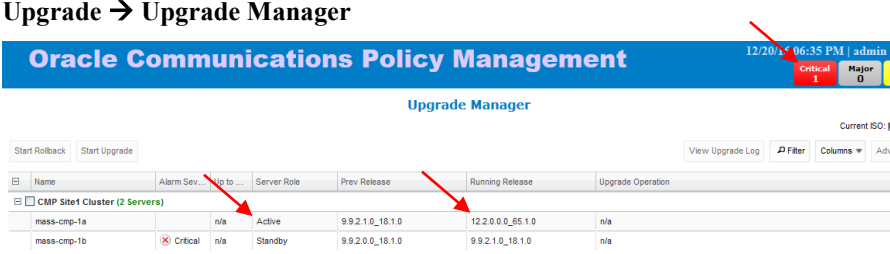
Step	Procedure	Result
6. <input type="checkbox"/>	<p>CMP GUI: Set 'Force- Standby' mode on the Standby server at Primary CMP Cluster</p>	<p>Upgrade Manager → System Maintenance</p> <ul style="list-style-type: none"> Check the Standby CMP Server at Primary CMP cluster and select Force Standby operation  <ul style="list-style-type: none"> Click “OK” to confirm and continue with the operation.  <ul style="list-style-type: none"> The Standby CMP server state will be changed to “Force Standby” as shown 

Step	Procedure	Result
<p>7. <input type="checkbox"/></p>	<p>CMP GUI: Upgrade the Primary Force-Standby CMP server</p> <p><i>NOTE: Each server takes ~40 minutes to complete.</i></p>	<p>Upgrade Manager → System Maintenance</p> <ul style="list-style-type: none"> • Check Force-Standby CMP server at the Primary CMP cluster. • Under Operation menu, select ‘Start Upgrade’ operation.  <ul style="list-style-type: none"> • Click “OK” to continue with the operation.   <ul style="list-style-type: none"> • Under “Upgrade Status” column, it will show the “InProgress:...” message along with the various upgrade activities which typically will take about 40 minutes to complete.  <p><i>NOTE: There will be a spinner and Sync-broken icons displayed next to the CMP server being upgraded as expected.</i></p>  <ul style="list-style-type: none"> • The following alarms will be expected during the course of upgrade in-progress – <p>Expected Critical alarm:</p> <p>31283 High availability server is offline</p> <p>Expected Major Alarm:</p> <p>31233 HA Path Down</p> <p>70004 The QP processes have been brought down for maintenance.</p> <p>70021 The MySQL slave is not connected to the master</p>


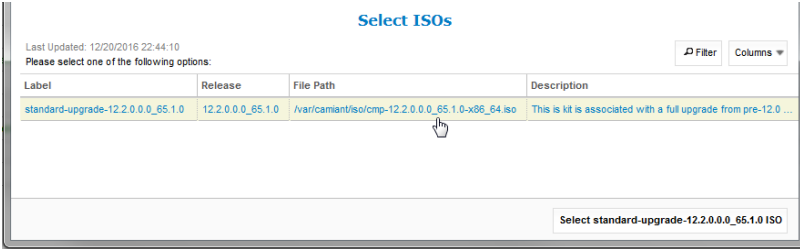
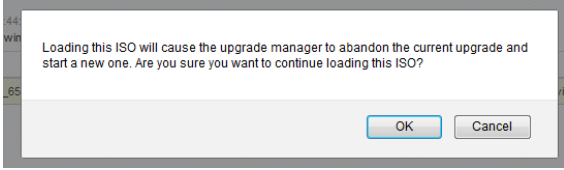
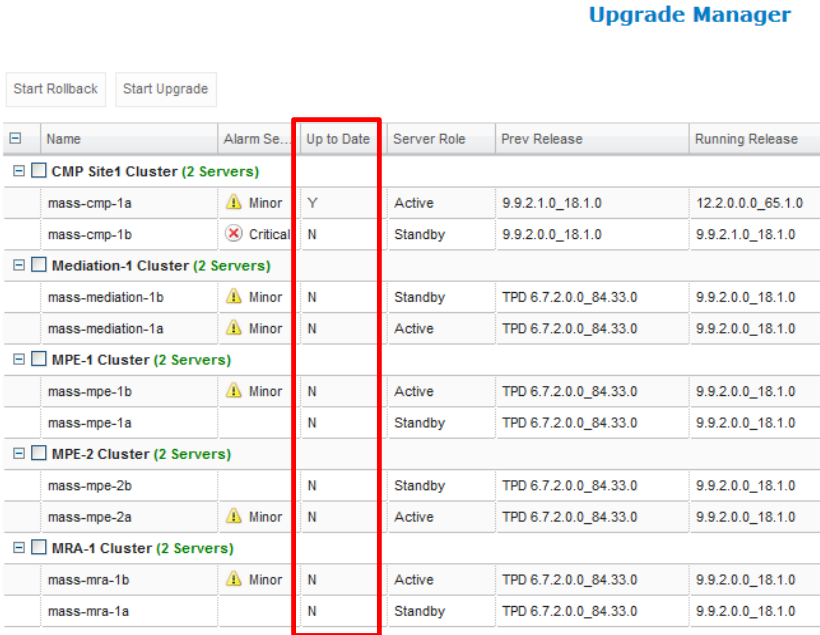
Software Upgrade Procedure

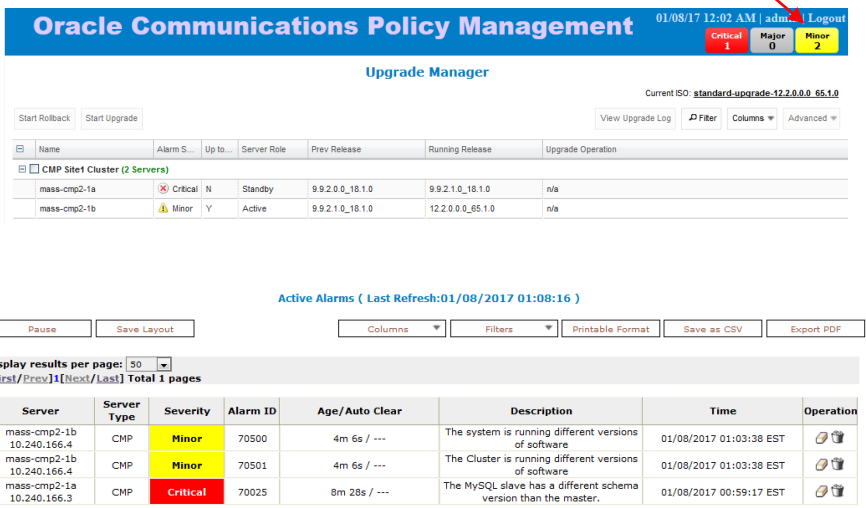
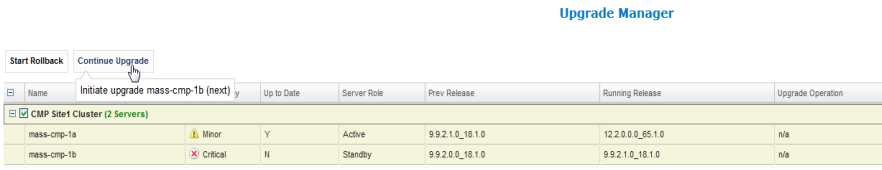
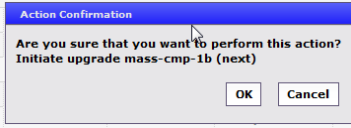
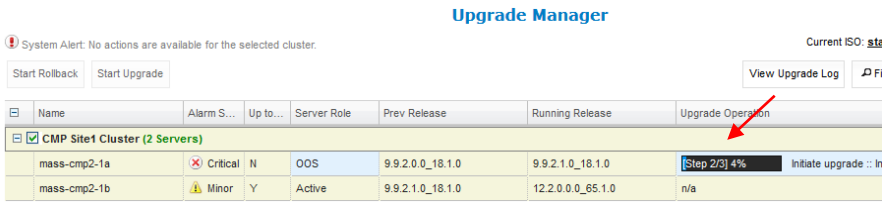
Step	Procedure	Result
8. <input type="checkbox"/>	<p>CMP GUI: Perform Switch ForceStandby of Upgraded Release 12.2 CMP server</p>	<p>Upgrade Manager → System Maintenance</p> <ul style="list-style-type: none"> Check on the Primary CMP cluster to be switched and select the “Switch ForceStandby” operation under Operations menu  <ul style="list-style-type: none"> Click on “OK” to continue with the operation and a successful message appears.  <p>NOTE: At this point, the current CMP GUI browser connection will be lost – if it is the primary CMP cluster, need to re-login as illustrated in the next step.</p>

Software Upgrade Procedure


Step	Procedure	Result																												
9. <input type="checkbox"/>	<p>CMP GUI: Re-login to the Primary CMP server VIP address</p>	<ul style="list-style-type: none"> Close the current CMP GUI browser tab and reopen another browser tab with the same CMP VIP address. The Policy Release 12.2 CMP GUI Login screen should appear as shown – Login and password credentials are the same as before the upgrade.  <ul style="list-style-type: none"> Validate that the CMP server version is now showing the release 12.2 – <p>CMP GUI: Help → About</p> 																												
10. <input type="checkbox"/>	<p>CMP GUI: Verify the Policy Release 12.2 CMP server is Active</p>	<p>Upgrade → Upgrade Manager</p>  <p>Upgrade Manager</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Alarm Sev.</th> <th>Up to ...</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td colspan="7">CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td>mass-cmp-1a</td> <td></td> <td>n/a</td> <td>Active</td> <td>9.9.2.1.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> <td>n/a</td> </tr> <tr> <td>mass-cmp-1b</td> <td>Critical</td> <td>n/a</td> <td>Standby</td> <td>9.9.2.0.0_18.1.0</td> <td>9.9.2.1.0_18.1.0</td> <td>n/a</td> </tr> </tbody> </table> <p>NOTE: As shown, the display screen format has changed as well as it's name to "Upgrade Manager". The Critical Alarm(s) ID: 70025 (The MySQL slave has a different schema version than the master) is still expected to remain.</p>	Name	Alarm Sev.	Up to ...	Server Role	Prev Release	Running Release	Upgrade Operation	CMP Site1 Cluster (2 Servers)							mass-cmp-1a		n/a	Active	9.9.2.1.0_18.1.0	12.2.0.0.0_65.1.0	n/a	mass-cmp-1b	Critical	n/a	Standby	9.9.2.0.0_18.1.0	9.9.2.1.0_18.1.0	n/a
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mass-cmp-1b	Critical	n/a	Standby	9.9.2.0.0_18.1.0	9.9.2.1.0_18.1.0	n/a																								

Software Upgrade Procedure

Step	Procedure	Result
11. <input type="checkbox"/>	<p>CMP GUI: Install the Current ISO Release 12.2 Install Kit</p>	<p>Upgrade → Upgrade Manager → Current ISO: <u>Install Kit</u></p>  <ul style="list-style-type: none"> Click on the “Install Kit” which will open a dialog box that lists the contents of ISO file located in the <code>/var/camiant/iso</code> directory as shown –  <ul style="list-style-type: none"> Highlight the Release 12.2 ISO and click on the button labeled as “Select standard-upgrade-12.2xxxx” on the bottom right hand corner. Click on “OK” to proceed.  <ul style="list-style-type: none"> Next, the “Up to Date” column transition from ‘n/a’ to ‘Y’ (meaning up-to-date) or ‘N’ (meaning needs upgrade) as shown in the example below - <p style="text-align: right;">Upgrade Manager</p> 

Step	Procedure	Result																																																												
<p>12. <input type="checkbox"/></p>	<p>CMP GUI: New Minor Alarms introduced in Release 12.2.0</p>	<ul style="list-style-type: none"> The following Minor alarms of 70500 & 70501 are added, along with the existing Critical alarm of 70025 which are now shown in the Upgrade Manager –  <p>Oracle Communications Policy Management 01/08/17 12:02 AM adm. Logout</p> <p>Upgrade Manager Current ISO: standard-upgrade-12.2.0.0_65.1.0</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Alarm S...</th> <th>Up to...</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td colspan="7">CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td>mass-cmp2-1a</td> <td>Critical</td> <td>N</td> <td>Standby</td> <td>9.9.2.0.0_18.1.0</td> <td>9.9.2.1.0_18.1.0</td> <td>n/a</td> </tr> <tr> <td>mass-cmp2-1b</td> <td>Minor</td> <td>Y</td> <td>Active</td> <td>9.9.2.1.0_18.1.0</td> <td>12.2.0.0_65.1.0</td> <td>n/a</td> </tr> </tbody> </table> <p>Active Alarms (Last Refresh:01/08/2017 01:08:16)</p> <table border="1"> <thead> <tr> <th>Server</th> <th>Server Type</th> <th>Severity</th> <th>Alarm ID</th> <th>Age/Auto Clear</th> <th>Description</th> <th>Time</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>mass-cmp2-1b 10.240.166.4</td> <td>CMP</td> <td>Minor</td> <td>70500</td> <td>4m 6s / ---</td> <td>The system is running different versions of software</td> <td>01/08/2017 01:03:38 EST</td> <td></td> </tr> <tr> <td>mass-cmp2-1b 10.240.166.4</td> <td>CMP</td> <td>Minor</td> <td>70501</td> <td>4m 6s / ---</td> <td>The Cluster is running different versions of software</td> <td>01/08/2017 01:03:38 EST</td> <td></td> </tr> <tr> <td>mass-cmp2-1a 10.240.166.3</td> <td>CMP</td> <td>Critical</td> <td>70025</td> <td>8m 28s / ---</td> <td>The MySQL slave has a different schema version than the master.</td> <td>01/08/2017 00:59:17 EST</td> <td></td> </tr> </tbody> </table>	Name	Alarm S...	Up to...	Server Role	Prev Release	Running Release	Upgrade Operation	CMP Site1 Cluster (2 Servers)							mass-cmp2-1a	Critical	N	Standby	9.9.2.0.0_18.1.0	9.9.2.1.0_18.1.0	n/a	mass-cmp2-1b	Minor	Y	Active	9.9.2.1.0_18.1.0	12.2.0.0_65.1.0	n/a	Server	Server Type	Severity	Alarm ID	Age/Auto Clear	Description	Time	Operation	mass-cmp2-1b 10.240.166.4	CMP	Minor	70500	4m 6s / ---	The system is running different versions of software	01/08/2017 01:03:38 EST		mass-cmp2-1b 10.240.166.4	CMP	Minor	70501	4m 6s / ---	The Cluster is running different versions of software	01/08/2017 01:03:38 EST		mass-cmp2-1a 10.240.166.3	CMP	Critical	70025	8m 28s / ---	The MySQL slave has a different schema version than the master.	01/08/2017 00:59:17 EST	
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<p>13. <input type="checkbox"/></p>	<p>CMP GUI: Complete the Upgrade of the remaining of the Primary CMP Cluster</p> <p>NOTE: Each server takes ~40 minutes to complete.</p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Check the Primary CMP cluster and both the “Continue Upgrade” & “Start Rollback” buttons option will become available. In the case of this upgrade, click the “Continue Upgrade” button as illustrated below.  <ul style="list-style-type: none"> Select on “OK” to proceed with the upgrade.  <ul style="list-style-type: none"> Note the “Upgrade Operation” status column display the in-progress status bar during the upgrade process as shown –  <p>Upgrade Manager Current ISO: sta</p> <p>System Alert: No actions are available for the selected cluster.</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Alarm S...</th> <th>Up to...</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td colspan="7">CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td>mass-cmp2-1a</td> <td>Critical</td> <td>N</td> <td>OOS</td> <td>9.9.2.0.0_18.1.0</td> <td>9.9.2.1.0_18.1.0</td> <td>[Step 2/3] 4% Initiate upgrade : In</td> </tr> <tr> <td>mass-cmp2-1b</td> <td>Minor</td> <td>Y</td> <td>Active</td> <td>9.9.2.1.0_18.1.0</td> <td>12.2.0.0_65.1.0</td> <td>n/a</td> </tr> </tbody> </table> <p>NOTE: This upgrade process will take approximately 40 minutes to complete. During this time, the Server Role of the upgrading server would be “OOS” as expected.</p> <ul style="list-style-type: none"> The following alarms are to be expected during the upgrade process - 	Name	Alarm S...	Up to...	Server Role	Prev Release	Running Release	Upgrade Operation	CMP Site1 Cluster (2 Servers)							mass-cmp2-1a	Critical	N	OOS	9.9.2.0.0_18.1.0	9.9.2.1.0_18.1.0	[Step 2/3] 4% Initiate upgrade : In	mass-cmp2-1b	Minor	Y	Active	9.9.2.1.0_18.1.0	12.2.0.0_65.1.0	n/a																																
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Software Upgrade Procedure

Step	Procedure	Result																								
		<p><u>Expected Critical alarm:</u></p> <p>31227 The high availability status is failed due to raised alarms</p> <p>31283 High availability server is offline</p> <p>70001 The qp_procmgr process has failed.</p> <p>70025 QP Slave database is a different version than the master</p> <p><u>Expected Major Alarm:</u></p> <p>31233 High availability path loss of connectivity</p> <p>70004 The QP processes have been brought down for maintenance.</p> <p>70021 The MySQL slave is not connected to the master</p> <p>70022 The MySQL slave failed synchronizing with the master</p> <p><u>Expected Minor Alarms:</u></p> <p>70503 The server is in forced standby</p> <p>70507 An upgrade/backout action on a server is in progress</p> <p>70500 The system is running different versions of software</p> <p>70501 The Cluster is running different versions of software</p> <p>31114 DB Replication of configuration data via SOAP has failed</p> <p>31106 DB merging to the parent Merge Node has failed</p> <p>31107 DB merging from a child Source Node has failed</p> <p>31101 DB replication to a slave DB has failed</p>																								
14. <input type="checkbox"/>	<p>CMP GUI: Verify the status of upgraded CMP server.</p>	<p>Upgrade Manager → Upgrade Manager</p> <ul style="list-style-type: none"> • Successful Upgrade Operation status will now show the following – <ul style="list-style-type: none"> ○ Both servers running the Release 12.2.0 under the “Running Release” column. ○ There are Active & Standby server roles to both servers in this Primary CMP cluster. ○ The “Up to Date” column status updated to “Y” for both CMP servers  <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 colspan="6">CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td>mass-cmp-1a</td> <td>Minor</td> <td>Y</td> <td>Active</td> <td>9.9.2.1.0_18.1.0</td> <td>12.2.0.0_65.1.0</td> </tr> <tr> <td>mass-cmp-1b</td> <td>Major</td> <td>Y</td> <td>Standby</td> <td>9.9.2.1.0_18.1.0</td> <td>12.2.0.0_65.1.0</td> </tr> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	CMP Site1 Cluster (2 Servers)						mass-cmp-1a	Minor	Y	Active	9.9.2.1.0_18.1.0	12.2.0.0_65.1.0	mass-cmp-1b	Major	Y	Standby	9.9.2.1.0_18.1.0	12.2.0.0_65.1.0
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mass-cmp-1b	Major	Y	Standby	9.9.2.1.0_18.1.0	12.2.0.0_65.1.0																					
15. <input type="checkbox"/>	<p>Proceed to next applicable upgrade procedure</p>	<ul style="list-style-type: none"> • At this point, the Primary Site1 CMP cluster is running Release 12.2.0 • The rests of MPE, MRA and MEDIATION clusters are still on Release 9.9.2 																								

Software Upgrade Procedure

Step	Procedure	Result
THIS PROCEDURE HAS BEEN COMPLETED		

7. UPGRADE CMP CLUSTERS (11.5.X TO 12.2) WIRELESS MODE

This procedure will upgrade the Site1 CMP cluster first, and if needed, upgrade the Site2 CMP cluster.

7.1 Upgrade CMP Clusters Overview

Upgrade Primary CMP cluster

- 1) Use the CMP GUI – System Maintenance (11.5.x) to place Primary Standby CMP into Frc-Stby
- 2) Use the CMP GUI – System Maintenance (11.5.x) to upgrade the Primary Frc-Stby CMP server
- 3) Use the CMP GUI – System Maintenance (11.5.x) to perform Switch Frc-Stby on the Primary CMP Cluster
- 4) Log back into the CMP GUI and upgrade the remaining Primary CMP’s Frc-Stby server using the 12.2 Upgrade Manager

Upgrade the Secondary CMP cluster (if applicable)

- 1) Use the CMP GUI, Upgrade → Upgrade Manager and upgrade the CMP Secondary Site 2
 - a. Start Upgrade
 - b. Continue Upgrade -- Failover
 - c. 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 Geo-Redundant 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 CMPs sites to be upgraded here, and verify which sites are Primary and Secondary:

CMP Sites Geo-Redundant Status	Operator Site Name	Site Designation from Topology Form (Site1 or Site2)
--------------------------------	--------------------	--

Primary Site

Secondary Site

Note the Information on this CMP cluster:

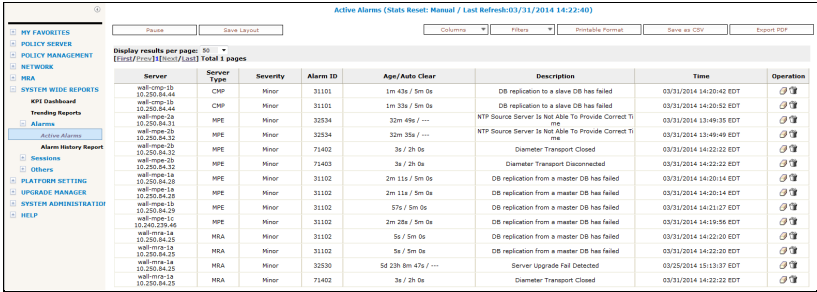
Cluster Name _____
Server-A Hostname _____
Server-A IP _____
Server-A Status _____

Server-B Hostname _____
Server-B IP _____
Server-B Status _____

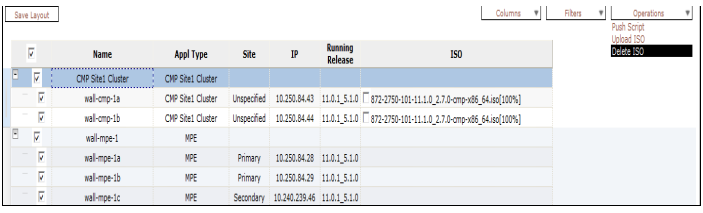
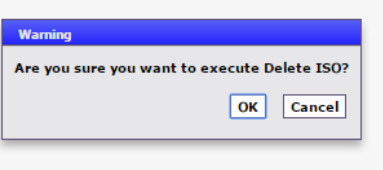
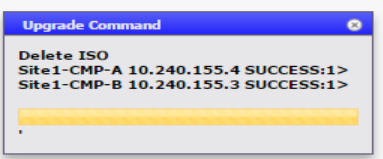
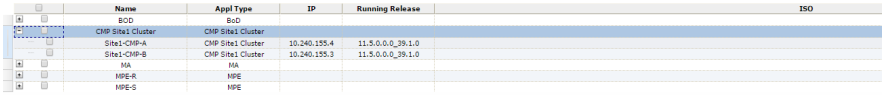
IMPORTANT:

- *CMP servers MUST be upgraded first, before the MPE or MRA clusters*
- *Site1 CMP MUST be upgraded to the new release first, before the Site2 CMP (if applicable)*

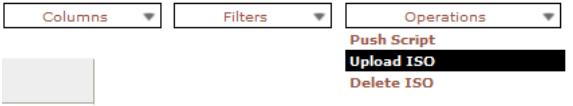
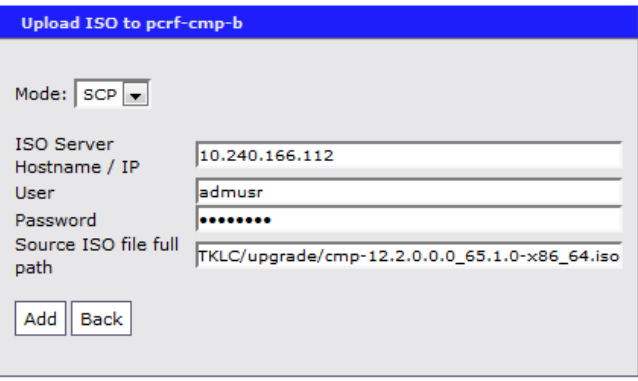
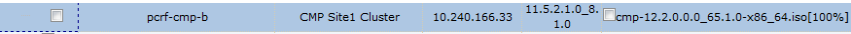
7.1.1 Upgrade primary CMP Cluster

Step	Procedure	Result																								
1. <input type="checkbox"/>	CMP GUI: Verify Alarm Status.	<p>System Wide Reports → Alarms → Active Alarms</p> <ul style="list-style-type: none"> Confirm that any existing Alarm is well understood and no impact to the Upgrade procedure. Capture a screenshot and save it into a file for reference. 																								
2. <input type="checkbox"/>	CMP GUI: Identify and Record the CMP Cluster(s)	<p>Navigate to Platform Settings → TOPOLOGY Settings → All Clusters</p> <p>Cluster Settings</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Appl Type</th> <th>OAM VIP</th> <th>Server-A</th> <th>Server-B</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>CMP Site1 Cluster (P)</td> <td>CMP Site1 Cluster</td> <td>10.240.166.24</td> <td>10.240.166.32</td> <td>10.240.166.33</td> <td>View</td> </tr> <tr> <td>MPE Site1 Cluster</td> <td>MPE</td> <td><None></td> <td>10.240.166.36</td> <td>10.240.166.37</td> <td>View Delete</td> </tr> <tr> <td>MRA Site1 Cluster</td> <td>MRA</td> <td><None></td> <td>10.240.166.34</td> <td>10.240.166.35</td> <td>View Delete</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Note which cluster is the primary and which is the secondary. <ul style="list-style-type: none"> The Primary CMP is noted with a (P) in parenthesis and a Secondary CMP is noted with an (S) in parenthesis. Save a screenshot for future reference. 	Name	Appl Type	OAM VIP	Server-A	Server-B	Operation	CMP Site1 Cluster (P)	CMP Site1 Cluster	10.240.166.24	10.240.166.32	10.240.166.33	View	MPE Site1 Cluster	MPE	<None>	10.240.166.36	10.240.166.37	View Delete	MRA Site1 Cluster	MRA	<None>	10.240.166.34	10.240.166.35	View Delete
Name	Appl Type	OAM VIP	Server-A	Server-B	Operation																					
CMP Site1 Cluster (P)	CMP Site1 Cluster	10.240.166.24	10.240.166.32	10.240.166.33	View																					
MPE Site1 Cluster	MPE	<None>	10.240.166.36	10.240.166.37	View Delete																					
MRA Site1 Cluster	MRA	<None>	10.240.166.34	10.240.166.35	View Delete																					
3. <input type="checkbox"/>	CMP GUI: Verify Status of CMP Clusters	<p>Upgrade Manager → System Maintenance</p> <ul style="list-style-type: none"> Confirm the CMP clusters have the following – <ul style="list-style-type: none"> Active/Standby status Running Release of 11.5.x version Replication ON Corresponding Release 12.2 ISO files copied to at least one of each server types (CMP/MRA/MPE) – Meaning, a copy of the MPE ISO is on one of the MPE servers, an MRA ISO is on one of the MRA servers and a copy of the CMP ISO is on one CMP server 																								

Software Upgrade Procedure

Step	Procedure	Result
4.	<p>CMP GUI Access into Primary CMP Server— Remove old ISO files from servers.</p>	<p>Upgrade Manager → ISO Maintenance</p> <ul style="list-style-type: none"> Select the servers that show old ISO files. Select the server cluster and select Operations → Delete ISO for any of the older ISO files in the list.  <p>The screenshot shows a table with columns: Name, Appl Type, Site, IP, Running Release, and ISO. The 'ISO' column contains file names like '872-2750-101-11.0_2.7.0-cmp-r06_64-iso[100%]'. The 'Operations' menu is open, showing 'Delete ISO' as the selected option.</p> <ul style="list-style-type: none"> Click OK to continue  <p>The dialog box has 'OK' and 'Cancel' buttons.</p> <ul style="list-style-type: none"> wait until the successful deletion message appears  <p>The dialog box displays: 'Delete ISO', 'Site1-CMP-A 10.240.155.4 SUCCESS:1>', and 'Site1-CMP-B 10.240.155.3 SUCCESS:1>'.</p> <ul style="list-style-type: none"> Wait until the ISO Maintenance page refreshes showing that the ISO column blank  <p>The screenshot shows the same table as before, but the 'ISO' column is now blank for all rows.</p>

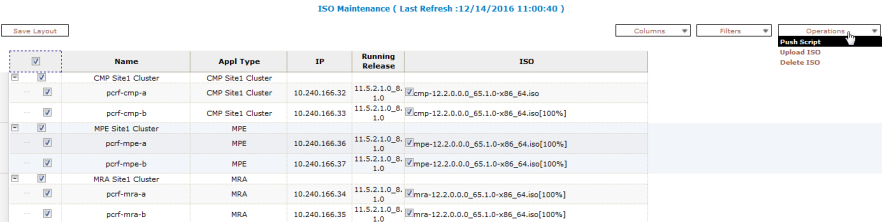
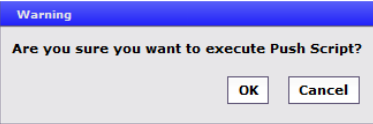
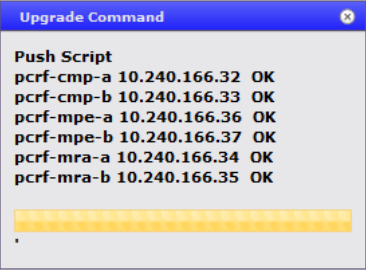
Software Upgrade Procedure

Step	Procedure	Result																																																												
5.	<p>CMP GUI: Upload relevant upgrade ISO file to each CMP/MPE/MRA server</p> <p>NOTE: This step depends on the ISO file type. Distribute ISO files accordingly.</p>	<p>Upgrade Manager → ISO Maintenance</p> <ul style="list-style-type: none"> (Optional but Preferred) Filter CMP/MPE/MRA servers <p>One application at a time, select one server type (CMP/MPE/MRA) to upload its upgrade ISO file.</p> <p>Select Operations → Upload ISO</p>  <p>Fill in the dialog with the following information:</p> <p>Mode: Select SCP</p> <p>ISO Server Hostname/IP: <IP_address_where_ISO_files_are_located></p> <p>User: admusr</p> <p>Password: <admusr_password_for_the_server></p> <p>Source ISO file full path: /var/TKLC/upgrade/<ISO file></p>  <p>Click Add and wait till filename appears under the “ISO” column and file is 100% transferred:</p>  <p>When completed for all servers, the ISO column will be populated with the ISO filename and indication of 100% transfer completion</p> <table border="1"> <thead> <tr> <th></th> <th>Name</th> <th>Appl Type</th> <th>IP</th> <th>Running Release</th> <th>ISO</th> </tr> </thead> <tbody> <tr> <td>☐</td> <td>CMP Site1 Cluster</td> <td>CMP Site1 Cluster</td> <td></td> <td></td> <td></td> </tr> <tr> <td>☐</td> <td>pcrf-cmp-a</td> <td>CMP Site1 Cluster</td> <td>10.240.166.32</td> <td>11.5.2.1.0_8.1.0</td> <td>☐ cmp-12.2.0.0.0_65.1.0-x86_64.iso</td> </tr> <tr> <td>☐</td> <td>pcrf-cmp-b</td> <td>CMP Site1 Cluster</td> <td>10.240.166.33</td> <td>11.5.2.1.0_8.1.0</td> <td>☐ cmp-12.2.0.0.0_65.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>☐</td> <td>MPE Site1 Cluster</td> <td>MPE</td> <td></td> <td></td> <td></td> </tr> <tr> <td>☐</td> <td>pcrf-mpe-a</td> <td>MPE</td> <td>10.240.166.36</td> <td>11.5.2.1.0_8.1.0</td> <td>☐ mpe-12.2.0.0.0_65.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>☐</td> <td>pcrf-mpe-b</td> <td>MPE</td> <td>10.240.166.37</td> <td>11.5.2.1.0_8.1.0</td> <td>☐ mpe-12.2.0.0.0_65.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>☐</td> <td>MRA Site1 Cluster</td> <td>MRA</td> <td></td> <td></td> <td></td> </tr> <tr> <td>☐</td> <td>pcrf-mra-a</td> <td>MRA</td> <td>10.240.166.34</td> <td>11.5.2.1.0_8.1.0</td> <td>☐ mra-12.2.0.0.0_65.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>☐</td> <td>pcrf-mra-b</td> <td>MRA</td> <td>10.240.166.35</td> <td>11.5.2.1.0_8.1.0</td> <td>☐ mra-12.2.0.0.0_65.1.0-x86_64.iso[100%]</td> </tr> </tbody> </table> <p>NOTE: For those servers the ISO file was transferred from the local machine, there will not be a 100% indicator. This indicator is only available when transferring ISO files using the ISO management screen of CMP GUI.</p>		Name	Appl Type	IP	Running Release	ISO	☐	CMP Site1 Cluster	CMP Site1 Cluster				☐	pcrf-cmp-a	CMP Site1 Cluster	10.240.166.32	11.5.2.1.0_8.1.0	☐ cmp-12.2.0.0.0_65.1.0-x86_64.iso	☐	pcrf-cmp-b	CMP Site1 Cluster	10.240.166.33	11.5.2.1.0_8.1.0	☐ cmp-12.2.0.0.0_65.1.0-x86_64.iso[100%]	☐	MPE Site1 Cluster	MPE				☐	pcrf-mpe-a	MPE	10.240.166.36	11.5.2.1.0_8.1.0	☐ mpe-12.2.0.0.0_65.1.0-x86_64.iso[100%]	☐	pcrf-mpe-b	MPE	10.240.166.37	11.5.2.1.0_8.1.0	☐ mpe-12.2.0.0.0_65.1.0-x86_64.iso[100%]	☐	MRA Site1 Cluster	MRA				☐	pcrf-mra-a	MRA	10.240.166.34	11.5.2.1.0_8.1.0	☐ mra-12.2.0.0.0_65.1.0-x86_64.iso[100%]	☐	pcrf-mra-b	MRA	10.240.166.35	11.5.2.1.0_8.1.0	☐ mra-12.2.0.0.0_65.1.0-x86_64.iso[100%]
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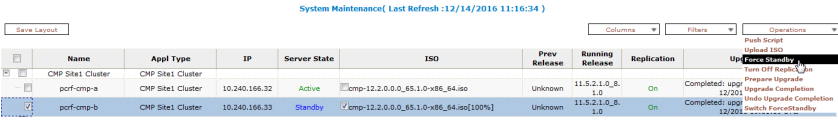
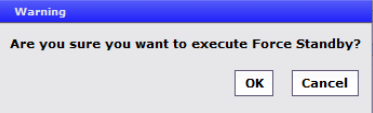
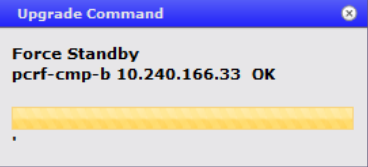
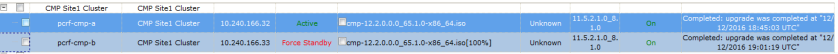
Software Upgrade Procedure

Step	Procedure	Result
6. <input type="checkbox"/>	<p>SSH CLI Primary Active CMP: Copy latest upgrade scripts and Exchange keys</p>	<ul style="list-style-type: none"> Ssh to active CMP, login as admusr user then mount the upgrade iso file to copy the latest upgrade scripts as follows: <pre>\$sudo mount -o loop /var/TKLC/upgrade/cmp-12.2.0.0.0_65.1.0-x86_64.iso /mnt/upgrade/ \$sudo cp /mnt/upgrade/upgrade/policyScripts/*.pl /opt/camiant/bin \$sudo umount /mnt/upgrade/</pre> <pre>[admusr@pcrf-cmp-a ~]\$ sudo mount -o loop /var/TKLC/upgrade/cmp-12.2.0.0.0_65.1.0-x86_64.iso /mnt/upgrade/ [admusr@pcrf-cmp-a ~]\$ sudo cp /mnt/upgrade/upgrade/policyScripts/*.pl /opt/camiant/bin [admusr@pcrf-cmp-a ~]\$ sudo umount /mnt/upgrade/ [admusr@pcrf-cmp-a ~]\$</pre> Run the following command to exchange the SSH keys with all servers in the topology: <pre>\$sudo qpSSHKeyProv.pl --prov</pre> <p>NOTE: You need to supply the PASSWORD of <i>admusr</i> for command to process</p> <pre>[admusr@pcrf-cmp-a ~]\$ sudo qpSSHKeyProv.pl --prov The password of admusr in topology: Connecting to admusr@pcrf-mpe-a ... Connecting to admusr@pcrf-mra-b ... Connecting to admusr@pcrf-cmp-a ... Connecting to admusr@pcrf-cmp-b ... Connecting to admusr@pcrf-mra-a ... Connecting to admusr@pcrf-mpe-b ... [1/6] Provisioning SSH keys on pcrf-mpe-a ... [2/6] Provisioning SSH keys on pcrf-mra-b ... [3/6] Provisioning SSH keys on pcrf-cmp-b ... [4/6] Provisioning SSH keys on pcrf-cmp-a ... [5/6] Provisioning SSH keys on pcrf-mra-a ... [6/6] Provisioning SSH keys on pcrf-mpe-b ... SSH keys are OK. [admusr@pcrf-cmp-a ~]\$</pre> Verify that the Keys are exchanged successfully with all the server clusters as follows : <pre>[admusr@pcrf-cmp-a ~]\$ sudo qpSSHKeyProv.pl --check The password of admusr in topology: Connecting to admusr@pcrf-mpe-a ... Connecting to admusr@pcrf-mra-b ... Connecting to admusr@pcrf-cmp-a ... Connecting to admusr@pcrf-cmp-b ... Connecting to admusr@pcrf-mra-a ... Connecting to admusr@pcrf-mpe-b ... [1/6] Checking SSH keys on pcrf-mpe-a ... [2/6] Checking SSH keys on pcrf-mra-b ... [3/6] Checking SSH keys on pcrf-cmp-b ... [4/6] Checking SSH keys on pcrf-cmp-a ... [5/6] Checking SSH keys on pcrf-mra-a ... [6/6] Checking SSH keys on pcrf-mpe-b ... SSH keys are OK. [admusr@pcrf-cmp-a ~]\$</pre>

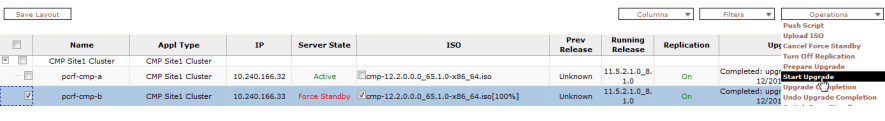
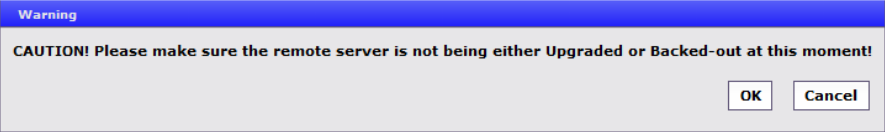
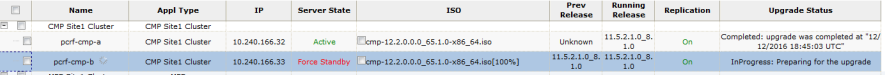
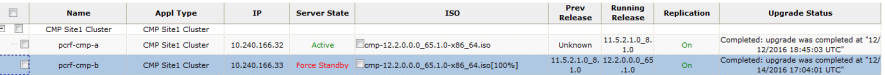
Software Upgrade Procedure

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7. <input type="checkbox"/>	<p>CMP GUI: Push the Release 12.2 upgrade Scripts to all servers in the segment topology</p>	<p>Login to CMP GUI and navigate to Upgrade Manager → ISO Maintenance</p> <ul style="list-style-type: none"> Select all the servers in the Topology as shown. Under Operations menu, select “Push Scripts” operation. (It is safe to run the push script multiple times as needed)  <p>The screenshot shows the 'ISO Maintenance' interface with a table of servers. The 'Operations' menu is open, and 'Push Script' is selected. The table contains the following data:</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Appl Type</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>10.240.166.32</td> <td>11.5.2.1.0_B.1.0</td> <td>[/cmp-12.2.0.0_0_65.1.0-x86_64.iso]</td> </tr> <tr> <td>porf-cmp-a</td> <td>CMP Site1 Cluster</td> <td>10.240.166.33</td> <td>11.5.2.1.0_B.1.0</td> <td>[/cmp-12.2.0.0_0_65.1.0-x86_64.iso][100%]</td> </tr> <tr> <td>porf-cmp-b</td> <td>CMP Site1 Cluster</td> <td>10.240.166.33</td> <td>11.5.2.1.0_B.1.0</td> <td>[/cmp-12.2.0.0_0_65.1.0-x86_64.iso][100%]</td> </tr> <tr> <td>MPE Site1 Cluster</td> <td>MPE</td> <td>10.240.166.36</td> <td>11.5.2.1.0_B.1.0</td> <td>[/mpe-12.2.0.0_0_65.1.0-x86_64.iso][100%]</td> </tr> <tr> <td>porf-mpe-a</td> <td>MPE</td> <td>10.240.166.36</td> <td>11.5.2.1.0_B.1.0</td> <td>[/mpe-12.2.0.0_0_65.1.0-x86_64.iso][100%]</td> </tr> <tr> <td>porf-mpe-b</td> <td>MPE</td> <td>10.240.166.37</td> <td>11.5.2.1.0_B.1.0</td> <td>[/mpe-12.2.0.0_0_65.1.0-x86_64.iso][100%]</td> </tr> <tr> <td>MRA Site1 Cluster</td> <td>MRA</td> <td>10.240.166.34</td> <td>11.5.2.1.0_B.1.0</td> <td>[/mra-12.2.0.0_0_65.1.0-x86_64.iso][100%]</td> </tr> <tr> <td>porf-mra-a</td> <td>MRA</td> <td>10.240.166.34</td> <td>11.5.2.1.0_B.1.0</td> <td>[/mra-12.2.0.0_0_65.1.0-x86_64.iso][100%]</td> </tr> <tr> <td>porf-mra-b</td> <td>MRA</td> <td>10.240.166.35</td> <td>11.5.2.1.0_B.1.0</td> <td>[/mra-12.2.0.0_0_65.1.0-x86_64.iso][100%]</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Click “OK” to continue the operation.  <ul style="list-style-type: none"> Operation successful.  <p>The 'Upgrade Command' dialog shows the following output:</p> <pre> Push Script pcrf-cmp-a 10.240.166.32 OK pcrf-cmp-b 10.240.166.33 OK pcrf-mpe-a 10.240.166.36 OK pcrf-mpe-b 10.240.166.37 OK pcrf-mra-a 10.240.166.34 OK pcrf-mra-b 10.240.166.35 OK </pre> <p>NOTE: Give the push script a minute to complete</p>	Name	Appl Type	IP	Running Release	ISO	CMP Site1 Cluster	CMP Site1 Cluster	10.240.166.32	11.5.2.1.0_B.1.0	[/cmp-12.2.0.0_0_65.1.0-x86_64.iso]	porf-cmp-a	CMP Site1 Cluster	10.240.166.33	11.5.2.1.0_B.1.0	[/cmp-12.2.0.0_0_65.1.0-x86_64.iso][100%]	porf-cmp-b	CMP Site1 Cluster	10.240.166.33	11.5.2.1.0_B.1.0	[/cmp-12.2.0.0_0_65.1.0-x86_64.iso][100%]	MPE Site1 Cluster	MPE	10.240.166.36	11.5.2.1.0_B.1.0	[/mpe-12.2.0.0_0_65.1.0-x86_64.iso][100%]	porf-mpe-a	MPE	10.240.166.36	11.5.2.1.0_B.1.0	[/mpe-12.2.0.0_0_65.1.0-x86_64.iso][100%]	porf-mpe-b	MPE	10.240.166.37	11.5.2.1.0_B.1.0	[/mpe-12.2.0.0_0_65.1.0-x86_64.iso][100%]	MRA Site1 Cluster	MRA	10.240.166.34	11.5.2.1.0_B.1.0	[/mra-12.2.0.0_0_65.1.0-x86_64.iso][100%]	porf-mra-a	MRA	10.240.166.34	11.5.2.1.0_B.1.0	[/mra-12.2.0.0_0_65.1.0-x86_64.iso][100%]	porf-mra-b	MRA	10.240.166.35	11.5.2.1.0_B.1.0	[/mra-12.2.0.0_0_65.1.0-x86_64.iso][100%]
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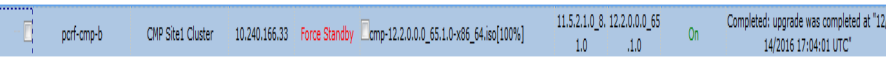
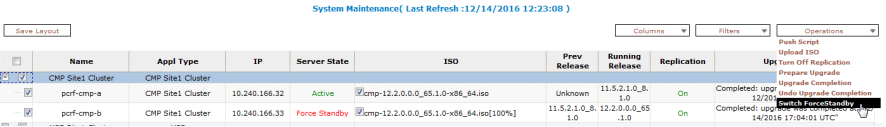
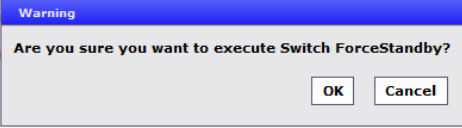
Software Upgrade Procedure

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<p>8. <input type="checkbox"/></p>	<p>CMP GUI: Set 'Force-Standby' mode on the Standby CMP - Primary Cluster</p>	<p>Upgrade Manager → System Maintenance</p> <ul style="list-style-type: none"> Click the checkbox for the Standby CMP Server at Primary Site Under Operations menu, select Force Standby operation  <p>System Maintenance(Last Refresh :12/14/2016 11:16:34)</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Appd Type</th> <th>IP</th> <th>Server State</th> <th>ISO</th> <th>Prev Release</th> <th>Running Release</th> <th>Replication</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>pcrf-cmp-a</td> <td>CMP Site1 Cluster</td> <td>10.240.166.32</td> <td>Active</td> <td>cmp-12.2.0.0_65.1.0-x86_64.iso</td> <td>Unknown</td> <td>11.5.2.1.0_8.1.0</td> <td>On</td> <td>Completed: upgrade was completed at '12/2016 18:45:03 UTC'</td> </tr> <tr> <td>pcrf-cmp-b</td> <td>CMP Site1 Cluster</td> <td>10.240.166.33</td> <td>Standby</td> <td>cmp-12.2.0.0_65.1.0-x86_64.iso[100%]</td> <td>Unknown</td> <td>11.5.2.1.0_8.1.0</td> <td>On</td> <td>Completed: upgrade was completed at '12/2016 19:01:19 UTC'</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Click "OK" to confirm and continue with the operation.  <p>Warning Are you sure you want to execute Force Standby? OK Cancel</p> <p>Confirm the step completes successfully:</p>  <p>Upgrade Command Force Standby pcrf-cmp-b 10.240.166.33 OK</p> <ul style="list-style-type: none"> The Standby CMP server state will be changed to "Force Standby"  <table border="1"> <thead> <tr> <th>Name</th> <th>Appd Type</th> <th>IP</th> <th>Server State</th> <th>ISO</th> <th>Prev Release</th> <th>Running Release</th> <th>Replication</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>pcrf-cmp-a</td> <td>CMP Site1 Cluster</td> <td>10.240.166.32</td> <td>Active</td> <td>cmp-12.2.0.0_65.1.0-x86_64.iso</td> <td>Unknown</td> <td>11.5.2.1.0_8.1.0</td> <td>On</td> <td>Completed: upgrade was completed at '12/2016 18:45:03 UTC'</td> </tr> <tr> <td>pcrf-cmp-b</td> <td>CMP Site1 Cluster</td> <td>10.240.166.33</td> <td>Force Standby</td> <td>cmp-12.2.0.0_65.1.0-x86_64.iso[100%]</td> <td>Unknown</td> <td>11.5.2.1.0_8.1.0</td> <td>On</td> <td>Completed: upgrade was completed at '12/2016 19:01:19 UTC'</td> </tr> </tbody> </table>	Name	Appd Type	IP	Server State	ISO	Prev Release	Running Release	Replication	Operations	pcrf-cmp-a	CMP Site1 Cluster	10.240.166.32	Active	cmp-12.2.0.0_65.1.0-x86_64.iso	Unknown	11.5.2.1.0_8.1.0	On	Completed: upgrade was completed at '12/2016 18:45:03 UTC'	pcrf-cmp-b	CMP Site1 Cluster	10.240.166.33	Standby	cmp-12.2.0.0_65.1.0-x86_64.iso[100%]	Unknown	11.5.2.1.0_8.1.0	On	Completed: upgrade was completed at '12/2016 19:01:19 UTC'	Name	Appd Type	IP	Server State	ISO	Prev Release	Running Release	Replication	Operations	pcrf-cmp-a	CMP Site1 Cluster	10.240.166.32	Active	cmp-12.2.0.0_65.1.0-x86_64.iso	Unknown	11.5.2.1.0_8.1.0	On	Completed: upgrade was completed at '12/2016 18:45:03 UTC'	pcrf-cmp-b	CMP Site1 Cluster	10.240.166.33	Force Standby	cmp-12.2.0.0_65.1.0-x86_64.iso[100%]	Unknown	11.5.2.1.0_8.1.0	On	Completed: upgrade was completed at '12/2016 19:01:19 UTC'
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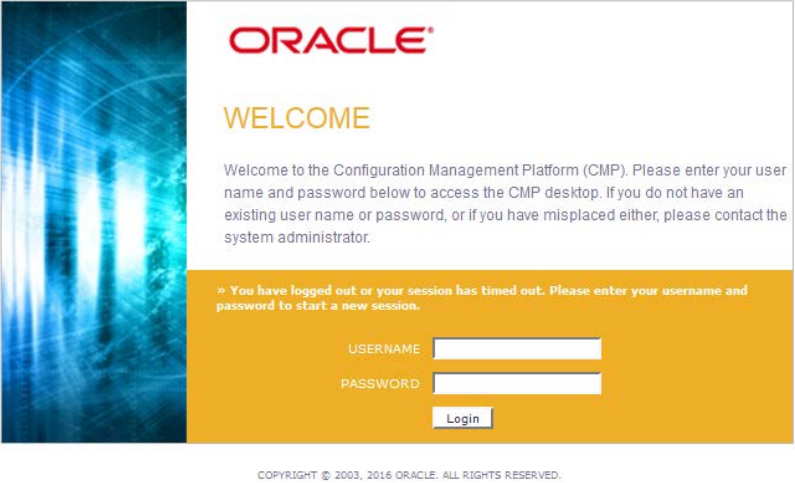
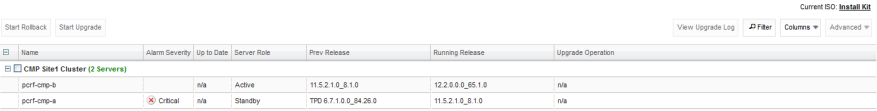
Software Upgrade Procedure

Step	Procedure	Result																																										
9. <input type="checkbox"/>	<p>CMP GUI: Upgrade the Force-Standby CMP server at the primary site</p> <p>NOTE: This will take ~40 minutes to complete.</p>	<p>Upgrade Manager → System Maintenance</p> <ul style="list-style-type: none"> Check Force-Standby CMP Server at the Primary Site. Under Operation menu, Click 'Start Upgrade' operation.  <ul style="list-style-type: none"> Click "OK" to continue with the operation.  <ul style="list-style-type: none"> Monitor the upgrade status activities from the "Upgrade Status" column.  <ul style="list-style-type: none"> Under "Upgraded Status" column, it will show the In Progress status along with the upgrade activities which typically will take <u>about 40 minutes to complete</u>. During the upgrade activities, the following alarms may be generated and considered normal reporting events. Alarms: <ul style="list-style-type: none"> Expected Critical alarm: 31283 High availability server is offline <table border="1"> <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 04, 2017 11:36 AM EST</td> <td>Critical</td> <td>31283</td> <td>High availability server is offline</td> <td>10.240.166.24</td> <td>perf-cmp-a 10.240.166.32</td> </tr> </tbody> </table> Expected Major Alarm: 31233 HA Path Down 70004 The QP processes have been brought down for maintenance. 70022 The MySQL slave failed synchronizing with the master 70021 The MySQL slave is not connected to the master <table border="1"> <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 04, 2017 04:41 PM EST</td> <td>Major</td> <td>70004</td> <td>The QP processes have been brought down for maintenance.</td> <td>10.240.166.24</td> <td>perf-cmp-a 10.240.166.32</td> </tr> </tbody> </table> <table border="1"> <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 04, 2017 05:07 PM EST</td> <td>Major</td> <td>70022</td> <td>The MySQL slave failed synchronizing with the master</td> <td>10.240.166.24</td> <td>perf-cmp-a 10.240.166.32</td> </tr> <tr> <td>Jan 04, 2017 05:07 PM EST</td> <td>Major</td> <td>70021</td> <td>The MySQL slave is not connected to the master</td> <td>10.240.166.24</td> <td>perf-cmp-a 10.240.166.32</td> </tr> </tbody> </table> Expected Minor Alarms: 31114 DB Replication over SOAP has failed 31106 DB Merge To Parent Failure 31107 DB Merge From Child Failure 31101 DB replication to slave DB has failed Wait until "upgrade was completed..." appears in the Upgrade Status column  <p>Note: If there is other status message appeared other than the "...Upgrade complete..." message, stop here and please contact Oracle Technical Services to troubleshoot and determine if a rollback should be executed.</p>	Occurrence	Severity	Alarm ID	Text	OAM VIP	Server	Jan 04, 2017 11:36 AM EST	Critical	31283	High availability server is offline	10.240.166.24	perf-cmp-a 10.240.166.32	Occurrence	Severity	Alarm ID	Text	OAM VIP	Server	Jan 04, 2017 04:41 PM EST	Major	70004	The QP processes have been brought down for maintenance.	10.240.166.24	perf-cmp-a 10.240.166.32	Occurrence	Severity	Alarm ID	Text	OAM VIP	Server	Jan 04, 2017 05:07 PM EST	Major	70022	The MySQL slave failed synchronizing with the master	10.240.166.24	perf-cmp-a 10.240.166.32	Jan 04, 2017 05:07 PM EST	Major	70021	The MySQL slave is not connected to the master	10.240.166.24	perf-cmp-a 10.240.166.32
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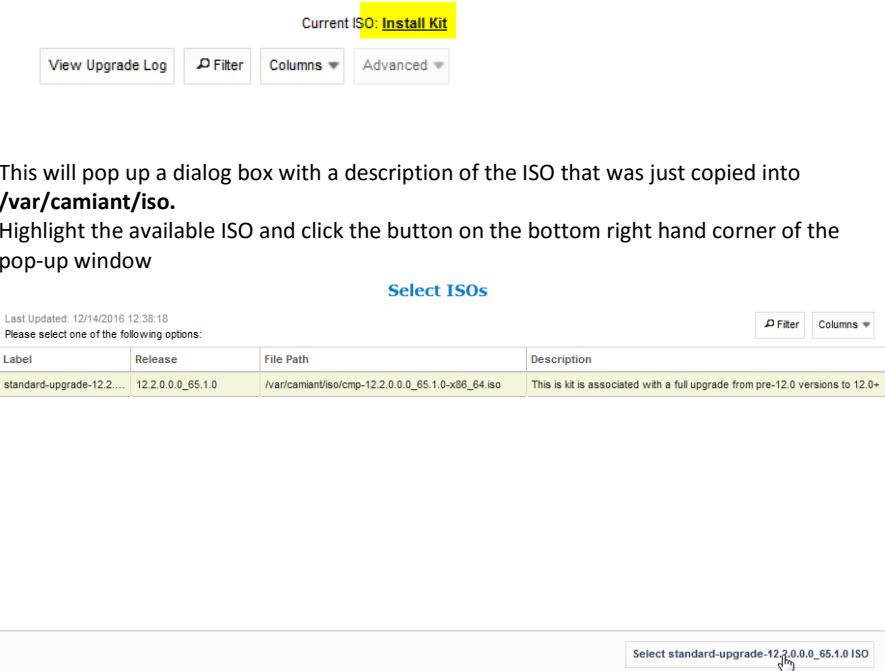
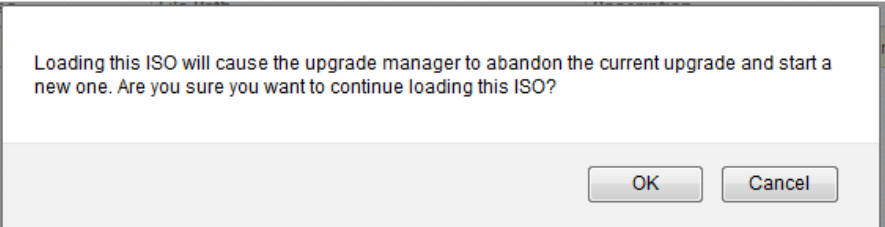
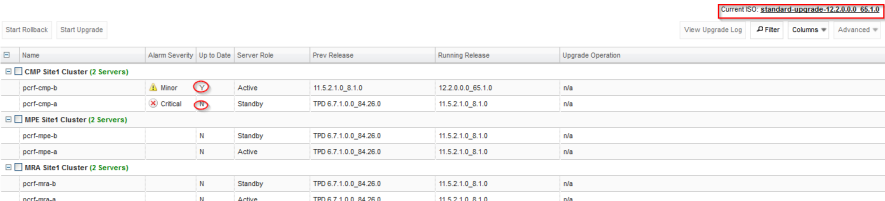
Software Upgrade Procedure

Step	Procedure	Result												
10. <input type="checkbox"/>	CMP GUI: Verify Upgrade Completion is successful	<p>Upgrade Manager → System Maintenance</p> <ul style="list-style-type: none"> Successful upgrade status will show the Release 12.2 under the “Running Release” column and the “Upgrade Status” –  <p>NOTE: Expect the server state role is still shown as “Force Standby” - same as prior to the upgrade. Any “Sync Broken” indicator (🔌) indicates that the data replication between the two servers of the cluster is not synced yet. This may take up to 45 minutes depending on the database size. Do not continue if there is a “sync broken” indicator on the server that was upgraded.</p>												
11.	Upgraded server SSH: Verify upgrade log file	<p>SSH to upgraded server and check the upgrade log file to validate it completed successfully:</p> <pre>[admusr@pcrf-cmp-b ~]\$ cd /var/TKLC/log/upgrade/ [admusr@pcrf-cmp-b upgrade]\$ tail upgrade.log 1481734697::Updating platform revision file... 1481734697::RCS_VERSION=1.2 1481734697::Upgrade returned success! 1481734698::Creating rc script to set alarm on next boot 1481734698::'/mnt/upgrade/upgrade/upgradeStatus' -> '/sysimage/etc/rc.d/rc4.d/S99TKLCupgradeStatus' 1481734698::Cleaning up chroot environment... 1481734698:: 1481734996:: /etc/rc4.d/S99TKLCupgradeStatus - AlarmMgr daemon is not running, delaying by 1 minute 1481735041:: /etc/rc4.d/S99TKLCupgradeStatus - Not setting 'Upgrade Accept/Reject' alarm 1481735041:: /etc/rc4.d/S99TKLCupgradeStatus - [admusr@pcrf-cmp-b upgrade]\$</pre>												
12. <input type="checkbox"/>	CMP GUI: Verify Alarms	<p>System Wide Reports → Active Alarms: Following expected Alarm(s) ID: 70025 is/are to be seen –</p> <table border="1"> <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>Dec 14, 2016 12:03 PM EST</td> <td>Critical</td> <td>70025</td> <td>The MySQL slave has a different schema version than the master.</td> <td>10.240.166.24</td> <td>pcrf-cmp-b 10.240.166.33</td> </tr> </tbody> </table> <ul style="list-style-type: none"> alarm will be cleared after the cluster is fully upgraded to the same release. 	Occurrence	Severity	Alarm ID	Text	OAM VIP	Server	Dec 14, 2016 12:03 PM EST	Critical	70025	The MySQL slave has a different schema version than the master.	10.240.166.24	pcrf-cmp-b 10.240.166.33
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13. <input type="checkbox"/>	CMP GUI: Switch the Upgraded Release 12.2 CMP server to Active	<p>Upgrade Manager → System Maintenance</p> <ul style="list-style-type: none"> Click the checkbox for the CMP cluster to be switched – primary cluster only, and Select the “Switch ForceStandby” operation under Operations menu  <ul style="list-style-type: none"> Click on “OK” to continue with the operation and a successful message appears.  <p>NOTE: At this point, the current CMP GUI browser connection will be lost – if it is the primary CMP cluster, need to re-login as illustrated in the next step.</p> <p style="text-align: center;">Close the browser and re-open.</p>												

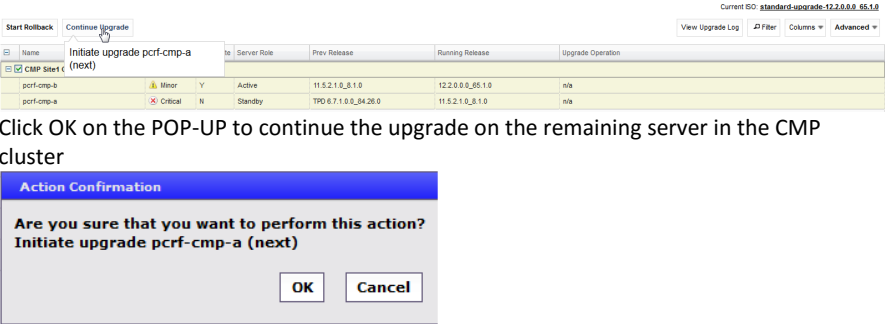
Software Upgrade Procedure

Step	Procedure	Result												
14. <input type="checkbox"/>	CMP GUI: Relogin to the CMP server VIP	<ul style="list-style-type: none"> Close the current CMP GUI browser tab and reopen another browser tab with the same CMP VIP address. The Policy Release 12.2 CMP GUI Login form should appear as shown – Login and password credentials are the same as the pre-upgrade. 												
15. <input type="checkbox"/>	CMP GUI: verify new Policy Release	<p>Navigate to help→About. Verify the release number is displayed as 12.2</p> <p style="text-align: center;">12.2.0.0.0_65.1.0</p> <p style="text-align: center;">Copyright (C) 2003, 2016 Oracle. All Rights Reserved.</p>												
16. <input type="checkbox"/>	CMP GUI: Critical Alarms	<p>Critical alarms 70025 will be seen until the SQL Database matches the master (12.2) and a minor alarm - 31101... These alarms are expected and will remain until all CMPs have been upgraded to the same version.</p> <table border="1"> <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>Dec 14, 2016 12:25 PM EST</td> <td style="background-color: red; color: white;">Critical</td> <td>70025</td> <td>The MySQL slave has a different schema version than the master.</td> <td>10.240.166.24</td> <td>porf-cmp-a 10.240.166.32</td> </tr> </tbody> </table> <p>NOTE: the Upgrade Manager will show the same alarms.</p>	Occurrence	Severity	Alarm ID	Text	OAM VIP	Server	Dec 14, 2016 12:25 PM EST	Critical	70025	The MySQL slave has a different schema version than the master.	10.240.166.24	porf-cmp-a 10.240.166.32
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17. <input type="checkbox"/>	CMP GUI: Verify the Policy Release 12.2 CMP is Active	<p>Upgrade→Upgrade Manager</p>  <ul style="list-style-type: none"> As noted, the Active CMP server is now on the Running Release of 12.2 												
18. <input type="checkbox"/>	Primary Active CMP: ssh to primary active CMP and copy iso to /var/camiant/iso	<ul style="list-style-type: none"> Logon to the primary active CMP as admusr 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> <ul style="list-style-type: none"> Verify the copy by using the following command: <pre>\$ ls /var/camiant/iso/</pre>												

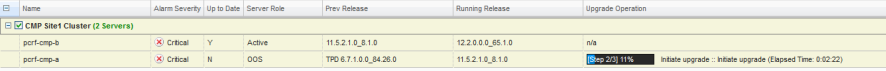
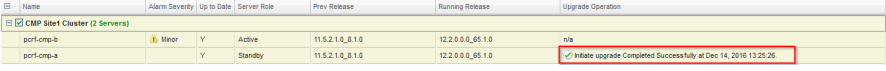
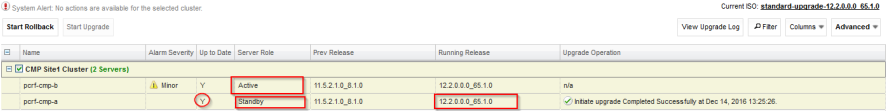
Software Upgrade Procedure

Step	Procedure	Result																								
<p>19. <input type="checkbox"/></p>	<p>CMP GUI: Locate the new 12.2 Upgrade Manual</p>	<p>Upgrade → Upgrade Manager</p> <p>Select the Current ISO – in this case it is labeled install kit.</p>  <p>This will pop up a dialog box with a description of the ISO that was just copied into <code>/var/camiant/iso</code>. Highlight the available ISO and click the button on the bottom right hand corner of the pop-up window</p> <p>Select ISOs</p> <p>Last Updated: 12/14/2016 12:38:18 Please select one of the following options:</p> <table border="1"> <thead> <tr> <th>Label</th> <th>Release</th> <th>File Path</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>standard-upgrade-12.2...</td> <td>12.2.0.0_0_65.1.0</td> <td>/var/camiant/iso/cmp-12.2.0.0.0_65.1.0-x86_64.iso</td> <td>This is kit is associated with a full upgrade from pre-12.0 versions to 12.0+</td> </tr> </tbody> </table> <p>Select standard-upgrade-12.2.0.0.0_65.1.0 ISO</p> <p>Pop-Up confirming – Click OK.</p>  <p>Within a few seconds, the ‘Up to date’ column transition from ‘n/a’ to ‘Y’ (meaning up-to-date) or ‘N’ (meaning needs upgrade). Also, the “Install Kit” now displays the selected CMP ISO file</p> 	Label	Release	File Path	Description	standard-upgrade-12.2...	12.2.0.0_0_65.1.0	/var/camiant/iso/cmp-12.2.0.0.0_65.1.0-x86_64.iso	This is kit is associated with a full upgrade from pre-12.0 versions to 12.0+																
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<p>20. <input type="checkbox"/></p>	<p>CMP GUI: New Alarms introduced with 12.2</p>	<p>The following minor alarms, along with the already active Critical alarms, will now be active.</p> <table border="1"> <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>Dec 14, 2016 12:25 PM EST</td> <td>Critical</td> <td>70025</td> <td>The MySQL slave has a different schema version than the master.</td> <td>10.240.166.24</td> <td>pcrf-cmp-a 10.240.166.32</td> </tr> <tr> <td>Dec 14, 2016 12:43 PM EST</td> <td>Minor</td> <td>70500</td> <td>The system is running different versions of software</td> <td>10.240.166.24</td> <td>pcrf-cmp-b 10.240.166.33</td> </tr> <tr> <td>Dec 14, 2016 12:43 PM EST</td> <td>Minor</td> <td>70501</td> <td>The Cluster is running different versions of software</td> <td>10.240.166.24</td> <td>pcrf-cmp-b 10.240.166.33</td> </tr> </tbody> </table>	Occurrence	Severity	Alarm ID	Text	OAM VIP	Server	Dec 14, 2016 12:25 PM EST	Critical	70025	The MySQL slave has a different schema version than the master.	10.240.166.24	pcrf-cmp-a 10.240.166.32	Dec 14, 2016 12:43 PM EST	Minor	70500	The system is running different versions of software	10.240.166.24	pcrf-cmp-b 10.240.166.33	Dec 14, 2016 12:43 PM EST	Minor	70501	The Cluster is running different versions of software	10.240.166.24	pcrf-cmp-b 10.240.166.33
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Software Upgrade Procedure

Step	Procedure	Result
21. <input type="checkbox"/>	<p>CMP GUI: Complete the Upgrade of the Primary CMP Cluster</p> <p>Note: Remaining CMP server will take approximately 40 minutes to complete.</p>	<p>Upgrade → Upgrade Manager</p> <p>Select the Primary Site 1 CMP Cluster</p> <p>The “Continue Upgrade” button will become available, Click this button as illustrated below.</p>  <p>The screenshot shows the Upgrade Manager interface. At the top, there are buttons for 'Start Rollback' and 'Continue Upgrade'. Below that is a table with columns: Name, Server Role, Prev Release, Running Release, and Upgrade Operation. The table lists two servers: 'pcrf-cmp-b' (Minor, Y, Active) and 'pcrf-cmp-a' (Critical, N, Standby). Below the table, there is an 'Action Confirmation' dialog box with the text: 'Are you sure that you want to perform this action? Initiate upgrade pcrf-cmp-a (next)'. The dialog has 'OK' and 'Cancel' buttons.</p> <p>Click OK on the POP-UP to continue the upgrade on the remaining server in the CMP cluster</p> <p>Alarms to Note:</p> <p>Expected Critical alarm:</p> <ul style="list-style-type: none"> 31283 High availability server is offline 70001 QP_procmgr failed 70025 QP Slave database is a different version than the master <p>Expected Major Alarm:</p> <ul style="list-style-type: none"> 31233 HA Path Down 70004 QP Processes down for maintenance <p>Expected Minor Alarms:</p> <ul style="list-style-type: none"> 70503 Upgrade Director Server Forced Standby 70507 Upgrade Director In Progress 70500 Upgrade Director System Mixed Version 70501 Upgrade Director Cluster Mixed Version 31114 DB Replication over SOAP has failed 31106 DB Merge To Parent Failure 31107 DB Merge From Child Failure 31101 DB Replication To Slave Failure <p>NOTE: Remaining CMP server will take approximately 40 minutes to complete.</p>

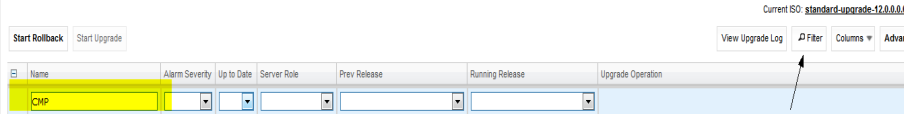
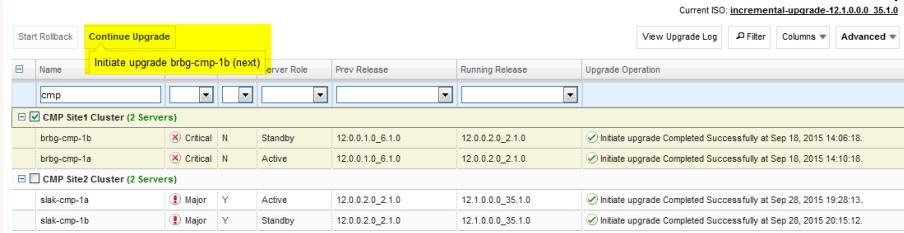
Software Upgrade Procedure

Step	Procedure	Result																																																																																																																		
22. <input type="checkbox"/>	<p>CMP GUI: Verify the status of upgraded CMP server.</p>	<p>Upgrade Manager → Upgrade Manager</p> <p>Notice the upgrade operation column displays the steps of the upgrade process:</p>  <ul style="list-style-type: none"> At end of the upgrade process, upgrade operation column should display successful upgrade completion message for the upgraded CMP server as follows:  <ul style="list-style-type: none"> Successful upgrade status will now show both servers running the Release 12.2 under the "Running Release" column.- A "Y" in the Up to Date column Active/standby state for both servers in the Primary CMP Cluster.  <ul style="list-style-type: none"> Active alarms to NOTE <p>Expected Critical alarm:</p> <p>31283 High availability server is offline 70001 QP_procMgr failed 70025 The MYSQL Slave has a different scheme version than the master</p> <table border="1"> <thead> <tr> <th>Occurrence</th> <th>Severity</th> <th>Alarm ID</th> 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</table> <p>Expected Minor Alarms:</p> <p>31114 DB Replication over SOAP has failed 31106 DB Merge To Parent Failure 31107 DB Merge From Child Failure 31101 DB Replication To Slave Failure 70503 Upgrade Director Server Forced Standby 70507 An Upgrade/Backout action on a server is in progress 70500 Upgrade Director System Mixed Version 70501 Upgrade Director Cluster Mixed Version</p> <table border="1"> <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 04, 2017 04:42 PM EST</td> <td>Minor</td> <td>31114</td> <td>DB Replication of configuration data via SOAP has failed</td> <td>10.240.166.24</td> <td>port-cmp-b 10.240.166.33</td> </tr> <tr> <td>Jan 04, 2017 04:42 PM EST</td> <td>Minor</td> <td>31106</td> <td>DB merging to the parent Merge Node has failed</td> <td>10.240.166.24</td> <td>port-cmp-b 10.240.166.33</td> </tr> <tr> <td>Jan 04, 2017 04:42 PM 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Software Upgrade Procedure

Step	Procedure	Result
23. <input type="checkbox"/>	Proceed to next upgrade procedure	<ul style="list-style-type: none"> At this point, the Primary Site1 is running Release 12.2 Secondary SITE – if applicable - is on R11.5.x All 'C' Level Nodes will be on Release 11.5 Proceed to the next procedure if there is a DR CMP to upgrade. If not, skip to section 11.
THIS PROCEDURE HAS BEEN COMPLETED		

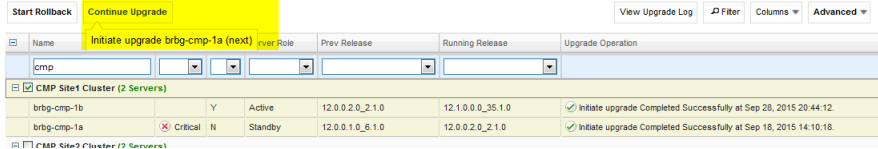
7.1.2 Upgrade Secondary CMP Cluster

Step	Procedure	Result
1. <input type="checkbox"/>	CMP GUI: Verify Status of CMP Cluster	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Primary CMP is completely upgraded to 12.2 Secondary CMP Cluster is on 11.5
2. <input type="checkbox"/>	CMP GUI: Upgrade Secondary CMP cluster	<p>Upgrade → Upgrade Manager</p> <p>NOTE: The Filter button can be used to show only the CMP servers. Type in CMP under NAME.</p>  <p>Current ISO: standard-upgrade-12.0.0.0</p> <ul style="list-style-type: none"> Click the checkbox for the Secondary CMP Server Cluster at Site2 Click the 'Start Upgrade' Button.  <p>Current ISO: incremental-upgrade-12.1.0.0.0_35.1.0</p> <ul style="list-style-type: none"> Click "OK" to confirm and continue with the operation. The specific action taken will be determined by the Upgrade Manager and based on the specific version change being performed. This will continue to upgrade the standby server only in the CMP Cluster NOTE: This will take ~30 minutes to complete. Under "Upgraded Status" column, it will show the In Progress status along with the upgrade activities.

Software Upgrade Procedure

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<p>3. <input type="checkbox"/></p>	<p>CMP GUI: Continue Upgrade Secondary CMP cluster</p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Click the checkbox for the Secondary CMP Server Cluster at Site2 Click the 'Continue Upgrade' button. Notice the message "Failover to new version" <div> </div> <ul style="list-style-type: none"> Click "ok" to confirm and continue with the operation, The specific action will take a minute to complete. Wait until the newly upgraded server is active, as shown below. <div> <table border="1"> <thead> <tr> <th>Name</th> <th>Alarm Se...</th> <th>Up to ...</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td colspan="7">CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td>brbg-cmp-1b</td> <td></td> <td>Y</td> <td>Active</td> <td>12.0.0.2.0_2.1.0</td> <td>12.1.0.0.0_35.1.0</td> <td>Initiate upgrade Completed Successfully at Sep 28, 2015 20:44:12.</td> </tr> <tr> <td>brbg-cmp-1a</td> <td>Critical</td> <td>N</td> <td>Standby</td> <td>12.0.0.1.0_6.1.0</td> <td>12.0.0.2.0_2.1.0</td> <td>Initiate upgrade Completed Successfully at Sep 18, 2015 14:10:18.</td> </tr> </tbody> </table> </div> <ul style="list-style-type: none"> Click the checkbox for the Secondary CMP Server Cluster at Site2 	Name	Alarm Se...	Up to ...	Server Role	Prev Release	Running Release	Upgrade Operation	CMP Site1 Cluster (2 Servers)							brbg-cmp-1b		Y	Active	12.0.0.2.0_2.1.0	12.1.0.0.0_35.1.0	Initiate upgrade Completed Successfully at Sep 28, 2015 20:44:12.	brbg-cmp-1a	Critical	N	Standby	12.0.0.1.0_6.1.0	12.0.0.2.0_2.1.0	Initiate upgrade Completed Successfully at Sep 18, 2015 14:10:18.																																																																												
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Software Upgrade Procedure

Step	Procedure	Result
		<ul style="list-style-type: none"> Click the 'Continue Upgrade' Button. When hovering over the continue upgrade button, the message will display the next action, which is upgrading the remaining CMP.  <ul style="list-style-type: none"> Click "ok" to confirm and continue with the operation, During the Upgrade activities, the following Alarms may be generated and considered normal reporting events - <p>Expected Critical alarm:</p> <ul style="list-style-type: none"> 31283 High availability server is offline 70001 QP_procmgr failed 70025 QP Slave database is a different version than the master <p>Expected Major Alarm:</p> <ul style="list-style-type: none"> 70004 QP Processes down for maintenance <p>Expected Minor Database replication Alarms:</p> <ul style="list-style-type: none"> 70503 Upgrade Director Server Forced Standby 70507 Upgrade Director In Progress 70500 Upgrade Director System Mixed Version 70501 Upgrade Director Cluster Mixed Version 31114 DB Replication over SOAP has failed 31106 DB Merge To Parent Failure 31107 DB Merge From Child Failure 31101 DB Replication To Slave Failure 31282 HA management fault
4. <input type="checkbox"/>	CMP GUI: Verify Upgrade Completion is successful.	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Successful upgrade status will show the Release 12.2 under the "Running Release" column and the "Upgrade Status" –
5. <input type="checkbox"/>	CMP GUI: Verify Alarms	<p>System Wide Reports → Alarms → Active Alarms:</p> <p>Following expected Minor Alarm(s) ID:</p> <p><u>70500 System in Mixed version</u></p>

8. UPGRADE CMP CLUSTERS (11.5.X TO 12.2) CABLE MODE

This procedure will upgrade the Site1 CMP cluster first, and if needed, upgrade the Site2 CMP cluster in Cable Mode.

8.1 Upgrade CMP Clusters Overview

1. Upgrade Primary CMP cluster:
 - a. Use the CMP GUI—System Maintenance (11.5.X), to place Primary Standby CMP into Force-Standby
 - b. Use the CMP GUI—System Maintenance (11.5.X), to upgrade the Primary Force-Standby CMP server
 - c. Use the CMP GUI—System Maintenance (11.5.X), to perform Switch Force-Standby on the Primary CMP cluster
 - d. Log back into the CMP GUI and upgrade the remaining Primary CMP that is the Force-Standby server using the 12.2 Upgrade Manager
2. Upgrade the Secondary CMP cluster (If applicable)

Use the CMP GUI, **Upgrade** → **Upgrade Manager** and upgrade the CMP Secondary Site 2

 - a. Start upgrade
 - b. Continue upgrade—failover
 - c. 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 Disaster Recovery (DR) 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 Disaster Recovery Status	Operator Site Name	Site Designation from Topology Form (Site1 or Site2)
Primary Site		
Secondary Site		

Note the Information on this CMP cluster:

Cluster Name _____

Server-A Hostname _____

Server-A IP _____

Server-A Status _____

Server-B Hostname _____

Server-B IP Address _____

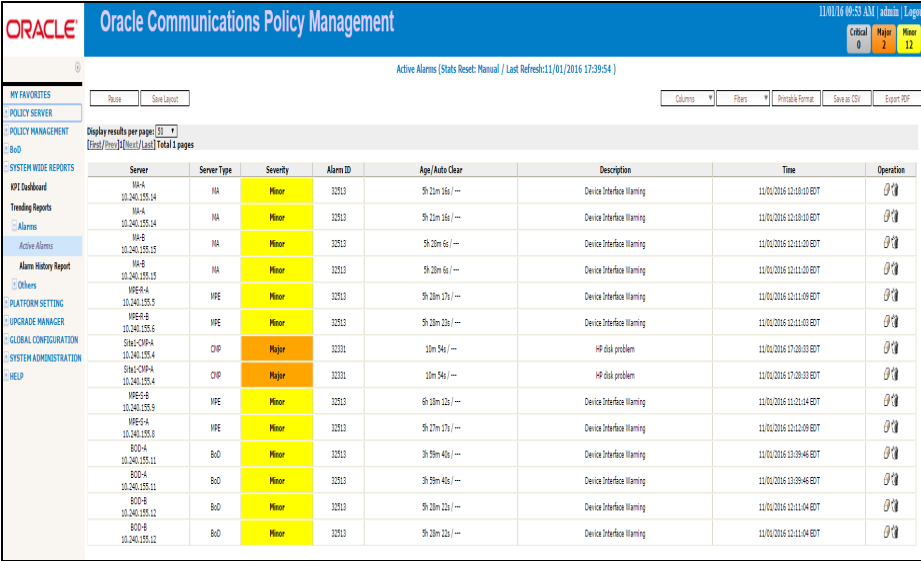
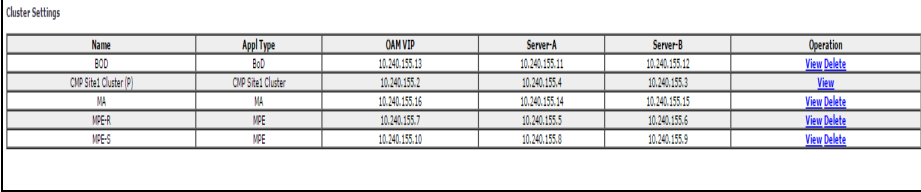
Server-B Status _____

IMPORTANT:

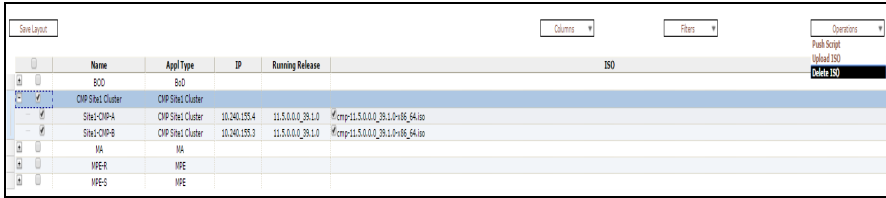
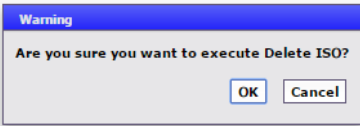
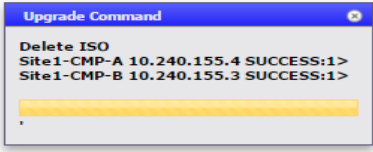
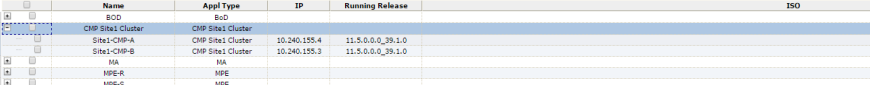
- CMP servers MUST be upgraded first, before the MPE-R, MPE-S, BOD or MA clusters
- Site1 CMP MUST be upgraded to the new release first, before the Site2 CMP (if applicable)

8.1.1 Upgrade Primary CMP Cluster


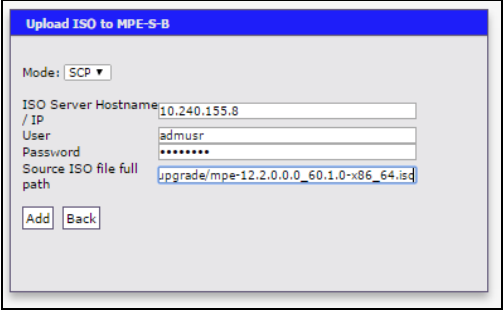
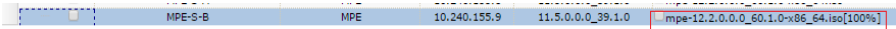
Step	Procedure	Result
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Step	Procedure	Result
<p>1 <input type="checkbox"/></p>	<p>CMP GUI: Verify alarm status.</p>	<p>System Wide Reports → Alarms → Active Alarms</p> <ul style="list-style-type: none"> Confirm that any existing alarm is well understood and no impact to the upgrade procedure. <p>Capture a screenshot and save it into a file for reference.</p> 
<p>2 <input type="checkbox"/></p>	<p>CMP GUI: Identify and record the CMP cluster(s)</p>	<p>Navigate to Platform Setting → Topology Settings → All Clusters</p>  <ul style="list-style-type: none"> Note which cluster is the primary and which cluster is the secondary. The Primary CMP is noted with a P in parenthesis and a Secondary CMP is noted with an S in parenthesis. Save a screenshot for future reference.
<p>3 <input type="checkbox"/></p>	<p>CMP GUI: Verify status of CMP clusters</p>	<p>Upgrade Manager → System Maintenance</p> <p>Confirm the CMP clusters have the following:</p> <ul style="list-style-type: none"> Active/Standby status Running show of 11.5.X version Replication ON Release 12.2 ISO files copied to at least one of each server types (CMP/MRA/MPE)— Meaning, a copy of the MPE ISO file is on one of the MPE servers, an MRA ISO file is on one of the MRA servers and a copy of the CMP ISO file is on one CMP server

Software Upgrade Procedure

Step	Procedure	Result
<p>4 <input type="checkbox"/></p>	<p>CMP GUI Access into Primary CMP Server—Remove old ISO files from servers.</p>	<p>Upgrade Manager → ISO Maintenance</p> <ul style="list-style-type: none"> Select the servers that show old ISO files. Select the server cluster and select Operations→ Delete ISO for any of the older ISO files in the list.  <ul style="list-style-type: none"> Click OK to continue  <ul style="list-style-type: none"> wait until the successful deletion message appears  <ul style="list-style-type: none"> Wait until the ISO Maintenance page refreshes showing that the ISO column blank 

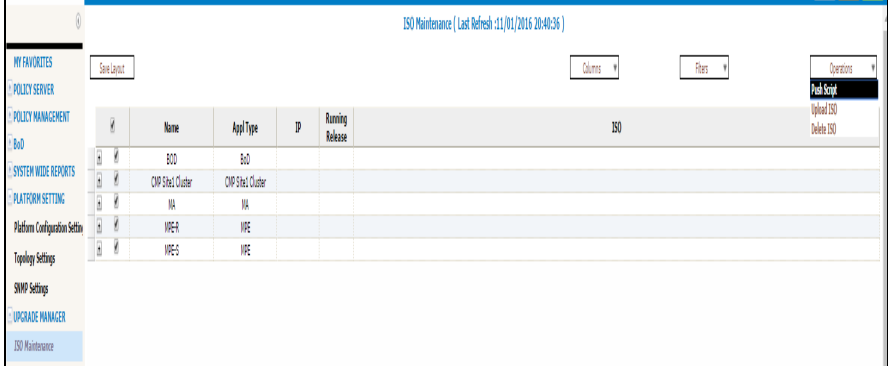
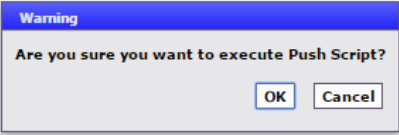
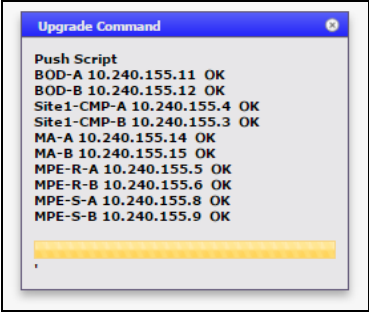
Software Upgrade Procedure

Step	Procedure	Result																																																																																
5 <input type="checkbox"/>	<p>CMP GUI: Upload relevant upgrade ISO file to each CMP/MPE-R/MPE-S/BOD/MA server</p> <p>NOTE: This step depends on the ISO file type. Distribute ISO files accordingly.</p>	<p>Upgrade Manager → ISO Maintenance</p> <ul style="list-style-type: none"> (Optional but Preferred) Filter CMP/MPE/MRA servers <p>One application at a time, select one server type (MPE-R/S, MA, BOD or CMP) to upload its upgrade ISO file.</p> <p>NOTE: The ISO files for each application type must already be copied over to at least one server.</p> <p>Select Operations → Upload ISO</p>  <p>Fill in the dialog with the following information:</p> <p>Mode: Select SCP</p> <p>ISO Server Hostname/IP: <IP_address_where_ISO_files_are_located></p> <p>User: admusr</p> <p>Password: <admusr_password_for_the_server></p> <p>Source ISO file full path: /var/TKLC/upgrade/</p>  <p>Click Add and wait till filename appears under the “ISO” column and file is 100% transferred:</p>  <p>When completed for all servers, the ISO column will be populated with the ISO filename and indication of 100% transfer completion</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Appl Type</th> <th>IP</th> <th>Running Release</th> <th>ISO</th> </tr> </thead> <tbody> <tr> <td>BOD</td> <td>BOD</td> <td></td> <td></td> <td></td> </tr> <tr> <td>BOD-A</td> <td>BOD</td> <td>10.240.155.11</td> <td>11.5.0.0_39.1.0</td> <td>bod-12.2.0.0.0_60.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>BOD-B</td> <td>BOD</td> <td>10.240.155.12</td> <td>11.5.0.0_39.1.0</td> <td>bod-12.2.0.0.0_60.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>CMP Site1 Cluster</td> <td>CMP Site1 Cluster</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Site1-CMP-A</td> <td>CMP Site1 Cluster</td> <td>10.240.155.4</td> <td>11.5.0.0_39.1.0</td> <td>cmp-12.2.0.0.0_60.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>Site1-CMP-B</td> <td>CMP Site1 Cluster</td> <td>10.240.155.3</td> <td>11.5.0.0_39.1.0</td> <td>cmp-12.2.0.0.0_60.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>MA</td> <td>MA</td> <td></td> <td></td> <td></td> </tr> <tr> <td>MA-A</td> <td>MA</td> <td>10.240.155.14</td> <td>11.5.0.0_39.1.0</td> <td>ma-12.2.0.0.0_60.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>MA-B</td> <td>MA</td> <td>10.240.155.15</td> <td>11.5.0.0_39.1.0</td> <td>ma-12.2.0.0.0_60.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>MPE-R</td> <td>MPE</td> <td></td> <td></td> <td></td> </tr> <tr> <td>MPE-R-A</td> <td>MPE</td> <td>10.240.155.5</td> <td>11.5.0.0_39.1.0</td> <td>mpe-12.2.0.0.0_60.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>MPE-R-B</td> <td>MPE</td> <td>10.240.155.6</td> <td>11.5.0.0_39.1.0</td> <td>mpe-12.2.0.0.0_60.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>MPE-S</td> <td>MPE</td> <td></td> <td></td> <td></td> </tr> <tr> <td>MPE-S-A</td> <td>MPE</td> <td>10.240.155.8</td> <td>11.5.0.0_39.1.0</td> <td>mpe-12.2.0.0.0_60.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>MPE-S-B</td> <td>MPE</td> <td>10.240.155.9</td> <td>11.5.0.0_39.1.0</td> <td>mpe-12.2.0.0.0_60.1.0-x86_64.iso[100%]</td> </tr> </tbody> </table> <p>NOTE: For those servers the ISO file was transferred from the local machine, there will not be a 100% indicator. This indicator is only available when transferring ISO files using the ISO management screen of CMP GUI.</p>	Name	Appl Type	IP	Running Release	ISO	BOD	BOD				BOD-A	BOD	10.240.155.11	11.5.0.0_39.1.0	bod-12.2.0.0.0_60.1.0-x86_64.iso[100%]	BOD-B	BOD	10.240.155.12	11.5.0.0_39.1.0	bod-12.2.0.0.0_60.1.0-x86_64.iso[100%]	CMP Site1 Cluster	CMP Site1 Cluster				Site1-CMP-A	CMP Site1 Cluster	10.240.155.4	11.5.0.0_39.1.0	cmp-12.2.0.0.0_60.1.0-x86_64.iso[100%]	Site1-CMP-B	CMP Site1 Cluster	10.240.155.3	11.5.0.0_39.1.0	cmp-12.2.0.0.0_60.1.0-x86_64.iso[100%]	MA	MA				MA-A	MA	10.240.155.14	11.5.0.0_39.1.0	ma-12.2.0.0.0_60.1.0-x86_64.iso[100%]	MA-B	MA	10.240.155.15	11.5.0.0_39.1.0	ma-12.2.0.0.0_60.1.0-x86_64.iso[100%]	MPE-R	MPE				MPE-R-A	MPE	10.240.155.5	11.5.0.0_39.1.0	mpe-12.2.0.0.0_60.1.0-x86_64.iso[100%]	MPE-R-B	MPE	10.240.155.6	11.5.0.0_39.1.0	mpe-12.2.0.0.0_60.1.0-x86_64.iso[100%]	MPE-S	MPE				MPE-S-A	MPE	10.240.155.8	11.5.0.0_39.1.0	mpe-12.2.0.0.0_60.1.0-x86_64.iso[100%]	MPE-S-B	MPE	10.240.155.9	11.5.0.0_39.1.0	mpe-12.2.0.0.0_60.1.0-x86_64.iso[100%]
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BOD-B	BOD	10.240.155.12	11.5.0.0_39.1.0	bod-12.2.0.0.0_60.1.0-x86_64.iso[100%]																																																																														
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Site1-CMP-A	CMP Site1 Cluster	10.240.155.4	11.5.0.0_39.1.0	cmp-12.2.0.0.0_60.1.0-x86_64.iso[100%]																																																																														
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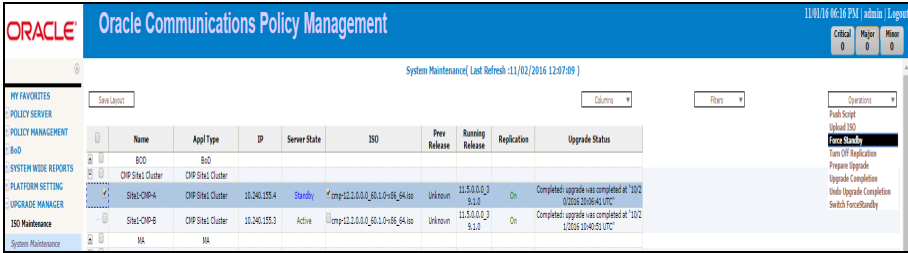
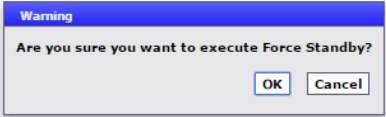
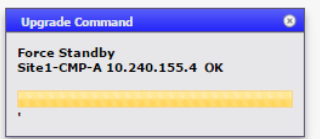
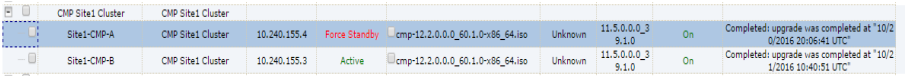
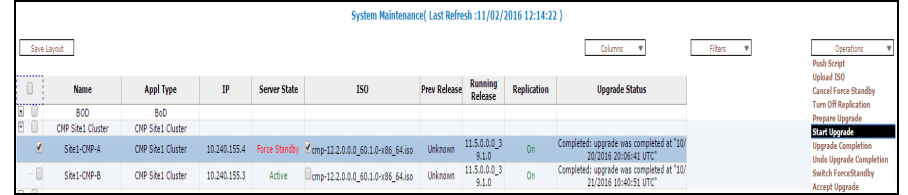
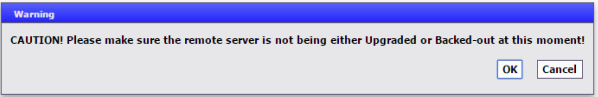
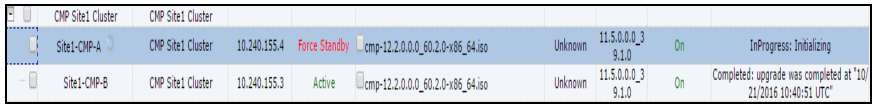
Software Upgrade Procedure

Step	Procedure	Result
6 <input type="checkbox"/>	SSH CLI Primary Active CMP: Copy latest upgrade scripts and Exchange keys	<ul style="list-style-type: none"> Ssh to active CMP, login as admusr user then mount the upgrade iso file to copy the latest upgrade scripts as follows: <pre>[admusr@Site1-CMP-B ~]\$ sudo mount -o loop /var/TKLC/upgrade/cmp-12.2.0.0_60.1.0-x86_64.iso /mnt/upgrade/ [admusr@Site1-CMP-B ~]\$ sudo cp /mnt/upgrade/upgrade/policyScripts/*.pl /opt/camiant/bin [admusr@Site1-CMP-B ~]\$ sudo umount /mnt/upgrade/ [admusr@Site1-CMP-B ~]\$</pre> Run the following command to exchange the SSH keys with all servers in the topology: <pre>\$sudo qpSSHKeyProv.pl --prov</pre> <p>NOTE: You need to supply the admusr PASSWORD for command to process</p> <pre>[admusr@Site1-CMP-B ~]\$ cd /opt/camiant/bin [admusr@Site1-CMP-B bin]\$ sudo qpSSHKeyProv.pl --prov The password of admusr in topology: Connecting to admusr@MA-B ... Connecting to admusr@Site1-CMP-B ... Connecting to admusr@BOD-B ... Connecting to admusr@MPE-S-B ... Connecting to admusr@MPE-R-B ... Connecting to admusr@MPE-R-A ... Connecting to admusr@MA-A ... Connecting to admusr@MPE-S-A ... Connecting to admusr@Site1-CMP-A ... Connecting to admusr@BOD-A ... [1/10] Provisioning SSH keys on MA-B ... [2/10] Provisioning SSH keys on Site1-CMP-B ... [3/10] Provisioning SSH keys on MPE-R-B ... [4/10] Provisioning SSH keys on MPE-S-B ... [5/10] Provisioning SSH keys on BOD-B ... [6/10] Provisioning SSH keys on MPE-R-A ... [7/10] Provisioning SSH keys on MA-A ... [8/10] Provisioning SSH keys on MPE-S-A ... [9/10] Provisioning SSH keys on BOD-A ... [10/10] Provisioning SSH keys on Site1-CMP-A ... SSH keys are OK. [admusr@Site1-CMP-B bin]\$</pre> Verify that the Keys are exchanged successfully with all the server clusters as follows : <pre>[admusr@Site1-CMP-B bin]\$ sudo qpSSHKeyProv.pl --check The password of admusr in topology: Connecting to admusr@MA-B ... Connecting to admusr@Site1-CMP-B ... Connecting to admusr@BOD-B ... Connecting to admusr@MPE-S-B ... Connecting to admusr@MPE-R-B ... Connecting to admusr@MPE-R-A ... Connecting to admusr@MA-A ... Connecting to admusr@MPE-S-A ... Connecting to admusr@Site1-CMP-A ... Connecting to admusr@BOD-A ... [1/10] Checking SSH keys on MA-B ... [2/10] Checking SSH keys on Site1-CMP-B ... [3/10] Checking SSH keys on MPE-R-B ... [4/10] Checking SSH keys on MPE-S-B ... [5/10] Checking SSH keys on BOD-B ... [6/10] Checking SSH keys on MPE-R-A ... [7/10] Checking SSH keys on MA-A ... [8/10] Checking SSH keys on MPE-S-A ... [9/10] Checking SSH keys on BOD-A ... [10/10] Checking SSH keys on Site1-CMP-A ... SSH keys are OK. [admusr@Site1-CMP-B bin]\$</pre>

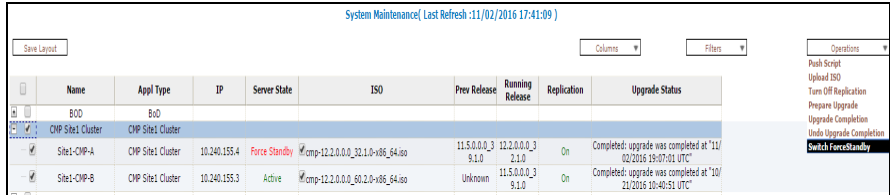
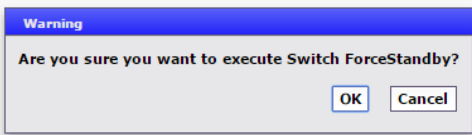
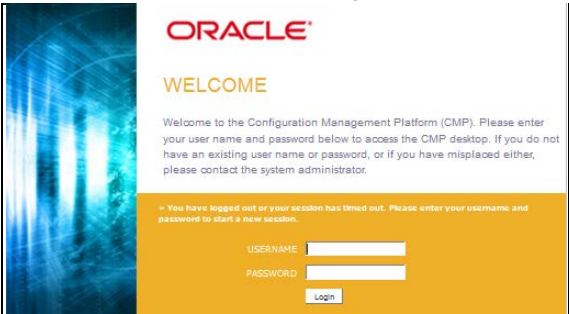
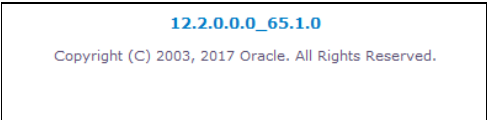

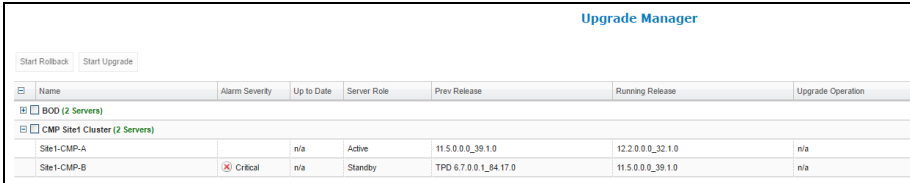
Software Upgrade Procedure

Step	Procedure	Result
7 <input type="checkbox"/>	<p>CMP GUI: Push the latest 12.2 upgrade scripts to all servers in the segment topology</p>	<p>Login to CMP GUI and navigate to Upgrade Manager → ISO Maintenance</p> <ul style="list-style-type: none"> Select all the servers in the topology as shown in the figure. <p>Select Operations→Push Scripts.</p> <p>NOTE: It is safe to run the push script multiple times as needed.</p>  <p>Click OK to continue the operation:</p>  <p>Confirm command completes successfully.</p>  <p>NOTE: Give the push script a minute to complete</p>


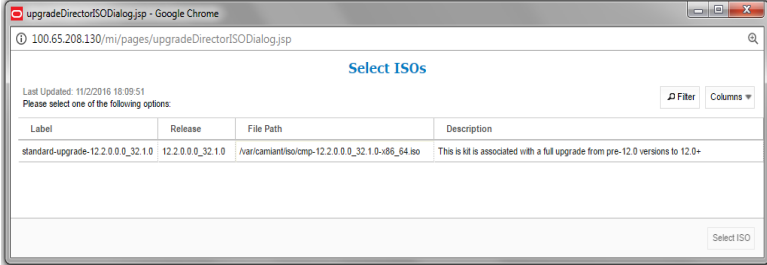
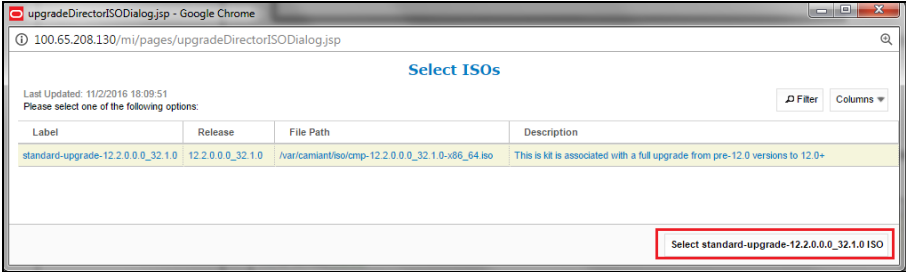
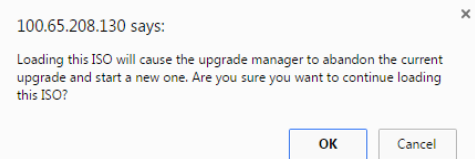
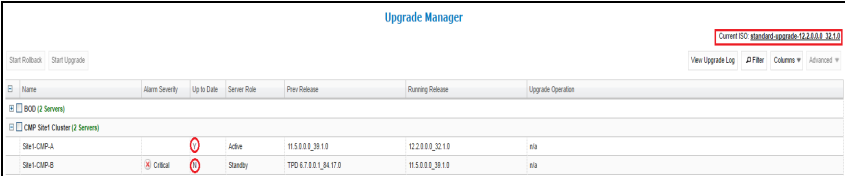
Software Upgrade Procedure

Step	Procedure	Result
<p>8 <input type="checkbox"/></p>	<p>CMP GUI: Set Force Standby mode on the Standby CMP in the Primary cluster</p>	<p>Upgrade Manager → System Maintenance</p> <ul style="list-style-type: none"> Select the checkbox for the Standby CMP Server at Primary Site <p>Click Operations → Force Standby.</p>  <p>Click OK to confirm and continue with the operation.</p>  <p>Confirm the step completes successfully:</p>  <p>Standby CMP server state will be changed to Force Standby</p> 
<p>9 <input type="checkbox"/></p>	<p>CMP GUI: Upgrade the Force-Standby CMP server at the primary site NOTE: This will take approximately 40 minutes to complete.</p>	<p>Upgrade Manager → System Maintenance</p> <ul style="list-style-type: none"> Select the Force-Standby CMP Server at the Primary Site. <p>Select Operations → Start Upgrade.</p>  <p>Click OK to continue with the operation:</p>  <p>Monitor the upgrade status activities from the “Upgrade Status” column.</p>  <p>During the upgrade activities, the following alarms may be generated and considered normal reporting events.</p> <p><u>Expected Critical Alarm</u></p>

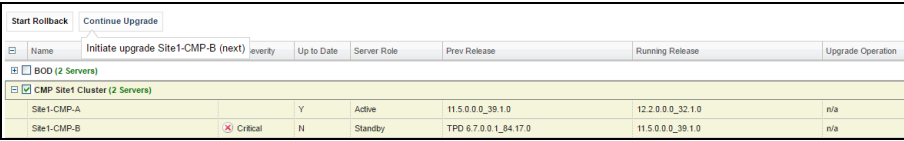
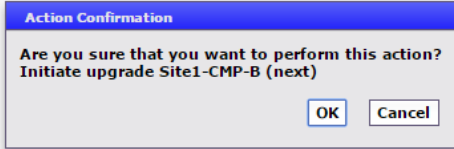
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10	<input type="checkbox"/> CMP GUI: Verify that the upgrade completed successfully	<p>Upgrade Manager → System Maintenance</p> <p>Successful upgrade status will show 12.2 in the Running Release and Upgrade Operation columns.</p> <table border="1"> <tr> <td>Site1-CMP-A</td> <td>CMP Site1 Cluster</td> <td>10.240.155.4</td> <td>Force Standby</td> <td>cmp-12.2.0.0_32.1.0-x86_64.iso</td> <td>11.5.0.0_3 9.1.0</td> <td>12.2.0.0_3 2.1.0</td> <td>On</td> <td>Completed: upgrade was completed at '11/02/2016 19:07:01 UTC'</td> </tr> </table> <p>NOTE: Expect the server state role is still shown as Force Standby—same as prior to the upgrade.</p> <p>IMPORTANT Any Sync Broken indicator () signifies that the data replication between the two servers of the cluster is not synced yet. This may take up to 45 minutes depending on the database size. Do not continue if there is a Sync Broken indicator on the server that was upgraded.</p>	Site1-CMP-A	CMP Site1 Cluster	10.240.155.4	Force Standby	cmp-12.2.0.0_32.1.0-x86_64.iso	11.5.0.0_3 9.1.0	12.2.0.0_3 2.1.0	On	Completed: upgrade was completed at '11/02/2016 19:07:01 UTC'																																										
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11	<input type="checkbox"/> Upgraded server SSH: Verify upgrade log file	<p>SSH to upgraded server and check the upgrade log file to validate it completed successfully:</p> <pre> [admusr@Site1-CMP-A upgrade]\$ pwd /var/TKLC/log/upgrade [admusr@Site1-CMP-A upgrade]\$ tail upgrade.log 1478113314:Updating platform revision file... 1478113314:RCS VERSION=1.2 1478113314:Upgrade returned success! 1478113314:Creating RC script to set alarm on next boot 1478113314:/mnt/upgrade/upgrade/upgradeStatus' -> '/sysimage/etc/rc4.d/S99TKLCupgradeStatus' 1478113314:Cleaning up chroot environment... 1478113314: 1478113595: /etc/rc4.d/S99TKLCupgradeStatus - AlarmMgr daemon is not running, delaying by 1 minute 1478113621: /etc/rc4.d/S99TKLCupgradeStatus - Not setting 'Upgrade Accept/Reject' alarm 1478113621: /etc/rc4.d/S99TKLCupgradeStatus - [admusr@Site1-CMP-A upgrade]\$ </pre>																																																			
12	<input type="checkbox"/> CMP GUI: Verify alarms	<p>System Wide Reports → Active Alarms</p> <p>Alarm 70025, QP Slave database is a different version than the master, is expected. The alarm will be cleared after the cluster is fully upgraded to the same release.</p> <table border="1"> <tr> <td>Nov 02, 2016 03:06 PM EDT</td> <td>Critical</td> <td>70025</td> <td>The MySQL slave has a different schema version than the master.</td> <td>10.240.155.2</td> <td>Site1-CMP-A 10.240.155.4</td> <td></td> </tr> </table>	Nov 02, 2016 03:06 PM EDT	Critical	70025	The MySQL slave has a different schema version than the master.	10.240.155.2	Site1-CMP-A 10.240.155.4																																													
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Step	Procedure	Result
<p>13 <input type="checkbox"/></p>	<p>CMP GUI: Switch force Standby so the 12.2 upgraded server be the Active CMP server</p>	<p>Upgrade Manager → System Maintenance</p> <ul style="list-style-type: none"> Select the checkbox for the CMP cluster to be switched—primary cluster only, and Select Operations→Switch ForceStandby.  <p>Click OK to continue with the operation and a successful message appears.</p>  <p>NOTE: Current CMP GUI browser connection will be lost. You will need to log back into the CMP system as shown in the next step.</p>
<p>14 <input type="checkbox"/></p>	<p>CMP GUI: Login to the CMP server VIP</p>	<p>Re-login to the CMP GUI. The Policy Manager shows 12.2 CMP GUI login form opens. The username and password credentials are the same as the pre-upgrade.</p> 
<p>15 <input type="checkbox"/></p>	<p>CMP GUI: Verify new Policy Manager version</p>	<p>Navigate to Help→About. Verify the release number is displayed as 12.2.</p> 
<p>16 <input type="checkbox"/></p>	<p>CMP GUI: Critical alarms</p>	<p>The following critical alarm will be seen until the SQL Database matches the master (12.2):</p> <p>70025 QP Slave database is a different version than the master:</p>  <p>This alarm is expected and will remain until all CMPs have been upgraded to the same version.</p>
<p>17 <input type="checkbox"/></p>	<p>CMP GUI: Verify that Policy Manager shows 12.2 CMP is Active</p>	<p>Upgrade→Upgrade Manager</p>  <p>As noted, the active CMP server is now running release 12.2</p>


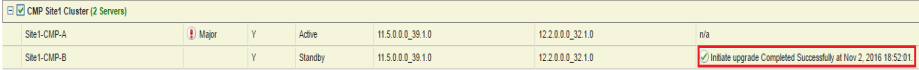
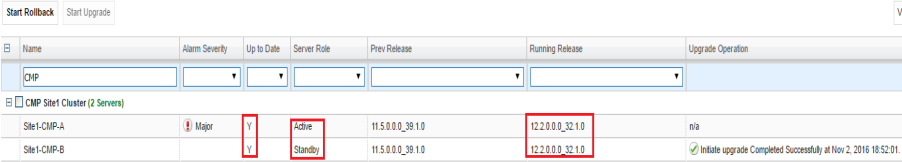
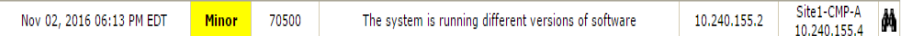
Software Upgrade Procedure

Step	Procedure	Result																		
18 <input type="checkbox"/>	CMP GUI: Choose the new 12.2 Upgrade ISO file	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select “Install Kit” link  <p>This will open a dialog box with a description of the ISO file that was copied into <code>/var/camiant/iso</code> directory”</p>  <p>Highlight the ISO file and click the button located in the bottom right-hand corner of the window.</p>  <ul style="list-style-type: none"> Click OK to confirm and continue with the operation:  <p>Notice that “Up to Date” column transitions from “n/a” to Y (meaning up-to-date) for the upgraded CMP server and N (meaning needs upgrade) for the other CMP server. Also, the “Install Kit” link now displays the selected CMP ISO file.</p> 																		
19 <input type="checkbox"/>	CMP GUI: New alarms introduced with 12.2	<p>The following minor alarms, along with the already active Critical alarms, will now be active.</p> <table border="1"> <thead> <tr> <th>Time</th> <th>Severity</th> <th>Alarm ID</th> <th>Description</th> <th>IP Address</th> <th>Location</th> </tr> </thead> <tbody> <tr> <td>Nov 02, 2016 06:13 PM EDT</td> <td>Minor</td> <td>70500</td> <td>The system is running different versions of software</td> <td>10.240.155.2</td> <td>Site1-CMP-A 10.240.155.4</td> </tr> <tr> <td>Nov 02, 2016 06:13 PM EDT</td> <td>Minor</td> <td>70501</td> <td>The Cluster is running different versions of software</td> <td>10.240.155.2</td> <td>Site1-CMP-A 10.240.155.4</td> </tr> </tbody> </table>	Time	Severity	Alarm ID	Description	IP Address	Location	Nov 02, 2016 06:13 PM EDT	Minor	70500	The system is running different versions of software	10.240.155.2	Site1-CMP-A 10.240.155.4	Nov 02, 2016 06:13 PM EDT	Minor	70501	The Cluster is running different versions of software	10.240.155.2	Site1-CMP-A 10.240.155.4
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Software Upgrade Procedure

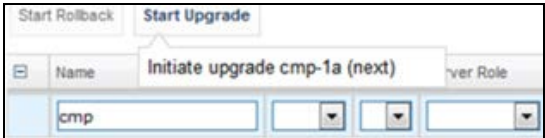
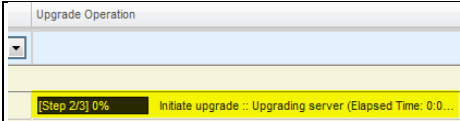
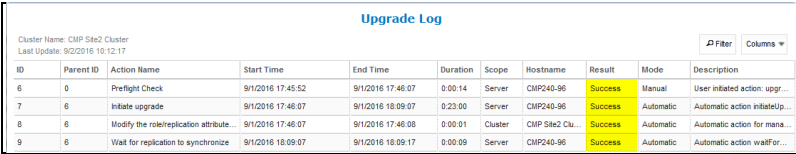
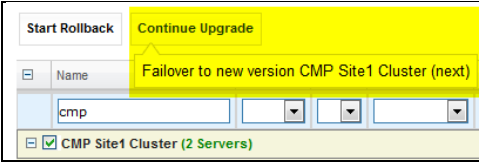
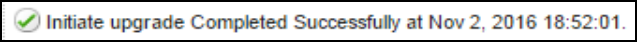
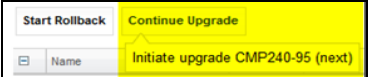
Step	Procedure	Result																																						
20 <input type="checkbox"/>	<p>CMP GUI: Complete the upgrade of the Primary CMP cluster</p> <p>NOTE: Remaining CMP server will take approximately 40 minutes to complete.</p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the Primary Site 1 CMP cluster Click Continue Upgrade. Notice that just hovering over the “Continue Upgrade” button will displays what is the next step which in this case the un-upgraded CMP server  <p>Click OK to continue the upgrade on the remaining server in the CMP cluster</p>  <p>Alarms to note:</p> <p>Expected Critical Alarms</p> <p>70025 QP Slave database is a different version than the master</p> <table border="1"> <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 09, 2017 07:27 PM EST</td> <td>Critical</td> <td>70025</td> <td>The MySQL slave has a different schema version than the master.</td> <td>10.240.155.2</td> <td>CMP-B 10.240.155.3</td> </tr> </tbody> </table> <p>Expected Major Alarms</p> <p>70004 QP Processes down for maintenance</p> <table border="1"> <thead> <tr> <th>Occurrence</th> <th>Severity</th> <th>Alarm ID</th> <th>Text</th> </tr> </thead> <tbody> <tr> <td>Jan 09, 2017 09:30 PM EST</td> <td>Major</td> <td>70004</td> <td>The QP processes have been brought down for maintenance.</td> </tr> </tbody> </table> <p>Expected Minor Alarms</p> <p>31101 DB Replication To Slave Failure</p> <p>70507 Upgrade Director In Progress</p> <table border="1"> <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 09, 2017 07:26 PM EST</td> <td>Minor</td> <td>31101</td> <td>DB replication to a slave DB has failed</td> <td>10.240.155.2</td> <td>CMP-B 10.240.155.3</td> </tr> <tr> <td>Jan 09, 2017 09:03 PM EST</td> <td>Minor</td> <td>70507</td> <td>An upgrade/backout action on a server is in progress</td> <td>10.240.155.2</td> <td>CMP-A 10.240.155.4</td> </tr> </tbody> </table>	Occurrence	Severity	Alarm ID	Text	OAM VIP	Server	Jan 09, 2017 07:27 PM EST	Critical	70025	The MySQL slave has a different schema version than the master.	10.240.155.2	CMP-B 10.240.155.3	Occurrence	Severity	Alarm ID	Text	Jan 09, 2017 09:30 PM EST	Major	70004	The QP processes have been brought down for maintenance.	Occurrence	Severity	Alarm ID	Text	OAM VIP	Server	Jan 09, 2017 07:26 PM EST	Minor	31101	DB replication to a slave DB has failed	10.240.155.2	CMP-B 10.240.155.3	Jan 09, 2017 09:03 PM EST	Minor	70507	An upgrade/backout action on a server is in progress	10.240.155.2	CMP-A 10.240.155.4
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Software Upgrade Procedure

Step	Procedure	Result
21 <input type="checkbox"/>	CMP GUI: Verify the status of upgraded CMP server.	<p>Upgrade Manager → Upgrade Manager</p> <p>Notice the upgrade operation column displays the steps of the upgrade process:</p>  <p>At end of the upgrade process, upgrade operation column should display successful upgrade completion message for the upgraded CMP server as follows:</p>  <p>Successful upgrade status will show the following for both servers in the Primary CMP cluster:</p> <ul style="list-style-type: none"> • 12.2 in the Running Release column for both server • A “Y” in the Up to Date column • Active/Standby roles for each server:  <p>Active alarms to note after the upgrade:</p> <p>Expected Minor Alarms</p> <p>70500 System Mixed Version</p> 
22 <input type="checkbox"/>	Proceed to next upgrade procedure	<p>Verify the following information:</p> <p>Primary Site1 is running release 12.2</p> <ul style="list-style-type: none"> • Secondary Site—if applicable is on R11.5 • All C Level Nodes will be on release 11.5

THIS PROCEDURE HAS BEEN COMPLETED

8.1.2 Upgrade Secondary CMP Cluster

Step	Procedure	Result
1 <input type="checkbox"/>	<p>CMP GUI: Verify the status of the CMP cluster</p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Primary CMP is completely upgraded to 12.2 Secondary CMP cluster is on 11.5.x
2 <input type="checkbox"/>	<p>CMP GUI: Upgrade the Secondary CMP cluster</p> <p>NOTE: This will take approximately 30 minutes to complete.</p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the checkbox for the Secondary CMP Server cluster at Site2 <p>Click Start Upgrade.</p>  <p>Click OK to confirm and continue with the operation.</p> <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>LOG FILE from the GUI showing complete on the 1st server on the secondary site.</p> 
3 <input type="checkbox"/>	<p>CMP GUI: Continue to upgrade the Secondary CMP cluster</p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the checkbox for the Secondary CMP Server cluster at Site2 Click Continue Upgrade. Notice the message 'Failover to new version...'  <p>Click OK to confirm and continue with the operation. The "Upgrade Operation" value of the upgraded server will show successful completion when upgrade is successful.</p>  <p>Select the checkbox for the Secondary CMP Server cluster at Site2.</p> <ul style="list-style-type: none"> Click Continue Upgrade. When hovering over the button, the message will display the next action, which is to initiate the upgrade of the remaining CMP.  <p>Click OK to confirm and continue with the operation.</p>

Software Upgrade Procedure

Step	Procedure	Result						
4 <input type="checkbox"/>	CMP GUI: Verify that the upgrade completed successfully	Upgrade → Upgrade Manager Successful upgrade status will show 12.2 in the Running Release and Upgrade Operation columns.						
5 <input type="checkbox"/>	CMP GUI: Verify alarm	System Wide Reports → Alarms → Active Alarms The following Minor alarm is expected: <table border="1"> <tr> <td>Nov 02, 2016 06:13 PM EDT</td> <td>Minor</td> <td>70500</td> <td>The system is running different versions of software</td> <td>10.240.155.2</td> <td>Site1-CMP-A 10.240.155.4</td> </tr> </table>	Nov 02, 2016 06:13 PM EDT	Minor	70500	The system is running different versions of software	10.240.155.2	Site1-CMP-A 10.240.155.4
Nov 02, 2016 06:13 PM EDT	Minor	70500	The system is running different versions of software	10.240.155.2	Site1-CMP-A 10.240.155.4			
6 <input type="checkbox"/>	Procedure is complete.	Verify the following information: <ul style="list-style-type: none"> • All CMP clusters upgrades are complete and running release 12.2. • All other clusters are running release 11.5 • The Policy Management system is running in mixed-version mode. 						
THIS PROCEDURE HAS BEEN COMPLETED								

Software Upgrade Procedure

9. UPGRADE CMP CLUSTERS (12.1.X TO 12.2)

CMPs may be deployed as 2 georedundant clusters, identified as Site1 and Site2 on the CMP GUI. When deployed as such, one site is designated as the Primary Site (the site that manages the Policy system), and the other is designated as the Secondary Site (this site is ready to take over in case the primary site fails).

This procedure will upgrade the Site1 (Primary) CMP cluster first, then upgrade the Site2 (Secondary) CMP cluster, both in a single maintenance window.

If the system is deployed with only one CMP, then evidently the upgrade of a Site2 (Secondary) CMP is not necessary.

9.1 Upgrade CMP Clusters Overview

Upgrade the Primary CMP cluster

- 1) Upgrade CMP Site1
 - a. Start upgrade on the standby server
 - b. Failover
 - c. Continue upgrade with the remaining Site1 CMP server

Upgrade the Secondary CMP cluster

- 2) Upgrade CMP Site2
 - d. Start upgrade on the standby server
 - e. Failover
 - f. Continue upgrade with the remaining Site2 CMP server

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

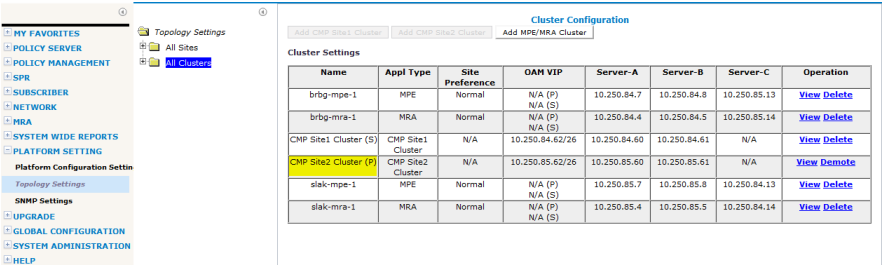
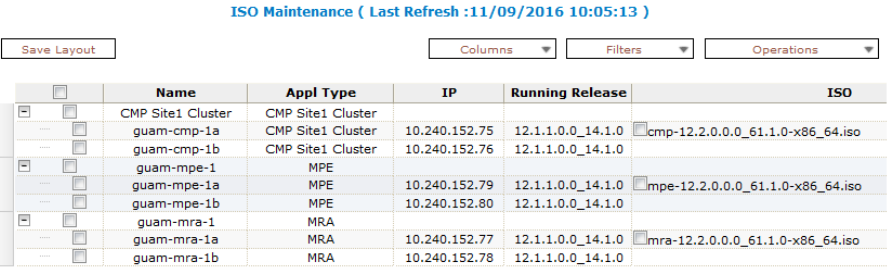
Identify the CMP sites to be upgraded here, and verify which site is Primary and which one is Secondary:

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:

- The Primary CMP site must be upgraded to the new release before the Secondary CMP Site
- CMP servers must be upgraded before non-CMP servers

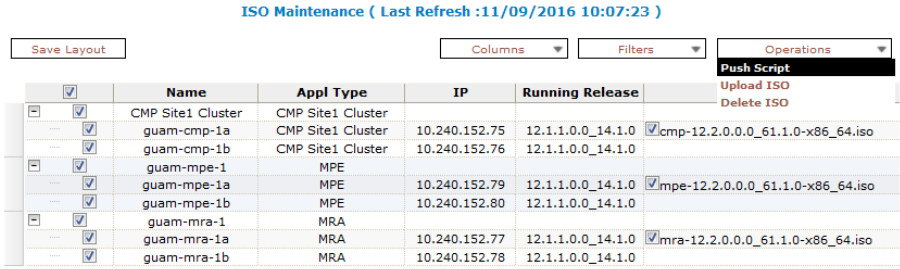
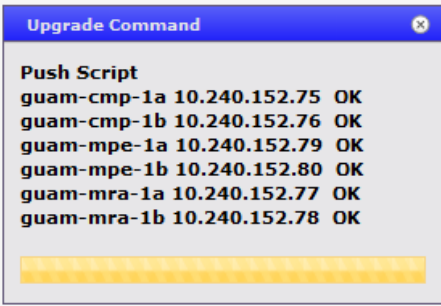
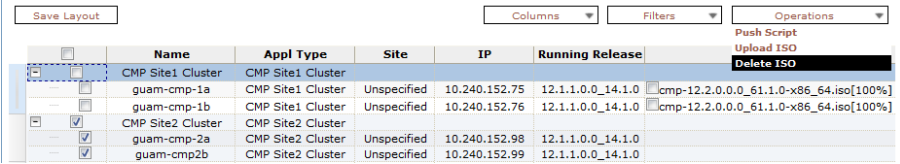
9.1.1 Upgrade Primary CMP cluster

Step	Procedure	Result
1. <input type="checkbox"/>	CMP GUI: Verify Alarm Status.	<p>System Wide Reports → Alarms → Active Alarms</p> <ul style="list-style-type: none"> Confirm that any existing alarm is well understood and is of no impact to the upgrade procedure. Capture a screenshot and save it into a file for reference.
2. <input type="checkbox"/>	CMP GUI: Identify and Record the CMP Cluster(s)	<p>Navigate to Platform Setting → Topology Settings</p> <ul style="list-style-type: none"> Note which cluster is the primary and which one is the secondary.  <p>The Primary CMP will be noted with “(P)”. The Secondary CMP, with “(S)”.</p>
3. <input type="checkbox"/>	CMP GUI: Verify Status of CMP Clusters	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Confirm the CMP clusters are: <ul style="list-style-type: none"> In Active/Standby status Running release 12.1.x software <p>Upgrade → ISO Maintenance</p> <ul style="list-style-type: none"> Ensure Release 12.2 ISO files have been copied to at least one of each corresponding server types (CMP, MPE, MRA, etc.) 

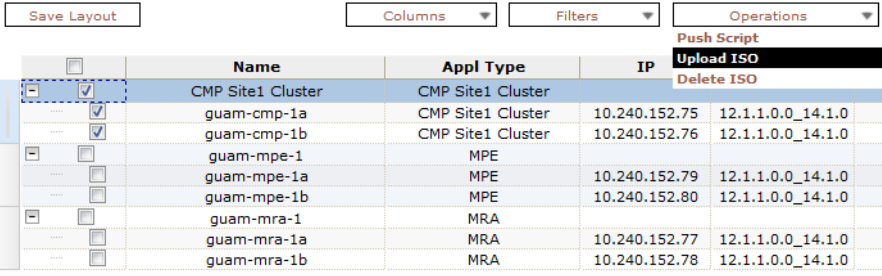
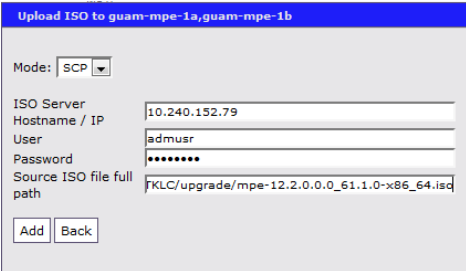
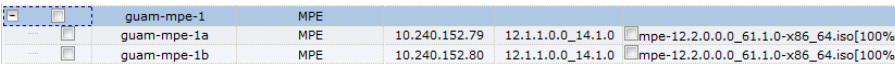
Software Upgrade Procedure

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

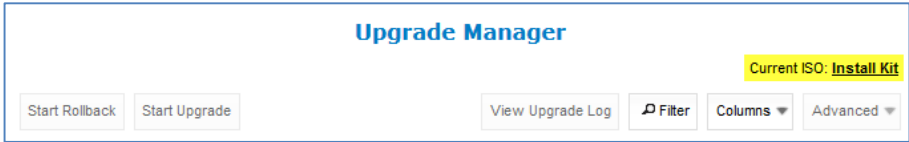
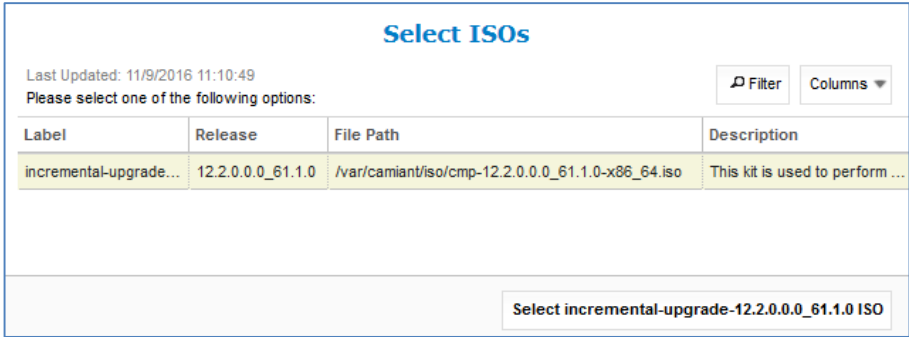
Software Upgrade Procedure

Step	Procedure	Result																																																		
5. <input type="checkbox"/>	CMP GUI: Push the Release 12.2 upgrade scripts to all servers	<p>Upgrade → ISO Maintenance</p> <ul style="list-style-type: none"> Select all the servers in the topology as shown. Under Operations menu, select the “Push Script” operation.  <p style="text-align: center; color: blue;">ISO Maintenance (Last Refresh :11/09/2016 10:07:23)</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Appl Type</th> <th>IP</th> <th>Running Release</th> <th>Running Release</th> </tr> </thead> <tbody> <tr> <td>CMP Site1 Cluster</td> <td>CMP Site1 Cluster</td> <td></td> <td>12.1.1.0.0_14.1.0</td> <td></td> </tr> <tr> <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>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>guam-mpe-1</td> <td>MPE</td> <td></td> <td>12.1.1.0.0_14.1.0</td> <td></td> </tr> <tr> <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>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>guam-mra-1</td> <td>MRA</td> <td></td> <td>12.1.1.0.0_14.1.0</td> <td></td> </tr> <tr> <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>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"> At the popup warning to execute Push Script click “OK” to continue the operation. After a minute or so, a successful popup window similar to this should appear:  <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	Running Release	CMP Site1 Cluster	CMP Site1 Cluster		12.1.1.0.0_14.1.0		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	guam-cmp-1b	CMP Site1 Cluster	10.240.152.76	12.1.1.0.0_14.1.0		guam-mpe-1	MPE		12.1.1.0.0_14.1.0		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	guam-mpe-1b	MPE	10.240.152.80	12.1.1.0.0_14.1.0		guam-mra-1	MRA		12.1.1.0.0_14.1.0		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	guam-mra-1b	MRA	10.240.152.78	12.1.1.0.0_14.1.0	
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6. <input type="checkbox"/>	CMP GUI Access into Primary CMP Server – Remove old ISO files from servers, if any.	<p>Upgrade → ISO Maintenance</p> <ul style="list-style-type: none"> Select the server(s) that show old ISOs. From the Operations menu choose the ‘Delete ISO’ operation to remove any older ISOs present.  <table border="1"> <thead> <tr> <th>Name</th> <th>Appl Type</th> <th>Site</th> <th>IP</th> <th>Running Release</th> <th>Running Release</th> </tr> </thead> <tbody> <tr> <td>CMP Site1 Cluster</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 type="checkbox"/> cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td>guam-cmp-1a</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 type="checkbox"/> 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></td> </tr> <tr> <td>CMP Site2 Cluster</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>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>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> <ul style="list-style-type: none"> Click ‘OK’ to continue and wait until seeing the successful deletion message. Wait until the ‘ISO Maintenance’ page is refreshed and the ISO column doesn’t show any old ISOs. 	Name	Appl Type	Site	IP	Running Release	Running Release	CMP Site1 Cluster	CMP Site1 Cluster	Unspecified	10.240.152.75	12.1.1.0.0_14.1.0	<input type="checkbox"/> cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]	guam-cmp-1a	CMP Site1 Cluster	Unspecified	10.240.152.76	12.1.1.0.0_14.1.0	<input type="checkbox"/> 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 Site2 Cluster	CMP Site2 Cluster	Unspecified	10.240.152.98	12.1.1.0.0_14.1.0		guam-cmp-2a	CMP Site2 Cluster	Unspecified	10.240.152.98	12.1.1.0.0_14.1.0		guam-cmp-2b	CMP Site2 Cluster	Unspecified	10.240.152.99	12.1.1.0.0_14.1.0									
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CMP Site2 Cluster	CMP Site2 Cluster	Unspecified	10.240.152.98	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 ISOs to CMP/MPE/MRA/etc. servers</p> <p>NOTE: This step depends on the ISO type. Distribute ISOs accordingly.</p>	<p>Upgrade → ISO Maintenance</p> <ul style="list-style-type: none"> - Filter by server type (optional but preferred step) - One application at a time, check one server type (MPE/MRA/CMP/etc.) to be upgraded and perform the 'Upload ISO' operation <ul style="list-style-type: none"> • Click <cluster type> -> Operations -> Upload ISO  <ul style="list-style-type: none"> • Fill in the dialogue with the appropriate information: <p>Mode = SCP ISO Server Hostname / IP = <IP address where the ISOs are located> User = admusr Password = <admusr password of the server> Source ISO Full Path = /var/TKLC/upgrade/<server type iso filename></p>  <ul style="list-style-type: none"> • Click 'Add' • When completed, the ISO column will be populated with the ISO and a notification of "[100%]"  <ul style="list-style-type: none"> • Repeat for all cluster types

Software Upgrade Procedure

Step	Procedure	Result																																																												
8. <input type="checkbox"/>	CMP GUI: Verify ISO distribution to all the Servers	<p>Upgrade → ISO Maintenance</p> <ul style="list-style-type: none"> Verify that the Release 12.2 ISO file of the correct type is shown for each server. When completed, the ISO column is populated with the ISO and a notification of “[100%]” <table border="1"> <thead> <tr> <th></th> <th>Name</th> <th>Appl Type</th> <th>IP</th> <th>Running Release</th> <th>ISO</th> </tr> </thead> <tbody> <tr> <td></td> <td>CMP Site1 Cluster</td> <td>CMP Site1 Cluster</td> <td></td> <td></td> <td></td> </tr> <tr> <td></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 type="checkbox"/> cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td></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><input type="checkbox"/> cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td></td> <td>guam-mpe-1</td> <td>MPE</td> <td></td> <td></td> <td></td> </tr> <tr> <td></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 type="checkbox"/> mpe-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td></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><input type="checkbox"/> mpe-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td></td> <td>guam-mra-1</td> <td>MRA</td> <td></td> <td></td> <td></td> </tr> <tr> <td></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 type="checkbox"/> mra-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td></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><input type="checkbox"/> mra-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> </tbody> </table> <p>NOTE: For those servers for which the ISO was copied to from the local machine, there will not be a ‘100%’ indicator. This indicator is only available when transferring ISOs using the ISO management feature.</p>		Name	Appl Type	IP	Running Release	ISO		CMP Site1 Cluster	CMP Site1 Cluster					guam-cmp-1a	CMP Site1 Cluster	10.240.152.75	12.1.1.0.0_14.1.0	<input type="checkbox"/> cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]		guam-cmp-1b	CMP Site1 Cluster	10.240.152.76	12.1.1.0.0_14.1.0	<input type="checkbox"/> cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]		guam-mpe-1	MPE					guam-mpe-1a	MPE	10.240.152.79	12.1.1.0.0_14.1.0	<input type="checkbox"/> mpe-12.2.0.0.0_61.1.0-x86_64.iso[100%]		guam-mpe-1b	MPE	10.240.152.80	12.1.1.0.0_14.1.0	<input type="checkbox"/> mpe-12.2.0.0.0_61.1.0-x86_64.iso[100%]		guam-mra-1	MRA					guam-mra-1a	MRA	10.240.152.77	12.1.1.0.0_14.1.0	<input type="checkbox"/> mra-12.2.0.0.0_61.1.0-x86_64.iso[100%]		guam-mra-1b	MRA	10.240.152.78	12.1.1.0.0_14.1.0	<input type="checkbox"/> mra-12.2.0.0.0_61.1.0-x86_64.iso[100%]
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	guam-mpe-1a	MPE	10.240.152.79	12.1.1.0.0_14.1.0	<input type="checkbox"/> mpe-12.2.0.0.0_61.1.0-x86_64.iso[100%]																																																									
	guam-mpe-1b	MPE	10.240.152.80	12.1.1.0.0_14.1.0	<input type="checkbox"/> mpe-12.2.0.0.0_61.1.0-x86_64.iso[100%]																																																									
	guam-mra-1	MRA																																																												
	guam-mra-1a	MRA	10.240.152.77	12.1.1.0.0_14.1.0	<input type="checkbox"/> mra-12.2.0.0.0_61.1.0-x86_64.iso[100%]																																																									
	guam-mra-1b	MRA	10.240.152.78	12.1.1.0.0_14.1.0	<input type="checkbox"/> mra-12.2.0.0.0_61.1.0-x86_64.iso[100%]																																																									
9. <input type="checkbox"/>	Primary Active CMP: ssh to primary active CMP and copy ISO to /var/camiant/iso	<p>Logon to the primary active CMP as admusr and copy the 12.2 ISO to the directory /var/camiant/iso</p> <pre>\$ sudo cp -p /var/TKLC/upgrade/cmp-12.2.<...>.iso /var/camiant/iso/</pre> <p>Verify the file was successfully copied:</p> <pre>\$ ls /var/camiant/iso/</pre>																																																												
10. <input type="checkbox"/>	CMP GUI: Locate the 12.2 Upgrade ISO	<p>Upgrade → Upgrade Manager</p> <p>Select the current ISO, in this case it is labeled Install kit.</p>  <p>This will pop up a dialog box with a description of the ISO that was copied into /var/camiant/iso</p> <p>Highlight the available ISO and click the “Select incremental-upgrade-12.2...” button on the bottom of the pop-up window:</p>  <p>At the confirmation popup click OK.</p> <p>Within a few seconds, the ‘Up to Date’ column transitions from ‘Y’ (meaning up-to-date) or ‘N’ (meaning needs upgrade).</p>																																																												

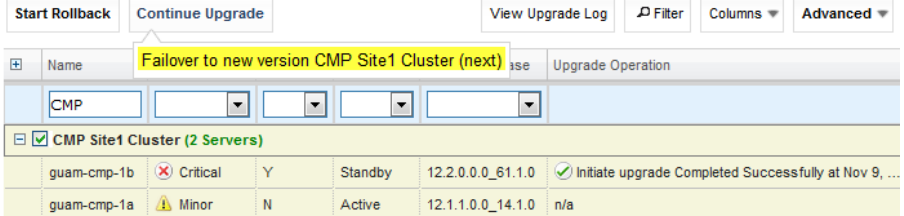
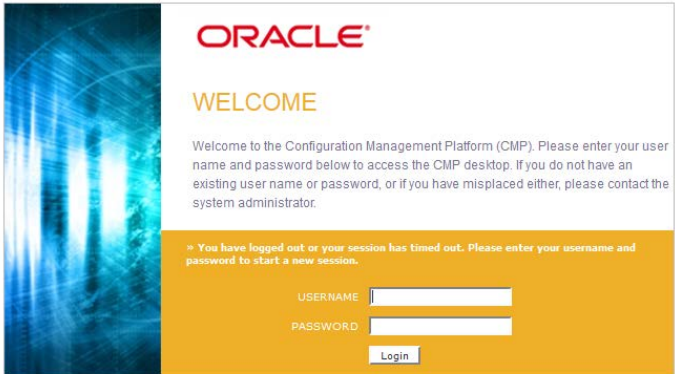
Software Upgrade Procedure

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11. <input type="checkbox"/>	CMP GUI: Upgrade Primary CMP cluster	<p>Upgrade → Upgrade Manager</p> <p>NOTE: The Filter button can be used to show only the CMP servers. Type <i>CMP</i> under Name.</p> <p style="text-align: center;">Upgrade Manager</p> <p style="text-align: right;">Current ISO: incremental-upgrade-12.2.0.0.0 61.1.0</p> <p>Start Rollback Start Upgrade View Upgrade Log Filter Columns Advanced</p> <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>CMP</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="6"><input type="checkbox"/> 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> <ul style="list-style-type: none"> Click the checkbox for the Primary CMP Cluster Click the 'Start Upgrade' button. <p style="text-align: center;">Upgrade Manager</p> <p style="text-align: right;">Current ISO: incremental-upgrade-12.2.0.0.0 61.1.0</p> <p>Start Rollback Start Upgrade View Upgrade Log Filter Columns Advanced</p> <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>CMP</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="6"><input checked="" type="checkbox"/> 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> <ul style="list-style-type: none"> Click "OK" to confirm and continue with the operation. The first action will be to upgrade the standby server in the CMP Cluster. NOTE: This will take approximately 30 minutes to complete. The "Upgrade Operation" column will show a progress bar along with the upgrade activities. During the upgrade activities, the server being updated will change to OOS (Out of Service) and the following alarms may be generated. They are considered normal reporting events: <p>Expected Critical Alarm 31283 HA Server Offline 31227 HA Availability Status Failed 70025 QP Slave Database is a Different Version than the Master 70001 QP_procmgr failed</p> <p>Expected Major Alarm 70004 QP Processes Down for Maintenance.</p>	Name	Alarm Severity	Up to Date	Server Role	Running Release	Upgrade Operation	CMP						<input type="checkbox"/> 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	Name	Alarm Severity	Up to Date	Server Role	Running Release	Upgrade Operation	CMP						<input checked="" type="checkbox"/> 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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Software Upgrade Procedure

Step	Procedure	Result																														
		<p>Expected Minor Database Replication Alarms</p> <ul style="list-style-type: none"> 70503 Server Forced Standby 70507 Upgrade In Progress 70500 System Mixed Version 70501 Cluster Mixed Version 31106 Database merge to parent failure 31107 Database merge from child failure 31101 Database replication to slave failure 31114 DB replication over SOAP has failed 31282 HA Management Fault <ul style="list-style-type: none"> Upgrade is complete on the first server in the cluster when the message "Initiate upgrade completed successfully at..." shows under the 'Upgrade Operation' Column. <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <div style="display: flex; justify-content: space-between; align-items: center;"> Start Rollback Continue Upgrade View Upgrade Log Filter Columns Advanced </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <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>Critical</td> <td>Y</td> <td>Standby</td> <td>12.2.0.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 9, ...</td> </tr> <tr> <td>guam-cmp-1a</td> <td>Minor</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>	Name	Alarm Severity	Up to Date	Server Role	Running Release	Upgrade Operation	CMP						CMP Site1 Cluster (2 Servers)						guam-cmp-1b	Critical	Y	Standby	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at Nov 9, ...	guam-cmp-1a	Minor	N	Active	12.1.1.0.0_14.1.0	n/a
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<p>12. <input type="checkbox"/></p>	<p>CMP GUI: Verify the upgrade is successful</p>	<p>Upgrade → Upgrade Manager</p> <p>View the cluster. At this point, the standby server is on 12.2 and the other server in the cluster is on 12.1.x. The Up To Date column will show 'Y' for the 12.2 server and 'N' for the 12.1.x server.</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <div style="display: flex; justify-content: space-between; align-items: center;"> Start Rollback Continue Upgrade View Upgrade Log Filter Columns Advanced </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <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>Critical</td> <td>Y</td> <td>Standby</td> <td>12.2.0.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 9, ...</td> </tr> <tr> <td>guam-cmp-1a</td> <td>Minor</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> <p>The critical alarm 70025 ("The MySQL slave has a different schema version than the master") will be active as well as the minor alarms 70500 and 70501 "The system is running different versions of software" / "The cluster is running different versions of software."</p>	Name	Alarm Severity	Up to Date	Server Role	Running Release	Upgrade Operation	CMP						CMP Site1 Cluster (2 Servers)						guam-cmp-1b	Critical	Y	Standby	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at Nov 9, ...	guam-cmp-1a	Minor	N	Active	12.1.1.0.0_14.1.0	n/a
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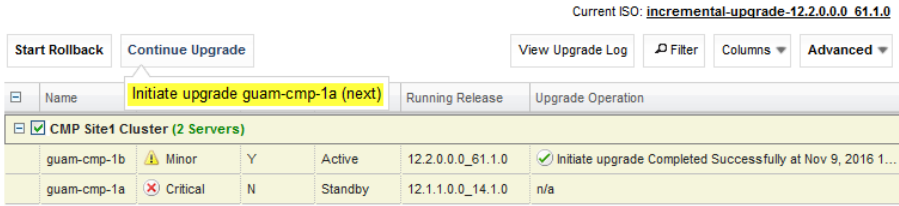
Software Upgrade Procedure

Step	Procedure	Result																		
13. <input type="checkbox"/>	CMP GUI: Continue upgrade on CMP cluster	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> • Make sure the checkbox for the Primary CMP Cluster is still checked • Click the 'Continue Upgrade' button. Notice the message "Failover to new version"  <p>The screenshot shows the 'Upgrade Manager' interface. At the top, there are buttons for 'Start Rollback', 'Continue Upgrade', 'View Upgrade Log', 'Filter', 'Columns', and 'Advanced'. Below these is a table with columns for Name, Status, and Upgrade Operation. A yellow callout box highlights the message 'Failover to new version CMP Site1 Cluster (next)'. Below the table, there is a section for 'CMP Site1 Cluster (2 Servers)' with a table of server details:</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Status</th> <th>Priority</th> <th>Role</th> <th>Version</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td>guam-cmp-1b</td> <td>Critical</td> <td>Y</td> <td>Standby</td> <td>12.2.0.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 9, ...</td> </tr> <tr> <td>guam-cmp-1a</td> <td>Minor</td> <td>N</td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> <td>n/a</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • Click "OK" to confirm and continue with the operation. • The specific action will take about a minute to complete. 	Name	Status	Priority	Role	Version	Upgrade Operation	guam-cmp-1b	Critical	Y	Standby	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at Nov 9, ...	guam-cmp-1a	Minor	N	Active	12.1.1.0.0_14.1.0	n/a
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14. <input type="checkbox"/>	CMP GUI: Re-login to the CMP VIP	<ul style="list-style-type: none"> • Close the current CMP GUI browser tab and reopen another browser tab with the same CMP VIP address. • The Policy Release 12.2 CMP GUI login form should appear as shown – Login and password credentials are the same as the pre-upgrade.  <p>The screenshot shows the Oracle CMP GUI login page. It features the Oracle logo at the top, followed by the word 'WELCOME' in yellow. Below this is a message: 'Welcome to the Configuration Management Platform (CMP). Please enter your user name and password below to access the CMP desktop. If you do not have an existing user name or password, or if you have misplaced either, please contact the system administrator.' There is a note: '» You have logged out or your session has timed out. Please enter your username and password to start a new session.' Below this are input fields for 'USERNAME' and 'PASSWORD', and a 'Login' button. At the bottom, it says 'COPYRIGHT © 2003, 2015 ORACLE. ALL RIGHTS RESERVED.'</p>																		
15. <input type="checkbox"/>	CMP GUI: Verify new Policy release	<p>Navigate to HELP→About.</p> <p>Verify the release displayed is 12.2</p> <p style="text-align: center;">12.2.0.0.0_65.1.0</p> <p style="text-align: center;">Copyright (C) 2003, 2017 Oracle. All Rights Reserved.</p>																		

Software Upgrade Procedure

Step	Procedure	Result																																				
16. <input type="checkbox"/>	CMP GUI: Critical Alarms	<p>Critical alarm 70025 and the minor alarms 70503, 70501, 70500 will still be seen. These alarms are expected and will remain until all CMPs have been upgraded to the same version.</p> <table border="1"> <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>Nov 09, 2016 04:08 PM EST</td> <td>Critical</td> <td>70025</td> <td>The MySQL slave has a different schema version than the master.</td> <td>10.240.152.88</td> <td>guam-cmp-1a 10.240.152.75</td> </tr> </tbody> </table> <p>Current Minor Alarms:</p> <table border="1"> <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>Nov 09, 2016 04:08 PM EST</td> <td>Minor</td> <td>70503</td> <td>The server is in forced standby</td> <td>10.240.152.88</td> <td>guam-cmp-1b 10.240.152.76</td> </tr> <tr> <td>Nov 09, 2016 04:08 PM EST</td> <td>Minor</td> <td>70501</td> <td>The Cluster is running different versions of software</td> <td>10.240.152.88</td> <td>guam-cmp-1b 10.240.152.76</td> </tr> <tr> <td>Nov 09, 2016 04:08 PM EST</td> <td>Minor</td> <td>70500</td> <td>The system is running different versions of software</td> <td>10.240.152.88</td> <td>guam-cmp-1b 10.240.152.76</td> </tr> </tbody> </table>	Occurrence	Severity	Alarm ID	Text	OAM VIP	Server	Nov 09, 2016 04:08 PM EST	Critical	70025	The MySQL slave has a different schema version than the master.	10.240.152.88	guam-cmp-1a 10.240.152.75	Occurrence	Severity	Alarm ID	Text	OAM VIP	Server	Nov 09, 2016 04:08 PM EST	Minor	70503	The server is in forced standby	10.240.152.88	guam-cmp-1b 10.240.152.76	Nov 09, 2016 04:08 PM EST	Minor	70501	The Cluster is running different versions of software	10.240.152.88	guam-cmp-1b 10.240.152.76	Nov 09, 2016 04:08 PM EST	Minor	70500	The system is running different versions of software	10.240.152.88	guam-cmp-1b 10.240.152.76
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17. <input type="checkbox"/>	CMP GUI: Verify the Policy Release 12.2 CMP is Active	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Verify the following: <ul style="list-style-type: none"> The Active server is running release 12.2 The Standby server is running the previous release <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">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_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_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_61.1.0	Initiate upgrade Completed Successfully at Nov 9, 2...	guam-cmp-1a	Critical	N	Standby	12.1.1.0_14.1.0	n/a												
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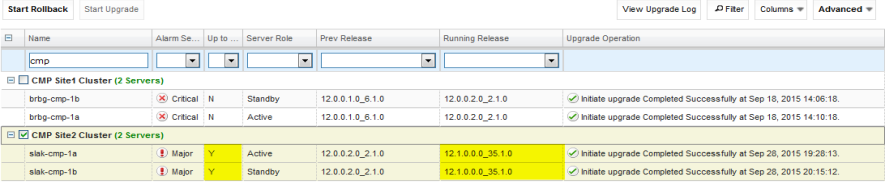
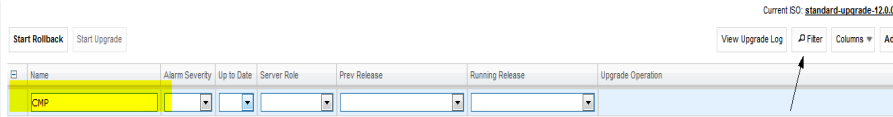
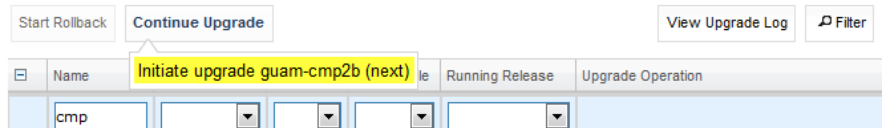
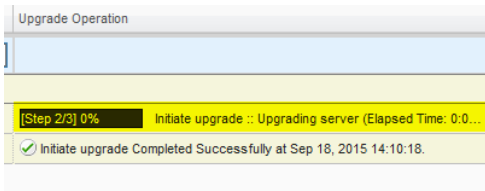
Software Upgrade Procedure

Step	Procedure	Result												
18. <input type="checkbox"/>	CMP GUI: Complete the Upgrade of the Primary CMP Cluster	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Click the checkbox for the Primary CMP Cluster Click the 'Continue Upgrade' button. Notice the message "Initiate upgrade <standbyserver> (next)"  <p>Current ISO: incremental-upgrade-12.2.0.0.0_61.1.0</p> <p>Start Rollback Continue Upgrade View Upgrade Log Filter Columns Advanced</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Running Release</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td colspan="3">CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td>guam-cmp-1b</td> <td>12.2.0.0.0_61.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 9, 2016 1...</td> </tr> <tr> <td>guam-cmp-1a</td> <td>12.1.1.0.0_14.1.0</td> <td>n/a</td> </tr> </tbody> </table> <p>Click OK on the pop-up to continue the upgrade on the remaining server in the CMP cluster</p> <p>NOTE: Remaining CMP server will take approximately 30 minutes to complete.</p> <p>NOTE: Server getting upgraded will go OOS</p> <p>Expected Critical Alarms:</p> <ul style="list-style-type: none"> 31227 HA availability status failed 31283 High availability server is offline 70001 QP_procmgr failed 70025 QP Slave database is a different version than the master <p>Expected Major Alarm:</p> <ul style="list-style-type: none"> 70004 QP Processes down for maintenance <p>Expected Minor Alarms:</p> <ul style="list-style-type: none"> 70503 Upgrade Director Server Forced Standby 70507 Upgrade Director In Progress 70500 Upgrade Director System Mixed Version 70501 Upgrade Director Cluster Mixed Version 31114 DB Replication over SOAP has failed 31106 DB Merge To Parent Failure 31107 DB Merge From Child Failure 31101 DB Replication To Slave Failure 31282 HA management fault 	Name	Running Release	Upgrade Operation	CMP Site1 Cluster (2 Servers)			guam-cmp-1b	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at Nov 9, 2016 1...	guam-cmp-1a	12.1.1.0.0_14.1.0	n/a
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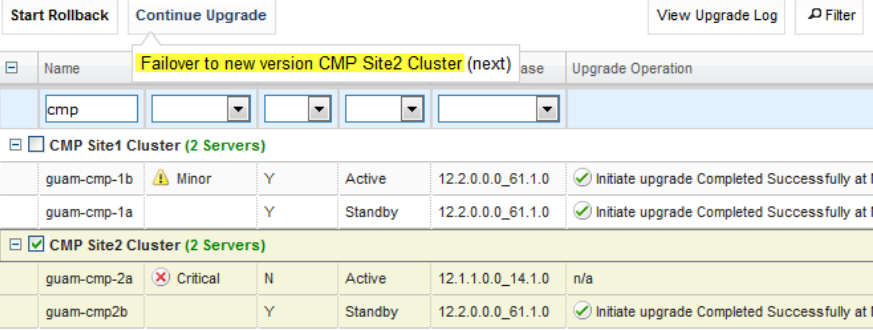
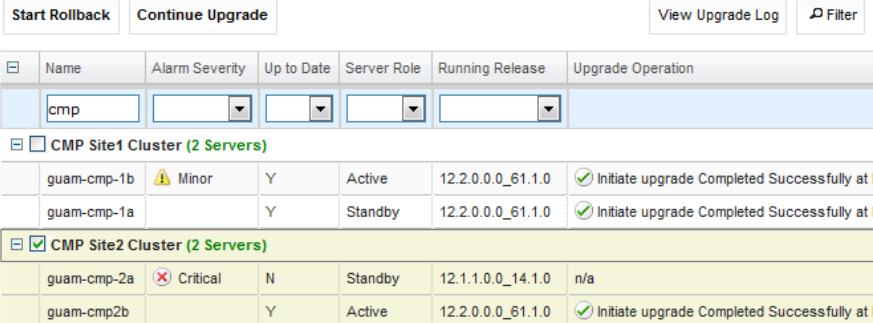
Software Upgrade Procedure

Step	Procedure	Result																																																																																								
19. <input type="checkbox"/>	CMP GUI: Tracking the upgrade complete	<p>Upgrade → Upgrade Manager</p> <p><u>The last step in the upgrade for the first CMP cluster will be to wait for replication to complete.</u></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;">Upgrade Log</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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20. <input type="checkbox"/>	CMP GUI: Verify the status of the upgraded CMP server.	<p>Upgrade → Upgrade Manager</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">CMP Site1 Cluster (2 Servers)</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> <ul style="list-style-type: none"> • Successful upgrade status will now show both servers running the Release 12.2 under the “Running Release” column and ‘Y’ for both servers under the ‘Up To Date’ column • Active/standby state for both servers in the Primary CMP Cluster. 	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation	CMP Site1 Cluster (2 Servers)							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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21. <input type="checkbox"/>	Proceed to next upgrade procedure	<ul style="list-style-type: none"> • At this point, the primary site is running Release 12.2 • The Secondary site, if it exists, is still on release 12.1.x • Proceed to the next procedure to upgrade the secondary CMP cluster. 																																																																																								
THIS PROCEDURE HAS BEEN COMPLETED																																																																																										

9.1.2 Upgrade Secondary CMP Cluster

Step	Procedure	Result
1. <input type="checkbox"/>	CMP GUI: Verify Status of CMP Cluster	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> - Primary CMP is completely upgraded to 12.2 - Secondary CMP Cluster is on 12.1.x 
2. <input type="checkbox"/>	CMP GUI: Upgrade Secondary CMP cluster	<p>Upgrade → Upgrade Manager</p> <p>NOTE: The Filter button can be used to show only the CMP servers. Type in CMP under Name.</p>  <ul style="list-style-type: none"> • Click the checkbox for the Secondary CMP Cluster at Site2 • Click the 'Continue Upgrade' Button.  <ul style="list-style-type: none"> • Click "OK" to confirm and continue with the operation. • This will continue to upgrade the standby server only in the CMP Cluster • NOTE: This will take ~30 minutes to complete. • Under "Upgrade Operation" column, it will show the In Progress status along with the upgrade activities.  <ul style="list-style-type: none"> • During the Upgrade activities, the following Alarms may be generated and

Software Upgrade Procedure

Step	Procedure	Result																																				
		<p>considered normal reporting events -</p> <p>Expected Critical alarm: 31283 Lost Communication with server 70001 QP_procmgr failed 70025 QP Slave database is a different version than the master</p> <p>Expected Major Alarm: 70004 QP Processes down for maintenance</p> <p>Expected Minor Alarms: 70503 Upgrade Director Server Forced Standby 70507 Upgrade Director In Progress 70500 Upgrade Director System Mixed Version 70501 Upgrade Director Cluster Mixed Version 31114 DB Replication over SOAP has failed 31106 DB Merge To Parent Failure 31107 DB Merge From Child Failure 31101 DB Replication To Slave Failure 31282 HA management fault</p>																																				
<p>3. <input type="checkbox"/></p>	<p>CMP GUI: Continue Upgrade Secondary CMP cluster</p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Click the checkbox for the Secondary CMP Server Cluster at Site2 Click the 'Continue Upgrade' Button. Notice the message "Failover to new version CMP Site2 Cluster"  <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: Name, Alarm Severity, Up to Date, Server Role, Running Release, and Upgrade Operation. The table is expanded to show two clusters: 'CMP Site1 Cluster (2 Servers)' and 'CMP Site2 Cluster (2 Servers)'. The Site2 cluster is selected with a checked checkbox. The Site2 cluster table shows the following data:</p> <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>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-cmp2b</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> <ul style="list-style-type: none"> Click "Ok" to confirm and continue with the operation, The specific action will take a minute to complete. Wait until the newly upgraded server is active, running 12.2 as shown below.  <p>The second screenshot shows the same Upgrade Manager interface. The 'CMP Site2 Cluster (2 Servers)' is still selected. The table data is updated to show the following:</p> <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>guam-cmp-2a</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> <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 I</td> </tr> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Running Release	Upgrade Operation	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	Name	Alarm Severity	Up to Date	Server Role	Running Release	Upgrade Operation	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 I
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Software Upgrade Procedure

Step	Procedure	Result																								
		<ul style="list-style-type: none"> Click the checkbox for the Secondary CMP Server Cluster at Site2 Click the 'Continue Upgrade' button. When hovering over the continue upgrade button, the message will display the next action, which is upgrading the remaining CMP in standby, still running 12.1.x <div style="border: 1px solid gray; padding: 5px;"> <p>Start Rollback Continue Upgrade View Upgrade Log Filter</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Running Release</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td>cmp</td> <td></td> <td></td> </tr> <tr> <td colspan="3">CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td>guam-cmp-1b</td> <td>Minor</td> <td>Y Active 12.2.0.0_61.1.0 Initiate upgrade Completed Successfully at 12.2.0.0_61.1.0</td> </tr> <tr> <td>guam-cmp-1a</td> <td></td> <td>Y Standby 12.2.0.0_61.1.0 Initiate upgrade Completed Successfully at 12.2.0.0_61.1.0</td> </tr> <tr> <td colspan="3">CMP Site2 Cluster (2 Servers)</td> </tr> <tr> <td>guam-cmp-2a</td> <td>Critical</td> <td>N Standby 12.1.1.0_14.1.0 n/a</td> </tr> <tr> <td>guam-cmp2b</td> <td></td> <td>Y Active 12.2.0.0_61.1.0 Initiate upgrade Completed Successfully at 12.2.0.0_61.1.0</td> </tr> </tbody> </table> </div> <ul style="list-style-type: none"> Click "OK" to confirm and continue with the operation, During the Upgrade activities, the following Alarms may be generated and considered normal reporting events - <p>Expected Critical alarm: 31283 Lost Communication with server 70001 QP_procmgr failed 70025 QP Slave database is a different version than the master</p> <p>Expected Major Alarm: 70004 QP Processes down for maintenance</p> <p>Expected Minor Alarms: 70503 Upgrade Director Server Forced Standby 70507 Upgrade Director In Progress 70500 Upgrade Director System Mixed Version 70501 Upgrade Director Cluster Mixed Version 31114 DB Replication over SOAP has failed 31106 DB Merge To Parent Failure 31107 DB Merge From Child Failure 31101 DB Replication To Slave Failure 31282 HA management fault</p>	Name	Running Release	Upgrade Operation	cmp			CMP Site1 Cluster (2 Servers)			guam-cmp-1b	Minor	Y Active 12.2.0.0_61.1.0 Initiate upgrade Completed Successfully at 12.2.0.0_61.1.0	guam-cmp-1a		Y Standby 12.2.0.0_61.1.0 Initiate upgrade Completed Successfully at 12.2.0.0_61.1.0	CMP Site2 Cluster (2 Servers)			guam-cmp-2a	Critical	N Standby 12.1.1.0_14.1.0 n/a	guam-cmp2b		Y Active 12.2.0.0_61.1.0 Initiate upgrade Completed Successfully at 12.2.0.0_61.1.0
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4. <input type="checkbox"/>	CMP GUI: Verify Upgrade Completion is successful.	Upgrade → Upgrade Manager <ul style="list-style-type: none"> Successful upgrade status will show the Release 12.2 under the "Running Release" column. The "Upgrade Operation" column will show "Initiate Upgrade Completed Successfully at..." 																								

Software Upgrade Procedure

Step	Procedure	Result																																																
		<div style="border: 1px solid gray; padding: 5px;"> <div style="display: flex; justify-content: space-between; align-items: center;"> Start Rollback Start Upgrade View Upgrade Log Filter </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <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 style="background-color: #e6f2ff;"> <td>cmp</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr style="background-color: #e6f2ff;"> <td colspan="6"> <input type="checkbox"/> 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</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 style="background-color: #fff9c4;"> <td colspan="6"> <input checked="" type="checkbox"/> CMP Site2 Cluster (2 Servers) </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> </div>	Name	Alarm Severity	Up to Date	Server Role	Running Release	Upgrade Operation	cmp						<input type="checkbox"/> 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	<input checked="" type="checkbox"/> CMP Site2 Cluster (2 Servers)						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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5. <input type="checkbox"/>	CMP GUI: Verify Alarms	<p>System Wide Reports → Alarms → Active Alarms:</p> <p><u>Expected Minor Alarms:</u></p> <p>70500 System Mixed Version</p>																																																
6. <input type="checkbox"/>	Procedure is complete.	<ul style="list-style-type: none"> All CMP Clusters Upgrade are complete and running Release 12.2. ALL MRAs and MPEs are on Release 12.1.x <p>At this point, the Policy Management system is running in mixed-version mode.</p>																																																

10. UPGRADE NON-CMP CLUSTERS (9.9.2 TO 12.2)

The following procedures will upgrade a site/segment containing one or more non-CMP clusters such as MPEs, MRAs and MEDIATIONS .They are applicable for Release 9.9.2 upgrade to Release 12.2.0

NOTE: An upgrade of up to 4 clusters can be performed in parallel.

10.1 Site/Segment Upgrade Preparation

10.1.1 Configuration Preparation

Step	Procedure	Result																																																																																					
1. <input type="checkbox"/>	CMP GUI: Access into Primary site CMP	<ul style="list-style-type: none"> Use the supported browser to login as “<i>admin</i>” or user with administrator privileges. 																																																																																					
2. <input type="checkbox"/>	CMP GUI: Verify Current Upgrade Manager status and Software Release 12.2 ISO files	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Verify that all CMP Clusters have both Active, and Standby status. Verify that all MPE, MRA & MEDIATION clusters have both Active and Standby status. <p>Upgrade → ISO Maintenance</p> <ul style="list-style-type: none"> Verify that Policy release 12.2 ISO files are available for all clusters. One ISO per server type as shown in the example below – <div style="border: 1px solid gray; padding: 5px;"> <p style="text-align: right; font-size: small;">ISO Maintenance (Last Refresh :01/03/2017 17:29:29)</p> <p style="font-size: x-small;">Save Layout</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;"></th> <th style="width: 35%;">Name</th> <th style="width: 15%;">Appl Type</th> <th style="width: 15%;">IP</th> <th style="width: 30%;">ISO</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/></td> <td>CMP Site1 Cluster</td> <td>CMP Site1 Cluster</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td>mass-cmp-1a</td> <td>CMP Site1 Cluster</td> <td>10.240.152.83</td> <td><input type="checkbox"/> cmp-12.2.0.0.0_65.1.0-x86_64.iso[100%]</td> </tr> <tr> <td><input type="checkbox"/></td> <td>mass-cmp-1b</td> <td>CMP Site1 Cluster</td> <td>10.240.152.84</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td>CMP Site2 Cluster</td> <td>CMP Site2 Cluster</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td>MPE-1 Cluster</td> <td>MPE</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td>mass-mpe-1a</td> <td>MPE</td> <td>10.240.152.69</td> <td><input type="checkbox"/> mpe-12.2.0.0.0_65.1.0-x86_64.iso[100%]</td> </tr> <tr> <td><input type="checkbox"/></td> <td>mass-mpe-1b</td> <td>MPE</td> <td>10.240.152.70</td> <td><input type="checkbox"/> mpe-12.2.0.0.0_65.1.0-x86_64.iso[100%]</td> </tr> <tr> <td><input type="checkbox"/></td> <td>MPE-2 Cluster</td> <td>MPE</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td>mass-mpe-2a</td> <td>MPE</td> <td>10.240.152.71</td> <td><input type="checkbox"/> mpe-12.2.0.0.0_65.1.0-x86_64.iso[100%]</td> </tr> <tr> <td><input type="checkbox"/></td> <td>mass-mpe-2b</td> <td>MPE</td> <td>10.240.152.72</td> <td><input type="checkbox"/> mpe-12.2.0.0.0_65.1.0-x86_64.iso[100%]</td> </tr> <tr> <td><input type="checkbox"/></td> <td>MRA-1 Cluster</td> <td>MRA</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td>mass-mra-1a</td> <td>MRA</td> <td>10.240.152.67</td> <td><input type="checkbox"/> mra-12.2.0.0.0_65.1.0-x86_64.iso[100%]</td> </tr> <tr> <td><input type="checkbox"/></td> <td>mass-mra-1b</td> <td>MRA</td> <td>10.240.152.68</td> <td><input type="checkbox"/> mra-12.2.0.0.0_65.1.0-x86_64.iso[100%]</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Mediation-1 Cluster</td> <td>Mediation Server</td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td>mass-mediation-1a</td> <td>Mediation Server</td> <td>10.240.152.73</td> <td><input type="checkbox"/> mediation-12.2.0.0.0_65.1.0-x86_64.iso[100%]</td> </tr> <tr> <td><input type="checkbox"/></td> <td>mass-mediation-1b</td> <td>Mediation Server</td> <td>10.240.152.74</td> <td><input type="checkbox"/> mediation-12.2.0.0.0_65.1.0-x86_64.iso[100%]</td> </tr> </tbody> </table> </div>		Name	Appl Type	IP	ISO	<input type="checkbox"/>	CMP Site1 Cluster	CMP Site1 Cluster			<input type="checkbox"/>	mass-cmp-1a	CMP Site1 Cluster	10.240.152.83	<input type="checkbox"/> cmp-12.2.0.0.0_65.1.0-x86_64.iso[100%]	<input type="checkbox"/>	mass-cmp-1b	CMP Site1 Cluster	10.240.152.84		<input type="checkbox"/>	CMP Site2 Cluster	CMP Site2 Cluster			<input type="checkbox"/>	MPE-1 Cluster	MPE			<input type="checkbox"/>	mass-mpe-1a	MPE	10.240.152.69	<input type="checkbox"/> mpe-12.2.0.0.0_65.1.0-x86_64.iso[100%]	<input type="checkbox"/>	mass-mpe-1b	MPE	10.240.152.70	<input type="checkbox"/> mpe-12.2.0.0.0_65.1.0-x86_64.iso[100%]	<input type="checkbox"/>	MPE-2 Cluster	MPE			<input type="checkbox"/>	mass-mpe-2a	MPE	10.240.152.71	<input type="checkbox"/> mpe-12.2.0.0.0_65.1.0-x86_64.iso[100%]	<input type="checkbox"/>	mass-mpe-2b	MPE	10.240.152.72	<input type="checkbox"/> mpe-12.2.0.0.0_65.1.0-x86_64.iso[100%]	<input type="checkbox"/>	MRA-1 Cluster	MRA			<input type="checkbox"/>	mass-mra-1a	MRA	10.240.152.67	<input type="checkbox"/> mra-12.2.0.0.0_65.1.0-x86_64.iso[100%]	<input type="checkbox"/>	mass-mra-1b	MRA	10.240.152.68	<input type="checkbox"/> mra-12.2.0.0.0_65.1.0-x86_64.iso[100%]	<input type="checkbox"/>	Mediation-1 Cluster	Mediation Server			<input type="checkbox"/>	mass-mediation-1a	Mediation Server	10.240.152.73	<input type="checkbox"/> mediation-12.2.0.0.0_65.1.0-x86_64.iso[100%]	<input type="checkbox"/>	mass-mediation-1b	Mediation Server	10.240.152.74	<input type="checkbox"/> mediation-12.2.0.0.0_65.1.0-x86_64.iso[100%]
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Software Upgrade Procedure

10.2 Upgrade Non-CMP Clusters

At this point, all CMP clusters should have been upgraded successfully to release 12.2 before executing the following procedure.

This procedure will upgrade one or more non-CMP clusters at a site/segment. The general upgrade sequence is based of Section 2.3.

The following sequence of server types to be upgraded for the system –

1. Upgrade MPEs
2. Upgrade MRAs
3. Upgrade Mediations

This procedure is generally applicable for those server types and steps to be repeated for every server type.

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

The upgrade procedure is essentially the same for any non-CMP cluster.

NOTE:

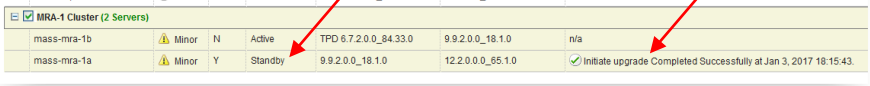
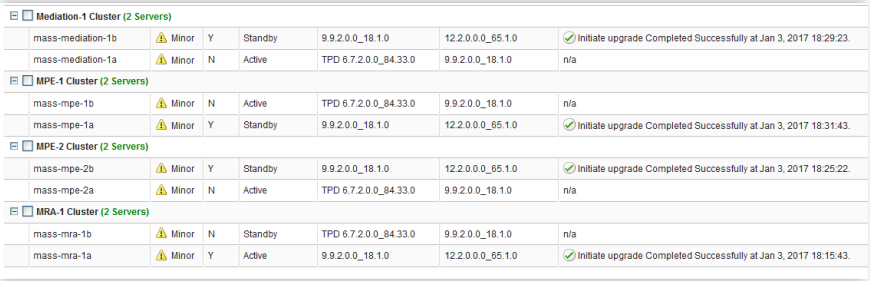
- The default sequence performed by the Upgrade Manager to upgrade a two-server cluster is of the following -
 - 1) Select and start upgrade on Standby server
 - 2) Failover one cluster at a time
 - 3) Re-apply configuration one cluster at a time
 - 4) Continue upgrade on remaining server
 - 5) Perform second Re-apply configuration on MPE cluster ONLY.
- **Only one cluster can be selected for an upgrade activity, the ‘bulk selection’ of clusters is not supported in release 12.2.**

Step	Procedure	Result
1. <input type="checkbox"/>	CMP GUI: Health checks on the servers to be upgraded	<ul style="list-style-type: none"> • Perform the following: <ul style="list-style-type: none"> - Check for any known and well understood active alarms. - Reset server counters to make a baseline <p>For the MPE: Policy Server→Configuration→Reports → Reset Counters For the MRA: MRA→Configuration→Reports → Reset Counters For the MEDIATION: Mediation → Configuration → Reports → Reset Counters</p> <ul style="list-style-type: none"> • Check KPI Dashboard, capture screenshots to save for the counter statistics in case needed for comparison purposes later on, if an unexpected performance issue(s) occurred upon upgrade.
2. <input type="checkbox"/>	CMP GUI: Upgrade clusters NOTE: Start the upgrade one cluster at a time and wait till the server being performed shows “OOS” status, then continue with the next cluster and so on. Up	Upgrade → Upgrade Manager <ul style="list-style-type: none"> • Click on the checkbox for the desired cluster (<i>one cluster at a time</i>) which can be an MRA / MPE / MEDIATION. • Click on the ‘Continue Upgrade’ to initiate the upgrade procedure on the selected cluster.

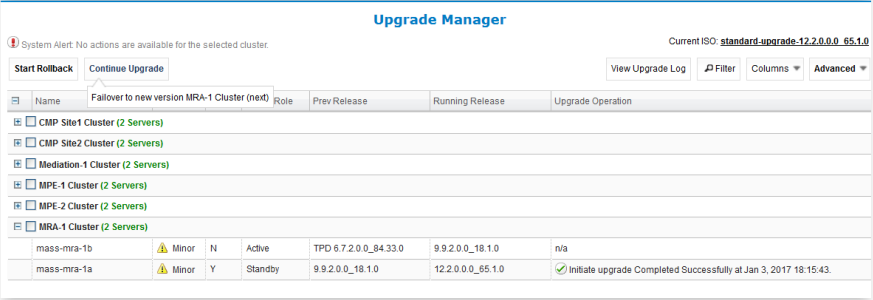
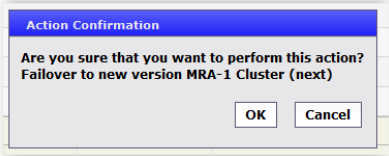
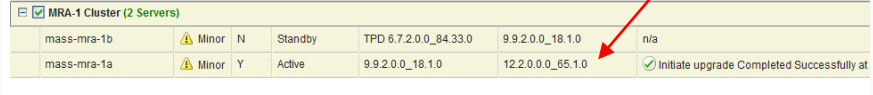
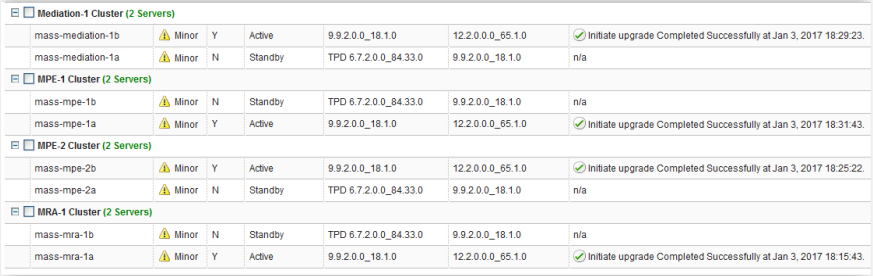
Software Upgrade Procedure

Step	Procedure	Result																																																																																																									
	<p><i>to 4 clusters can be performed in parallel.</i></p> <p>NOTE: <i>Each server takes ~35 minutes to complete.</i></p>	<div> <p>Upgrade Manager</p> <p>Current ISO: standard_upgrade_12.2.0.0_65.1.0</p> <p>Start Rollback Continue Upgrade</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Initiate upgrade mass-mra-1a (next)</th> <th>Server Role</th> <th>Prev Release</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 colspan="6">CMP Site2 Cluster (2 Servers)</td> </tr> <tr> <td colspan="6">Mediation-1 Cluster (2 Servers)</td> </tr> <tr> <td colspan="6">MPE-1 Cluster (2 Servers)</td> </tr> <tr> <td>mass-mpe-1b</td> <td>Minor</td> <td>N</td> <td>Active</td> <td>TPD 6.7.2.0.0_84.33.0</td> <td>9.9.2.0.0_18.1.0</td> </tr> <tr> <td>mass-mpe-1a</td> <td>Minor</td> <td>N</td> <td>Standby</td> <td>TPD 6.7.2.0.0_84.33.0</td> <td>9.9.2.0.0_18.1.0</td> </tr> <tr> <td colspan="6">MPE-2 Cluster (2 Servers)</td> </tr> <tr> <td>mass-mpe-2b</td> <td>Minor</td> <td>N</td> <td>Standby</td> <td>TPD 6.7.2.0.0_84.33.0</td> <td>9.9.2.0.0_18.1.0</td> </tr> <tr> <td>mass-mpe-2a</td> <td>Minor</td> <td>N</td> <td>Active</td> <td>TPD 6.7.2.0.0_84.33.0</td> <td>9.9.2.0.0_18.1.0</td> </tr> <tr> <td colspan="6">MRA-1 Cluster (2 Servers)</td> </tr> <tr> <td>mass-mra-1b</td> <td>Minor</td> <td>N</td> <td>Active</td> <td>TPD 6.7.2.0.0_84.33.0</td> <td>9.9.2.0.0_18.1.0</td> </tr> <tr> <td>mass-mra-1a</td> <td>Minor</td> <td>N</td> <td>Standby</td> <td>TPD 6.7.2.0.0_84.33.0</td> <td>9.9.2.0.0_18.1.0</td> </tr> </tbody> </table> </div> <ul style="list-style-type: none"> Click on “OK” to confirm and continue with the operation. It will begin to upgrade the Standby server of that cluster. <div> </div> <ul style="list-style-type: none"> Wait until the Standby server reports “OOS” before selecting the next cluster. <div> <table border="1"> <tbody> <tr> <td>mass-mpe-2a</td> <td>Minor</td> <td>N</td> <td>Active</td> <td>TPD 6.7.2.0.0_84.33.0</td> <td>9.9.2.0.0_18.1.0</td> <td>n/a</td> </tr> <tr> <td colspan="6">MRA-1 Cluster (2 Servers)</td> </tr> <tr> <td>mass-mra-1b</td> <td>Minor</td> <td>N</td> <td>Active</td> <td>TPD 6.7.2.0.0_84.33.0</td> <td>9.9.2.0.0_18.1.0</td> <td>n/a</td> </tr> <tr> <td>mass-mra-1a</td> <td>Major</td> <td>N</td> <td>OOS</td> <td>TPD 6.7.2.0.0_84.33.0</td> <td>9.9.2.0.0_18.1.0</td> <td>[Step 2/3] 4% Initiate upgrade :: Initi</td> </tr> </tbody> </table> </div> <ul style="list-style-type: none"> Follow the progress status bars under the “Upgrade Operation” column. It will take approximately 35 minutes to complete. During the upgrade activities, the following alarms may be generated and considered normal reporting events – <i>these will be cleared after the cluster are completely upgraded.</i> <p><u>Expected Critical Alarms:</u></p> <ul style="list-style-type: none"> 31227 The high availability status is failed due to raised alarms 31283 High availability server is offline 70001 The qp_procmgr process has failed. <p><u>Expected Major Alarms:</u></p> <ul style="list-style-type: none"> 31233 High availability path loss of connectivity 70004 The QP processes have been brought down for maintenance. <p><u>Expected Minor Alarms:</u></p> <ul style="list-style-type: none"> 70503 The server is in forced standby 70507 An upgrade/backout action on a server is in progress 70500 The system is running different versions of software 70501 The Cluster is running different versions of software 	Name	Initiate upgrade mass-mra-1a (next)	Server Role	Prev Release	Running Release	Upgrade Operation	CMP Site1 Cluster (2 Servers)						CMP Site2 Cluster (2 Servers)						Mediation-1 Cluster (2 Servers)						MPE-1 Cluster (2 Servers)						mass-mpe-1b	Minor	N	Active	TPD 6.7.2.0.0_84.33.0	9.9.2.0.0_18.1.0	mass-mpe-1a	Minor	N	Standby	TPD 6.7.2.0.0_84.33.0	9.9.2.0.0_18.1.0	MPE-2 Cluster (2 Servers)						mass-mpe-2b	Minor	N	Standby	TPD 6.7.2.0.0_84.33.0	9.9.2.0.0_18.1.0	mass-mpe-2a	Minor	N	Active	TPD 6.7.2.0.0_84.33.0	9.9.2.0.0_18.1.0	MRA-1 Cluster (2 Servers)						mass-mra-1b	Minor	N	Active	TPD 6.7.2.0.0_84.33.0	9.9.2.0.0_18.1.0	mass-mra-1a	Minor	N	Standby	TPD 6.7.2.0.0_84.33.0	9.9.2.0.0_18.1.0	mass-mpe-2a	Minor	N	Active	TPD 6.7.2.0.0_84.33.0	9.9.2.0.0_18.1.0	n/a	MRA-1 Cluster (2 Servers)						mass-mra-1b	Minor	N	Active	TPD 6.7.2.0.0_84.33.0	9.9.2.0.0_18.1.0	n/a	mass-mra-1a	Major	N	OOS	TPD 6.7.2.0.0_84.33.0	9.9.2.0.0_18.1.0	[Step 2/3] 4% Initiate upgrade :: Initi
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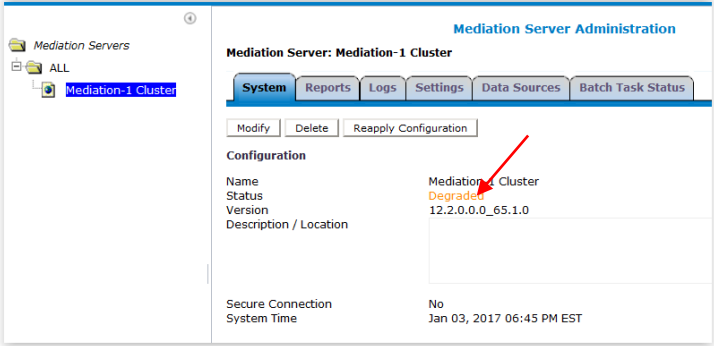
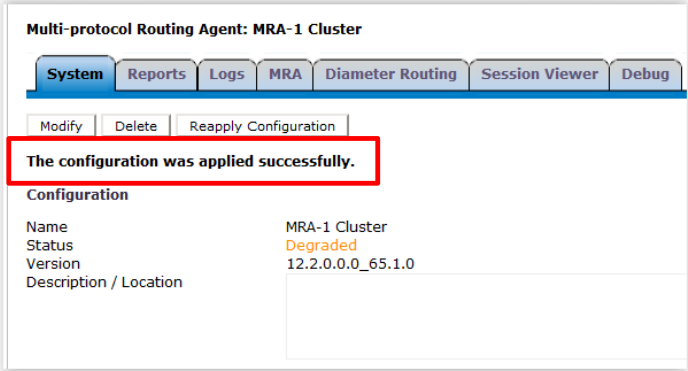

Software Upgrade Procedure

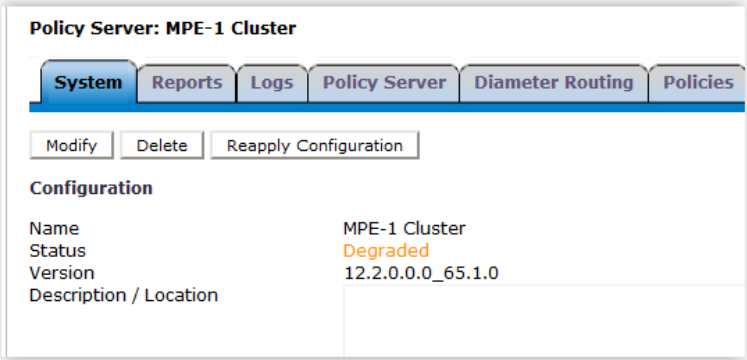

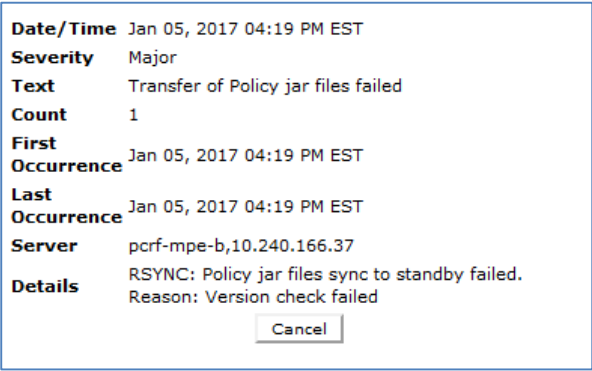

Step	Procedure	Result
		<p>31114 DB Replication of configuration data via SOAP has failed</p> <p>31106 DB merging to the parent Merge Node has failed</p> <p>31107 DB merging from a child Source Node has failed</p> <p>31101 DB replication to a slave DB has failed</p> <p>NOTE: Each server backout will take approximately 35 minutes to complete. Some MINOR alarms remained as expected to be auto-cleared but no functional impact.</p> <ul style="list-style-type: none"> The server status will revert to 'standby' when the Upgrade is completed which can be verified by the message of "Initiate upgrade completed successfully at..." shown under the 'Upgrade Operation' column. The server is now running release 12.2.  <ul style="list-style-type: none"> Perform similar check on the status for the rest of clusters as illustrated in the example below – <i>this should be done before proceeding to the next step</i> 

Software Upgrade Procedure

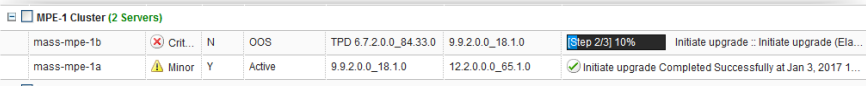
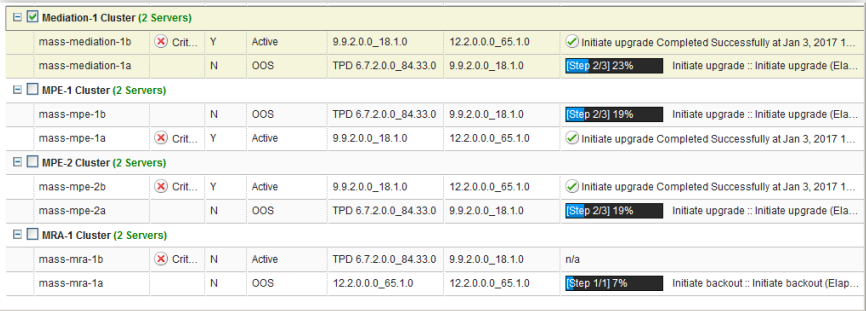
Step	Procedure	Result
<p>3. <input type="checkbox"/></p>	<p>CMP GUI: Continue Upgrade MRA/MPE/MEDIATION clusters with a failover Operation applied to the clusters</p> <p>NOTE: Up to 4 clusters can be performed in parallel.</p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Click on the ‘Continue Upgrade’ to perform the failover operation on the selected cluster.  <ul style="list-style-type: none"> Click on “OK” to confirm and continue with the failover operation for the selected cluster.  <ul style="list-style-type: none"> Wait until failover operation completed and the server running release 12.2 is now Active as shown –  <ul style="list-style-type: none"> Perform the similar failover operation to the rests of clusters before proceeding to the next step. 
<p>4. <input type="checkbox"/></p>	<p>CMP GUI: Perform Reapply configuration on the MPE/MRA/MEDIATION</p>	<p>For MPE: Policy Server → Configuration → < MPE cluster> → System tab</p> <p>For MRA: MRA → Configuration → < MRA cluster> → System tab</p> <p>For MEDIATION: Mediation → Configuration → < Mediation cluster > → System tab</p>

Software Upgrade Procedure

Step	Procedure	Result
	<p>clusters after successfully failed over.</p>	<ul style="list-style-type: none"> The selected cluster will have the status shown as ”Degraded” status as shown in the Mediation cluster example below –  <ul style="list-style-type: none"> Click on ”Reapply Configuration” operation and wait till the <i>“The configuration was applied successfully”</i> message displayed as shown –  <p>NOTE: <i>The following progress banner will ONLY appear for the MPE cluster after the reapply configuration is being performed, but NOT for the MRA and MEDIATION. This behavior is as expected.</i></p>  <ul style="list-style-type: none"> Verify that the ”Version” is successfully changed to the upgraded Release

Step	Procedure	Result												
		<p>12.2.</p> <ul style="list-style-type: none"> The selected cluster will still show the “Degraded” status as expected.  <ul style="list-style-type: none"> Repeat this step to perform similar to the rests of backed out clusters, before proceeding to the next step. 												
<p>5 <input type="checkbox"/></p>	<p>CMP GUI: 78001 Major Alarm</p>	<p>During the upgrade activities, Major 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"> <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>  <p>If you see a different reason, stop and contact My Oracle Support. If you see the “Version check failed” reason, continue here. Navigate to System Wide Reports > Alarms > 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
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									

Software Upgrade Procedure

Step	Procedure	Result
<p>6. <input type="checkbox"/></p>	<p>CMP GUI: Continue Upgrade on Standby MRA/MPE / MEDIATION servers</p> <p>NOTE: Start the upgrade one cluster at a time and wait till the server being performed shows "OOS" status, then continue with the next cluster and so on. Up to 4 clusters can be performed in parallel.</p> <p>NOTE: Each server takes ~35 minutes to complete.</p>	<p>Upgrade → Upgrade Manager</p> <p>NOTE: This step is similar to a previous Step (2), thus skipping some of the screenshot illustration.</p> <ul style="list-style-type: none"> Click on the checkbox for the desired cluster (<i>one cluster at a time</i>) which can be an MRA / MPE / MEDIATION. Click on the 'Continue Upgrade' to initiate the upgrade procedure on the selected cluster. Click on "OK" to confirm and continue with the operation. It will begin to upgrade the Standby server of that cluster.  <ul style="list-style-type: none"> Wait until the Standby server reports "OOS" before selecting the next cluster As shown in the example below showing four clusters upgrade in parallel –  <ul style="list-style-type: none"> Follow the progress status bars under the "Upgrade Operation" column. It will take approximately 35 minutes to complete. During the upgrade activities, the following alarms may be generated and considered normal reporting events – <i>these will be cleared after the cluster are completely upgraded.</i> <p><u>Expected Critical Alarms:</u></p> <p>31227 The high availability status is failed due to raised alarms</p> <p>31283 High availability server is offline</p> <p>70001 The qp_procmgr process has failed.</p> <p><u>Expected Major Alarms:</u></p> <p>31233 High availability path loss of connectivity</p> <p>70004 The QP processes have been brought down for maintenance.</p> <p><u>Expected Minor Alarms:</u></p> <p>70503 The server is in forced standby</p>

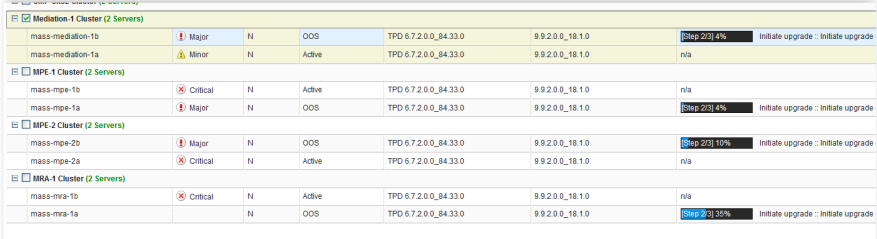
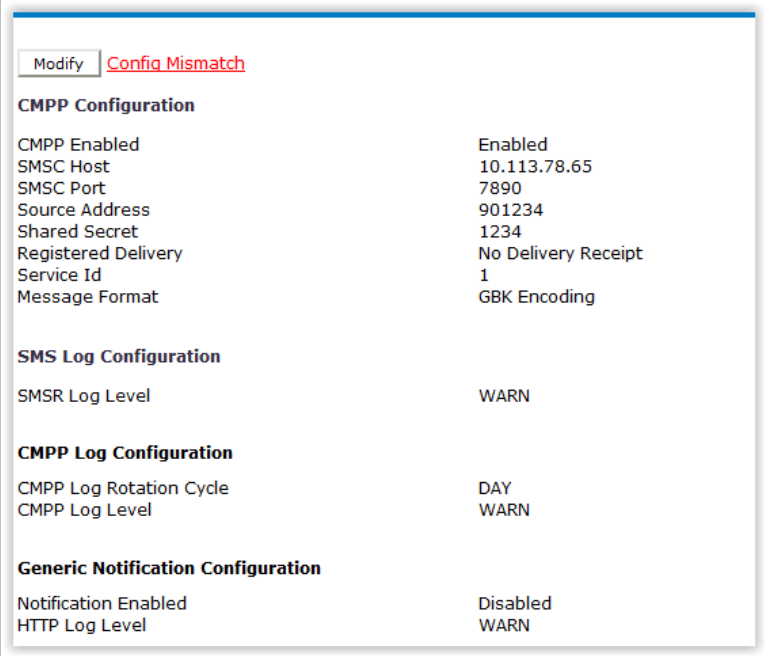
Software Upgrade Procedure

Step	Procedure	Result																																																																																																		
		<p>70507 An upgrade/backout action on a server is in progress</p> <p>70500 The system is running different versions of software</p> <p>70501 The Cluster is running different versions of software</p> <p>31114 DB Replication of configuration data via SOAP has failed</p> <p>31106 DB merging to the parent Merge Node has failed</p> <p>31107 DB merging from a child Source Node has failed</p> <p>31101 DB replication to a slave DB has failed</p> <p>NOTE: Each server backout will take approximately 35 minutes to complete. Some MINOR alarms remained as expected to be auto-cleared but no functional impact.</p> <ul style="list-style-type: none"> The server status will revert to 'standby' when the Upgrade is completed which can be verified by the message of "Initiate upgrade completed successfully at..." shown under the 'Upgrade Operation' column. All the upgraded clusters should now be Running Release 12.2 with the "Up to Date" column now showing "Y" for every cluster. <div style="border: 1px solid #ccc; padding: 5px;"> <p style="text-align: center; color: #0070c0; font-weight: bold;">Upgrade Manager</p> <p style="text-align: right; font-size: small;">Current ISO: standard-upgrade-12.2.0.0_65.1</p> <p style="font-size: x-small;">Start Rollback Start Upgrade View Upgrade Log Filter Columns Advanced</p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th>Name</th> <th>Alarm S.</th> <th>Up to Date</th> <th>Server R...</th> <th>Prev Release</th> <th>Running Release</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td colspan="7">CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td>mass-cmp-1a</td> <td>Criti</td> <td>Y</td> <td>Active</td> <td>9.9.2.1.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> <td>n/a</td> </tr> <tr> <td>mass-cmp-1b</td> <td>Minor</td> <td>Y</td> <td>Standby</td> <td>9.9.2.1.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> <td>Initiate upgrade Completed Successfully at Dec 21, 2016 0</td> </tr> <tr> <td colspan="7">Mediation-1 Cluster (2 Servers)</td> </tr> <tr> <td>mass-mediation-1b</td> <td>Minor</td> <td>Y</td> <td>Active</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> <td>Initiate upgrade Completed Successfully at Jan 3, 2017 18</td> </tr> <tr> <td>mass-mediation-1a</td> <td>Minor</td> <td>Y</td> <td>Standby</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> <td>Initiate upgrade Completed Successfully at Jan 4, 2017 14</td> </tr> <tr> <td colspan="7">MPE-1 Cluster (2 Servers)</td> </tr> <tr> <td>mass-mpe-1b</td> <td></td> <td>Y</td> <td>Standby</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> <td>Initiate upgrade Completed Successfully at Jan 4, 2017 14</td> </tr> <tr> <td>mass-mpe-1a</td> <td>Minor</td> <td>Y</td> <td>Active</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> <td>Initiate upgrade Completed Successfully at Jan 3, 2017 18</td> </tr> <tr> <td colspan="7">MPE-2 Cluster (2 Servers)</td> </tr> <tr> <td colspan="7">MRA-1 Cluster (2 Servers)</td> </tr> <tr> <td>mass-mra-1b</td> <td></td> <td>Y</td> <td>Standby</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> <td>Initiate upgrade Completed Successfully at Jan 4, 2017 15</td> </tr> <tr> <td>mass-mra-1a</td> <td></td> <td>Y</td> <td>Active</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> <td>Initiate upgrade Completed Successfully at Jan 4, 2017 14</td> </tr> </tbody> </table> </div> <p>NOTE: The subsequent instruction <i>ONLY</i> applicable to all upgraded MPE clusters with <i>second Reapply configuration</i>, otherwise skip to the next Step.</p> <p>Policy Server → Configuration → < MPE cluster> → System tab</p> <ul style="list-style-type: none"> The selected MPE cluster will have the status shown as "Degraded" status. Click on the "Reapply Configuration" operation and wait till the "The configuration was applied successfully" message displayed as shown - 	Name	Alarm S.	Up to Date	Server R...	Prev Release	Running Release	Upgrade Operation	CMP Site1 Cluster (2 Servers)							mass-cmp-1a	Criti	Y	Active	9.9.2.1.0_18.1.0	12.2.0.0.0_65.1.0	n/a	mass-cmp-1b	Minor	Y	Standby	9.9.2.1.0_18.1.0	12.2.0.0.0_65.1.0	Initiate upgrade Completed Successfully at Dec 21, 2016 0	Mediation-1 Cluster (2 Servers)							mass-mediation-1b	Minor	Y	Active	9.9.2.0.0_18.1.0	12.2.0.0.0_65.1.0	Initiate upgrade Completed Successfully at Jan 3, 2017 18	mass-mediation-1a	Minor	Y	Standby	9.9.2.0.0_18.1.0	12.2.0.0.0_65.1.0	Initiate upgrade Completed Successfully at Jan 4, 2017 14	MPE-1 Cluster (2 Servers)							mass-mpe-1b		Y	Standby	9.9.2.0.0_18.1.0	12.2.0.0.0_65.1.0	Initiate upgrade Completed Successfully at Jan 4, 2017 14	mass-mpe-1a	Minor	Y	Active	9.9.2.0.0_18.1.0	12.2.0.0.0_65.1.0	Initiate upgrade Completed Successfully at Jan 3, 2017 18	MPE-2 Cluster (2 Servers)							MRA-1 Cluster (2 Servers)							mass-mra-1b		Y	Standby	9.9.2.0.0_18.1.0	12.2.0.0.0_65.1.0	Initiate upgrade Completed Successfully at Jan 4, 2017 15	mass-mra-1a		Y	Active	9.9.2.0.0_18.1.0	12.2.0.0.0_65.1.0	Initiate upgrade Completed Successfully at Jan 4, 2017 14
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mass-mediation-1b	Minor	Y	Active	9.9.2.0.0_18.1.0	12.2.0.0.0_65.1.0	Initiate upgrade Completed Successfully at Jan 3, 2017 18																																																																																														
mass-mediation-1a	Minor	Y	Standby	9.9.2.0.0_18.1.0	12.2.0.0.0_65.1.0	Initiate upgrade Completed Successfully at Jan 4, 2017 14																																																																																														
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mass-mpe-1b		Y	Standby	9.9.2.0.0_18.1.0	12.2.0.0.0_65.1.0	Initiate upgrade Completed Successfully at Jan 4, 2017 14																																																																																														
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Software Upgrade Procedure

Step	Procedure	Result
		<div style="border: 1px solid gray; padding: 5px; margin-bottom: 10px;"> <p>Policy Server: MPE-1 Cluster</p> <p>System Reports Logs Policy Server Diameter Routing Policies</p> <p>Modify Delete Reapply Configuration</p> <p>Configuration</p> <p>Name MPE-1 Cluster</p> <p>Status Degraded</p> <div style="border: 1px solid gray; background-color: #e0e0e0; padding: 5px; margin: 5px 0;"> <p>Reapply Settings to the RC</p> <p>Re-applying Settings to the RC...</p> <p>Applying NotificationServer to Policy Server :mass-mpe-1a</p> <div style="background-color: yellow; height: 10px; width: 100%;"></div> </div> <p>Legacy Type No Oracle</p> </div> <ul style="list-style-type: none"> Verify that the Status is showing “On-line” and the Version is showing the complete Release 12.2.0.0.0_65.1.0 as shown - <div style="border: 1px solid gray; padding: 5px;"> <p>Policy Server: MPE-1 Cluster</p> <p>System Reports Logs Policy Server Diameter Routing Policies</p> <p>Modify Delete Reapply Configuration</p> <p>The configuration was applied successfully.</p> <p>Configuration</p> <p>Name MPE-1 Cluster</p> <p>Status On-line</p> <p>Version 12.2.0.0.0_65.1.0</p> <p>Description / Location</p> <hr/> <p>Secure Connection No</p> <p>Legacy Type No Oracle</p> <p>System Time Jan 05, 2017 11:34 AM EST</p> </div> <ul style="list-style-type: none"> Next, apply the same above instructions of performing this second Reapply Configuration to the rests of upgraded MPE clusters. Once it’s all done, proceed to the next Step.

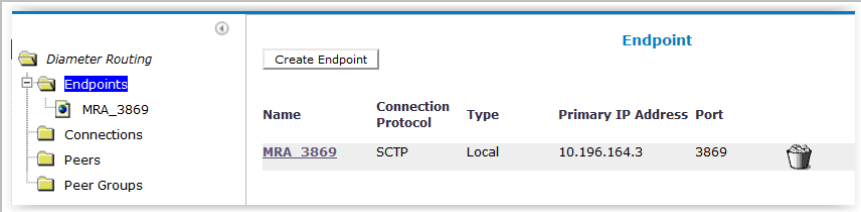
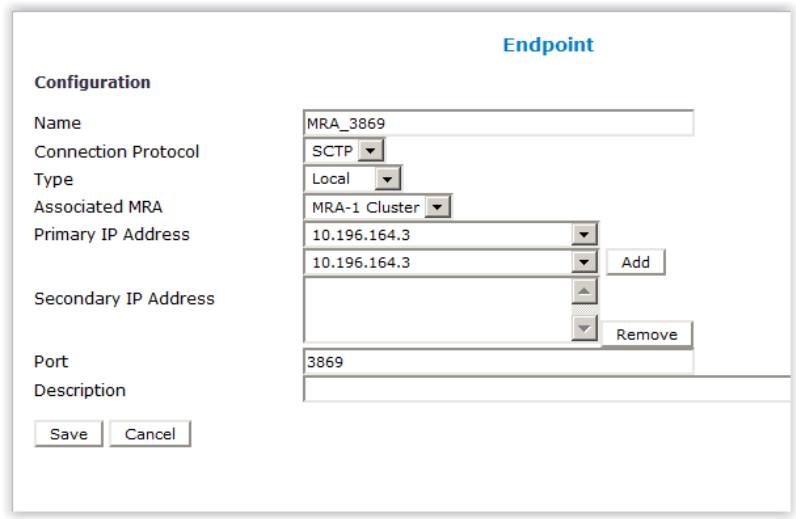
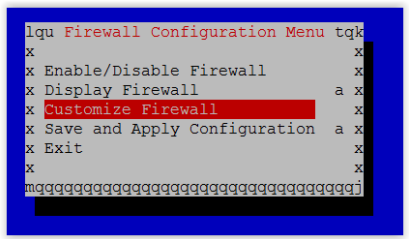
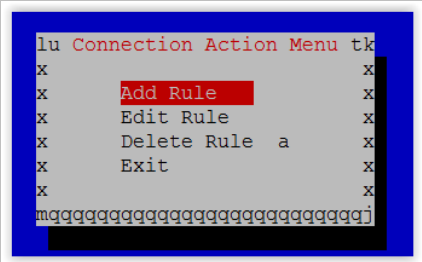
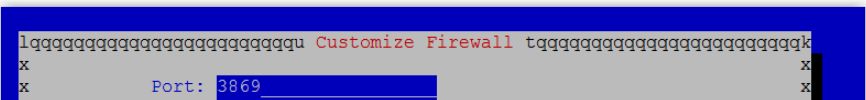
Software Upgrade Procedure

Step	Procedure	Result
7. <input type="checkbox"/>	<p>REPEAT the above Steps (1) – (6) for next upgrade batch of MPE/MRA /MEDIATION cluster(s)</p>	<ul style="list-style-type: none"> As shown in the example below showing four clusters upgrade in parallel –  <ul style="list-style-type: none"> Proceed with the next batch of four cluster(s) until all Policy sites/segments have been upgraded to release 12.2 as intended.
8. <input type="checkbox"/>	<p><<i>CMCCWireless-C</i>> CMP GUI: Modify/save SMSR configuration</p>	<p>System Administration → SMS Relay → Modify</p> <ul style="list-style-type: none"> Initial access into this configuration upon upgrade to release 12.2, the screen configuration will show as such with “Config Mismatch”  <ul style="list-style-type: none"> Click on “Modify” which will show the following example of the SMSR configuration – <i>DO NOT change any of the configuration if it has been working in the past.</i>

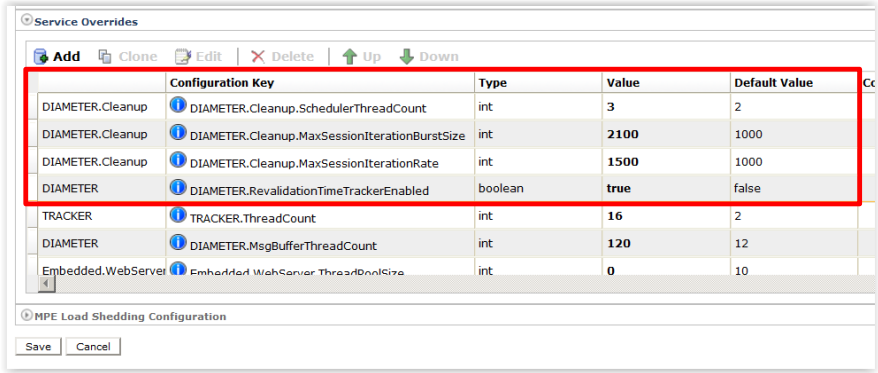
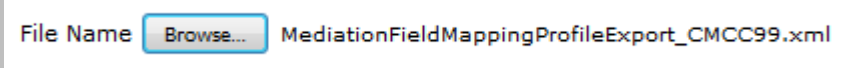
Software Upgrade Procedure

Step	Procedure	Result
		<div style="border: 1px solid gray; padding: 5px;"> <p>CMPP Configuration</p> <p>CMPP Enabled <input checked="" type="checkbox"/></p> <p>SMSC Host <input type="text" value="10.113.78.65"/></p> <p>SMSC Port <input type="text" value="7890"/></p> <p>Source Address <input type="text" value="901234"/></p> <p>Shared Secret <input type="text" value="1234"/></p> <p>Registered Delivery <input type="text" value="No Delivery Receipt"/></p> <p>Service Id <input type="text" value="1"/></p> <p>Message Format <input type="text" value="GBK Encoding"/></p> <hr/> <p>Modify SMS Log Settings</p> <p>SMS Log Level <input type="text" value="WARN"/></p> <hr/> <p>Modify CMPP Log Settings</p> <p>CMPP Log Rotation Cycle <input type="text" value="DAY"/></p> <p>CMPP Log Level <input type="text" value="WARN"/></p> <hr/> <p>Generic Notification Configuration</p> <p>Notification Enabled <input type="checkbox"/></p> <p>HTTP Log Level <input type="text" value="WARN"/></p> <hr/> <p><input type="button" value="Save"/> <input type="button" value="Cancel"/></p> </div> <ul style="list-style-type: none"> • Click on “Save” to re-save the configuration and continue as shown - <div style="border: 1px solid gray; padding: 5px; margin-top: 10px;"> <p><input type="button" value="Modify"/></p> <p>CMPP Configuration</p> <p>CMPP Enabled Enabled</p> <p>SMSC Host 10.113.78.65</p> <p>SMSC Port 7890</p> <p>Source Address 901234</p> <p>Shared Secret 1234</p> <p>Registered Delivery No Delivery Receipt</p> <p>Service Id 1</p> <p>Message Format GBK Encoding</p> <hr/> <p>SMS Log Configuration</p> <p>SMSR Log Level WARN</p> <hr/> <p>CMPP Log Configuration</p> <p>CMPP Log Rotation Cycle DAY</p> <p>CMPP Log Level WARN</p> <hr/> <p>Generic Notification Configuration</p> <p>Notification Enabled Disabled</p> <p>HTTP Log Level WARN</p> </div> <p>NOTE: The <i>“Config Mismatch”</i> message is no longer there with the newly saved configuration.</p>

Software Upgrade Procedure

Step	Procedure	Result
<p>9. <input type="checkbox"/></p>	<p><CMCCWireless-C> Checking and Adding MRA Firewall rules for Diameter Routing with SCTP Port: 3869</p>	<p>CMP GUI: MRA → Diameter Routing → Endpoints</p>   <ul style="list-style-type: none"> • Login into Active MRA server and run the “Platcfg” utility to access the Firewall configuration as shown – <pre># su – platcfg</pre> <p><i>Policy Configuration → Firewall</i></p>  <ul style="list-style-type: none"> • Select the “Customize Firewall” and click on “edit” to add the following rules –  <ul style="list-style-type: none"> • Customize the new Firewall Rule accordingly as in the example below 

Software Upgrade Procedure

Step	Procedure	Result
<p>10. <input type="checkbox"/></p>	<p><Wireless-C-CMCC> CMP GUI: MPE Service Override configuration for Stale Sessions Handling</p>	<p>Policy Server → All → < MPE cluster > → Policy Server → Advanced → Service Overrides → Add</p> <ul style="list-style-type: none"> • Add the following Configuration Parameters under “Service Overrides” and click on “save” to continue as shown – <ol style="list-style-type: none"> 1) DIAMETER.Cleanup.SchedulerThreadCount = 3 2) DIAMETER.Cleanup.MaxSessionIterationBurstSize = 2100 3) DIAMETER.Cleanup.MaxSessionIterationRate = 1500 4) DIAMETER.RevalidationTimeTrackerEnabled = true 
<p>11. <input type="checkbox"/></p>	<p><CMCCWireless-C> Re-importing the Mediation Server Field Mapping profile</p>	<ul style="list-style-type: none"> • Login into Active Mediation server and perform secured copy (SCP) / upload of the Field Mapping profile configuration file to the local PC where the CMP GUI browser is launched - <pre># scp -p /opt/camiant/mediation/cfg/MediationFieldMappingProfileExport_CMCC99WirelessC99.xml <Active CMP IP address>:/opt/camiant/mediation/cfg</pre> <ul style="list-style-type: none"> • Logout of the Mediation server. • And, login into the CMP GUI via the supported browser • Browse for the Mediation Field Mapping profile file on the local PC directory where it was previously uploaded to.  <ul style="list-style-type: none"> • Click Import on the Field Mapping file as shown below – <p>CMP GUI: <i>System Administration → Import/Export → Import</i></p>

Software Upgrade Procedure

Step	Procedure	Result
		<div style="border: 1px solid #ccc; padding: 10px; margin-bottom: 10px;"> <p>File Name <input type="button" value="Browse..."/> MediationFieldMappingProfileExport_CMCC99.xml</p> <p>Handle collisions between imported items and existing items:</p> <p> <input type="radio"/> Delete all before importing <input type="radio"/> Overwrite with imported version <input type="radio"/> Reject any that already exist <input checked="" type="radio"/> Any collisions prevent all importing <input type="radio"/> Validate without importing </p> <p>Options</p> <p><input type="checkbox"/> Skip checksum</p> <p><input type="button" value="Import"/></p> </div> <ul style="list-style-type: none"> Click on “OK” to proceed with the import. Once it’s imported, it will show the following message on top of the CMP GUI screen as shown – <div style="background-color: #0070c0; color: white; padding: 5px; text-align: center; font-weight: bold;"> Oracle Communications Policy Management </div> <div style="border: 2px solid red; padding: 5px; margin: 5px 0;"> MediationFieldMappingProfileExport_CMCC99.xml import successfully. For more information, please click the button! <input type="button" value="detail"/> </div> <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> File Name <input type="button" value="Browse..."/> </div> <ul style="list-style-type: none"> Click on the “detail” to validate that the import is successful with <p>NumUpdateErrorsTotal and NumWarningsTotal are both zero. When you finish, click close to close the window.</p> <div style="border: 1px solid #ccc; padding: 10px; margin: 5px 0;"> <div style="display: flex; justify-content: space-between; align-items: center;"> ORACLE <div style="background-color: #0070c0; color: white; padding: 5px; font-weight: bold;">Oracle Communications Policy Management</div> </div> <p style="text-align: right; color: #0070c0; font-size: small;">Import Result Detail</p> <p style="text-align: left; font-size: x-small;"> <input type="button" value="close"/> </p> <pre style="font-family: monospace; font-size: x-small; margin: 0;"> NumSuccessTotal:0 NumErrorsTotal:0 NumUpdateErrorsTotal:0 NumUpdateSuccessTotal:28 NumWarningsTotal:0 ===== MediationFieldMappingProfileExport_CMCC99.xml NumSuccess:0/ NumUpdateSuccess:28 Successfully updated 28 field mapping profile(s). NumErrors:0/ NumUpdateErrors:0 NumWarnings:0 ===== </pre> <p style="text-align: left; font-size: x-small;"> <input type="button" value="close"/> </p> </div>
THIS PROCEDURE HAS BEEN COMPLETED		

Software Upgrade Procedure

11. UPGRADE NON-CMP CLUSTERS (MPE, MRA) 11.5.X/12.1.X WIRELESS MODE

The following procedures will upgrade a site/segment containing one or more non-CMP clusters such as MPEs, MRAs.

NOTES:

1. An upgrade of up to 4 clusters (8 for 12.1.x) can be running at the same time.
2. Different types of non-CMP clusters can be upgraded at the same time. 2 MPEs and 2 MRAs, for example, can be upgraded in parallel.

11.1 Site/Segment Upgrade Preparation

11.1.1 Configuration Preparation

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

Software Upgrade Procedure

11.2 Upgrade Non-CMP Clusters

This procedure will upgrade one or more non-CMP clusters at a site/segment.

This procedure is applicable for an 11.5.x (wireless mode) or 12.1.x upgrade to 12.2

This section can be replicated for each site/segment to be upgraded, to allow the upgrade engineer to add cluster and site specific information.

The upgrade procedure is essentially the same for any non-CMP cluster.

- 1) Select and start upgrade on the Standby server
- 2) Failover
- 3) Re-apply configuration
- 4) Continue upgrade on remaining server
- 5) Re-apply configuration

NOTES:

- All CMP clusters must have been upgraded to Policy release 12.2 before executing the following procedures.
- The maximum clusters to be running the upgrade at one time is 4, except for release 12.1.x where 8 clusters can be upgraded in parallel.
- 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"/>	CMP GUI: Health checks on the servers to be upgraded	<ul style="list-style-type: none">• Perform the following:<ul style="list-style-type: none">- Check for current active alarms- Reset server counters to make a baseline <p>For the MPE: Policy Server→Configuration→Reports → Reset Counters For the MRA: MRA→Configuration→Reports → Reset Counters</p> <ul style="list-style-type: none">- Check KPI Dashboard (<i>capture and save screenshot to a file</i>)

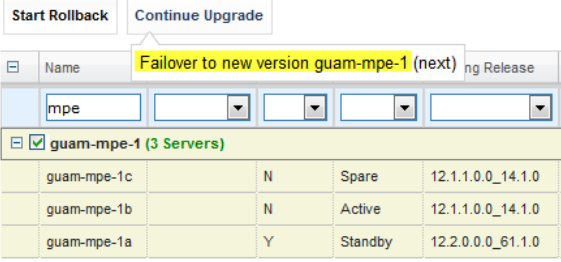
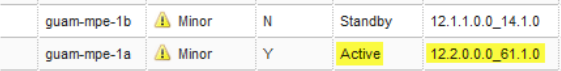

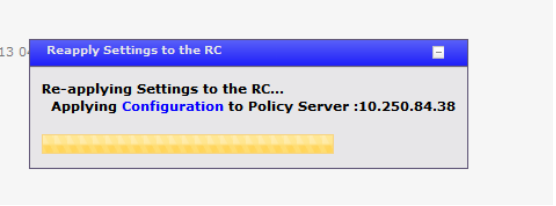
Software Upgrade Procedure

Step	Procedure	Result																																																												
2. <input type="checkbox"/>	<p>CMP GUI: Verify upgrade status of selected MPE/MRA site/segment</p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Verify information for the MRAs/MPes: <ul style="list-style-type: none"> Current Release 11.5.x or 12.1.x installed Running with Active/Standby status <p>Upgrade → ISO Maintenance</p> <ul style="list-style-type: none"> Verify the ISO version to be deployed is 12.2 <table border="1"> <thead> <tr> <th><input type="checkbox"/></th> <th>Name</th> <th>Appl Type</th> <th>IP</th> <th>Running Release</th> <th>ISO</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/></td> <td>CMP Site1 Cluster</td> <td>CMP Site1 Cluster</td> <td></td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td>guam-cmp-1a</td> <td>CMP Site1 Cluster</td> <td>10.240.152.75</td> <td>12.2.0.0.0_61.1.0</td> <td><input type="checkbox"/> cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td><input type="checkbox"/></td> <td>guam-cmp-1b</td> <td>CMP Site1 Cluster</td> <td>10.240.152.76</td> <td>12.2.0.0.0_61.1.0</td> <td><input type="checkbox"/> cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td><input type="checkbox"/></td> <td>guam-mpe-1</td> <td>MPE</td> <td></td> <td></td> <td></td> </tr> <tr> <td><input 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 type="checkbox"/> mpe-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td><input 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><input type="checkbox"/> mpe-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td><input type="checkbox"/></td> <td>guam-mra-1</td> <td>MRA</td> <td></td> <td></td> <td></td> </tr> <tr> <td><input 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 type="checkbox"/> mra-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> <tr> <td><input 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><input type="checkbox"/> mra-12.2.0.0.0_61.1.0-x86_64.iso[100%]</td> </tr> </tbody> </table>	<input type="checkbox"/>	Name	Appl Type	IP	Running Release	ISO	<input type="checkbox"/>	CMP Site1 Cluster	CMP Site1 Cluster				<input type="checkbox"/>	guam-cmp-1a	CMP Site1 Cluster	10.240.152.75	12.2.0.0.0_61.1.0	<input type="checkbox"/> cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]	<input type="checkbox"/>	guam-cmp-1b	CMP Site1 Cluster	10.240.152.76	12.2.0.0.0_61.1.0	<input type="checkbox"/> cmp-12.2.0.0.0_61.1.0-x86_64.iso[100%]	<input type="checkbox"/>	guam-mpe-1	MPE				<input type="checkbox"/>	guam-mpe-1a	MPE	10.240.152.79	12.1.1.0.0_14.1.0	<input type="checkbox"/> mpe-12.2.0.0.0_61.1.0-x86_64.iso[100%]	<input type="checkbox"/>	guam-mpe-1b	MPE	10.240.152.80	12.1.1.0.0_14.1.0	<input type="checkbox"/> mpe-12.2.0.0.0_61.1.0-x86_64.iso[100%]	<input type="checkbox"/>	guam-mra-1	MRA				<input type="checkbox"/>	guam-mra-1a	MRA	10.240.152.77	12.1.1.0.0_14.1.0	<input type="checkbox"/> mra-12.2.0.0.0_61.1.0-x86_64.iso[100%]	<input type="checkbox"/>	guam-mra-1b	MRA	10.240.152.78	12.1.1.0.0_14.1.0	<input type="checkbox"/> mra-12.2.0.0.0_61.1.0-x86_64.iso[100%]
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3. <input type="checkbox"/>	<p>CMP GUI: Upgrade clusters</p> <p><i>NOTE: Each upgrade of one blade server will take ~35 minutes to complete.</i></p>	<p>Start the upgrade on ONE cluster. Wait until the cluster shows “OOS”, then continue with the next cluster and so on. Up to 4 clusters (8 for 12.1.x) may be running upgrade at any one time.</p> <p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Click the checkbox for the desired cluster (one cluster at a time.) It can be an MRA or an MPE. Click the ‘Continue Upgrade’ Button <div style="border: 1px solid #ccc; padding: 5px; margin-bottom: 10px;"> <div style="display: flex; justify-content: space-between; align-items: center;"> Start Rollback Continue Upgrade View Upgrade Log Filter Columns Advanced </div> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th><input type="checkbox"/></th> <th>Name</th> <th>Initiate upgrade</th> <th>Prev Release</th> <th>Running Release</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/></td> <td colspan="5">CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td><input type="checkbox"/></td> <td>guam-cmp-1b</td> <td>Minor</td> <td>Y</td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> </tr> <tr> <td><input type="checkbox"/></td> <td>guam-cmp-1a</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><input checked="" type="checkbox"/></td> <td colspan="5">guam-mpe-1 (2 Servers)</td> </tr> <tr> <td><input type="checkbox"/></td> <td>guam-mpe-1b</td> <td>N</td> <td>Active</td> <td>TPD 7.0.2.0.0_86.28.0</td> <td>12.1.1.0.0_14.1.0</td> </tr> <tr> <td><input type="checkbox"/></td> <td>guam-mpe-1a</td> <td>N</td> <td>Standby</td> <td>TPD 7.0.2.0.0_86.28.0</td> <td>12.1.1.0.0_14.1.0</td> </tr> </tbody> </table> </div> <ul style="list-style-type: none"> Click “OK” to confirm and continue with the operation. It will begin to upgrade the standby server of that cluster. Wait until the standby server reports “OOS” before selecting the next cluster Follow the progress status under the “Upgrade Operation” column. During the upgrade activities, the following alarms may be generated and considered normal reporting events – these will be cleared after the clusters are completely upgraded. <p>Expected Critical Alarms:</p> <ul style="list-style-type: none"> 31283 High availability server is offline 70001 QP_procmgr failed 31227 High availability status failed <p>Expected Major Alarm:</p>	<input type="checkbox"/>	Name	Initiate upgrade	Prev Release	Running Release	Upgrade Operation	<input type="checkbox"/>	CMP Site1 Cluster (2 Servers)					<input type="checkbox"/>	guam-cmp-1b	Minor	Y	Active	12.1.1.0.0_14.1.0	<input type="checkbox"/>	guam-cmp-1a	Y	Standby	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	<input checked="" type="checkbox"/>	guam-mpe-1 (2 Servers)					<input type="checkbox"/>	guam-mpe-1b	N	Active	TPD 7.0.2.0.0_86.28.0	12.1.1.0.0_14.1.0	<input type="checkbox"/>	guam-mpe-1a	N	Standby	TPD 7.0.2.0.0_86.28.0	12.1.1.0.0_14.1.0																		
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Software Upgrade Procedure

Step	Procedure	Result										
		<p>70004 QP Processes down for maintenance 31233 High availability path loss of connectivity</p> <p>Expected Minor Alarms: 70503 Upgrade Director Server Forced Standby 70507 Upgrade Director In Progress 70500 Upgrade Director System Mixed Version 70501 Upgrade Director Cluster Mixed Version 31114 DB Replication over SOAP has failed 31102 DB replication from a master DB has failed 31106 DB Merge To Parent Failure 31107 DB Merge From Child Failure 31101 DB Replication To Slave Failure 31282 HA management fault 78001 RSYNC Failed</p> <ul style="list-style-type: none"> Upgrade is complete on the first server of the cluster when the message “Initiate upgrade completed successfully at...” shows under the ‘Upgrade Operation’ column. The server will go back to ‘standby’ state when the upgrade completes. <table border="1"> <tbody> <tr> <td>guam-mpe-1b</td> <td>N</td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> <td>✔ Initiate backout Completed Successfully at I</td> </tr> <tr> <td>guam-mpe-1a</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> </tbody> </table> <ul style="list-style-type: none"> A number of different alarms may be raised at this point: <p>Expected Minor Alarms: 78001 RSYNC Failed 70500 The system is running different versions of software 70501 The Cluster is running different versions of software 70503 The server is in forced standby</p>	guam-mpe-1b	N	Active	12.1.1.0.0_14.1.0	✔ Initiate backout Completed Successfully at I	guam-mpe-1a	Y	Standby	12.2.0.0.0_61.1.0	✔ Initiate upgrade Completed Successfully at
guam-mpe-1b	N	Active	12.1.1.0.0_14.1.0	✔ Initiate backout Completed Successfully at I								
guam-mpe-1a	Y	Standby	12.2.0.0.0_61.1.0	✔ Initiate upgrade Completed Successfully at								

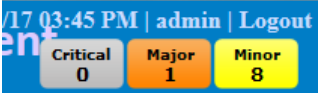

Software Upgrade Procedure

Step	Procedure	Result
<p>4. <input type="checkbox"/></p>	<p>CMP GUI: Continue Upgrade MRA/MPE clusters. Next Operation is a failover</p> <p><i>NOTE: 4 clusters (8 for 12.1.x) can be running the upgrade process at one time.</i></p>	<p>Failover ONE cluster at a time. Wait for a minute, before moving on to the next cluster.</p> <p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Click the checkbox for the cluster (one cluster at a time). It can be an MRA or MPE. Click the 'Continue Upgrade' button. When hovering over the continue upgrade button, it will say 'Failover to new version'  <ul style="list-style-type: none"> Click "OK" to confirm and continue with the operation. It will begin to failover the cluster. Wait until failover completes, i.e., the server running 12.2 is now Active, before failing over the next cluster. 
<p>5. <input type="checkbox"/></p>	<p>CMP GUI: Reapply configuration on the MPE/MRA cluster that failed over successfully.</p>	<p>For MPE: Policy Server → Configuration → <MPE cluster> → System Tab</p> <p>For MRA: MRA → Configuration → <MRA cluster> → System tab</p> <ul style="list-style-type: none"> The selected cluster will have the status shown as "Degraded" still showing the old release version. 'Config mismatch' may be displayed as well. Click the "Reapply Configuration" operation.  <ul style="list-style-type: none"> NOTE, a progress banner appears for the MPE reapply configuration and NOT the MRA reapply configuration  <ul style="list-style-type: none"> Verify that the "Version" is successfully changed to the upgraded Release 12.2 The cluster will still show the "Degraded" status:

Software Upgrade Procedure

Step	Procedure	Result																
		<p>Policy Server: guam-mpe-1</p> <p>System Reports Logs Policy Server Diameter Routing</p> <p>Modify Delete Reapply Configuration</p> <p>The configuration was applied successfully.</p> <p>Configuration</p> <table border="0"> <tr> <td>Name</td> <td>guam-mpe-1</td> </tr> <tr> <td>Status</td> <td>Degraded</td> </tr> <tr> <td>Version</td> <td>12.2.0.0.0_61.1.0</td> </tr> <tr> <td>Description / Location</td> <td></td> </tr> </table> <table border="0"> <tr> <td>Secure Connection</td> <td>No</td> </tr> <tr> <td>Legacy</td> <td>No</td> </tr> <tr> <td>Type</td> <td>Oracle</td> </tr> <tr> <td>System Time</td> <td>Nov 10, 2016 12:55 PM EST</td> </tr> </table>	Name	guam-mpe-1	Status	Degraded	Version	12.2.0.0.0_61.1.0	Description / Location		Secure Connection	No	Legacy	No	Type	Oracle	System Time	Nov 10, 2016 12:55 PM EST
Name	guam-mpe-1																	
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Legacy	No																	
Type	Oracle																	
System Time	Nov 10, 2016 12:55 PM EST																	
6. <input type="checkbox"/>	CMP GUI: Current alarms	<p>Some of the alarms below may appear:</p> <p><u>Expected Critical alarm</u> None</p> <p><u>Expected Major Alarm</u> 78001 Rsync Failed</p> <p><u>Expected Minor Alarms:</u> 70500 The system is running different versions of software 70501 The Cluster is running different versions of software 70503 The server is in forced standby 71402 Diameter Connectivity Lost 31101 DB Replication To Slave Failure 31113 DB Replication Manually Disabled</p>																
7. <input type="checkbox"/>	CMP GUI: Verify traffic becomes active within 90 seconds	<p>Upgrade Manager → System Maintenance</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"> • Select the checkbox for the partially upgraded cluster, and select Operations → Rollback. • The pre-12.2 MPE server should become active and resume handling traffic. 																
8. <input type="checkbox"/>	CMP GUI: Reapply configuration	<ul style="list-style-type: none"> • Policy Server → Configuration → <mpe_cluster name> → System tab or MRA → Configuration → <mra_cluster name> → System tab • Click Reapply Configuration • Verify that the version is changed back to 11.5.x or 12.1.x, and the action report success. • If NOT, stop and contact Oracle support to back out of the partially upgraded cluster. 																

Software Upgrade Procedure

Step	Procedure	Result												
<p>9 <input type="checkbox"/></p>	<p>CMP GUI: 78001 Major Alarm</p>	<p>During the upgrade activities, Major 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"> <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 style="border: 1px solid black; padding: 5px;"> <p>Date/Time Jan 05, 2017 04:19 PM EST Severity Major Text Transfer of Policy jar files failed Count 1 First Occurrence Jan 05, 2017 04:19 PM EST Last Occurrence Jan 05, 2017 04:19 PM EST Server pcrf-mpe-b,10.240.166.37 Details 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. If you see the "Version check failed" reason, continue here.</p> <p>Navigate to System Wide Reports > Alarms > 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>CMP GUI: Continue Upgrade MRA/MPE clusters. Upgrade on the Standby server</p>	<p>Continue the upgrade on ONE cluster at a time and when the server goes into OOS, continue with the next cluster and so on. Up to 4 clusters (8 for 12.1.x) may be running upgrade at one time.</p> <p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> • Click the checkbox for a cluster (one cluster at a time), it can be an MRA or an MPE. • Click the 'Continue Upgrade' button. When hovering over the continue upgrade button, it will say 'Initiate upgrade...' on the standby server 												

Software Upgrade Procedure

Step	Procedure	Result																																																																	
		<div style="border: 1px solid #ccc; padding: 5px;"> <p style="text-align: right; font-size: small;">Current ISO: incremental-upgrade-12.2.0.0_61.1.0</p> <p> <input type="button" value="Start Rollback"/> <input type="button" value="Continue Upgrade"/> <input type="button" value="View Upgrade Log"/> <input type="button" value="Filter"/> <input type="button" value="Columns"/> <input type="button" value="Advanced"/> </p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th style="width: 5%;">Name</th> <th style="width: 15%;">Initiate upgrade guam-mra-1b (next)</th> <th style="width: 10%;">Prev Release</th> <th style="width: 10%;">Running Release</th> <th style="width: 10%;">Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td colspan="5">[-] CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td>guam-cmp...</td> <td> Minor</td> <td>Y</td> <td>Active</td> <td>12.1.1.0.0_14.1.0 12.2.0.0.0_61.1.0 Initiate upgrade Completed Successfully at ...</td> </tr> <tr> <td>guam-cmp...</td> <td></td> <td>Y</td> <td>Standby</td> <td>12.1.1.0.0_14.1.0 12.2.0.0.0_61.1.0 Initiate upgrade Completed Successfully at ...</td> </tr> <tr> <td colspan="5">[-] guam-mpe-1 (2 Servers)</td> </tr> <tr> <td>guam-mpe...</td> <td> Minor</td> <td>N</td> <td>Standby</td> <td>TPD 7.0.2.0.0_8... 12.1.1.0.0_14.1.0 n/a</td> </tr> <tr> <td>guam-mpe...</td> <td> Major</td> <td>Y</td> <td>Active</td> <td>12.1.1.0.0_14.1.0 12.2.0.0.0_61.1.0 Initiate upgrade Completed Successfully at ...</td> </tr> <tr> <td colspan="5">[+] guam-mra-1 (2 Servers)</td> </tr> <tr> <td>guam-mra-1b</td> <td></td> <td>N</td> <td>Standby</td> <td>TPD 7.0.2.0.0_8... 12.1.1.0.0_14.1.0 n/a</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 12.2.0.0.0_61.1.0 Initiate upgrade Completed Successfully at ...</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Click “OK” to confirm and continue with the operation. It will begin the final server upgrade of the cluster If you plan to perform the upgrade for several clusters in parallel (up to 4), wait until the server being upgraded changes to “OOS” before moving on to the next cluster Follow the progress status under the “Upgrade Operation” column. During the upgrade activities, the following alarms may be generated and considered normal reporting events – these will be cleared after the cluster is completely upgraded. <p><u>Expected Critical Alarms:</u></p> <p>31283 High availability server is offline 31227 High availability Status Failed 70001 QP_procmgr failed</p> <p><u>Expected Major Alarm:</u></p> <p>70004 QP Processes down for maintenance</p> <p><u>Expected Minor Alarms:</u></p> <p>70503 Upgrade Director Server Forced Standby 70507 Upgrade Director In Progress 70500 Upgrade Director System Mixed Version 70501 Upgrade Director Cluster Mixed Version 70502 Upgrade Director Cluster Replication Inhibited 31114 DB Replication over SOAP has failed 31106 DB Merge To Parent Failure 31107 DB Merge From Child Failure 31101 DB Replication To Slave Failure 31102 DB Replication from Master Failure 31113 DB Replication manually Disabled</p> <ul style="list-style-type: none"> Upgrade is complete when the message “Initiate upgrade completed successfully at...” appears under the ‘Upgrade Operation’ Column. The server will go back to ‘Standby’ state and the Up to Date column will show a Y (YES) <table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small; margin-top: 10px;"> <thead> <tr> <th colspan="5">[-] guam-mra-1 (2 Servers)</th> </tr> </thead> <tbody> <tr> <td>guam-mra-1b</td> <td></td> <td>Y</td> <td>Standby</td> <td>12.1.1.0.0_14.1.0 12.2.0.0.0_61.1.0 Initiate upgrade Completed Successfully at ...</td> </tr> <tr> <td>guam-mra-1a</td> <td></td> <td>Y</td> <td>Active</td> <td>12.1.1.0.0_14.1.0 12.2.0.0.0_61.1.0 Initiate upgrade Completed Successfully at ...</td> </tr> </tbody> </table> </div>	Name	Initiate upgrade guam-mra-1b (next)	Prev Release	Running Release	Upgrade Operation	[-] CMP Site1 Cluster (2 Servers)					guam-cmp...	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...		Y	Standby	12.1.1.0.0_14.1.0 12.2.0.0.0_61.1.0 Initiate upgrade Completed Successfully at ...	[-] guam-mpe-1 (2 Servers)					guam-mpe...	Minor	N	Standby	TPD 7.0.2.0.0_8... 12.1.1.0.0_14.1.0 n/a	guam-mpe...	Major	Y	Active	12.1.1.0.0_14.1.0 12.2.0.0.0_61.1.0 Initiate upgrade Completed Successfully at ...	[+] guam-mra-1 (2 Servers)					guam-mra-1b		N	Standby	TPD 7.0.2.0.0_8... 12.1.1.0.0_14.1.0 n/a	guam-mra-1a		Y	Active	12.1.1.0.0_14.1.0 12.2.0.0.0_61.1.0 Initiate upgrade Completed Successfully at ...	[-] guam-mra-1 (2 Servers)					guam-mra-1b		Y	Standby	12.1.1.0.0_14.1.0 12.2.0.0.0_61.1.0 Initiate upgrade Completed Successfully at ...	guam-mra-1a		Y	Active	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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Software Upgrade Procedure

Step	Procedure	Result																																																																						
11 <input type="checkbox"/>	REPEAT the above Steps (1) – (10) for next MPE/MRA cluster(s)	<ul style="list-style-type: none"> Proceed with the next cluster(s) until all clusters have been upgraded <div style="text-align: center;"> Upgrade Manager <small>Current ISO: incremental-upgrade-12.2.0.0.0_61.1.0</small> </div> <div style="display: flex; justify-content: space-between; margin-bottom: 5px;"> Start Rollback Start Upgrade View Upgrade Log Filter Columns Advanced </div> <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>Prev Release</th> <th>Running Release</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td colspan="7">☐ CMP Site1 Cluster (2 Servers)</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> <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> <tr> <td colspan="7">☐ guam-mpe-1 (2 Servers)</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> <td>✔ Initiate upgrade Completed Successfully at ...</td> </tr> <tr> <td>guam-mpe-1a</td> <td></td> <td>Y</td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> <td>✔ Initiate upgrade Completed Successfully at ...</td> </tr> <tr> <td colspan="7">☐ guam-mra-1 (2 Servers)</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> <td>✔ Initiate upgrade Completed Successfully at ...</td> </tr> <tr> <td>guam-mra-1a</td> <td></td> <td>Y</td> <td>Active</td> <td>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> <td>✔ Initiate upgrade Completed Successfully at ...</td> </tr> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation	☐ CMP Site1 Cluster (2 Servers)							guam-cmp-1b		Y	Active	12.1.1.0.0_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 ...	☐ guam-mpe-1 (2 Servers)							guam-mpe-1b		Y	Standby	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	✔ Initiate upgrade Completed Successfully at ...	guam-mpe-1a		Y	Active	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	✔ Initiate upgrade Completed Successfully at ...	☐ guam-mra-1 (2 Servers)							guam-mra-1b		Y	Standby	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	✔ Initiate upgrade Completed Successfully at ...	guam-mra-1a		Y	Active	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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THIS PROCEDURE HAS BEEN COMPLETED																																																																								

12. UPGRADE NON-CMP CLUSTERS (MA, MPE-R, MPE-S, BOD) 11.5.X TO 12.2 CABLE MODE

The following procedures will upgrade a site/segment containing one or more clusters of Cable components including MA, MPE and BOD.

NOTES:

- An upgrade of up to 4 clusters can be running at the same time.
- The following is the Cable Policy components upgrade sequence:
 - MA
 - MPE-R
 - MPE-S
 - BoD-AM

12.1 Site/Segment Upgrade Preparation

12.1.1 Configuration Preparation

Step	Procedure	Result
1 <input type="checkbox"/>	CMP GUI: Access into CMP server	Use a supported browser to login using the admin user ID or with a user ID that has admin privileges.
2 <input type="checkbox"/>	CMP GUI: Verify current Upgrade Manager status and software release 12.2 ISO files	Upgrade → Upgrade Manager <ul style="list-style-type: none"> • Verify that all CMP clusters have both Active, Standby status. • Verify that all other components clusters (MA, MPE, BOD) have both Active, Standby. • Verify that Policy Management release 12.2 ISO files are staged on each of the components servers in the topology • Verify that the CMP cluster is upgraded successfully and running Policy Management release 12.2
THIS PROCEDURE HAS BEEN COMPLETED		

Software Upgrade Procedure

12.2 Upgrade MA Servers

This procedure will upgrade one or more MA clusters at a site/segment.

This procedure is applicable for all 11.5.X Policy Management releases upgrade to 12.2

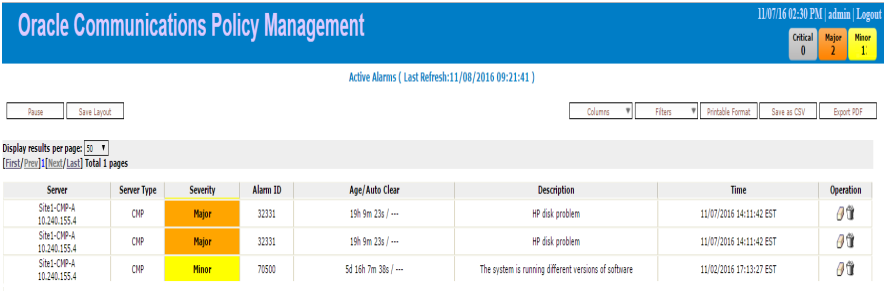
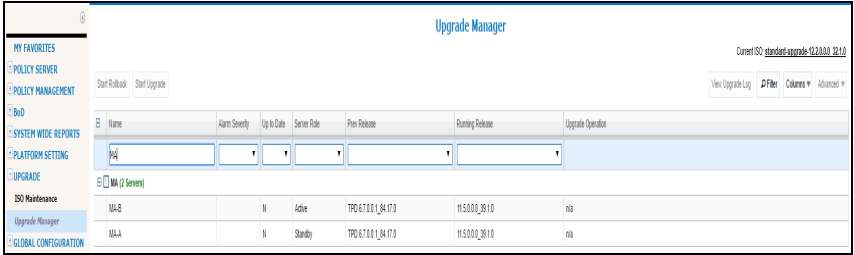
This section can be replicated for each site/segment to be upgraded.

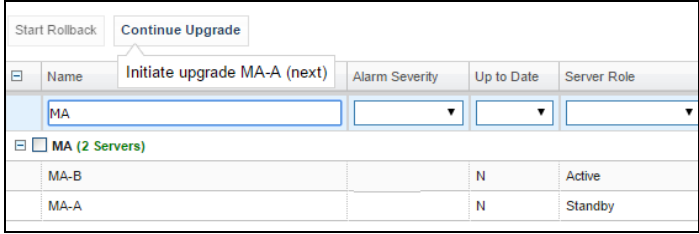
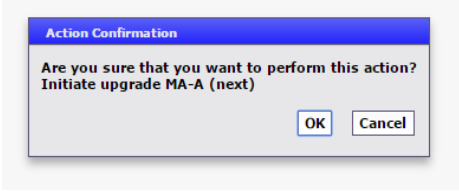
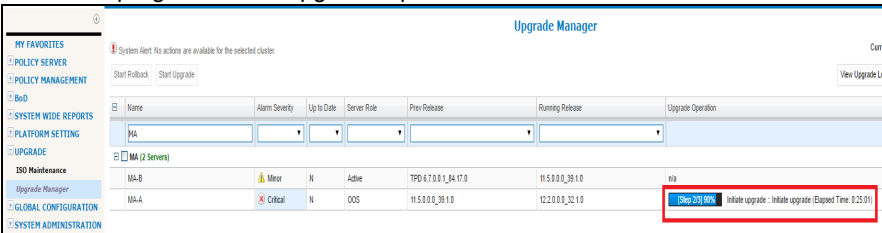
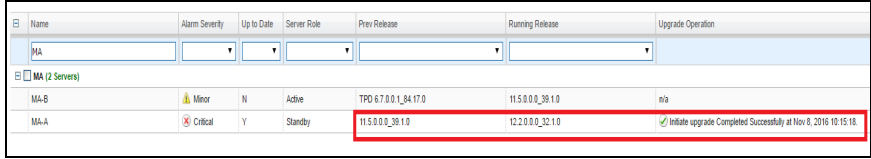
The upgrade procedure is essentially the same for MA, MPE-R/S and BOD clusters.

1. Select and start upgrade on Standby server
2. Failover one cluster at a time
3. Re-apply configuration one cluster at a time
4. Continue upgrade on remaining server

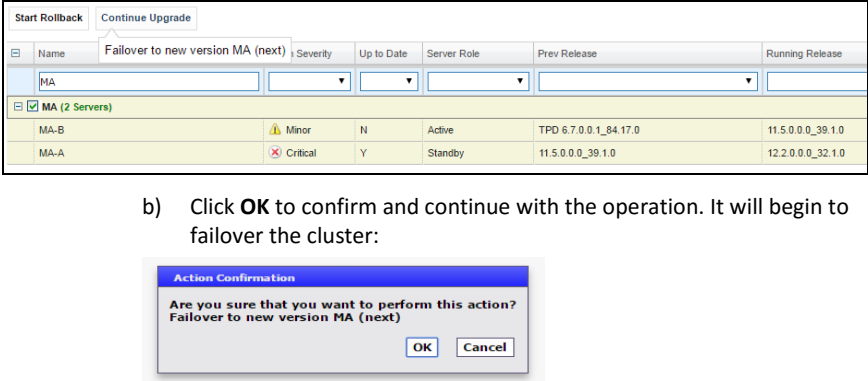
NOTES:

- MA component is an optional component that customer can choose to use or not use it so this procedure would be skipped in case customer's Policy Management Cable system does not include MA component deployed.
- All CMP clusters must be upgraded to Policy Management release 12.2 prior to executing the following procedures.
- Four (4) 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

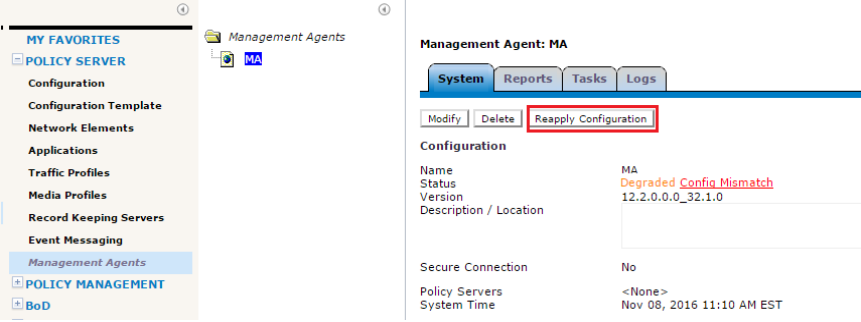
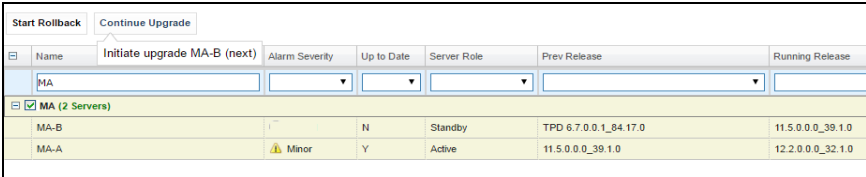
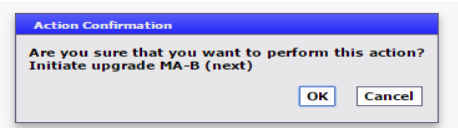
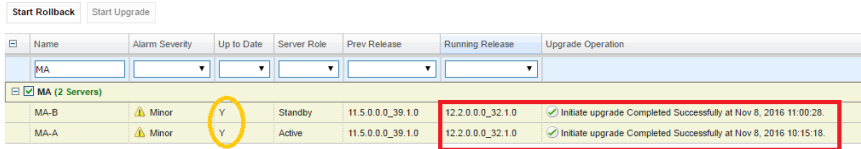
Step	Procedure	Result
1 <input type="checkbox"/>	CMP GUI: Health Checks on the MA servers to be upgraded	<p>Perform the following:</p> <ul style="list-style-type: none"> • Check for current Active Alarms and confirm non affects the MA cluster upgrade:  <p>Note that some alarms are expected since the whole system's upgrade is not completed.</p>
2 <input type="checkbox"/>	CMP GUI: Verify the upgrade status of selected MA Cluster(s)	<p>Upgrade → Upgrade Manager</p> <p>Verify information for the MAs:</p> <ul style="list-style-type: none"> • Current release 11.5.X • Active/Standby status for the servers in the MA cluster • Current ISO version to be deployed is 12.2 
3 <input type="checkbox"/>	CMP GUI: Upgrade clusters	<p>NOTE: Start the upgrade on ONE cluster. Wait for a minute, and then continue with the next cluster and so on. Up to 4 clusters maximum may be running upgrade at any one time.</p>

Step	Procedure	Result												
		<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the checkbox for the MA cluster (one cluster at a time) <p>Click Continue Upgrade.</p>  <p>Click OK 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 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 MA cluster is completely upgraded.</p> <p>Upgrade is complete on the first server in the cluster when the ‘Completed Successfully...’ message shows in the Upgrade Operation column and up to date flag has “Y” value. The server will go back to Standby state when the upgrade completes.</p>  <p>During the upgrade activities, the following alarms may be generated and considered normal reporting events. The following minor alarms may be present:</p> <p>Expected Critical Alarms</p> <p>70025 QP Slave database is a different version than the master</p> <table border="1"> <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 09, 2017 08:54 PM EST</td> <td>Critical</td> <td>70025</td> <td>The MySQL slave has a different schema version than the master.</td> <td>10.240.155.16</td> <td>MA-A 10.240.155.14</td> </tr> </tbody> </table> <p>Expected Major Alarms</p>	Occurrence	Severity	Alarm ID	Text	OAM VIP	Server	Jan 09, 2017 08:54 PM EST	Critical	70025	The MySQL slave has a different schema version than the master.	10.240.155.16	MA-A 10.240.155.14
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Jan 09, 2017 08:54 PM EST	Critical	70025	The MySQL slave has a different schema version than the master.	10.240.155.16	MA-A 10.240.155.14									

Software Upgrade Procedure

Step	Procedure	Result																														
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<p>4 <input type="checkbox"/></p>	<p>CMP GUI: Failover to upgraded server NOTE: 4 clusters can be running the upgrade process at one time.</p>	<p>Fail over ONE cluster at a time and wait until the upgraded server becomes active before moving on to the next cluster. Upgrade → Upgrade Manager</p> <ol style="list-style-type: none"> Select the checkbox for the MA cluster (one cluster at a time) <ol style="list-style-type: none"> Click Continue Upgrade. When hovering over the button, it will say 'Failover to new version...' Click OK to confirm and continue with the operation. It will begin to failover the cluster:  <p>Wait until failover completes before failing over the next cluster. And verify the 12.2 upgraded MA server is now active.</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>MA</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="6">MA (2 Servers)</td> </tr> <tr> <td>MA-B</td> <td>Minor</td> <td>N</td> <td>Standby</td> <td>TPD 6.7.0.0_1_84.17.0</td> <td>11.5.0.0_0_39.1.0</td> </tr> <tr> <td>MA-A</td> <td>Minor</td> <td>Y</td> <td>Active</td> <td>11.5.0.0_0_39.1.0</td> <td>12.2.0.0_0_32.1.0</td> </tr> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	MA						MA (2 Servers)						MA-B	Minor	N	Standby	TPD 6.7.0.0_1_84.17.0	11.5.0.0_0_39.1.0	MA-A	Minor	Y	Active	11.5.0.0_0_39.1.0	12.2.0.0_0_32.1.0
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Software Upgrade Procedure

Step	Procedure	Result
5 <input type="checkbox"/>	CMP GUI: Reapply configuration on the upgraded MA cluster	<p>Policy Server→Management Agents→<Upgraded MA cluster>→System</p> <ul style="list-style-type: none"> Push Reapply Configuration.  <p>Note:</p> <ul style="list-style-type: none"> Cluster is in degraded state, this is expected due to different versions of software between the servers in the MA cluster Notice the version should be successfully changed to the release 12.2
6 <input type="checkbox"/>	CMP GUI: Upgrade the other MA server	<p>Upgrade → Upgrade Manager</p> <p>a) Click Continue Upgrade. When hovering over the button, it will say 'Initiate upgrade' for the other MA server</p>  <p>b) Click OK to confirm and continue with the operation. It will begin to failover the cluster:</p>  <p>Wait until upgrade operation of the MA server indicates successfully completion, up to date flag indicates "Y" and running release has the 12.2 release</p> 

Software Upgrade Procedure

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7 <input type="checkbox"/>	CMP GUI: Current alarms	<p>During the upgrade activities, the following alarms may be generated and considered normal reporting events.</p> <p><u>Expected Critical Alarm</u></p> <p>31283 High availability server is offline</p> <table border="1"> <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 09, 2017 09:20 PM EST</td> <td>Critical</td> <td>31283</td> <td>High availability server is offline</td> <td>10.240.155.16</td> <td>MA-A 10.240.155.14</td> </tr> </tbody> </table> <p><u>Expected Minor Alarms</u></p> <p>31114 DB Replication of configuration data via SOAP has failed</p> <p>31107 DB merging from a child Source Node has failed</p> <p>70507 An upgrade/backout action on a server is in progress</p> <table border="1"> <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 09, 2017 09:25 PM EST</td> <td>Minor</td> <td>31107</td> <td>DB merging from a child Source Node has failed</td> <td>10.240.155.2</td> <td>CMP-A 10.240.155.4</td> </tr> <tr> <td>Jan 09, 2017 09:25 PM EST</td> <td>Minor</td> <td>31107</td> <td>DB merging from a child Source Node has failed</td> <td>10.240.155.2</td> <td>CMP-B 10.240.155.3</td> </tr> <tr> <td>Jan 09, 2017 09:06 PM EST</td> <td>Minor</td> <td>31114</td> <td>DB Replication of configuration data via SOAP has failed</td> <td>10.240.155.2</td> <td>CMP-B 10.240.155.3</td> </tr> <tr> <td>Jan 09, 2017 09:06 PM EST</td> <td>Minor</td> <td>31114</td> <td>DB Replication of configuration data via SOAP has failed</td> <td>10.240.155.16</td> <td>MA-A 10.240.155.14</td> </tr> <tr> <td>Jan 09, 2017 09:06 PM EST</td> <td>Minor</td> <td>31114</td> <td>DB Replication of configuration data via SOAP has failed</td> <td>10.240.155.2</td> <td>CMP-A 10.240.155.4</td> </tr> <tr> <td>Jan 09, 2017 09:03 PM EST</td> <td>Minor</td> <td>70507</td> <td>An upgrade/backout action on a server is in progress</td> <td>10.240.155.2</td> <td>CMP-A 10.240.155.4</td> </tr> </tbody> </table>	Occurrence	Severity	Alarm ID	Text	OAM VIP	Server	Jan 09, 2017 09:20 PM EST	Critical	31283	High availability server is offline	10.240.155.16	MA-A 10.240.155.14	Occurrence	Severity	Alarm ID	Text	OAM VIP	Server	Jan 09, 2017 09:25 PM EST	Minor	31107	DB merging from a child Source Node has failed	10.240.155.2	CMP-A 10.240.155.4	Jan 09, 2017 09:25 PM EST	Minor	31107	DB merging from a child Source Node has failed	10.240.155.2	CMP-B 10.240.155.3	Jan 09, 2017 09:06 PM EST	Minor	31114	DB Replication of configuration data via SOAP has failed	10.240.155.2	CMP-B 10.240.155.3	Jan 09, 2017 09:06 PM EST	Minor	31114	DB Replication of configuration data via SOAP has failed	10.240.155.16	MA-A 10.240.155.14	Jan 09, 2017 09:06 PM EST	Minor	31114	DB Replication of configuration data via SOAP has failed	10.240.155.2	CMP-A 10.240.155.4	Jan 09, 2017 09:03 PM EST	Minor	70507	An upgrade/backout action on a server is in progress	10.240.155.2	CMP-A 10.240.155.4
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8 <input type="checkbox"/>	CMP GUI: Roll back of MA Cluster	If traffic is not active and issues or non-expected alarms observed, then rollback to 11.5.X is decided, skip to section 12 for backing out.																																																						
9 <input type="checkbox"/>	Repeat steps 1–10 for the next MA cluster(s) if deployed	<p>Proceed with next cluster(s):</p> <p>MA Cluster _____</p> <p>MA Cluster _____</p> <p>MA Cluster _____</p>																																																						
THIS PROCEDURE HAS BEEN COMPLETED																																																								

12.3 Upgrade MPE-R/S Servers

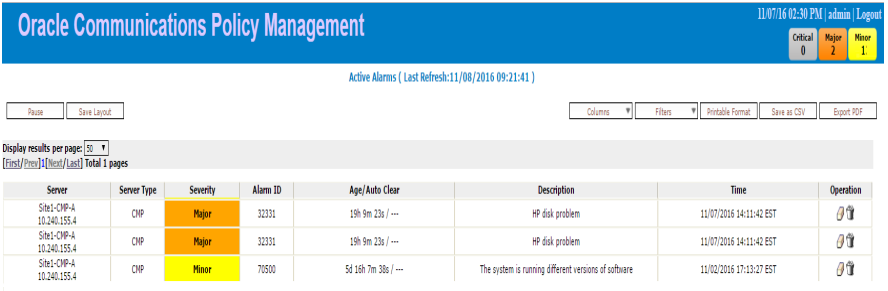
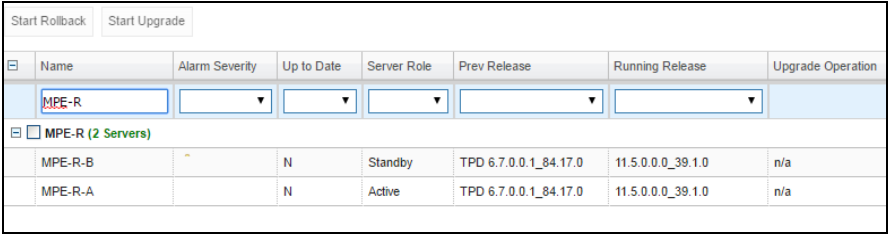
This procedure will upgrade one or more MPE-R and MPE-S clusters at a site/segment. This procedure is applicable for all 11.5.X Policy Management releases upgrade to 12.2. This section can be replicated for each site/segment to be upgraded.

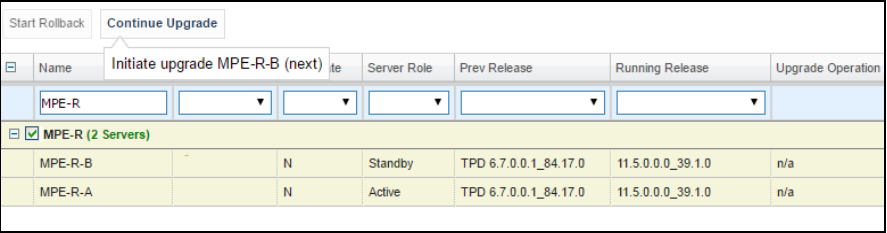
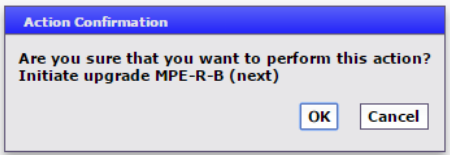
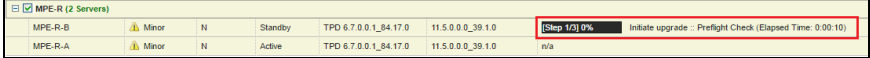
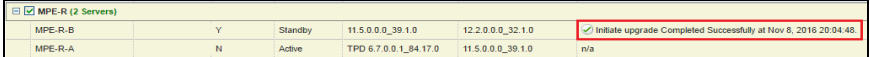
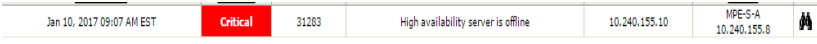
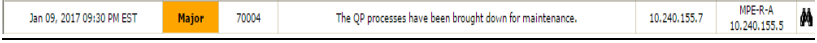
The upgrade procedure is essentially the same for MA, MPE-R/S and BOD clusters.

1. Select and start upgrade on Standby server
2. Failover one cluster at a time
3. Re-apply configuration one cluster at a time
4. Continue upgrade on remaining server
5. Re-apply configuration on the upgraded cluster

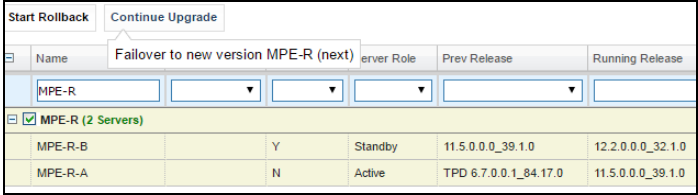
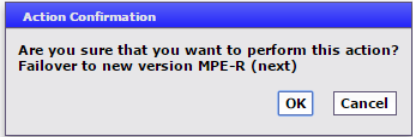
NOTES:

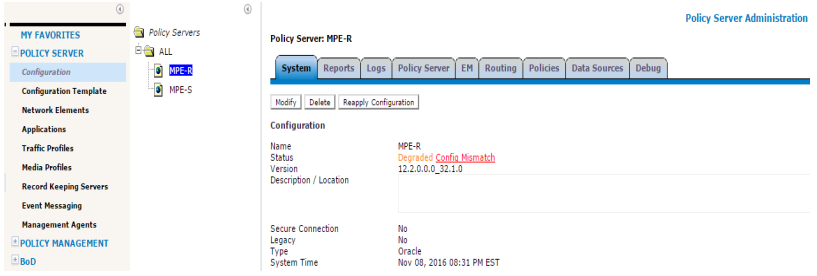
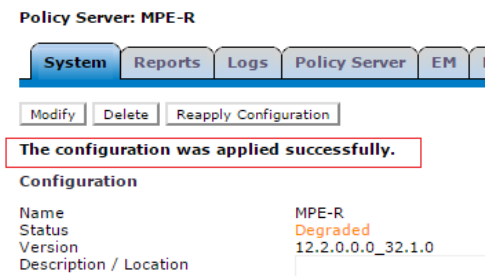
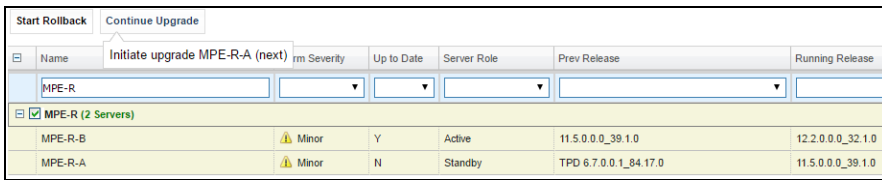
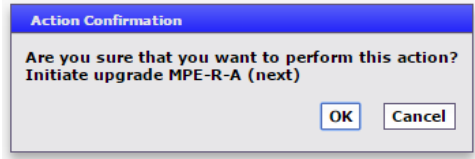
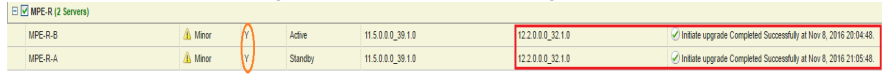
- All CMP clusters must be upgraded to Policy Management release 12.2 prior to executing the following procedures.
- Four (4) clusters can be running the upgrade at one time.
- Only ONE cluster can be selected for upgrade activity, bulk selection of servers is not supported in release 12.2

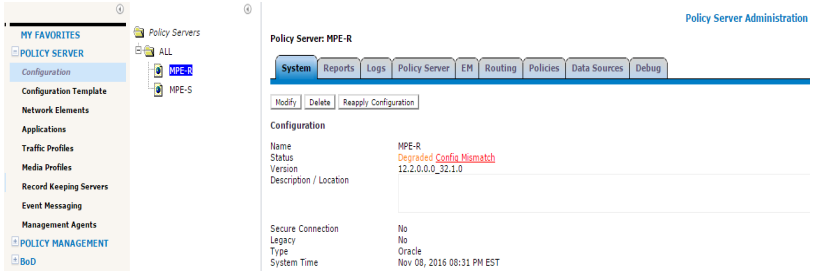
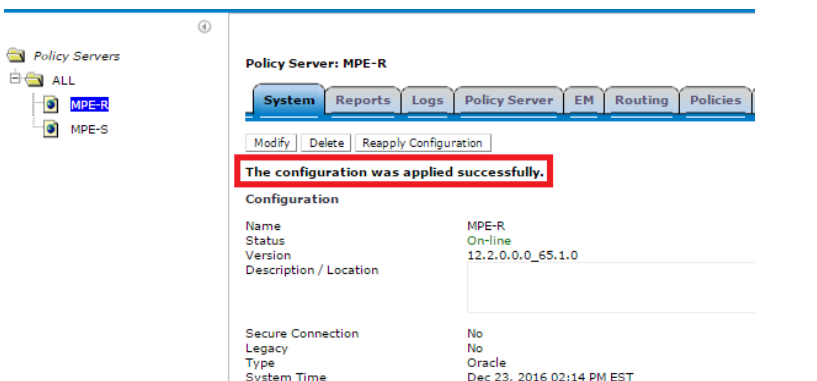
Step	Procedure	Result
1 <input type="checkbox"/>	CMP GUI: Health Checks on the MPE-R servers to be upgraded	<p>Perform the following:</p> <ul style="list-style-type: none"> Check for current Active Alarms and confirm non affects the MPE-R/S clusters' upgrade:  <p>Note that some alarms are expected since the whole system's upgrade is not completed.</p>
2 <input type="checkbox"/>	CMP GUI: Verify the upgrade status of selected MPE-R Cluster(s)	<p>Upgrade → Upgrade Manager</p> <p>Verify information for the MPE-Rs:</p> <ul style="list-style-type: none"> Current release 11.5.X Active/Standby status for the servers in the MPE-R cluster Current ISO version to be deployed is 12.2 
3 <input type="checkbox"/>	CMP GUI: Upgrade MPE-R clusters	<p>NOTE: Start the upgrade on ONE cluster. Wait for a minute, and then continue with the next cluster and so on. Up to 4 clusters maximum may be running upgrade at any one</p>

Step	Procedure	Result
		<p>time.</p> <p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the checkbox for the MPE-R cluster (one cluster at a time) <p>Click Continue Upgrade.</p>  <p>Click OK 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 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-R cluster is completely upgraded.</p> <p>Upgrade is complete on the first server in the cluster when the ‘Completed Successfully...’ message shows in the Upgrade Operation column and up to date flag has “Y” value. The server will go back to Standby state when the upgrade completes.</p>  <p>During the upgrade activities, the following alarms may be generated and considered normal reporting events. The following minor alarms may be present:</p> <p>Expected Critical Alarms</p> <p>31283 High availability server is offline</p>  <p>Expected Major Alarms</p> <p>70004 The QP processes have been brought down for maintenance.</p>  <p>Expected Minor Alarms</p> <p>70507 Upgrade In Progress 31000 S/W Fault 31101 Database replication to slave failure 31102 DB Replication from Master Failure</p>

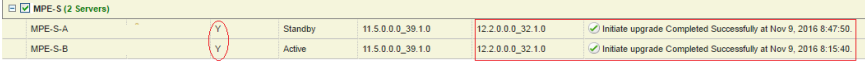
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Jan 09, 2017 09:30 PM EST	Minor	70507	An upgrade/backout action on a server is in progress	10.240.155.2	CMP-A 10.240.155.4																																																															
4	<p><input type="checkbox"/> CMP GUI: Failover to upgraded server NOTE: 4 clusters can be running the upgrade process at one time.</p>	<p>Fail over ONE cluster at a time and wait until the upgraded server becomes active before moving on to the next cluster. Upgrade → Upgrade Manager</p> <ol style="list-style-type: none"> Select the checkbox for the MPE-R cluster (one cluster at a time) <ol style="list-style-type: none"> Click Continue Upgrade. When hovering over the button, it will say 'Failover to new version...'  <ol style="list-style-type: none"> Click OK to confirm and continue with the operation. It will begin to failover the cluster:  <p>Wait until failover completes before failing over the next cluster. And verify the 12.2 upgraded MPE-R server is now active.</p> <table border="1"> <thead> <tr> <th colspan="7">MPE-R (2 Servers)</th> </tr> </thead> <tbody> <tr> <td>MPE-R-B</td> <td>Minor</td> <td>Y</td> <td>Active</td> <td>11.5.0.0.0_39.1.0</td> <td>12.2.0.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 8, 2016 20:04:48.</td> </tr> <tr> <td>MPE-R-A</td> <td>Minor</td> <td>N</td> <td>Standby</td> <td>TPD 6.7.0.0.1_84.17.0</td> <td>11.5.0.0.0_39.1.0</td> <td>n/a</td> </tr> </tbody> </table>	MPE-R (2 Servers)							MPE-R-B	Minor	Y	Active	11.5.0.0.0_39.1.0	12.2.0.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 8, 2016 20:04:48.	MPE-R-A	Minor	N	Standby	TPD 6.7.0.0.1_84.17.0	11.5.0.0.0_39.1.0	n/a																																													
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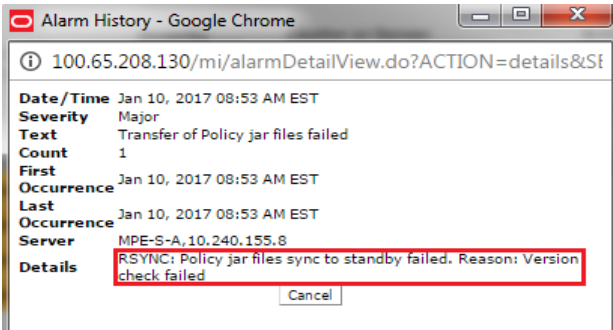
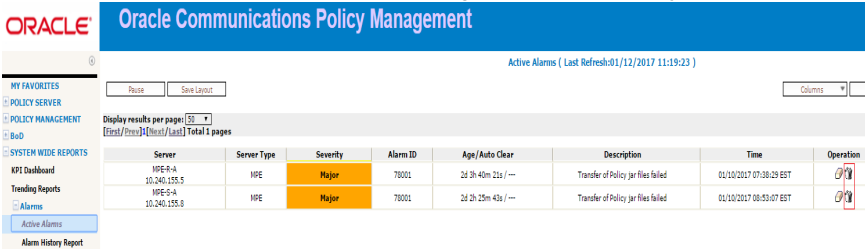
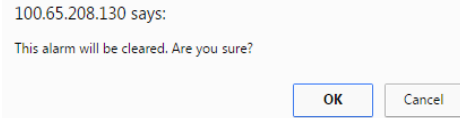
Step	Procedure	Result
<p>5 <input type="checkbox"/></p>	<p>CMP GUI: Reapply configuration on the upgraded MPE-R server</p>	<p>Policy Server→Configuration→<Upgraded MPE-R cluster>→System</p> <ul style="list-style-type: none"> Push Reapply Configuration.  <p>Note:</p> <ul style="list-style-type: none"> Cluster is in degraded state, this is expected due to different versions of software between the servers in the MPE-R cluster Notice the version should be successfully changed to the release 12.2 After successful reapplying the configuration , the config mismatch message clears out : 
<p>6 <input type="checkbox"/></p>	<p>CMP GUI: Upgrade the other MPE-R server</p>	<p>Upgrade → Upgrade Manager</p> <p>a) Click Continue Upgrade. When hovering over the button, it will say 'Initiate upgrade' for the other MPE-R server</p>  <p>b) Click OK to confirm and continue with the operation. It will begin to failover the cluster:</p>  <p>Wait until upgrade operation of the MPE-R server indicates successfully completion, up to date flag indicates "Y" and running release has the 12.2 release</p> 

Step	Procedure	Result																																																	
<p>7 <input type="checkbox"/></p>	<p>CMP GUI: Reapply configuration on the fully upgraded MPE-R cluster</p>	<p>Policy Server→Configuration→<Upgraded MPE-R cluster>→System</p> <ul style="list-style-type: none"> Push Reapply Configuration.  <p>Note: After successful reapplying the configuration , the config mismatch message clears out :</p> 																																																	
<p>8 <input type="checkbox"/></p>	<p>CMP GUI: Current alarms</p>	<p>During the upgrade activities, the following alarms may be generated and considered normal reporting events.</p> <p>Expected Critical Alarm</p> <p>31283 High availability server is offline</p> <table border="1"> <tr> <td>Jan 10, 2017 09:07 AM EST</td> <td>Critical</td> <td>31283</td> <td>High availability server is offline</td> <td>10.240.155.10</td> <td>MPE-S-A 10.240.155.0</td> <td></td> </tr> </table> <p>Expected Major Alarm</p> <p>78001 RSYNC Failed</p> <table border="1"> <tr> <td>Jan 10, 2017 07:38 AM EST</td> <td>Major</td> <td>78001</td> <td>Transfer of Policy jar files failed</td> <td>10.240.155.7</td> <td>MPE-R-A 10.240.155.5</td> <td></td> </tr> </table> <p>Expected Minor Alarms</p> <p>78001 Rsync Failed 71103 PCMM Conn Lost 70502 Cluster Replication Inhibited 31113 DB Replication Manually Disabled</p> <table border="1"> <thead> <tr> <th>Occurrence</th> <th>Severity</th> <th>Alarm ID</th> <th>Text</th> <th>OAM VIP</th> <th>Server</th> <th></th> </tr> </thead> <tbody> <tr> <td>Jan 10, 2017 07:34 AM EST</td> <td>Minor</td> <td>78001</td> <td>Transfer of Policy jar files failed</td> <td>10.240.155.7</td> <td>MPE-R-B 10.240.155.6</td> <td></td> </tr> <tr> <td>Jan 10, 2017 07:34 AM EST</td> <td>Minor</td> <td>71103</td> <td>PCMM Conn Lost</td> <td>10.240.155.10</td> <td>MPE-S-B 10.240.155.9</td> <td></td> </tr> <tr> <td>Jan 10, 2017 07:34 AM EST</td> <td>Minor</td> <td>31113</td> <td>Replication Manually Disabled</td> <td>10.240.155.7</td> <td>MPE-R-B 10.240.155.6</td> <td></td> </tr> <tr> <td>Jan 10, 2017 07:33 AM EST</td> <td>Minor</td> <td>70502</td> <td>Replication is inhibited in the cluster</td> <td>10.240.155.2</td> <td>CMP-A 10.240.155.4</td> <td></td> </tr> </tbody> </table>	Jan 10, 2017 09:07 AM EST	Critical	31283	High availability server is offline	10.240.155.10	MPE-S-A 10.240.155.0		Jan 10, 2017 07:38 AM EST	Major	78001	Transfer of Policy jar files failed	10.240.155.7	MPE-R-A 10.240.155.5		Occurrence	Severity	Alarm ID	Text	OAM VIP	Server		Jan 10, 2017 07:34 AM EST	Minor	78001	Transfer of Policy jar files failed	10.240.155.7	MPE-R-B 10.240.155.6		Jan 10, 2017 07:34 AM EST	Minor	71103	PCMM Conn Lost	10.240.155.10	MPE-S-B 10.240.155.9		Jan 10, 2017 07:34 AM EST	Minor	31113	Replication Manually Disabled	10.240.155.7	MPE-R-B 10.240.155.6		Jan 10, 2017 07:33 AM EST	Minor	70502	Replication is inhibited in the cluster	10.240.155.2	CMP-A 10.240.155.4	
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<p>9 <input type="checkbox"/></p>	<p>CMP GUI: Roll back MPE-R cluster upgrade</p>	<p>If traffic is not active and issues or non-expected alarms observed, then rollback to 11.5.X is decided, skip to the section describing backing out.</p>																																																	

Software Upgrade Procedure

Step	Procedure	Result
10 <input type="checkbox"/>	Repeat steps 1–8 for the next MPE-R cluster(s) if deployed	Proceed with next cluster(s): MPE-R Cluster _____ MPE-R Cluster _____ MPE-R Cluster _____
11 <input type="checkbox"/>	CMP GUI: Upgrade MPE-S clusters	Follow same steps outlined in this procedure for upgrading MPE-R clusters to upgrade deployed MPE-S clusters. Successful upgrade operation of the MPE-S server indicates successfully completion, up to date flag indicates “Y” and running release has the 12.2 release for both MPE-S servers. 
12 <input type="checkbox"/>	CMP GUI: If traffic does not become active within 90 seconds	If traffic is not active and issues or non-expected alarms observed, then rollback to 11.5.X is decided, skip to the section describing backing out.
13 <input type="checkbox"/>	Repeat steps 1–7 for the next MPE-S cluster(s) if deployed	Proceed with next cluster(s): MPE-S Cluster _____ MPE-S Cluster _____ MPE-S Cluster _____

Software Upgrade Procedure

Step	Procedure	Result																					
14	CMP GUI: Residual upgrade Major Alarm 78001	<p>During the course of MPE clusters upgrade activities, alarm 78001 in particular may be generated either as Minor or Major alarm. And even though it's a normal event during the upgrade, major alarm 78001 will not clear automatically after the upgrade of MPE cluster completes.</p> <p>This alarm does not indicate an issue or problem in the system and we should clear it manually as follows:</p> <p>Click on the Major alarms button in the upper right part to display the alarms:</p>  <p>Before manually clearing it, click on the binoculars icon on the right to confirm the details of the alarm:</p> <table border="1"> <thead> <tr> <th>Date/Time</th> <th>Severity</th> <th>Alarm ID</th> <th>Description</th> <th>Host</th> <th>Server</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>Jan 10, 2017 08:53 AM EST</td> <td>Major</td> <td>78001</td> <td>Transfer of Policy jar files failed</td> <td>10.240.155.10</td> <td>MPE-S-A</td> <td></td> </tr> <tr> <td>Jan 10, 2017 07:38 AM EST</td> <td>Major</td> <td>78001</td> <td>Transfer of Policy jar files failed</td> <td>10.240.155.7</td> <td>MPE-R-A</td> <td></td> </tr> </tbody> </table> <p>The details that indicate it is safe to clear out the alarm should be "Version check failed".</p>  <p>Note: If you see a different reason in the details, stop and contact My Oracle Support.</p> <p>To manually clear it, navigate to System Wide Reports > Alarms > Active Alarms and Click on the trash can icon on the far right of the 78001 Major alarms:</p>  <p>Click "OK" in the confirmation message that follows:</p>  <p>In few seconds the alarm will clear out from CMP GUI.</p>	Date/Time	Severity	Alarm ID	Description	Host	Server	Operations	Jan 10, 2017 08:53 AM EST	Major	78001	Transfer of Policy jar files failed	10.240.155.10	MPE-S-A		Jan 10, 2017 07:38 AM EST	Major	78001	Transfer of Policy jar files failed	10.240.155.7	MPE-R-A	
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THIS PROCEDURE HAS BEEN COMPLETED

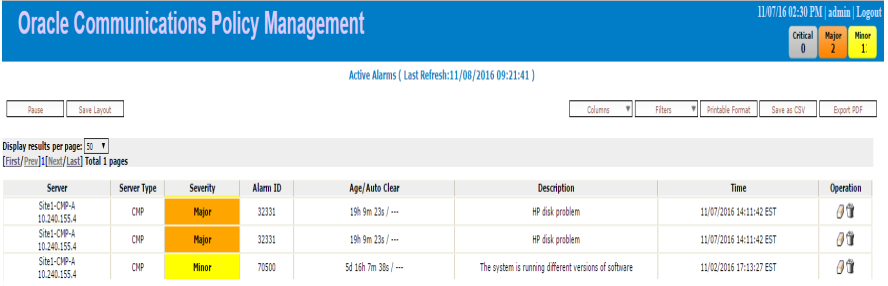
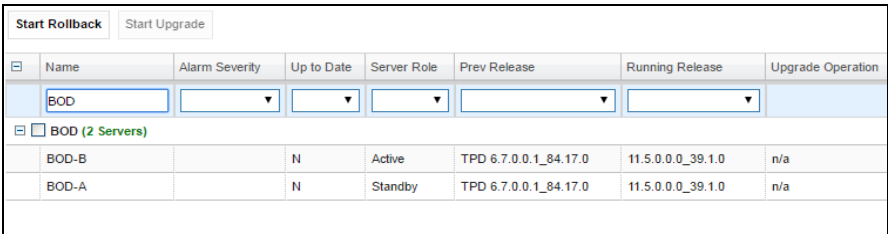
12.4 Upgrade BOD Servers

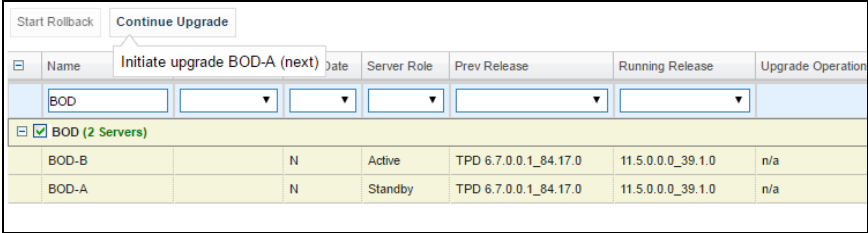
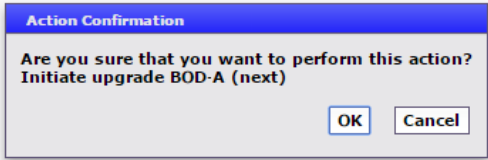
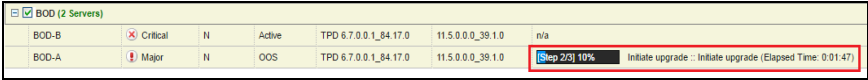
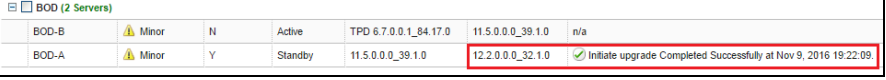

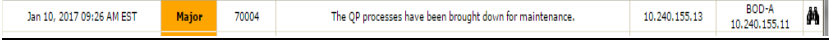
This procedure will upgrade one or more BOD clusters at a site/segment.
 This procedure is applicable for all 11.5.X Policy Management releases upgrade to 12.2
 This section can be replicated for each site/segment to be upgraded.
 The upgrade procedure is essentially the same for MA, MPE-R/S and BOD clusters.

1. Select and start upgrade on Standby server
2. Failover one cluster at a time
3. Re-apply configuration one cluster at a time
4. Continue upgrade on remaining server

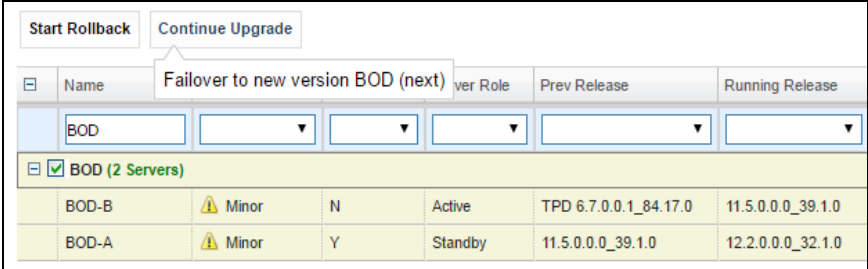
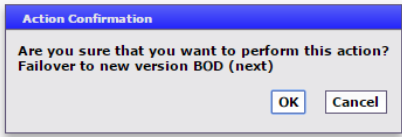
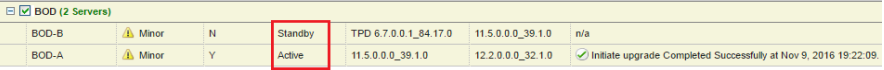
NOTES:

- All CMP clusters must be upgraded to Policy Management release 12.2 prior to executing the following procedures.
- Four (4) 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"/>	CMP GUI: Health Checks on the BOD servers to be upgraded	<p>Perform the following:</p> <ul style="list-style-type: none"> Check for current Active Alarms and confirm non affects the BOD cluster upgrade:  <p>Note that some alarms are expected since the whole system's upgrade is not completed.</p>
2 <input type="checkbox"/>	CMP GUI: Verify the upgrade status of selected BOD Cluster(s)	<p>Upgrade → Upgrade Manager</p> <p>Verify information for the BOD clusters:</p> <ul style="list-style-type: none"> Current release 11.5.X Active/Standby status for the servers in the BOD cluster Current ISO version to be deployed is 12.2 
3 <input type="checkbox"/>	CMP GUI: Upgrade BOD clusters	<p>NOTE: Start the upgrade on ONE cluster. Wait for a minute, and then continue with the next cluster and so on. Up to 4 clusters maximum may be running upgrade at any one time.</p> <p>Upgrade → Upgrade Manager</p>

Step	Procedure	Result
		<ul style="list-style-type: none"> Select the checkbox for the BOD cluster (one cluster at a time) <p>Click Continue Upgrade.</p>  <p>Click OK 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 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 BOD cluster is completely upgraded.</p> <p>Upgrade is complete on the first server in the cluster when the 'Completed Successfully...' message shows in the Upgrade Operation column and up to date flag has "Y" value. The server will go back to Standby state when the upgrade completes.</p>  <p>During the upgrade activities, the following alarms may be generated and considered normal reporting events. The following minor alarms may be present:</p> <p>Expected Critical Alarms</p> <p>31283 High availability server is offline</p>  <p>Expected Major Alarms</p> <p>70004 QP Processes down for maintenance</p>  <p>Expected Minor Alarms</p> <ul style="list-style-type: none"> 70503 Upgrade Director Server Forced Standby 70507 Upgrade Director In Progress 70501 Upgrade Director Cluster Mixed Version 31114 DB Replication over SOAP has failed 31107 DB Merge From Child Failure

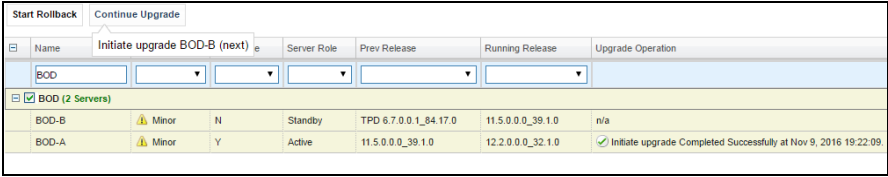
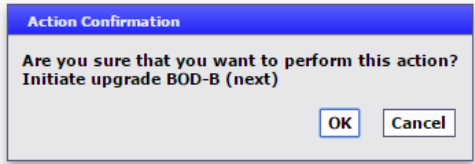
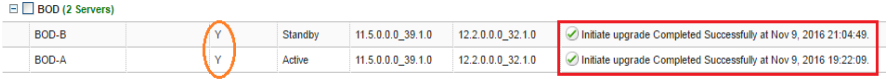
Software Upgrade Procedure

Step	Procedure	Result																																																																		
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Jan 10, 2017 09:25 AM EST	Minor	70507	An upgrade/backout action on a server is in progress	10.240.155.2	CHP-A 10.240.155.4																																																															
Jan 10, 2017 09:25 AM EST	Minor	70503	The server is in forced standby	10.240.155.2	CHP-A 10.240.155.4																																																															
4	<p><input type="checkbox"/> CMP GUI: Failover to upgraded server NOTE: 4 clusters can be running the upgrade process at one time.</p>	<p>Fail over ONE cluster at a time and wait until the upgraded server becomes active before moving on to the next cluster. Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the checkbox for the BOD cluster (one cluster at a time) <ol style="list-style-type: none"> Click Continue Upgrade. When hovering over the button, it will say 'Failover to new version...'  <ol style="list-style-type: none"> Click OK to confirm and continue with the operation. It will begin to failover the cluster:  <p>Wait until failover completes before failing over the next cluster. And verify the 12.2 upgraded BOD server is now active.</p> 																																																																		

Software Upgrade Procedure

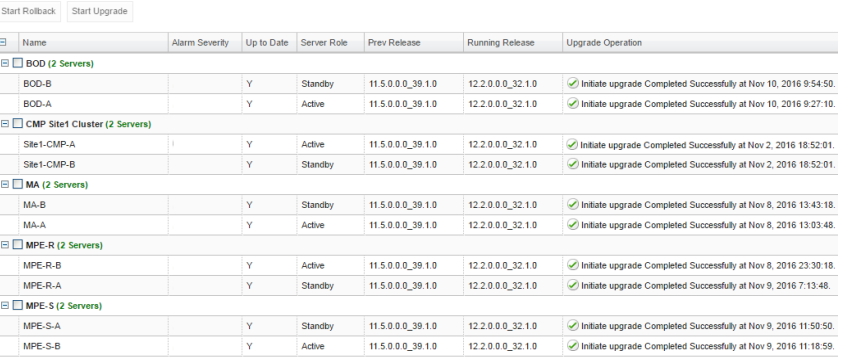
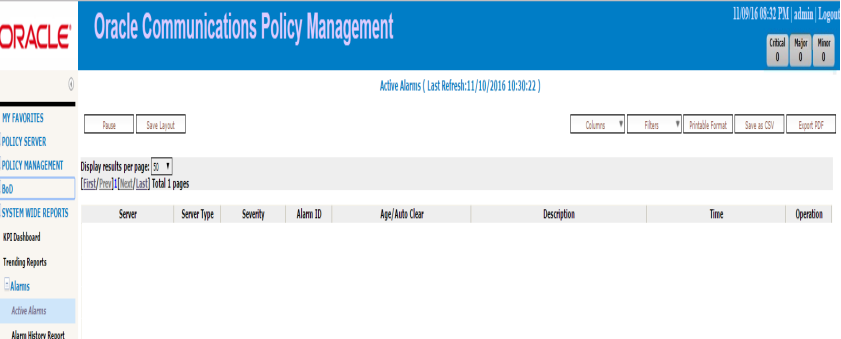
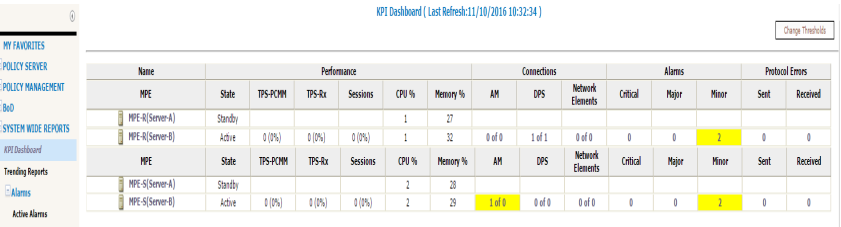
Step	Procedure	Result								
5 <input type="checkbox"/>	CMP GUI: Reapply configuration on the upgraded BOD cluster	<p>BOD→Configuration→<Upgraded BOD cluster>→System</p> <ul style="list-style-type: none"> Push Reapply Configuration. <p>Note:</p> <ul style="list-style-type: none"> Cluster is in degraded state, this is expected due to different versions of software between the servers in the BOD cluster Notice the version should be successfully changed to the release 12.2 After successful reapplying the configuration , the config mismatch message clears out : <p>Bandwidth on Demand Server:BOD</p> <p>System Reports Logs BoD Server Session Viewer Debug</p> <p>Modify Delete Reapply Configuration</p> <p>The configuration was applied successfully.</p> <p>Configuration</p> <table border="0"> <tr> <td>Name</td> <td>BOD</td> </tr> <tr> <td>Status</td> <td>Degraded</td> </tr> <tr> <td>Version</td> <td>12.2.0.0_32.1.0</td> </tr> <tr> <td>Description / Location</td> <td></td> </tr> </table> <p>Secure Connection: No System Time: Nov 09, 2016 08:38 PM EST</p>	Name	BOD	Status	Degraded	Version	12.2.0.0_32.1.0	Description / Location	
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Status	Degraded									
Version	12.2.0.0_32.1.0									
Description / Location										

Software Upgrade Procedure

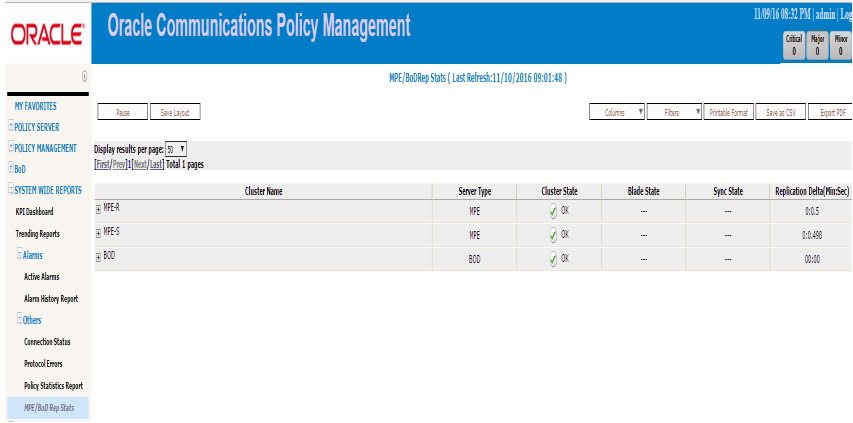
Step	Procedure	Result
6 <input type="checkbox"/>	CMP GUI: Upgrade the other BOD server	<p>Upgrade → Upgrade Manager</p> <p>a) Click Continue Upgrade. When hovering over the button, it will say 'Initiate upgrade' for the other BOD server</p>  <p>b) Click OK to confirm and continue with the operation. It will begin to failover the cluster:</p>  <p>Wait until upgrade operation of the BOD server indicates successfully completion, up to date flag indicates "Y" and running release has the 12.2 release</p> 
7 <input type="checkbox"/>	CMP GUI: Current alarms	<p>At this point the whole system would be upgraded to 12.2 and no active alarms should be present in the system.</p> <p>If there are still active alarms, please contact Oracle Customer Support.</p>
8 <input type="checkbox"/>	CMP GUI: Roll back BOD cluster upgrade	<p>If traffic is not active and issues or non-expected alarms observed, then rollback to 11.5.X is decided, skip to the section describing backing out.</p>
9 <input type="checkbox"/>	Repeat steps 1–8 for the next BOD cluster(s) if deployed	<p>Proceed with next cluster(s):</p> <p>BOD Cluster _____</p> <p>BOD Cluster _____</p> <p>BOD Cluster _____</p>

13. POST UPGRADE HEALTH CHECK FOR BOTH CABLE AND WIRELESS SYSTEMS

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

Step	Procedure	Result																																																																																																																
1 <input type="checkbox"/>	CMP GUI: Verify the upgrade is successful on all clusters.	<p>Upgrade → Upgrade Manager</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>  <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">BOD (2 Servers)</td> </tr> <tr> <td>BOD-B</td> <td></td> <td>Y</td> <td>Standby</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 10, 2016 9:54:50.</td> </tr> <tr> <td>BOD-A</td> <td></td> <td>Y</td> <td>Active</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 10, 2016 9:27:10.</td> </tr> <tr> <td colspan="7">CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td>Site1-CMP-A</td> <td></td> <td>Y</td> <td>Active</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 2, 2016 18:52:01.</td> </tr> <tr> <td>Site1-CMP-B</td> <td></td> <td>Y</td> <td>Standby</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 2, 2016 18:52:01.</td> </tr> <tr> <td colspan="7">MA (2 Servers)</td> </tr> <tr> <td>MA-B</td> <td></td> <td>Y</td> <td>Standby</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 8, 2016 13:43:18.</td> </tr> <tr> <td>MA-A</td> <td></td> <td>Y</td> <td>Active</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 8, 2016 13:03:48.</td> </tr> <tr> <td colspan="7">MPE-R (2 Servers)</td> </tr> <tr> <td>MPE-R-B</td> <td></td> <td>Y</td> <td>Active</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 8, 2016 23:30:18.</td> </tr> <tr> <td>MPE-R-A</td> <td></td> <td>Y</td> <td>Standby</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 9, 2016 7:13:48.</td> </tr> <tr> <td colspan="7">MPE-S (2 Servers)</td> </tr> <tr> <td>MPE-S-A</td> <td></td> <td>Y</td> <td>Standby</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 9, 2016 11:50:50.</td> </tr> <tr> <td>MPE-S-B</td> <td></td> <td>Y</td> <td>Active</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 9, 2016 11:18:59.</td> </tr> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation	BOD (2 Servers)							BOD-B		Y	Standby	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 10, 2016 9:54:50.	BOD-A		Y	Active	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 10, 2016 9:27:10.	CMP Site1 Cluster (2 Servers)							Site1-CMP-A		Y	Active	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 2, 2016 18:52:01.	Site1-CMP-B		Y	Standby	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 2, 2016 18:52:01.	MA (2 Servers)							MA-B		Y	Standby	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 8, 2016 13:43:18.	MA-A		Y	Active	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 8, 2016 13:03:48.	MPE-R (2 Servers)							MPE-R-B		Y	Active	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 8, 2016 23:30:18.	MPE-R-A		Y	Standby	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 9, 2016 7:13:48.	MPE-S (2 Servers)							MPE-S-A		Y	Standby	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 9, 2016 11:50:50.	MPE-S-B		Y	Active	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 9, 2016 11:18:59.
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2 <input type="checkbox"/>	CMP GUI: View current alarms	<p>Navigate to System Wide Reports→Alarms→Active Alarms</p> <p>Verify that all alarms due to the upgrade have been cleared.</p> 																																																																																																																
3 <input type="checkbox"/>	CMP GUI: View current KPIs	<p>Navigate to System Wide Reports→KPI Dashboard</p> <p>Make sure the counter stats are incrementing properly.</p>  <table border="1"> <thead> <tr> <th>Name</th> <th>State</th> <th>TPS-PCPM</th> <th>TPS-Rx</th> <th>Sessions</th> <th>CPU %</th> <th>Memory %</th> <th>AM</th> <th>DPS</th> <th>Network Elements</th> <th>Alarms</th> <th>Protocol Errors</th> </tr> <tr> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>Critical</th> <th>Major</th> <th>Minor</th> <th>Sent</th> <th>Received</th> </tr> </thead> <tbody> <tr> <td>MPE (Server-A)</td> <td>Standby</td> <td>0 (0%)</td> <td>0 (0%)</td> <td>0 (0%)</td> <td>1</td> <td>27</td> <td>0 of 0</td> <td>1 of 1</td> <td>0 of 0</td> <td>0</td> <td>0</td> <td>2</td> <td>0</td> <td>0</td> </tr> <tr> <td>MPE (Server-B)</td> <td>Active</td> <td>0 (0%)</td> <td>0 (0%)</td> <td>0 (0%)</td> <td>1</td> <td>32</td> <td>0 of 0</td> <td>1 of 1</td> <td>0 of 0</td> <td>0</td> <td>0</td> <td>2</td> <td>0</td> <td>0</td> </tr> <tr> <td>MPE (Server-A)</td> <td>Standby</td> <td>0 (0%)</td> <td>0 (0%)</td> <td>0 (0%)</td> <td>2</td> <td>28</td> <td>0 of 0</td> <td>0 of 0</td> <td>0 of 0</td> <td>0</td> <td>0</td> <td>2</td> <td>0</td> <td>0</td> </tr> <tr> <td>MPE (Server-B)</td> <td>Active</td> <td>0 (0%)</td> <td>0 (0%)</td> <td>0 (0%)</td> <td>2</td> <td>29</td> <td>1 of 0</td> <td>0 of 0</td> <td>0 of 0</td> <td>0</td> <td>0</td> <td>2</td> <td>0</td> <td>0</td> </tr> </tbody> </table>	Name	State	TPS-PCPM	TPS-Rx	Sessions	CPU %	Memory %	AM	DPS	Network Elements	Alarms	Protocol Errors											Critical	Major	Minor	Sent	Received	MPE (Server-A)	Standby	0 (0%)	0 (0%)	0 (0%)	1	27	0 of 0	1 of 1	0 of 0	0	0	2	0	0	MPE (Server-B)	Active	0 (0%)	0 (0%)	0 (0%)	1	32	0 of 0	1 of 1	0 of 0	0	0	2	0	0	MPE (Server-A)	Standby	0 (0%)	0 (0%)	0 (0%)	2	28	0 of 0	0 of 0	0 of 0	0	0	2	0	0	MPE (Server-B)	Active	0 (0%)	0 (0%)	0 (0%)	2	29	1 of 0	0 of 0	0 of 0	0	0	2	0	0																									
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Software Upgrade Procedure

Step	Procedure	Result																																										
4 <input type="checkbox"/>	CMP GUI: Replication stats	<p>Navigate to System Wide Reports→Others→MPE/MRA Rep Stats (for a wireless system) Navigate to System Wide Reports→Others→MPE/BOD Rep Stats (for a cable system)</p> <p>Verify all clusters and servers are in OK state.</p> <p>Wireless:</p> <table border="1"> <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) -> 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) -> 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) -> 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) -> guam-mra-1c (Spare)</td> <td>MRA</td> <td>---</td> <td>OK</td> <td>OK</td> <td>0:0:5</td> </tr> </tbody> </table> <p>Cable:</p>  <p>Use the command sudo syscheck on every server. Verify that each class test returns "OK". For example:</p> <pre>\$ sudo syscheck Running modules in class disk... OK Running modules in class hardware... OK Running modules in class net... OK Running modules in class proc... OK Running modules in class system...OK</pre> <p>LOG LOCATION: /var/TKLC/log/syscheck/fail_log</p>	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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5 <input type="checkbox"/>	Verify System Health	<p>Use the command sudo syscheck on every server. Verify that each class test returns "OK". For example:</p> <pre>\$ sudo syscheck Running modules in class disk... OK Running modules in class hardware... OK Running modules in class net... OK Running modules in class proc... OK Running modules in class system...OK</pre> <p>LOG LOCATION: /var/TKLC/log/syscheck/fail_log</p>																																										
THIS PROCEDURE HAS BEEN COMPLETED																																												

14. BACKOUT (ROLLBACK) 9.9.2

This procedure is executed if an issue is found during the upgrade, or during the post-upgrade if something impacts network performance.

The Policy system will be backed out to the previous release with general sequence as outlined in Section 2.3.

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

14.1 Backout Sequence

The Backout sequence order is the reverse of the Upgrade order as in the following sequence:

1. Backout MRA/MPE/MEDIATION
2. Backout the Secondary CMP cluster (if applicable)
3. Backout 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 an MPE/MRA/MEDIATION, the upgrade/backout is NOT complete until the operator does a “Reapply Configuration” push from the CMP. The MRA/MPE/MEDIATION can still operate, but may not be fully functional.

14.2 Pre-requisites

- 1) No new policies or features have been configured or executed on the upgraded release.
- 2) The CMP cluster cannot be backed out if other Policy servers (MPEs, MRAs & MEDIATIONS) are still on the upgraded release.

14.3 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 pre-12.2 release with Active/Standby status.

Expected pre-conditions:

- The primary active CMP is on release 12.2
- The cluster servers to be backed out are all on release 12.2
- One server of target cluster is on Release 12.2 in “Active” role
- One server of target cluster is on Release 12.2 in either “Standby” or “Force Standby”

14.3.1 Backout Sequence

This procedure applies to a cluster. The non-CMP cluster types (MRA, MPE, and MEDIATION) will be in non-georedundant mode with active and standby 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, you must select one cluster at a time.

Software Upgrade Procedure

Overview on Backout/Rollback MRA/MPE/MEDIATION cluster:

1. Select and start upgrade on Standby server
2. Failover one cluster at a time
3. Re-apply configuration one cluster at a time
4. Continue upgrade on remaining server
5. Perform second Re-apply configuration on MPE cluster ONLY.

Backout Secondary CMP (if applicable):

NOTE:

At this time, all MPEs, MRAs, MEDIATIONs must already be backed out.

Backout the Primary CMP to 9.9.2:

Secondary CMP (*if applicable*) must already be backed out and all of the MPE/MRA/MEDIATION Clusters

- 1) Use the CMP GUI (Upgrade Manager) to Backout the Primary standby CMP Cluster
- 2) Log back in to the Primary CMP VIP
- 3) Use the 9.9.2 System Maintenance to complete backout of the Primary CMP Cluster

14.3.2 Backout Fully Upgraded MPE/MRA/MEDIATION Clusters (Release 9.9.2 to 12.2)

This procedure is generally applicable for those server types and steps to be repeated for every server type.

Step	Procedure	Result																																																																																																						
<p>1. <input type="checkbox"/></p>	<p>CMP GUI: Verify the status of affected clusters</p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Confirm status of the cluster to be backed out - <ul style="list-style-type: none"> Primary CMP is on Release 12.2 All Active & Standby servers are on Running Release 12.2 with Previous Release of 9.9.2.x.x. Up to Date column shows ‘Y’ for all servers <p><i>EXAMPLE:</i></p> <div style="border: 1px solid #ccc; padding: 5px; margin: 5px 0;"> <p style="text-align: center;"> <input type="button" value="Start Rollback"/> <input type="button" value="Start Upgrade"/> </p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">☐</th> <th style="width: 45%;">Name</th> <th style="width: 10%;">Up to Date</th> <th style="width: 10%;">Server Role</th> <th style="width: 15%;">Prev Release</th> <th style="width: 15%;">Running Release</th> </tr> </thead> <tbody> <tr> <td colspan="6">☐ CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td></td> <td>mass-cmp-1a</td> <td>Y</td> <td>Standby</td> <td>9.9.2.1.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> </tr> <tr> <td></td> <td>mass-cmp-1b</td> <td>Y</td> <td>Active</td> <td>9.9.2.1.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> </tr> <tr> <td colspan="6">☐ CMP Site2 Cluster (2 Servers)</td> </tr> <tr> <td colspan="6">☐ Mediation-1 Cluster (2 Servers)</td> </tr> <tr> <td></td> <td>mass-mediation-1b</td> <td>Y</td> <td>Active</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> </tr> <tr> <td></td> <td>mass-mediation-1a</td> <td>Y</td> <td>Standby</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> </tr> <tr> <td colspan="6">☐ MPE-1 Cluster (2 Servers)</td> </tr> <tr> <td></td> <td>mass-mpe-1b</td> <td>Y</td> <td>Standby</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> </tr> <tr> <td></td> <td>mass-mpe-1a</td> <td>Y</td> <td>Active</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> </tr> <tr> <td colspan="6">☐ MPE-2 Cluster (2 Servers)</td> </tr> <tr> <td></td> <td>mass-mpe-2b</td> <td>Y</td> <td>Active</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> </tr> <tr> <td></td> <td>mass-mpe-2a</td> <td>N</td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="6">☐ MRA-1 Cluster (2 Servers)</td> </tr> <tr> <td></td> <td>mass-mra-1b</td> <td>Y</td> <td>Standby</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> </tr> <tr> <td></td> <td>mass-mra-1a</td> <td>Y</td> <td>Active</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> </tr> </tbody> </table> </div>	☐	Name	Up to Date	Server Role	Prev Release	Running Release	☐ CMP Site1 Cluster (2 Servers)							mass-cmp-1a	Y	Standby	9.9.2.1.0_18.1.0	12.2.0.0.0_65.1.0		mass-cmp-1b	Y	Active	9.9.2.1.0_18.1.0	12.2.0.0.0_65.1.0	☐ CMP Site2 Cluster (2 Servers)						☐ Mediation-1 Cluster (2 Servers)							mass-mediation-1b	Y	Active	9.9.2.0.0_18.1.0	12.2.0.0.0_65.1.0		mass-mediation-1a	Y	Standby	9.9.2.0.0_18.1.0	12.2.0.0.0_65.1.0	☐ MPE-1 Cluster (2 Servers)							mass-mpe-1b	Y	Standby	9.9.2.0.0_18.1.0	12.2.0.0.0_65.1.0		mass-mpe-1a	Y	Active	9.9.2.0.0_18.1.0	12.2.0.0.0_65.1.0	☐ MPE-2 Cluster (2 Servers)							mass-mpe-2b	Y	Active	9.9.2.0.0_18.1.0	12.2.0.0.0_65.1.0		mass-mpe-2a	N				☐ MRA-1 Cluster (2 Servers)							mass-mra-1b	Y	Standby	9.9.2.0.0_18.1.0	12.2.0.0.0_65.1.0		mass-mra-1a	Y	Active	9.9.2.0.0_18.1.0	12.2.0.0.0_65.1.0
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<p>2. <input type="checkbox"/></p>	<p>CMP GUI: Rollback Standby MPE/MRA/MEDIATION clusters</p> <p><i>NOTE: Start the upgrade one cluster at a time and wait till the server being performed shows “OOS” status, then continue with the next cluster and so on. Up to 4 clusters can be</i></p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the MPE/MRA/MEDIATION cluster to be backed out. Click on the ‘Start Rollback’ Button. When hovering over the button, it will inform you of the server to get backed out, in this case it will be the current standby server. 																																																																																																						

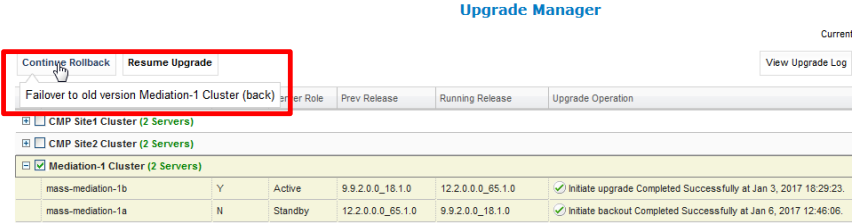
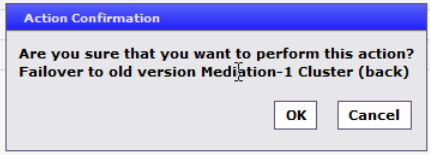
Software Upgrade Procedure

Step	Procedure	Result																																																																																																																																																																																																																																
	<p><i>performed in parallel.</i></p> <p>NOTE: Each server takes ~45 minutes to complete.</p>	<div> <p>Upgrade Manager</p> <p>Current ISO: standard_upgrade-12.2.0.0_65.1.0</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Alarm Sev.</th> <th>Up to ...</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td colspan="7">CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td>mass-cmp-1a</td> <td>Y</td> <td>Standby</td> <td>9.9.2.1.0_18.1.0</td> <td>12.2.0.0_65.1.0</td> <td>n/a</td> <td></td> </tr> <tr> <td>mass-cmp-1b</td> <td>Y</td> <td>Active</td> <td>9.9.2.1.0_18.1.0</td> <td>12.2.0.0_65.1.0</td> <td></td> <td>Initiate upgrade Completed Successfully at Dec 21, 2016 0:54:17.</td> </tr> <tr> <td colspan="7">CMP Site2 Cluster (2 Servers)</td> </tr> <tr> <td>mass-mediation-1b</td> <td>Y</td> <td>Active</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0_65.1.0</td> <td></td> <td>Initiate upgrade Completed Successfully at Jan 3, 2017 18:29:23.</td> </tr> <tr> <td>mass-mediation-1a</td> <td>Y</td> <td>Standby</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0_65.1.0</td> <td></td> <td>Initiate upgrade Completed Successfully at Jan 4, 2017 14:15:20.</td> </tr> </tbody> </table> </div> <ul style="list-style-type: none"> Select “OK” to confirm and continue with the operation. It will begin to backout. <div> </div> <p>NOTE: Follow the progress status under the “Upgrade Operation” column. The server being backed out will go into ‘OOS’ state as expected.</p> <ul style="list-style-type: none"> Wait until the server goes to an “OOS” state before selecting the next cluster to backout as shown in the example below – Up to 4 clusters can be performed in parallel. <div> <table border="1"> <thead> <tr> <th>Name</th> <th>Alarm Sev.</th> <th>Up to ...</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td colspan="7">Mediation-1 Cluster (2 Servers)</td> </tr> <tr> <td>mass-mediation-1b</td> <td>Y</td> <td>Active</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0_65.1.0</td> <td></td> <td>Initiate upgrade Completed Successfully at Jan 3, 2017</td> </tr> <tr> <td>mass-mediation-1a</td> <td>N</td> <td>OOS</td> <td>12.2.0.0_65.1.0</td> <td>12.2.0.0_65.1.0</td> <td></td> <td>Initiate backout :: Initiate backout (Elapsed T...</td> </tr> <tr> <td colspan="7">MPE-1 Cluster (2 Servers)</td> </tr> <tr> <td colspan="7">MPE-2 Cluster (2 Servers)</td> </tr> <tr> <td colspan="7">MRA-1 Cluster (2 Servers)</td> </tr> <tr> <td>mass-mra-1b</td> <td>Y</td> <td>Standby</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0_65.1.0</td> <td></td> <td>Initiate upgrade Completed Successfully at Jan 4, 2017</td> </tr> <tr> <td>mass-mra-1a</td> <td>Y</td> <td>Active</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0_65.1.0</td> <td></td> <td>Initiate upgrade Completed Successfully at Jan 4, 2017</td> </tr> </tbody> </table> </div> <ul style="list-style-type: none"> As shown in an example below of 4 non-CMP clusters being backed out in parallel – <div> <p>System Alert: No actions are available for the selected cluster.</p> <p>Upgrade Manager</p> <p>Current ISO: standard_upgrade-12.2.0.0_65.1.0</p> <table border="1"> <thead> <tr> <th>Name</th> <th>Alarm Sev.</th> <th>Up to ...</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td colspan="7">CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td>mass-cmp-1a</td> <td>Minor</td> <td>Y</td> <td>Active</td> <td>9.9.2.1.0_18.1.0</td> <td>12.2.0.0_65.1.0</td> <td>n/a</td> </tr> <tr> <td>mass-cmp-1b</td> <td>Minor</td> <td>Y</td> <td>Standby</td> <td>9.9.2.1.0_18.1.0</td> <td>12.2.0.0_65.1.0</td> <td>Initiate upgrade Completed Successfully at Dec 21, 2016 0:54:17.</td> </tr> <tr> <td colspan="7">Mediation-1 Cluster (2 Servers)</td> </tr> <tr> <td>mass-mediation-1b</td> <td>Critical</td> <td>Y</td> <td>Active</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0_65.1.0</td> <td>Initiate upgrade Completed Successfully at Jan 9, 2017 16:30:11.</td> </tr> <tr> <td>mass-mediation-1a</td> <td>N</td> <td>OOS</td> <td>12.2.0.0_65.1.0</td> <td>12.2.0.0_65.1.0</td> <td></td> <td>Initiate backout :: Initiate backout (Elapsed T...</td> </tr> <tr> <td colspan="7">MPE-1 Cluster (2 Servers)</td> </tr> <tr> <td>mass-mpe-1b</td> <td>N</td> <td>OOS</td> <td>12.2.0.0_65.1.0</td> <td>12.2.0.0_65.1.0</td> <td></td> <td>Initiate backout :: Initiate backout (Elapsed T...</td> </tr> <tr> <td>mass-mpe-1a</td> <td>Critical</td> <td>Y</td> <td>Active</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0_65.1.0</td> <td>Initiate upgrade Completed Successfully at Jan 9, 2017 16:35:52.</td> </tr> <tr> <td colspan="7">MPE-2 Cluster (2 Servers)</td> </tr> <tr> <td>mass-mpe-2b</td> <td>Critical</td> <td>Y</td> <td>Active</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0_65.1.0</td> <td>Initiate upgrade Completed Successfully at Jan 3, 2017 18:25:22.</td> </tr> <tr> <td>mass-mpe-2a</td> <td>N</td> <td>OOS</td> <td>12.2.0.0_65.1.0</td> <td>12.2.0.0_65.1.0</td> <td></td> <td>Initiate backout :: Initiate backout (Elapsed T...</td> </tr> <tr> <td colspan="7">MRA-1 Cluster (2 Servers)</td> </tr> <tr> <td>mass-mra-1b</td> <td>N</td> <td>OOS</td> <td>12.2.0.0_65.1.0</td> <td>12.2.0.0_65.1.0</td> <td></td> <td>Initiate backout :: Initiate backout (Elapsed T...</td> </tr> <tr> <td>mass-mra-1a</td> <td>Critical</td> <td>Y</td> <td>Active</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0_65.1.0</td> <td>Initiate upgrade Completed Successfully at Jan 9, 2017 17:58:34.</td> </tr> </tbody> </table> </div> <ul style="list-style-type: none"> 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. 	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mass-cmp-1b	Minor	Y	Standby	9.9.2.1.0_18.1.0	12.2.0.0_65.1.0	Initiate upgrade Completed Successfully at Dec 21, 2016 0:54:17.																																																																																																																																																																																																																												
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mass-mediation-1b	Critical	Y	Active	9.9.2.0.0_18.1.0	12.2.0.0_65.1.0	Initiate upgrade Completed Successfully at Jan 9, 2017 16:30:11.																																																																																																																																																																																																																												
mass-mediation-1a	N	OOS	12.2.0.0_65.1.0	12.2.0.0_65.1.0		Initiate backout :: Initiate backout (Elapsed T...																																																																																																																																																																																																																												
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mass-mpe-1b	N	OOS	12.2.0.0_65.1.0	12.2.0.0_65.1.0		Initiate backout :: Initiate backout (Elapsed T...																																																																																																																																																																																																																												
mass-mpe-1a	Critical	Y	Active	9.9.2.0.0_18.1.0	12.2.0.0_65.1.0	Initiate upgrade Completed Successfully at Jan 9, 2017 16:35:52.																																																																																																																																																																																																																												
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mass-mpe-2b	Critical	Y	Active	9.9.2.0.0_18.1.0	12.2.0.0_65.1.0	Initiate upgrade Completed Successfully at Jan 3, 2017 18:25:22.																																																																																																																																																																																																																												
mass-mpe-2a	N	OOS	12.2.0.0_65.1.0	12.2.0.0_65.1.0		Initiate backout :: Initiate backout (Elapsed T...																																																																																																																																																																																																																												
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mass-mra-1a	Critical	Y	Active	9.9.2.0.0_18.1.0	12.2.0.0_65.1.0	Initiate upgrade Completed Successfully at Jan 9, 2017 17:58:34.																																																																																																																																																																																																																												


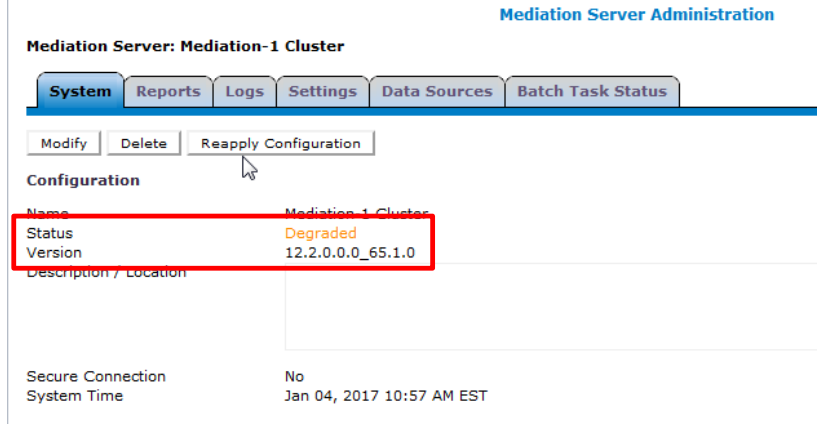
Software Upgrade Procedure

Step	Procedure	Result																																																						
		<p><u>Expected Critical Alarms:</u></p> <p>31283 High availability server is offline 31227 The high availability status is failed due to raised alarms 70001 The qp_procmgr process has failed.</p> <p><u>Expected Major Alarms:</u></p> <p>70004 The QP processes have been brought down for maintenance. 31233 High availability path loss of connectivity</p> <p><u>Expected Minor Alarms:</u></p> <p>70507 An upgrade/backout action on a server is in progress 70501 The cluster is running different versions of software 70502 Replication is inhibited in the cluster 70503 The server is in forced standby 78001 Rsync Failed 31113 Replication Manually Disabled 31114 DB Replication of configuration data via SOAP has failed 31106 DB merging to the parent Merge Node has failed 31107 DB merging from a child Source Node has failed 31101 DB replication to a slave DB has failed</p> <p>NOTE: Each server backout will take approximately 45 minutes to complete. Some MINOR alarms remained as expected.</p> <ul style="list-style-type: none"> Backout of the server is complete when the message “Initiate backout completed successfully at...” shows under the ‘Upgrade Operation’ Column. The backed out server is now showing the 12.2 as the previous release and return to “Standby” status from earlier “OOS” with an “N” in the “Up to Date” column. Whereas the Active server is still shown running Release 12.2 as expected with “Y” in the “Up to Date” column. <div style="border: 1px solid #ccc; padding: 5px;"> <p style="text-align: right; margin: 0;">Upgrade Manager</p> <p style="font-size: small; margin: 0;">System Alert: No actions are available for the selected cluster. Current</p> <p style="margin: 0;"> <input type="button" value="Continue Rollback"/> <input type="button" value="Resume Upgrade"/> <input type="button" value="View Upgrade Log"/> </p> <table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th style="width: 60%;">Name</th> <th style="width: 10%;">Up to Date</th> <th style="width: 10%;">Server Role</th> <th style="width: 10%;">Prev Release</th> <th style="width: 10%;">Running Release</th> <th style="width: 10%;">Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/> CMP Site1 Cluster (2 Servers)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> CMP Site2 Cluster (2 Servers)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> Mediation-1 Cluster (2 Servers)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> MPE-1 Cluster (2 Servers)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> MPE-2 Cluster (2 Servers)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td><input type="checkbox"/> MRA-1 Cluster (2 Servers)</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>mass-mra-1b</td> <td>N</td> <td>Standby</td> <td>12.2.0.0_65.1.0</td> <td>9.9.2.0.0_18.1.0</td> <td><input checked="" type="checkbox"/> Initiate backout Completed Successfully at Jan 6, 2017 12:36:17.</td> </tr> <tr> <td>mass-mra-1a</td> <td>Y</td> <td>Active</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0_65.1.0</td> <td><input checked="" type="checkbox"/> Initiate upgrade Completed Successfully at Jan 4, 2017 14:58:01.</td> </tr> </tbody> </table> </div> <p>NOTE: Repeat the same validation on the rests of backed out clusters before proceeding to the next step.</p>	Name	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation	<input type="checkbox"/> CMP Site1 Cluster (2 Servers)						<input type="checkbox"/> CMP Site2 Cluster (2 Servers)						<input type="checkbox"/> Mediation-1 Cluster (2 Servers)						<input type="checkbox"/> MPE-1 Cluster (2 Servers)						<input type="checkbox"/> MPE-2 Cluster (2 Servers)						<input type="checkbox"/> MRA-1 Cluster (2 Servers)						mass-mra-1b	N	Standby	12.2.0.0_65.1.0	9.9.2.0.0_18.1.0	<input checked="" type="checkbox"/> Initiate backout Completed Successfully at Jan 6, 2017 12:36:17.	mass-mra-1a	Y	Active	9.9.2.0.0_18.1.0	12.2.0.0_65.1.0	<input checked="" type="checkbox"/> Initiate upgrade Completed Successfully at Jan 4, 2017 14:58:01.
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Software Upgrade Procedure

Step	Procedure	Result
<p>3. <input type="checkbox"/></p>	<p>CMP GUI: Continue the backout of the MRA/MPE /MEDIATION clusters, for FAILOVER operation to the backed out server</p> <p>NOTE: <i>Up to 4 clusters can be performed in parallel.</i></p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the backed out cluster(s) to perform the Failover operation. <p>NOTE: <i>Current state of each cluster needs to be as following -</i></p> <ul style="list-style-type: none"> Active server on 12.2 Release Standby server on 9.9.2 Release <ul style="list-style-type: none"> Click on the ‘Continue Rollback’ button. When hovering over the button, it will inform that the next step is to failover to the previous version as shown in the example below -  <ul style="list-style-type: none"> Select “OK” to confirm and continue with the operation. It will begin to failover.  <ul style="list-style-type: none"> During the failover operation, the the following additional alarms may be generated and considered normal reporting events – <i>these will be cleared after the cluster is completely backed out.</i> <p><u>Expected Critical Alarms:</u></p> <p>31283 High availability server is offline</p> <p>70001 The qp_procmgr process has failed.</p> <p><u>Expected Minor Alarms:</u></p> <p>70500 The system is running different versions of software</p> <p>70501 The cluster is running different versions of software</p> <p>31101 DB replication to a slave DB has failed</p> <p>31102 DB replication from a master DB has failed</p> <ul style="list-style-type: none"> Wait until this server failed over successfully and ensure that the Active server is now running on the previous release of 9.9.2, before selecting the next cluster to failover as shown in the example below – <i>Up to 4 clusters can be performed in parallel.</i>

Software Upgrade Procedure

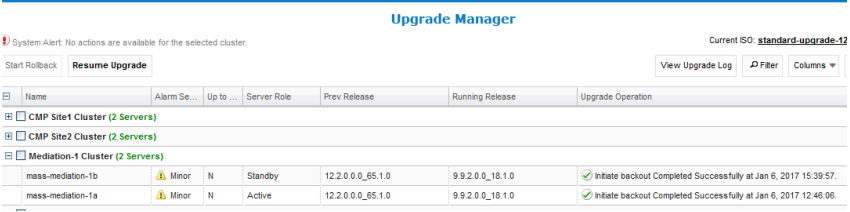
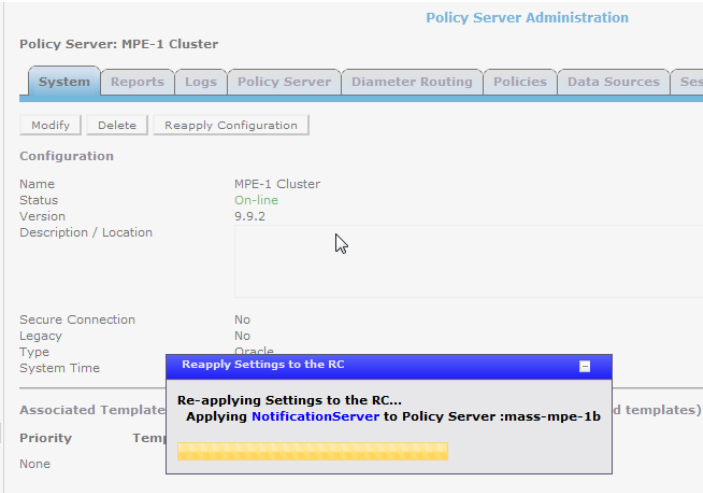
Step	Procedure	Result																					
		 <table border="1"> <thead> <tr> <th colspan="7">Mediation-1 Cluster (2 Servers)</th> </tr> </thead> <tbody> <tr> <td>mass-mediation-1b</td> <td>Y</td> <td>Standby</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> <td>✓</td> <td>Initi</td> </tr> <tr style="border: 2px solid red;"> <td>mass-mediation-1a</td> <td>N</td> <td>Active</td> <td>12.2.0.0.0_65.1.0</td> <td>9.9.2.0.0_18.1.0</td> <td>✓</td> <td>Initi</td> </tr> </tbody> </table>	Mediation-1 Cluster (2 Servers)							mass-mediation-1b	Y	Standby	9.9.2.0.0_18.1.0	12.2.0.0.0_65.1.0	✓	Initi	mass-mediation-1a	N	Active	12.2.0.0.0_65.1.0	9.9.2.0.0_18.1.0	✓	Initi
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<p>4. <input type="checkbox"/></p>	<p>CMP GUI: Reapply configuration on MPE/MRA /MEDIATION clusters that successfully completed the failover.</p>	<p>For MPE: Policy Server → Configuration → < MPE cluster > → System tab</p> <p>For MRA: MRA → Configuration → < MRA cluster > → System tab</p> <p>For MEDIATION: Mediation → Configuration → < Mediation cluster > → System tab</p> <ul style="list-style-type: none"> The selected cluster will have the status shown as “Degraded” running version 12.2  <p style="text-align: right; color: blue;">Mediation Server Administration</p> <p>Mediation Server: Mediation-1 Cluster</p> <p>System Reports Logs Settings Data Sources Batch Task Status</p> <p>Modify Delete Reapply Configuration</p> <p>Configuration</p> <table border="1"> <tbody> <tr> <td>Name</td> <td>Mediation-1 Cluster</td> </tr> <tr style="border: 2px solid red;"> <td>Status</td> <td>Degraded</td> </tr> <tr style="border: 2px solid red;"> <td>Version</td> <td>12.2.0.0.0_65.1.0</td> </tr> <tr> <td>Description / Location</td> <td></td> </tr> </tbody> </table> <p>Secure Connection: No System Time: Jan 04, 2017 10:57 AM EST</p> <ul style="list-style-type: none"> Click on ”Reapply Configuration” operation and wait till the “ <i>The configuration was applied successfully</i> “ message displayed with the Version is now displayed of previous release of 9.9.2 as shown - 	Name	Mediation-1 Cluster	Status	Degraded	Version	12.2.0.0.0_65.1.0	Description / Location														
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Status	Degraded																						
Version	12.2.0.0.0_65.1.0																						
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Step	Procedure	Result																																				
		<div> <p>Mediation Server Administration</p> <p>Mediation Server: Mediation-1 Cluster</p> <p>System Reports Logs Settings Data Sources Batch Task Status</p> <p>The configuration was applied successfully.</p> <p>Modify Delete Reapply Configuration</p> <p>Configuration</p> <p>Name Mediation-1 Cluster</p> <p>Status Degraded</p> <p>Version 9.9.2</p> <p>Description / Location</p> <p>Secure Connection No</p> <p>System Time Jan 06, 2017 02:24 PM EST</p> </div> <p>NOTE: The selected cluster will still show the “Degraded” status as expected.</p> <ul style="list-style-type: none"> Repeat this step to perform similar to the rests of backed out clusters, before proceeding to the next step. <p>NOTE: For MPE cluster, upon clicking on the “Reapply Configuration” button, the following message will appear as expected –</p> <div> </div> <p>And, the final outcome is the same as MRA / MEDIATION cluster type.</p>																																				
<p>5. <input type="checkbox"/></p>	<p>CMP GUI: Complete the Backout on Standby MRA/MPE / MEDIATION servers</p> <p>NOTE: Start the upgrade one cluster at a time and wait till the server being performed shows “OOS” status, then continue with the next cluster and so on. Up to 4 clusters can be performed in parallel.</p> <p>NOTE: Each server</p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the partially backed out cluster and click on the “Continue Rollback’ button. When hovering over the button, it will inform you of the server to get backed out, in this case it will be the current standby server. <div> <table border="1"> <thead> <tr> <th></th> <th>Up to ...</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> <th>Upgrade Oper</th> </tr> </thead> <tbody> <tr> <td colspan="6">[+] CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td colspan="6">[+] CMP Site2 Cluster (2 Servers)</td> </tr> <tr> <td colspan="6">[+] Mediation-1 Cluster (2 Servers)</td> </tr> <tr> <td>mass-mediation-1b</td> <td>⚠ Minor</td> <td>Y</td> <td>Standby</td> <td>9.9.2.0.0_18.1.0</td> <td>12.2.0.0.0_65.1.0</td> </tr> <tr> <td>mass-mediation-1a</td> <td>⚠ Minor</td> <td>N</td> <td>Active</td> <td>12.2.0.0.0_65.1.0</td> <td>9.9.2.0.0_18.1.0</td> </tr> </tbody> </table> </div> <ul style="list-style-type: none"> Select “OK” to confirm and continue with the operation. It will begin to backout. 		Up to ...	Server Role	Prev Release	Running Release	Upgrade Oper	[+] CMP Site1 Cluster (2 Servers)						[+] CMP Site2 Cluster (2 Servers)						[+] Mediation-1 Cluster (2 Servers)						mass-mediation-1b	⚠ Minor	Y	Standby	9.9.2.0.0_18.1.0	12.2.0.0.0_65.1.0	mass-mediation-1a	⚠ Minor	N	Active	12.2.0.0.0_65.1.0	9.9.2.0.0_18.1.0
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Software Upgrade Procedure

Step	Procedure	Result																
	<p>takes ~45 minutes to complete.</p>	<div style="border: 1px solid gray; padding: 5px; margin-bottom: 10px;"> <p style="background-color: #0056b3; color: white; padding: 2px; margin: -5px -5px 5px -5px;">Action Confirmation</p> <p style="margin: 0;">Are you sure that you want to perform this action? Initiate backout mass-mediation-1b (back)</p> <p style="text-align: right; margin: 0;"> <input type="button" value="OK"/> <input type="button" value="Cancel"/> </p> </div> <p>NOTE: Follow the progress status under the "Upgrade Operation" column. The server being backed out will go into 'OOS' state as expected.</p> <ul style="list-style-type: none"> Wait until the server goes to an "OOS" state before selecting the next cluster to backout as shown in the example below – Up to 4 clusters can be performed in parallel. <div style="border: 1px solid gray; padding: 5px; margin-bottom: 10px;"> <p>Mediation-1 Cluster (2 Servers)</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">mass-mediation-1b</td> <td style="width: 5%;">Critical</td> <td style="width: 5%;">N</td> <td style="width: 10%;">OOS</td> <td style="width: 15%;">12.2.0.0_0_65.1.0</td> <td style="width: 15%;">12.2.0.0_0_65.1.0</td> <td style="width: 10%;">Step 1/1 9%</td> <td style="width: 20%;">Initiate backout...</td> </tr> <tr> <td>mass-mediation-1a</td> <td>Critical</td> <td>N</td> <td>Active</td> <td>12.2.0.0_0_65.1.0</td> <td>9.9.2.0_0_18.1.0</td> <td></td> <td>Initiate backout Completed Successf</td> </tr> </table> </div> <ul style="list-style-type: none"> 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><u>Expected Critical Alarms:</u></p> <ul style="list-style-type: none"> 31283 High availability server is offline 31227 The high availability status is failed due to raised alarms 70001 The qp_procmgr process has failed. <p><u>Expected Major Alarms:</u></p> <ul style="list-style-type: none"> 70004 The QP processes have been brought down for maintenance. 31233 High availability path loss of connectivity <p><u>Expected Minor Alarms:</u></p> <ul style="list-style-type: none"> 70507 An upgrade/backout action on a server is in progress 70500 The system is running different versions of software 71402 Diameter Connectivity Lost 71403 Diameter Connectivity Degraded 78001 Rsync Failed 31114 DB Replication of configuration data via SOAP has failed 31107 DB merging from a child Source Node has failed 31101 DB replication to a slave DB has failed 31105 The DB merge process (inetmerge) is impaired by a s/w fault 31106 DB merging to the parent Merge Node has failed <p>NOTE: Each server backout will take approximately 45 minutes to complete. Some MINOR alarms remained as expected to be auto-cleared but no</p>	mass-mediation-1b	Critical	N	OOS	12.2.0.0_0_65.1.0	12.2.0.0_0_65.1.0	Step 1/1 9%	Initiate backout...	mass-mediation-1a	Critical	N	Active	12.2.0.0_0_65.1.0	9.9.2.0_0_18.1.0		Initiate backout Completed Successf
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Software Upgrade Procedure

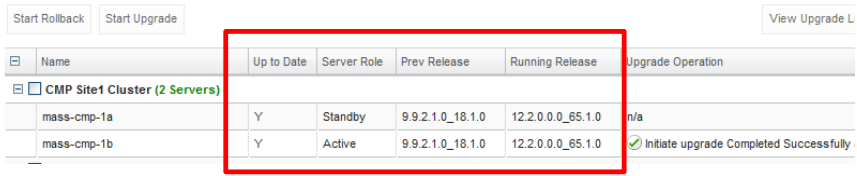
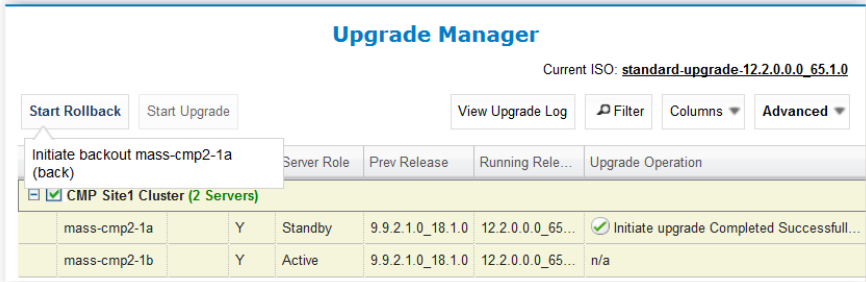
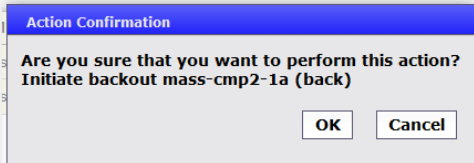
Step	Procedure	Result
		<p><i>functional impact.</i></p> <ul style="list-style-type: none"> Backout of the server is complete when the message “Initiate backout completed successfully at...” shows under the ‘Upgrade Operation’ Column. The backed out server is now showing 12.2 as the previous release and return to “Standby” status from earlier “OOS” .  <ul style="list-style-type: none"> Both servers in this cluster are now running 9.9.2 release with “Up to Date” column showing “N” and Previous Release showing 12.2. Repeat the same validation on the rests of backed out clusters. <p>NOTE: <i>The subsequent instruction ONLY applicable to all backed out MPE clusters with second Reapply configuration, otherwise skip to the next Step.</i></p> <p>Policy Server → Configuration → < MPE cluster> → System tab</p> <ul style="list-style-type: none"> Click on the ”Reapply Configuration” operation on the selected MPE cluster and wait till the <i>“ The configuration was applied successfully “</i> message displayed as shown -  <ul style="list-style-type: none"> Verify that the Status is showing “ On-line” and the Version is showing the complete Release 9.9.2 as shown -

Software Upgrade Procedure

Step	Procedure	Result																
		<div style="border: 1px solid gray; padding: 5px;"> <p style="text-align: right; color: blue;">Policy Server Administration</p> <p>Policy Server: MPE-1 Cluster</p> <p> System Reports Logs Policy Server Diameter Routing Policies Data Source </p> <p> Modify Delete Reapply Configuration </p> <div style="border: 2px solid red; padding: 2px; display: inline-block; color: red; font-weight: bold;">The configuration was applied successfully.</div> <p>Configuration</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Name</td> <td>MPE-1 Cluster</td> </tr> <tr> <td>Status</td> <td style="color: green;">On-line</td> </tr> <tr> <td>Version</td> <td>9.9.2</td> </tr> <tr> <td>Description / Location</td> <td><div style="border: 1px solid gray; height: 30px; width: 100%;"></div></td> </tr> </table> <table style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width: 50%;">Secure Connection</td> <td>No</td> </tr> <tr> <td>Legacy</td> <td>No</td> </tr> <tr> <td>Type</td> <td>Oracle</td> </tr> <tr> <td>System Time</td> <td>Jan 06, 2017 04:26 PM EST</td> </tr> </table> </div> <ul style="list-style-type: none"> Next, apply the same above instructions of performing this second Reapply Configuration to the rests of backed out MPE clusters. Once it's all done, proceed to the next Step. 	Name	MPE-1 Cluster	Status	On-line	Version	9.9.2	Description / Location	<div style="border: 1px solid gray; height: 30px; width: 100%;"></div>	Secure Connection	No	Legacy	No	Type	Oracle	System Time	Jan 06, 2017 04:26 PM EST
Name	MPE-1 Cluster																	
Status	On-line																	
Version	9.9.2																	
Description / Location	<div style="border: 1px solid gray; height: 30px; width: 100%;"></div>																	
Secure Connection	No																	
Legacy	No																	
Type	Oracle																	
System Time	Jan 06, 2017 04:26 PM EST																	
6. <input type="checkbox"/>	REPEAT the above Steps (1) – (5) for next upgrade batch of MPE/MRA /MEDIATION cluster(s)	<ul style="list-style-type: none"> Proceed with the next batch of cluster(s) until all Policy sites/segments have been backed out to release 9.9.2 as intended. 																
THIS PROCEDURE HAS BEEN COMPLETED																		

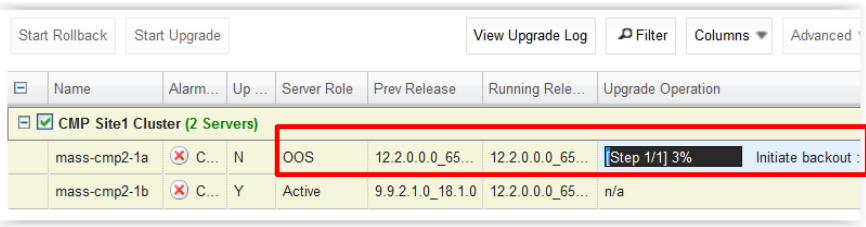
14.3.3 Backout Fully Upgraded Primary CMP Cluster

NOTE: For backout to release 9.9.2, the Primary CMP cluster uses both the Upgrade Manager and System Maintenance option.

Step	Procedure	Result
<p>1. <input type="checkbox"/></p>	<p>CMP GUI: Verify the status of the Primary CMP cluster</p>	<p>Upgrade Manager → Upgrade Manager</p> <ul style="list-style-type: none"> Confirm the Primary CMP cluster status: <ul style="list-style-type: none"> Both servers of the cluster are in Active and Standby server role. Both servers of the cluster are on Running Release of 12.2 Both servers of the cluster have 9.9.2 as the Previous Release. “Up to Date” Column shows ‘Y’ for both servers. <p><i>As shown in the example below –</i></p> 
<p>2. <input type="checkbox"/></p>	<p>CMP GUI: Backout Standby server of the Primary CMP cluster</p> <p>NOTE: Each server takes ~45 minutes to complete..</p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the Primary CMP cluster to be backed out. Click on the ‘Start Rollback’ Button. When hovering over the button, it will inform you of the server to get backed out, in this case it will be the current standby server.  <ul style="list-style-type: none"> Select “OK” to confirm and continue with the backout operation. It will begin to backout. The server will be in an ‘OOS’ role as shown – 

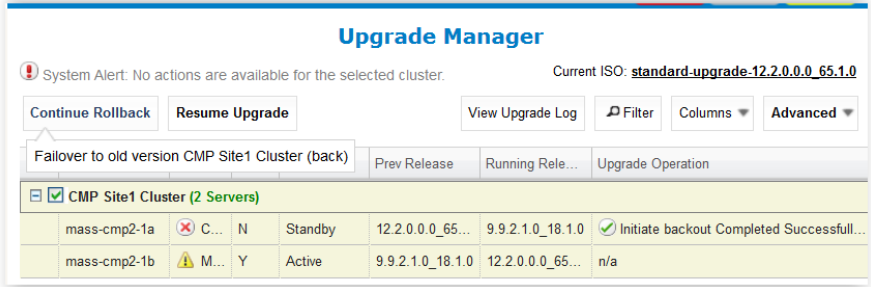
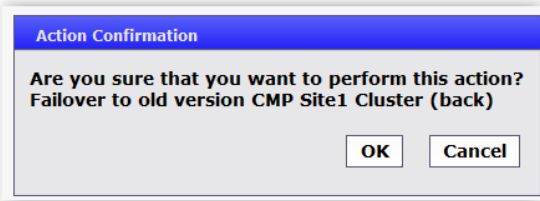
Software Upgrade Procedure

NOTE: For backout to release 9.9.2, the Primary CMP cluster uses both the Upgrade Manager and System Maintenance option.

Step	Procedure	Result
		 <p>The screenshot shows a table with columns: Name, Alarm..., Up..., Server Role, Prev Release, Running Release, and Upgrade Operation. The row for 'mass-cmp2-1a' is highlighted in red, with a red box around the 'OOS' status and the 'Initiate backout' button. The 'Upgrade Operation' column for this row shows 'Step 1/1 3%'.</p> <ul style="list-style-type: none"> • During the backout activities, the following alarms may be generated and considered normal reporting events – <i>these will be cleared after the cluster is completely backed out.</i> <p><u>Expected Critical Alarm:</u></p> <p>31283 High availability server is offline 31227 The high availability status is failed due to raised alarms</p> <p><u>Expected Major Alarm:</u></p> <p>31233 High availability path loss of connectivity 70004 The QP processes have been brought down for maintenance. 70021 The MySQL slave is not connected to the master</p> <p><u>Expected Minor Alarms:</u></p> <p>31114 DB Replication of configuration data via SOAP has failed 31106 DB merging to the parent Merge Node has failed 31107 DB merging from a child Source Node has failed 31101 DB replication to a slave DB has failed 70503 The server is in forced standby 70507 An upgrade/backout action on a server is in progress 70501 The Cluster is running different versions of software</p> <p>NOTE: Each server backout will take approximately 45 minutes to complete. Some MINOR alarms remained as expected to be auto-cleared but no functional impact.</p>

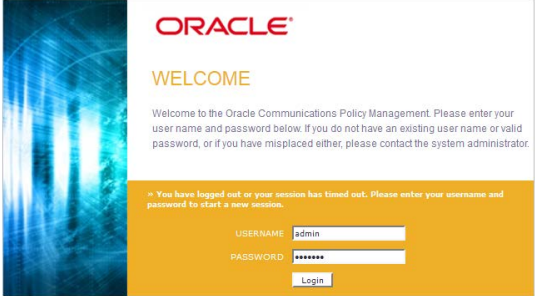

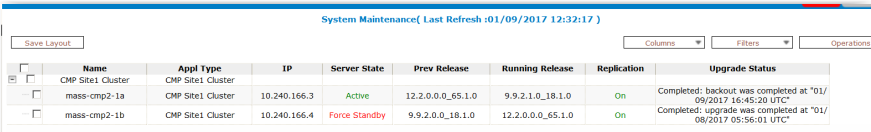
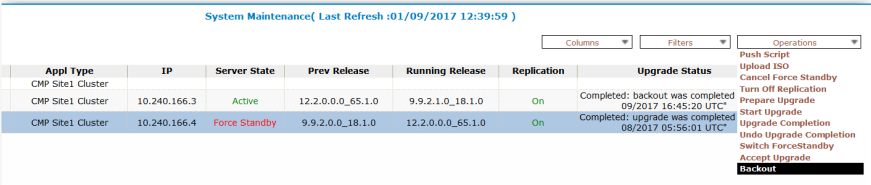
Software Upgrade Procedure

NOTE: For backout to release 9.9.2, the Primary CMP cluster uses both the Upgrade Manager and System Maintenance option.

Step	Procedure	Result
3.	<p>CMP GUI: Perform Failover of backed out Release 9.9.2 CMP server</p>	<ul style="list-style-type: none"> Once the backout on the Standby CMP server is completed, there will be an expected remaining Alarms of the following - <ul style="list-style-type: none"> Expected Critical Alarm: 70025 The MySQL slave has a different schema version than the master Expected Minor Alarms: 70501 The Cluster is running different versions of software 70503 The server is in forced standby <p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the same the Primary CMP cluster again. And note at this point, the Standby server is having 9.9.2 as “Running Release” Click on the ‘Continue Rollback’ button. When hovering over the button, it will inform you that the next action is to fail over to the old version CMP cluster as shown -  <ul style="list-style-type: none"> Select “OK” to confirm and continue with the failover operation.  <p>NOTE: At this point, the current CMP GUI browser connection will be lost – if it is the primary CMP cluster, need to re-login as illustrated in the next step.</p>

Software Upgrade Procedure

NOTE: For backout to release 9.9.2, the Primary CMP cluster uses both the Upgrade Manager and System Maintenance option.

Step	Procedure	Result
4.	<p>CMP GUI: Re-login to the Primary CMP cluster VIP address</p>	<ul style="list-style-type: none"> Close the current CMP GUI browser tab and reopen another browser tab with the same CMP VIP address. The Policy Release 9.9.2 CMP GUI Login screen should appear as shown – Login and password credentials are the same as before the backout.  <p>Validate that the CMP server version is now showing the release 9.9.2 –</p> <p>CMP GUI: Help → About</p>  <p>NOTE: At this point, there will still be one expected Critical Alarm of “70025 The MySQL slave has a different schema version than the master” with some MINOR alarms remained to be auto-cleared but no functional impact..</p>
5.	<p>CMP GUI: Complete the backout of the remaining of the Primary CMP Cluster</p> <p>NOTE: Each server takes ~45 minutes to complete.</p>	<ul style="list-style-type: none"> The CMP GUI has reverted to 9.9.2 format with the following path i.e. <p>UPGRADE → System Maintenance</p>  <p>NOTE: The Active server is now running 9.9.2 release as expected.</p> <ul style="list-style-type: none"> Select the “Force-Standby” server running release 12.2 of the Primary CMP cluster and choose “Backout” operation as shown in the example below -  <ul style="list-style-type: none"> Select on “OK” to proceed with the backout operation.

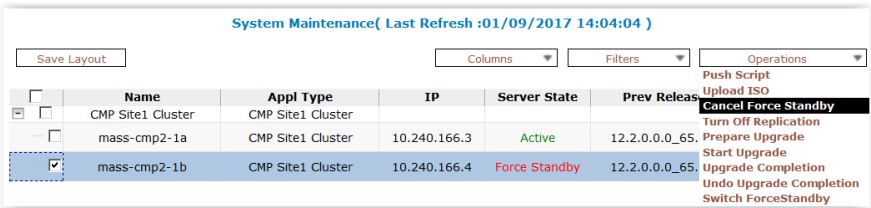
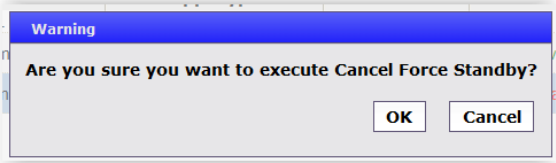
Software Upgrade Procedure

NOTE: For backout to release 9.9.2, the Primary CMP cluster uses both the Upgrade Manager and System Maintenance option.

Step	Procedure	Result																																												
		<div style="border: 1px solid gray; padding: 10px; margin-bottom: 20px;"> <p style="background-color: #0056b3; color: white; padding: 2px 5px; margin: -10px -10px 10px -10px;">Warning</p> <p style="text-align: center; font-weight: bold; margin: 5px 0;">Are you sure you want to execute Backout?</p> <div style="text-align: right; margin-top: 10px;"> OK Cancel </div> </div> <ul style="list-style-type: none"> Note the “Upgrade” status column displays the “inProgress:...” message during the backout process as shown – <div style="border: 1px solid gray; padding: 5px; margin-bottom: 20px;"> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <thead> <tr> <th>Appl Type</th> <th>IP</th> <th>Server State</th> <th>Prev Release</th> <th>Running Release</th> <th>Replication</th> <th>Upgrade Status</th> </tr> </thead> <tbody> <tr> <td>CMP Site1 Cluster</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>CMP Site1 Cluster</td> <td>10.240.166.3</td> <td>Active</td> <td>12.2.0.0.0_65.1.0</td> <td>9.9.2.1.0_18.1.0</td> <td>On</td> <td>Completed: backout was completed at "01/09/27 16:45:20 UTC"</td> </tr> <tr style="background-color: #e6f2ff;"> <td>CMP Site1 Cluster</td> <td>10.240.166.4</td> <td>Force Standby</td> <td>12.2.0.0.0_65.1.0</td> <td>12.2.0.0.0_65.1.0</td> <td>On</td> <td>InProgress: Preparing for the backout</td> </tr> </tbody> </table> </div> <p>NOTE: This upgrade process will take approximately 45 minutes to complete. During this time, there will be an expected Spinner and broken link icons appeared next to the server name as shown in the example below -</p> <div style="border: 1px solid gray; padding: 5px; margin-bottom: 20px;"> <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <thead> <tr> <th>Name</th> <th>Appl Type</th> <th>IP</th> <th>Server State</th> </tr> </thead> <tbody> <tr> <td>CMP Site1 Cluster</td> <td>CMP Site1 Cluster</td> <td></td> <td></td> </tr> <tr style="background-color: #e6f2ff;"> <td>mass-cmp-1a </td> <td>CMP Site1 Cluster</td> <td>10.240.152.83</td> <td>Force Standby</td> </tr> <tr> <td>mass-cmp-1b </td> <td>CMP Site1 Cluster</td> <td>10.240.152.84</td> <td>Active</td> </tr> </tbody> </table> </div> <ul style="list-style-type: none"> The following alarms are to be expected during the backout process - <ul style="list-style-type: none"> <u>Expected Critical Alarms:</u> 31227 The high availability status is failed due to raised alarms 31283 High availability server is offline <u>Expected Major Alarms:</u> 31233 High availability path loss of connectivity 70004 The QP processes have been brought down for maintenance. <u>Expected Minor Alarms:</u> 31114 DB Replication of configuration data via SOAP has failed 31106 DB merging to the parent Merge Node has failed 31107 DB merging from a child Source Node has failed 31101 DB replication to a slave DB has failed 	Appl Type	IP	Server State	Prev Release	Running Release	Replication	Upgrade Status	CMP Site1 Cluster							CMP Site1 Cluster	10.240.166.3	Active	12.2.0.0.0_65.1.0	9.9.2.1.0_18.1.0	On	Completed: backout was completed at "01/09/27 16:45:20 UTC"	CMP Site1 Cluster	10.240.166.4	Force Standby	12.2.0.0.0_65.1.0	12.2.0.0.0_65.1.0	On	InProgress: Preparing for the backout	Name	Appl Type	IP	Server State	CMP Site1 Cluster	CMP Site1 Cluster			mass-cmp-1a	CMP Site1 Cluster	10.240.152.83	Force Standby	mass-cmp-1b	CMP Site1 Cluster	10.240.152.84	Active
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CMP Site1 Cluster	10.240.166.4	Force Standby	12.2.0.0.0_65.1.0	12.2.0.0.0_65.1.0	On	InProgress: Preparing for the backout																																								
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mass-cmp-1b	CMP Site1 Cluster	10.240.152.84	Active																																											

Software Upgrade Procedure

NOTE: For backout to release 9.9.2, the Primary CMP cluster uses both the Upgrade Manager and System Maintenance option.

Step	Procedure	Result																																	
6.	<p>CMP GUI: Cancel Forced Standby server and complete the Backout.</p>	<p>NOTE: At this point, all expected remaining alarms should be cleared.</p> <p>Upgrade → System Maintenance</p> <ul style="list-style-type: none"> Validate both servers are currently running release 9.9.2 and Upgrade status display message of “Completed: Backout was completed at” <table border="1"> <thead> <tr> <th>Server State</th> <th>Prev Release</th> <th>Running Release</th> <th>Replication</th> <th>Upgrade Status</th> </tr> </thead> <tbody> <tr> <td>3 Active</td> <td>12.2.0.0.0_65.1.0</td> <td>9.9.2.1.0_18.1.0</td> <td>On</td> <td>Completed: backout was completed at "01/09/2017 16:45:20 UTC"</td> </tr> <tr> <td>4 Standby</td> <td>12.2.0.0.0_65.1.0</td> <td>9.9.2.1.0_18.1.0</td> <td>On</td> <td>Completed: backout was completed at "01/09/2017 18:07:58 UTC"</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Select the “Force Standby” server in the Primary CMP Cluster and choose “Cancel Force Standby” operation.  <ul style="list-style-type: none"> Click on “OK” to continue and complete the backout.  <ul style="list-style-type: none"> After about 10 seconds or so, both servers will have Active and Standby role status for this Primary CMP cluster running release 9.9.2 as shown – <table border="1"> <thead> <tr> <th>Name</th> <th>Appl Type</th> <th>IP</th> <th>Server State</th> <th>Prev Release</th> <th>Running Release</th> </tr> </thead> <tbody> <tr> <td>mass-cmp2-1a</td> <td>CMP Site1 Cluster</td> <td>10.240.166.3</td> <td>Active</td> <td>12.2.0.0.0_65.1.0</td> <td>9.9.2.1.0_18.1.0</td> </tr> <tr> <td>mass-cmp2-1b</td> <td>CMP Site1 Cluster</td> <td>10.240.166.4</td> <td>Standby</td> <td>12.2.0.0.0_65.1.0</td> <td>9.9.2.1.0_18.1.0</td> </tr> </tbody> </table> <p>The backout procedure is now completed for release 9.9.2</p> <p style="text-align: center;">THIS PROCEDURE HAS BEEN COMPLETED</p>	Server State	Prev Release	Running Release	Replication	Upgrade Status	3 Active	12.2.0.0.0_65.1.0	9.9.2.1.0_18.1.0	On	Completed: backout was completed at "01/09/2017 16:45:20 UTC"	4 Standby	12.2.0.0.0_65.1.0	9.9.2.1.0_18.1.0	On	Completed: backout was completed at "01/09/2017 18:07:58 UTC"	Name	Appl Type	IP	Server State	Prev Release	Running Release	mass-cmp2-1a	CMP Site1 Cluster	10.240.166.3	Active	12.2.0.0.0_65.1.0	9.9.2.1.0_18.1.0	mass-cmp2-1b	CMP Site1 Cluster	10.240.166.4	Standby	12.2.0.0.0_65.1.0	9.9.2.1.0_18.1.0
Server State	Prev Release	Running Release	Replication	Upgrade Status																															
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mass-cmp2-1a	CMP Site1 Cluster	10.240.166.3	Active	12.2.0.0.0_65.1.0	9.9.2.1.0_18.1.0																														
mass-cmp2-1b	CMP Site1 Cluster	10.240.166.4	Standby	12.2.0.0.0_65.1.0	9.9.2.1.0_18.1.0																														

15. BACKOUT (ROLLBACK) 11.5.X WIRELESS OR 12.1.X

This procedure is executed if an issue is found during the upgrade, or during the post-upgrade if something 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.

15.1 Backout Sequence

The Backout sequence order is the reverse of the Upgrade order as in the following sequence:

1. Backout MRA/MPE
2. Backout the Secondary CMP cluster (if applicable)
3. Backout 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 an MPE/MRA, the upgrade/backout is NOT complete until the operator does a “Reapply Configuration” push from the CMP. The MRA/MPE can still operate, but may not be fully functional.

15.2 Pre-requisites

- 1) No new policies or features have been configured or executed on the upgraded release.
- 2) The CMP cluster cannot be backed out if other Policy servers (MPEs, MRAs) are still on the upgraded release.

15.3 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 pre-12.2 release with Active/Standby status.

Expected pre-conditions:

- The primary active CMP is on release 12.2
- The cluster servers to be backed out are all on release 12.2
- One server of target cluster is on Release 12.2 in “Active” role
- One server of target cluster is on Release 12.2 in either “Standby” or “Force Standby”

15.3.1 Backout Sequence

This procedure applies to a cluster. The non-CMP cluster types (MRA, MPE) will be in non-georedundant mode with active and standby 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, you must click one cluster at a time, staggering by about 1 minute each.

Software Upgrade Procedure

Overview on Backout/Rollback MRA/MPE:

- 1) Back out of the standby server
- 2) Fail over
- 3) Back out of the new standby server

Backout Secondary CMP (if applicable):

NOTE:

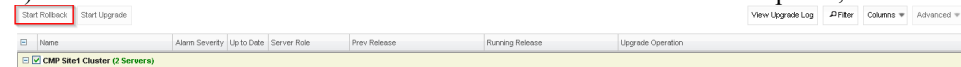
At this time, all MPEs and MRAs must already be backed out.

- 1) Use the CMP Upgrade Manager to backout the Secondary CMP Cluster

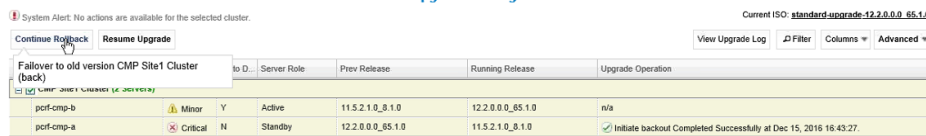
Backout the Primary CMP to 11.5.x:

NOTE: Secondary CMP must already be backed out and all of the MPE/MRA Clusters

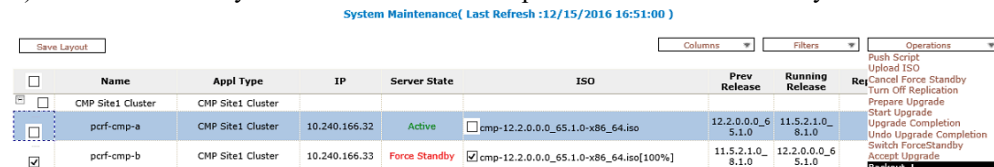
- 1) Use the CMP GUI (Upgrade Manager) to backout the Primary standby CMP cluster
- 2) Select the CMP cluster and click on the 'Rollback' button on the top left, would initiate backout on Standby CMP



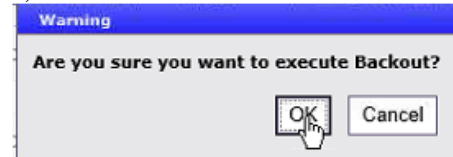
- 3) Continue Rollback, which would failover to older version CMP cluster.



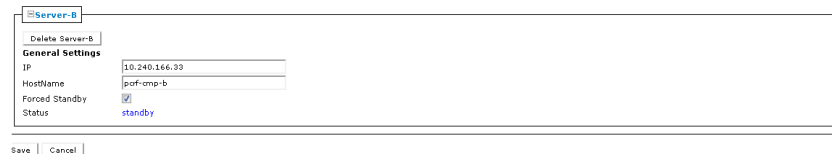
- 4) Log back in to the Primary CMP VIP
- 5) Use the 11.5.x System Maintenance to complete backout of the Primary CMP cluster



- 6) Click OK to execute Backout



- 7) After rollback of CMP cluster, manually remove "Forced Standby".



- 8) If needed, go to Policy Server > Configuration > Policy Server > click on 'Reapply Configuration'

Backout the Primary CMP to 12.1.x:

- 1) Use the CMP Upgrade Manager to backout the CMP Cluster

15.3.2 Backout Fully Upgraded MPE/MRA Cluster

Step	Procedure	Result																																										
1.	<p>CMP GUI: Verify the status of affected clusters</p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Confirm status of the cluster to be backed out <ul style="list-style-type: none"> Primary CMP is on Release 12.2 All Standby servers are on Release 12.2 Up to Date column shows 'Y' for all servers <p><i>EXAMPLE:</i></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 colspan="6">CMP Site1 Cluster (2 Servers)</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">guam-mpe-1 (2 Servers)</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> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	CMP Site1 Cluster (2 Servers)						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	guam-mpe-1 (2 Servers)						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
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guam-mpe-1a		Y	Active	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0																																							
2.	<p>CMP GUI: Rollback standby MPE/MRA clusters</p> <p><i>NOTE: Each backout of one blade server will approximately be completed within 40 minutes time.</i></p> <p><i>NOTE: Up to 8 upgraded clusters can be backed out at the same time, selecting one at a time.</i></p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Click the checkbox for the MPE/MRA/Mediation cluster to be backed out Click the 'Start Rollback' Button. When hovering over the button, it will inform you of the server to get backed out, in this case it will be the current standby server. <table border="1"> <thead> <tr> <th colspan="2">Start Rollback</th> <th colspan="2">Start Upgrade</th> <th colspan="2">View Upgrade Log</th> <th>Filter</th> <th>Columns</th> </tr> <tr> <th>Initiate backout guam-mra-1b (back)</th> <th>Date</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> <th colspan="3">Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td colspan="8">guam-mra-1 (2 Servers)</td> </tr> <tr> <td>guam-mra-1b</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 colspan="3">Initiate upgrade Completed Successfully</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> <td colspan="3">Initiate upgrade Completed Successfully</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Select "OK" to confirm and continue with the operation. It will begin to backout. Follow the progress status under the "Upgrade Operation" column. At this point, the server backing out will go into 'OOS' state Wait until the server goes to an OOS state before selecting the next cluster to backout. 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>Expected Critical Alarms: 31283 High availability server is offline 31227 High availability Status Failed 70001 QP_procmgr failed</p> <p>Expected Major Alarm: 78001 Rsync Failed 70004 QP Processes down for maintenance 31233 HA Path Down</p> <p>Expected Minor Alarms:</p>	Start Rollback		Start Upgrade		View Upgrade Log		Filter	Columns	Initiate backout guam-mra-1b (back)	Date	Server Role	Prev Release	Running Release	Upgrade Operation			guam-mra-1 (2 Servers)								guam-mra-1b	Y	Standby	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully			guam-mra-1a	Y	Active	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully				
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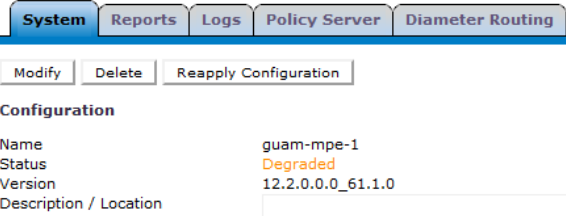
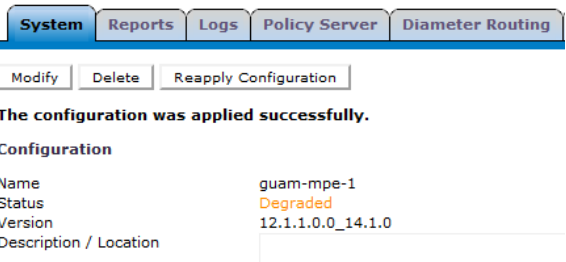
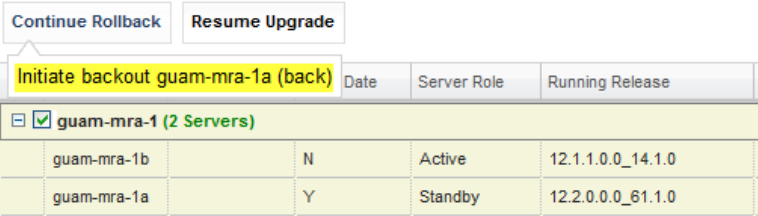
Software Upgrade Procedure

Step	Procedure	Result																					
		<p>70503 Upgrade Director Server Forced Standby 70507 Upgrade Director In Progress 70500 Upgrade Director System Mixed Version 70501 Upgrade Director Cluster Mixed Version 78001 RSYNC Failed 70502 Upgrade Director Cluster Replication Inhibited 31114 DB Replication over SOAP has failed 31106 DB Merge To Parent Failure 31107 DB Merge From Child Failure 31101 DB Replication To Slave Failure 31102 DB Replication from Master Failure 31113 DB Replication manually Disabled 31282 HA Management Fault</p> <ul style="list-style-type: none"> Backout of the server is complete when the message “Initiate backout completed successfully at...” shows under the ‘Upgrade Operation’ Column. The backed out server will show running the previous release and return to standby with an N in the Up to Date column. 																					
<p>3. <input type="checkbox"/></p>	<p>CMP GUI: Continue the backout of the MRA/MPE clusters. Next operation is « failover» to the server in the previous release.</p> <p><i>NOTE: Up to 8 upgraded clusters can be backed out at the same time, selecting one at a time.</i></p>	<ul style="list-style-type: none"> Select the cluster to backout. <p>Current state of the cluster needs to be as follows:</p> <p>Active server on 12.2 Release Standby server on pre-12.2 Release</p> <p>Some minor alarms (e.g., 70501 Cluster running different versions of software) are normal at this point.</p> <p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the checkbox for the cluster Select the ‘Continue Rollback’ button. When hovering over the button, it will inform that the next step is to fail over to the old version <div style="border: 1px solid #ccc; padding: 5px;"> <p>Continue Rollback Resume Upgrade</p> <p>Failover to old version guam-mpe-1 (back)</p> <table border="1"> <thead> <tr> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> </tr> </thead> <tbody> <tr> <td colspan="3"><input type="checkbox"/> CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td>guam-cmp-1b</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>12.1.1.0.0_14.1.0</td> <td>12.2.0.0.0_61.1.0</td> </tr> <tr> <td colspan="3"><input checked="" type="checkbox"/> guam-mpe-1 (2 Servers)</td> </tr> <tr> <td>guam-mpe-1b</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-mpe-1a</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> <ul style="list-style-type: none"> Select “OK” to confirm and continue with the operation. It will begin to failover. Wait until the server fails over before selecting the next cluster. This will take a minute or two. <p>Expected Critical Alarms: 31283 High availability server is offline 31227 High availability Status Failed</p>	Server Role	Prev Release	Running Release	<input type="checkbox"/> CMP Site1 Cluster (2 Servers)			guam-cmp-1b	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	guam-cmp-1a	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	<input checked="" type="checkbox"/> guam-mpe-1 (2 Servers)			guam-mpe-1b	12.2.0.0.0_61.1.0	12.1.1.0.0_14.1.0	guam-mpe-1a	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0
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Software Upgrade Procedure

Step	Procedure	Result
		<p>70001 QP_procmgr failed</p> <p>Expected Major Alarm: 70004 QP Processes down for maintenance 31233 HA Path Down 31126 Audit Blocked</p> <p>Expected Minor Alarms: 70503 Upgrade Director Server Forced Standby 70507 Upgrade Director In Progress 70500 Upgrade Director System Mixed Version 70501 Upgrade Director Cluster Mixed Version 78001 RSYNC Failed 70502 Upgrade Director Cluster Replication Inhibited 31114 DB Replication over SOAP has failed 31106 DB Merge To Parent Failure 31107 DB Merge From Child Failure 31101 DB Replication To Slave Failure 31102 DB Replication from Master Failure 31113 DB Replication manually Disabled 31282 HA Management Fault</p>

Software Upgrade Procedure

Step	Procedure	Result
4.	<p>CMP GUI: Reapply configuration on MPE/MRA cluster that completed the failover successfully.</p> <p><i>NOTE: Each backout of one blade server will approximately be completed within 35 minutes time.</i></p> <p><i>NOTE: Up to 8 upgraded clusters can be backed out at the same time, selecting one at a time.</i></p>	<p>For MPE: Policy Server → Configuration → <MPE cluster> → System tab</p> <p>For MRA: MRA → Configuration → <MRA cluster> → System tab</p> <ul style="list-style-type: none"> The selected cluster will have the status shown as “Degraded” running version 12.2 <p>Policy Server: guam-mpe-1</p>  <ul style="list-style-type: none"> Click “Reapply Configuration” <ul style="list-style-type: none"> The MPE will show a dialog box showing progress of the reapply, the MRA will not show anything. Note the “Version” is successfully changed to the previous release, for example 12.1.1 <p>Policy Server: guam-mpe-1</p>  <p>NOTE: The status still “ Degraded” is a normal reporting event as the servers are in different status.</p>
5.	<p>CMP GUI: Complete backout of cluster(s)</p> <p><i>NOTE: Each backout of one blade server will approximately be completed within 35 minutes time.</i></p> <p><i>NOTE: Up to 8 upgraded clusters can be backed out at the same time, selecting one at a time.</i></p>	<p>Select the partially backed out cluster</p> <p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the checkbox for the cluster Select the ‘Continue Rollback’ button. When hovering over the button, it will inform you that the standby server running 12.2 will be backed out.  <ul style="list-style-type: none"> Select “OK” to confirm and continue with the operation. Follow the progress status under the “Upgrade Operation” column. During the backout activities, the following alarms may be generated and considered normal reporting events – these will be cleared after the cluster is

Software Upgrade Procedure

Step	Procedure	Result																					
		<p>completely backed out.</p> <p>Expected Critical Alarms: 31283 High availability server is offline 31227 High availability Status Failed 70001 QP_procmgr failed</p> <p>Expected Major Alarm: 70004 QP Processes down for maintenance 31233 HA Path Down 31126 Audit Blocked</p> <p>Expected Minor Alarms: 70503 Upgrade Director Server Forced Standby 70507 Upgrade Director In Progress 70500 Upgrade Director System Mixed Version 70501 Upgrade Director Cluster Mixed Version 78001 RSYNC Failed 70502 Upgrade Director Cluster Replication Inhibited 31114 DB Replication over SOAP has failed 31106 DB Merge To Parent Failure 31107 DB Merge From Child Failure 31101 DB Replication To Slave Failure 31102 DB Replication from Master Failure 31113 DB Replication manually Disabled 31282 HA Management Fault</p> <ul style="list-style-type: none"> Backout of the server is complete when the message "Initiate backout completed successfully at..." shows under the 'Upgrade Operation' Column. Both servers in this cluster will be on a pre-12.2 release at this point and show active/standby. <table border="1"> <tr> <td colspan="7">guam-mpe-1 (2 Servers)</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>Initiate backout Completed Successfully at</td> </tr> <tr> <td>guam-mpe-1a</td> <td></td> <td>N</td> <td>Standby</td> <td>12.1.1.0.0_14.1.0</td> <td></td> <td>Initiate backout Completed Successfully at</td> </tr> </table>	guam-mpe-1 (2 Servers)							guam-mpe-1b		N	Active	12.1.1.0.0_14.1.0		Initiate backout Completed Successfully at	guam-mpe-1a		N	Standby	12.1.1.0.0_14.1.0		Initiate backout Completed Successfully at
guam-mpe-1 (2 Servers)																							
guam-mpe-1b		N	Active	12.1.1.0.0_14.1.0		Initiate backout Completed Successfully at																	
guam-mpe-1a		N	Standby	12.1.1.0.0_14.1.0		Initiate backout Completed Successfully at																	
6.	<input type="checkbox"/>	Repeat this procedure for the remainder of the MPE/MRA servers, if necessary.																					
THIS PROCEDURE HAS BEEN COMPLETED																							

15.3.3 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.	<p>CMP GUI: Verify the status of the CMP Clusters</p>	<p>Upgrade Manager → System Maintenance</p> <ul style="list-style-type: none"> Confirm status of the cluster to be backed out: <ul style="list-style-type: none"> Primary CMP is on Release 12.2 All other non-CMP clusters are on a pre-12.2 release Up to Date Column shows 'Y' for all servers <p>The Filter button can be used to show only CMP servers. Enter 'cmp' in the box as shown below</p> <p>EXAMPLE:</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">cmp</td> </tr> <tr> <td colspan="7">CMP Site1 Cluster (2 Servers)</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> <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> <tr> <td colspan="7">CMP Site2 Cluster (2 Servers)</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> <td>Initiate upgrade Completed Successfully at</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> <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							CMP Site1 Cluster (2 Servers)							guam-cmp-1b		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	CMP Site2 Cluster (2 Servers)							guam-cmp-2a		Y	Standby	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at	guam-cmp2b		Y	Active	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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2.	<p>CMP GUI: backout secondary cmp cluster</p> <p>NOTE: Each backout of one server will take ~40 minutes to complete.</p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the checkbox for the secondary CMP Cluster Select the 'Start Rollback' Button. When hovering over the button, it will inform you that the standby server will be backed out. <table border="1"> <tr> <td>Start Rollback</td> <td>Start Upgrade</td> <td>View</td> </tr> </table> <p>Initiate backout guam-cmp-2a (back)</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 colspan="6">cmp</td> </tr> <tr> <td colspan="6">CMP Site1 Cluster (2 Servers)</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">CMP Site2 Cluster (2 Servers)</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> </tbody> </table> <ul style="list-style-type: none"> Select "OK" to confirm and continue with the operation. It will begin to backout. Server will go in an 'OOS' server role Follow the progress status under the "Upgrade Operation" column. <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">CMP Site2 Cluster (2 Servers)</td> </tr> <tr> <td>guam-cmp-2a</td> <td>Critical</td> <td>N</td> <td>OOS</td> <td>12.2.0.0.0_61.1.0</td> <td>12.2.0.0.0_61.1.0</td> <td>[Step 1/2] 2% Initiate backout :: Backing out server...</td> </tr> <tr> <td>guam-cmp2b</td> <td>Critical</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 Nov 21, 201...</td> </tr> </tbody> </table>	Start Rollback	Start Upgrade	View	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	cmp						CMP Site1 Cluster (2 Servers)						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	CMP Site2 Cluster (2 Servers)						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	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation	CMP Site2 Cluster (2 Servers)							guam-cmp-2a	Critical	N	OOS	12.2.0.0.0_61.1.0	12.2.0.0.0_61.1.0	[Step 1/2] 2% Initiate backout :: Backing out server...	guam-cmp2b	Critical	Y	Active	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at Nov 21, 201...
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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																																																																												
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guam-cmp-2a		Y	Standby	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0																																																																												
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CMP Site2 Cluster (2 Servers)																																																																																	
guam-cmp-2a	Critical	N	OOS	12.2.0.0.0_61.1.0	12.2.0.0.0_61.1.0	[Step 1/2] 2% Initiate backout :: Backing out server...																																																																											
guam-cmp2b	Critical	Y	Active	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	Initiate upgrade Completed Successfully at Nov 21, 201...																																																																											

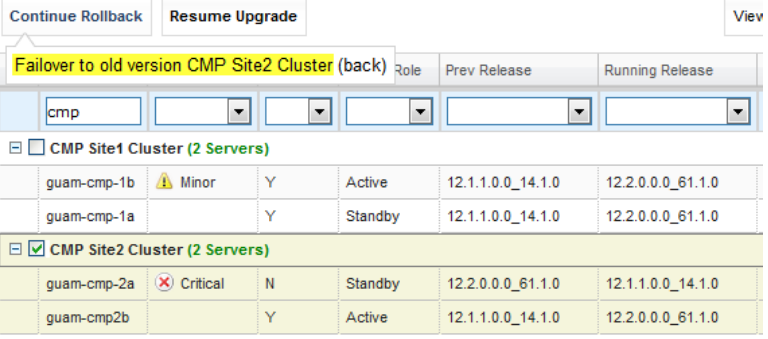
Software Upgrade Procedure

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																																																
		<ul style="list-style-type: none"> 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>Expected Critical Alarms: 31283 High availability server is offline 31227 High availability Status Failed 70001 QP_procmgr failed 70025 The MySQL slave has a different schema version than the master.</p> <p>Expected Major Alarm: 70004 QP Processes down for maintenance 31233 HA Path Down 31126 Audit Blocked</p> <p>Expected Minor Alarms: 70503 Upgrade Director Server Forced Standby 70507 Upgrade Director In Progress 70500 Upgrade Director System Mixed Version 70501 Upgrade Director Cluster Mixed Version 78001 RSYNC Failed 70502 Upgrade Director Cluster Replication Inhibited 31114 DB Replication over SOAP has failed 31106 DB Merge To Parent Failure 31107 DB Merge From Child Failure 31101 DB Replication To Slave Failure 31102 DB Replication from Master Failure 31113 DB Replication manually Disabled 31282 HA Management Fault</p>																																																
		<ul style="list-style-type: none"> Backout of the server is complete when the following message (“Initiate backout completed successfully at...”) shows under the ‘Upgrade Operation’ Column. The server will go back to standby state and show the previous release <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>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>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> </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">CMP Site2 Cluster (2 Servers)</td> </tr> <tr> <td>guam-cmp-2a</td> <td>Critical</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-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> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	cmp						CMP Site1 Cluster (2 Servers)						guam-cmp-1b	Minor	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	CMP Site2 Cluster (2 Servers)						guam-cmp-2a	Critical	N	Standby	12.2.0.0.0_61.1.0	12.1.1.0.0_14.1.0	guam-cmp2b		Y	Active	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0
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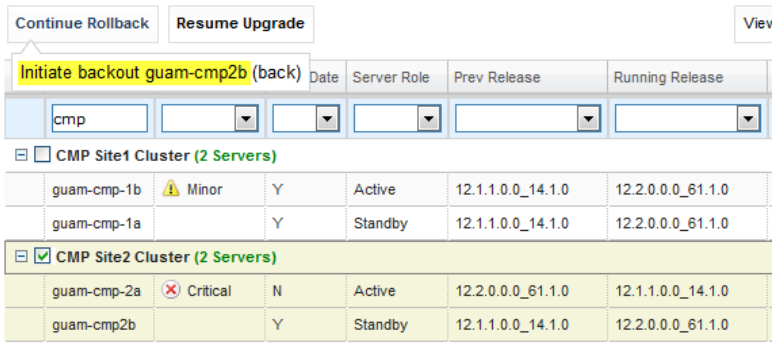
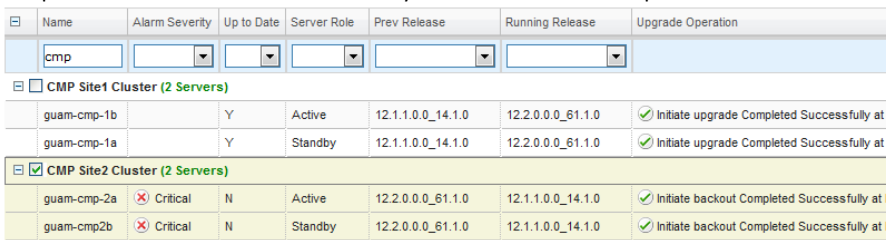
Software Upgrade Procedure

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																																																	
3.	<p><input type="checkbox"/> CMP GUI: Continue the backout. Next Operation is "failover"</p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the checkbox for the Secondary CMP cluster Select the 'Continue Rollback' Button. When hovering over the button, it will inform you it will failover to the previous version.  <p>The screenshot shows the Upgrade Manager interface. At the top, there are buttons for 'Continue Rollback' and 'Resume Upgrade'. A tooltip for 'Continue Rollback' indicates 'Failover to old version CMP Site2 Cluster (back)'. Below this is a table with columns for 'Role', 'Prev Release', and 'Running Release'. The 'CMP Site2 Cluster (2 Servers)' is selected, and its status is shown in a table below.</p> <table border="1"> <thead> <tr> <th colspan="7">CMP Site1 Cluster (2 Servers)</th> </tr> <tr> <th>Server</th> <th>Alarm</th> <th>Y</th> <th>Role</th> <th>Prev Release</th> <th>Running Release</th> <th></th> </tr> </thead> <tbody> <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></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></td> </tr> <tr> <th colspan="7">CMP Site2 Cluster (2 Servers)</th> </tr> <tr> <td>guam-cmp-2a</td> <td>Critical</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> <td></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> <td></td> </tr> </tbody> </table> <ul style="list-style-type: none"> Select "OK" to confirm and continue with the operation. It will begin to failover. Wait until the previous release becomes active before continuing <p>Expected Critical alarm: 70025 QP Slave database is a different version than the master</p> <p>Expected Minor Alarms: 70503 Upgrade Director Server Forced Standby 70501 Upgrade Director Cluster Mixed Version 78001 RSYNC Failed 70500 Upgrade Director System Mixed Version</p>	CMP Site1 Cluster (2 Servers)							Server	Alarm	Y	Role	Prev Release	Running Release		guam-cmp-1b	Minor	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		CMP Site2 Cluster (2 Servers)							guam-cmp-2a	Critical	N	Standby	12.2.0.0.0_61.1.0	12.1.1.0.0_14.1.0		guam-cmp2b		Y	Active	12.1.1.0.0_14.1.0	12.2.0.0.0_61.1.0	
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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.	<p><input type="checkbox"/> CMP GUI: Continue the backout. Next Operation is « initiate backout»</p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the checkbox for the Secondary CMP cluster Select the 'Continue Rollback' Button. When hovering over the button, it will inform you it will back out the new standby server  <p>The screenshot shows the Upgrade Manager interface. At the top, there are buttons for 'Continue Rollback', 'Resume Upgrade', and 'View'. Below these is a search bar with 'Initiate backout guam-cmp2b (back)' entered. A table below shows server status for two clusters: 'CMP Site1 Cluster (2 Servers)' and 'CMP Site2 Cluster (2 Servers)'. The Site2 cluster is selected with a checked checkbox. The table columns are Name, Alarm Severity, Up to Date, Server Role, Prev Release, and Running Release.</p> <table border="1"> <thead> <tr> <th colspan="7">CMP Site1 Cluster (2 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-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></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></td> </tr> <tr> <th colspan="7">CMP Site2 Cluster (2 Servers)</th> </tr> <tr> <td>guam-cmp-2a</td> <td>Critical</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> <td></td> </tr> <tr> <td>guam-cmp2b</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></td> </tr> </tbody> </table> <ul style="list-style-type: none"> Select "OK" to confirm and continue with the operation. Follow the progress status under the 'Upgrade Operation' Column. <p>Expected Critical alarm: 70025 QP Slave database is a different version than the master</p> <p>Expected Minor Alarms: 70500 Upgrade Director System Mixed Version</p> <p>The procedure ends when both Secondary CMP servers are in the previous release.</p>  <p>The second screenshot shows the same table as above, but with an additional 'Upgrade Operation' column. The Site1 servers show 'Initiate upgrade Completed Successfully at' and the Site2 servers show 'Initiate backout Completed Successfully at'.</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>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> <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> <tr> <th colspan="7">CMP Site2 Cluster (2 Servers)</th> </tr> <tr> <td>guam-cmp-2a</td> <td>Critical</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> <td>Initiate backout Completed Successfully at</td> </tr> <tr> <td>guam-cmp2b</td> <td>Critical</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> <td>Initiate backout Completed Successfully at</td> </tr> </tbody> </table>	CMP Site1 Cluster (2 Servers)							Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation	guam-cmp-1b	Minor	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		CMP Site2 Cluster (2 Servers)							guam-cmp-2a	Critical	N	Active	12.2.0.0.0_61.1.0	12.1.1.0.0_14.1.0		guam-cmp2b		Y	Standby	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	Upgrade Operation	guam-cmp-1b		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	CMP Site2 Cluster (2 Servers)							guam-cmp-2a	Critical	N	Active	12.2.0.0.0_61.1.0	12.1.1.0.0_14.1.0	Initiate backout Completed Successfully at	guam-cmp2b	Critical	N	Standby	12.2.0.0.0_61.1.0	12.1.1.0.0_14.1.0	Initiate backout Completed Successfully at
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15.3.4 Backout Fully Upgraded Primary CMP Cluster

NOTE: For backout to a release prior to 12.1.x, the Primary CMP Site1 cluster uses both the Upgrade Manager and the pre-12.1.x System Maintenance option for backout. For backout to 12.1.x, you need only use the Upgrade Manager.

Step	Procedure	Result																																										
1.	<p><input type="checkbox"/> CMP GUI: Verify the status of the CMP Clusters</p>	<p>Upgrade Manager → System Maintenance</p> <ul style="list-style-type: none"> • Confirm status of the Primary CMP cluster: <ul style="list-style-type: none"> ○ Primary CMP cluster is on Release 12.2 ○ Secondary CMP Cluster (if present) is already on pre-12.2 Release ○ Up to Date Column shows 'Y' for all servers in Primary CMP Cluster <p><i>EXAMPLE:</i></p> <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">[-] CMP Site1 Cluster (2 Servers)</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">[-] CMP Site2 Cluster (2 Servers)</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	[-] CMP Site1 Cluster (2 Servers)						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	[-] CMP Site2 Cluster (2 Servers)						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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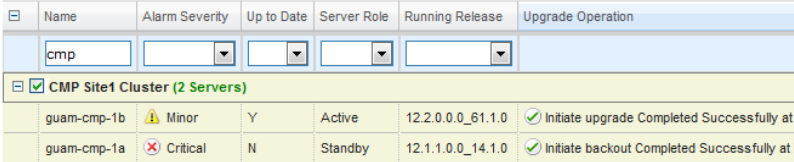
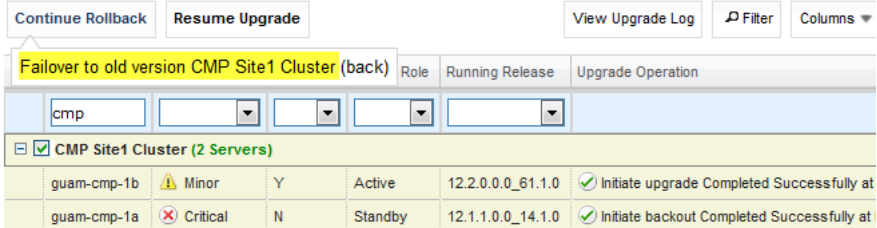

Software Upgrade Procedure

NOTE: For backout to a release prior to 12.1.x, the Primary CMP Site1 cluster uses both the Upgrade Manager and the pre-12.1.x System Maintenance option for backout. For backout to 12.1.x, you need only use the Upgrade Manager.

Step	Procedure	Result																				
<p>2. <input type="checkbox"/></p>	<p>CMP GUI: backout standby Primary CMP cluster</p> <p><i>NOTE: backout of one server will take ~40 minutes to complete.</i></p>	<p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Use the Filter button and enter 'cmp' in the box to display CMP clusters only Select the checkbox for the Primary CMP Cluster Select the 'Start Rollback' button. When hovering over the button, it will inform you that the standby server will be backed out.  <p>The screenshot shows the 'Initiate backout' dialog in the Upgrade Manager. At the top, there are 'Start Rollback' and 'Start Upgrade' buttons. Below them is a search bar containing 'cmp'. A table lists the servers in the 'CMP Site1 Cluster (2 Servers)'. The table has columns for 'Date', 'Server Role', and 'Running Release'.</p> <table border="1"> <thead> <tr> <th colspan="5">CMP Site1 Cluster (2 Servers)</th> </tr> <tr> <th></th> <th>Date</th> <th>Server Role</th> <th colspan="2">Running Release</th> </tr> </thead> <tbody> <tr> <td>guam-cmp-1b</td> <td>Y</td> <td>Active</td> <td colspan="2">12.2.0.0_61.1.0</td> </tr> <tr> <td>guam-cmp-1a</td> <td>Y</td> <td>Standby</td> <td colspan="2">12.2.0.0_61.1.0</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Select "OK" to confirm and continue with the operation. It will begin to backout. Server will go in an 'OOS' Server Role Follow the progress status under the "Upgrade Operation" column. 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>Expected Critical Alarms:</p> <ul style="list-style-type: none"> 31283 High availability server is offline 31227 High availability Status Failed 70001 QP_procmgr failed 31236 HA Link Down <p>Expected Major Alarm:</p> <ul style="list-style-type: none"> 70004 QP Processes down for maintenance 31233 HA Path Down <p>Expected Minor Alarms:</p> <ul style="list-style-type: none"> 31114 DB Replication over SOAP has failed 31106 DB Merge To Parent Failure 31107 DB Merge From Child Failure 31101 DB Replication To Slave Failure 31102 DB Replication from Master Failure 31113 DB Replication manually Disabled 70503 Upgrade Director Server Forced Standby 70507 Upgrade Director In Progress 70500 Upgrade Director System Mixed Version 70501 Upgrade Director Cluster Mixed Version 78001 RSYNC Failed 70502 Upgrade Director Cluster Replication Inhibited 	CMP Site1 Cluster (2 Servers)						Date	Server Role	Running Release		guam-cmp-1b	Y	Active	12.2.0.0_61.1.0		guam-cmp-1a	Y	Standby	12.2.0.0_61.1.0	
CMP Site1 Cluster (2 Servers)																						
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guam-cmp-1a	Y	Standby	12.2.0.0_61.1.0																			

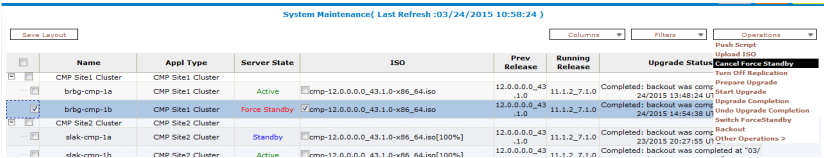
Software Upgrade Procedure

NOTE: For backout to a release prior to 12.1.x, the Primary CMP Site1 cluster uses both the Upgrade Manager and the pre-12.1.x System Maintenance option for backout. For backout to 12.1.x, you need only use the Upgrade Manager.

Step	Procedure	Result																								
3.		<ul style="list-style-type: none"> Backout of the server is complete when the message “Initiate backout completed successfully at...” shows under the ‘Upgrade Operation’ Column. The server will go back to standby state and show the previous release.  <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">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</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>Initiate backout Completed Successfully at</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	guam-cmp-1a	Critical	N	Standby	12.1.1.0.0_14.1.0	Initiate backout Completed Successfully at
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guam-cmp-1a	Critical	N	Standby	12.1.1.0.0_14.1.0	Initiate backout Completed Successfully at																					
4.	CMP GUI: Continue the backout. Next operation is « failover»	<p>Select Primary CMP Cluster.</p> <p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Click the checkbox for the Primary CMP cluster Click the ‘Continue Rollback’ button. When hovering over the button, it will inform you that the next action is to fail over to the old CMP version.  <p>Continue Rollback Resume Upgrade View Upgrade Log Filter Columns</p> <p>Failover to old version CMP Site1 Cluster (back) Role Running Release Upgrade Operation</p> <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">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</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>Initiate backout Completed Successfully at</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Select “OK” to confirm and continue with the operation. It will begin to failover. Failover takes a couple minutes. 	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	guam-cmp-1a	Critical	N	Standby	12.1.1.0.0_14.1.0	Initiate backout Completed Successfully at
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5.	CMP GUI: 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>  <p>ORACLE®</p> <p>WELCOME</p> <p>Welcome to the Configuration Management Platform (CMP). Please enter your user name and password below to access the CMP desktop. If you do not have an existing user name or password, or if you have misplaced either, please contact the system administrator.</p> <p>= You have logged out or your session has timed out. Please enter your username and password to start a new session.</p> <p>USERNAME <input type="text" value="ladmin"/></p> <p>PASSWORD <input type="password" value="*****"/></p> <p>Login</p>																								

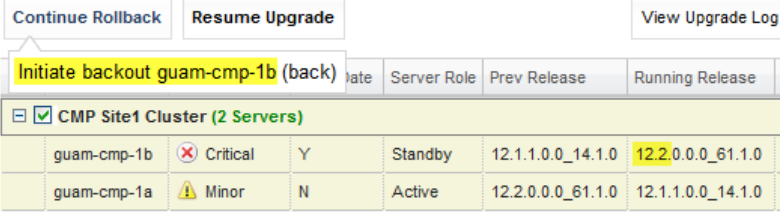
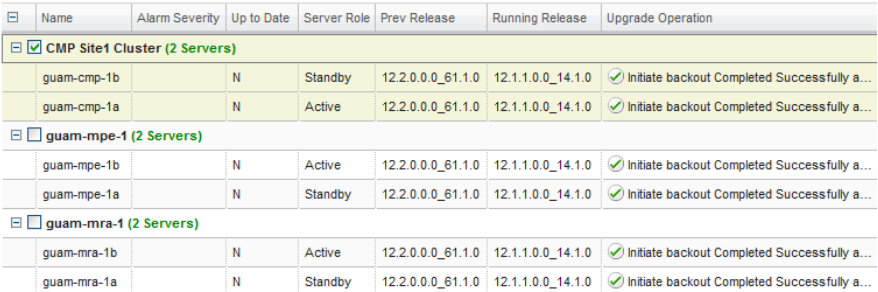
Software Upgrade Procedure

NOTE: For backout to a release prior to 12.1.x, the Primary CMP Site1 cluster uses both the Upgrade Manager and the pre-12.1.x System Maintenance option for backout. For backout to 12.1.x, you need only use the Upgrade Manager.

Step	Procedure	Result
6.	<input type="checkbox"/> CMP GUI: Verify release	<p>Navigate to Help→About. Verify the proper pre-12.2 release number is displayed</p> <p>If Rollback is for release 11.5.x, continue with step 7</p> <p>If Rollback is for Release 12.1.x, continue with step 9</p>
7.	<input type="checkbox"/> CMP GUI (Release 11.5): Continue the backout of the Primary CMP Cluster <p><i>NOTE: backout of one server will take ~30 minutes to complete.</i></p>	<p>Upgrade → System Maintenance</p> <ul style="list-style-type: none"> Select the checkbox for the remaining server in the Primary CMP Cluster. The server will be on 12.2 and show 'Forced Standby' Select operations→backout Click on "OK" on the pop up to continue Follow the progress status under the Upgrade Status' Column. Wait until the server to backout comes to backout complete. 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>Expected Critical Alarms: 31283 High availability server is offline</p> <p>Expected Major Alarm: 31233 High availability path loss of connectivity 31236 HA Link Down 70004 QP Processes down for maintenance</p> <p>Expected Minor Alarms: 31114 DB Replication over SOAP has failed 31106 DB Merge To Parent Failure 31107 DB Merge From Child Failure 31101 DB Replication To Slave Failure 31102 DB Replication from Master Failure 31113 DB Replication manually Disabled 31284 HA remote subscriber heartbeat</p>
8.	<input type="checkbox"/> CMP GUI: Remove Forced standby	<p>Upgrade → System Maintenance</p> <ul style="list-style-type: none"> Select the checkbox for the remaining server in the Primary CMP Cluster. The server will be on 11.5.x and show 'Forced Standby' NOTE: A refresh of the current screen may be necessary at the 40 minute mark. Select operations→cancel forced standby  <p>The screenshot shows a table with columns: Name, Appl Type, Server State, ISO, Prev Release, Running Release, and Upgrade Status. The 'Upgrade Status' column contains actions like 'Completed: backout was comp', 'Prepare Upgrade', 'Start Upgrade', 'Upgrade Completion', 'Switch ForceStandby', 'Backout', and 'Other Operations >'. The 'Server State' column shows 'Active', 'Force Standby', and 'Standby'.</p>
		<p>The backout procedure is now completed for release 11.5.x.</p>
9.	<input type="checkbox"/> CMP GUI (Release 12.1.x): Continue the backout of the Primary CMP Cluster	<p>Select Primary CMP cluster to complete the backout.</p> <p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the checkbox for the Primary CMP Cluster

Software Upgrade Procedure

NOTE: For backout to a release prior to 12.1.x, the Primary CMP Site1 cluster uses both the Upgrade Manager and the pre-12.1.x System Maintenance option for backout. For backout to 12.1.x, you need only use the Upgrade Manager.

Step	Procedure	Result
	<p>NOTE: backout of one server will take ~40 minutes to complete.</p>	<ul style="list-style-type: none"> Select the 'Continue Rollback' button. When hovering over the button, it will inform you that the standby server still running 12.2 will be backed out  <p>The screenshot shows a control panel with buttons for 'Continue Rollback', 'Resume Upgrade', and 'View Upgrade Log'. Below these is a table with columns: 'Initiate backout guam-cmp-1b (back)', 'State', 'Server Role', 'Prev Release', and 'Running Release'. A sub-section titled 'CMP Site1 Cluster (2 Servers)' contains two rows: 'guam-cmp-1b' (Critical, Standby, 12.1.1.0.0_14.1.0, 12.2.0.0.0_61.1.0) and 'guam-cmp-1a' (Minor, Active, 12.2.0.0.0_61.1.0, 12.1.1.0.0_14.1.0).</p> <ul style="list-style-type: none"> Select "OK" to confirm and continue with the operation. It will begin to backout. Server will go in an 'OOS' Server Role Follow the progress status under the "Upgrade Operation" column. 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>Expected Critical Alarms: 31283 High availability server is offline 31227 High availability Status Failed 70001 QP_procmgr failed</p> <p>Expected Major Alarm: 70004 QP Processes down for maintenance</p> <p>Expected Minor Alarms: 70503 Upgrade Director Server Forced Standby 70507 Upgrade Director In Progress 70500 Upgrade Director System Mixed Version 70501 Upgrade Director Cluster Mixed Version 78001 RSYNC Failed 70502 Upgrade Director Cluster Replication Inhibited 31114 DB Replication over SOAP has failed 31106 DB Merge To Parent Failure 31107 DB Merge From Child Failure 31101 DB Replication To Slave Failure 31102 DB Replication from Master Failure 31113 DB Replication manually Disabled</p> <ul style="list-style-type: none"> Backout of the server is complete when the message "Initiate backout completed successfully at..." shows under the 'Upgrade Operation' Column. The server will go back to standby state and show the previous release:  <p>The screenshot shows a table with columns: 'Name', 'Alarm Severity', 'Up to Date', 'Server Role', 'Prev Release', 'Running Release', and 'Upgrade Operation'. It lists several server groups: 'CMP Site1 Cluster (2 Servers)', 'guam-mpe-1 (2 Servers)', and 'guam-mra-1 (2 Servers)'. Each server in these groups shows a 'Success' status in the 'Upgrade Operation' column.</p>

Software Upgrade Procedure

NOTE: For backout to a release prior to 12.1.x, the Primary CMP Site1 cluster uses both the Upgrade Manager and the pre-12.1.x System Maintenance option for backout. For backout to 12.1.x, you need only use the Upgrade Manager.

Step	Procedure	Result
		All backout-related alarms should also be cleared.
THIS PROCEDURE HAS BEEN COMPLETED		

16. BACKOUT (ROLLBACK) CABLE MODE

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 Technical Services and Escalation team before initiating the backout procedure. They will determine the appropriate course of recovery options if any.

16.1 Backout Sequence

The backout sequence order is the reverse of the upgrade order as in the following sequence :

- Backout BOD cluster(s)
- Backout MPE-S cluster(s)
- Backout MPE-R cluster(s)
- Backout MA cluster(s)
- Backout Secondary CMP cluster (if applicable)
- Backout 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 an MPE, the upgrade/backout is NOT complete until the operator does a Reapply Configuration operation from the CMP. The MPE can still operate, but may not be fully functional.

16.2 Pre-requisites

- No new policies or features have been configured or executed on the upgraded release.
- The CMP cluster cannot be backed out if other Policy components (MPes, MAs and BODs) are still on the upgraded release.

16.3 Backout of Fully Upgraded Cluster

Prior to executing this procedure, Oracle recommends first consulting the Technical Services team, 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 release 11.5.X (MA, MPE, BOD, CMP) with Active, Standby status.

Expected pre-conditions:

- Primary Active CMP is on release 12.2
- Cluster is of MPE, MA, BOD or CMP
- One server of target cluster is on release 12.2 in Active role
- One server of target cluster is on release 12.2 in either Standby or Force Standby

16.3.1 Backout Sequence

This procedure applies to an Active/Standby group of servers. This group of servers will be referred to as a cluster or HA cluster. The cluster types are CMP, MA, BOD or MPE. For CMP cluster, the cluster status may also be Site1 and/or Site2.

16.3.1.1 Overview on Backout/Rollback BOD cluster

NOTE: The following procedure should be used to backout a 12.2 cluster to Policy 11.5.X.

- Use the CMP GUI to begin the backout of the BOD cluster

Software Upgrade Procedure

- Wait until successfully complete
- Failover
- Reapply the configuration
- Use the CMP GUI (Upgrade Manager) to continue the backout of the BOD cluster

16.3.1.2 Overview on Backout/Rollback MPE-S/R cluster

NOTE: The following procedure should be used to backout a 12.2 cluster to Policy 11.5.X.

- Use the CMP GUI to begin the backout of the MPE-S cluster
- Wait until successfully complete
- Failover
- Reapply the configuration
- Use the CMP GUI (Upgrade Manager) to continue the backout of the MPE-R cluster
- Use the CMP GUI to begin the backout of the MPE-R cluster
- Wait until successfully complete
- Failover
- Reapply the configuration
- Use the CMP GUI (Upgrade Manager) to continue the backout of the MPE-R cluster

16.3.1.3 Overview on Backout/Rollback MA cluster

NOTE: The following procedure should be used to backout a 12.2 cluster to Policy 11.5.X.

- Use the CMP GUI to begin the backout of the MA cluster
- Wait until successfully complete
- Failover
- Reapply the configuration
- Use the CMP GUI (Upgrade Manager) to continue the backout of the MA cluster

16.3.1.4 Backout Secondary CMP (If Applicable)

At this time, all MPEs, BOD and MAs must already be backed out.

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

16.3.1.5 Backout Primary CMP (11.5.X)

NOTE: Secondary CMP must already be backed out and all of the MPE/MRA clusters

- Use the CMP GUI (Upgrade Manager) to backout the Primary standby CMP cluster
- Log back in to the Primary CMP VIP
- Use the 11.5.X System Maintenance to complete backout of the Primary CMP cluster

16.3.2 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.

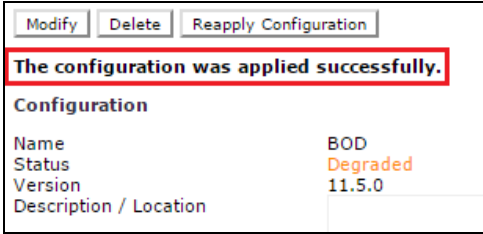
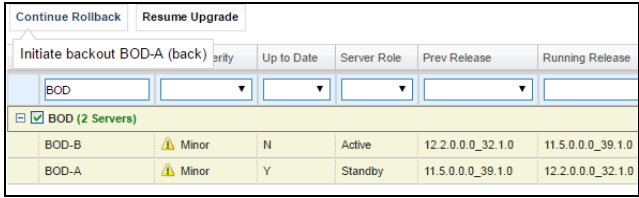
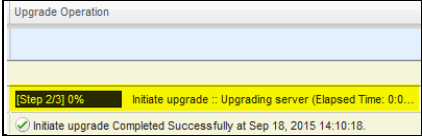
16.3.3 Backout Fully Upgraded BOD Cluster(s)

Step	Procedure	Result																																																	
1	<p>CMP GUI: Verify the status of affected clusters</p>	<p>Upgrade Manager → Upgrade Manager</p> <p>Confirm status of the cluster to be backed out:</p> <ul style="list-style-type: none"> • Primary Active CMP is on release 12.2 • All Standby servers are on release 12.2 • Up to Date column shows Y for all servers <p>EXAMPLE</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">BOD (2 Servers)</td> </tr> <tr> <td>BOD-B</td> <td></td> <td>Y</td> <td>Standby</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 10, 2016 9:54:50.</td> </tr> <tr> <td>BOD-A</td> <td></td> <td>Y</td> <td>Active</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 10, 2016 9:27:10.</td> </tr> <tr> <td colspan="7">CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td>Site1-CMP-A</td> <td></td> <td>Y</td> <td>Active</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 2, 2016 18:52:01.</td> </tr> <tr> <td>Site1-CMP-B</td> <td></td> <td>Y</td> <td>Standby</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 2, 2016 18:52:01.</td> </tr> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation	BOD (2 Servers)							BOD-B		Y	Standby	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 10, 2016 9:54:50.	BOD-A		Y	Active	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 10, 2016 9:27:10.	CMP Site1 Cluster (2 Servers)							Site1-CMP-A		Y	Active	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 2, 2016 18:52:01.	Site1-CMP-B		Y	Standby	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 2, 2016 18:52:01.
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2	<p>CMP GUI: Rollback standby BOD server</p> <p>NOTE: The backout of a single server takes approximately 40 minutes to complete.</p> <p>NOTE: Up to 4 clusters can be backed out at the same time, selecting one at a time.</p>	<p>Select the upgraded clusters to backout.</p> <p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> • Select the checkbox for the cluster (Select one cluster at a time) <ol style="list-style-type: none"> Click Start Rollback. When hovering over the button, it will inform you of the server to backout, in this case it will be the current standby server. <table border="1"> <thead> <tr> <th colspan="2">Start Rollback</th> <th colspan="2">Start Upgrade</th> </tr> <tr> <th>Initiate backout BOD-B (back)</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>Bod</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="6">BOD (2 Servers)</td> </tr> <tr> <td>BOD-B</td> <td>Y</td> <td>Standby</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 9, 2016 21:04:49</td> </tr> <tr> <td>BOD-A</td> <td>Y</td> <td>Active</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 9, 2016 19:22:09</td> </tr> </tbody> </table> <ol style="list-style-type: none"> Click OK to confirm and continue with the operation. It will begin to backout. <div> <p>Action Confirmation</p> <p>Are you sure that you want to perform this action? Initiate backout BOD-B (back)</p> <p>OK Cancel</p> </div> <p>Follow the progress status in the Upgrade Operation column.</p> <table border="1"> <thead> <tr> <th>Upgrade Operation</th> </tr> </thead> <tbody> <tr> <td>[Step 2/3] 0% Initiate upgrade :: Upgrading server (Elapsed Time: 0:0...</td> </tr> <tr> <td>Initiate upgrade Completed Successfully at Sep 18, 2015 14:10:18.</td> </tr> </tbody> </table> <p>The server backing out will go into OOS state. Wait until the server goes to an OOS state before selecting the next cluster to backout. 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>Expected Critical Alarms</p> <ul style="list-style-type: none"> 31283 Lost Communication with server 31227 HA availability status failed 	Start Rollback		Start Upgrade		Initiate backout BOD-B (back)	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation	Bod						BOD (2 Servers)						BOD-B	Y	Standby	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 9, 2016 21:04:49	BOD-A	Y	Active	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 9, 2016 19:22:09	Upgrade Operation	[Step 2/3] 0% Initiate upgrade :: Upgrading server (Elapsed Time: 0:0...	Initiate upgrade Completed Successfully at Sep 18, 2015 14:10:18.												
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Software Upgrade Procedure

Step	Procedure	Result																																																								
		<p>70001 QP_procmgr failed</p> <p>Expected Major Alarms</p> <p>70004 QP Processes down for maintenance</p> <p>31233 HA Path Down</p> <p>Expected Minor Alarms</p> <p>70503 Server Forced Standby</p> <p>70507 Upgrade In Progress</p> <p>70500 System Mixed Version</p> <p>70501 Cluster Mixed Version</p> <p>78001 Rsync Failed</p> <p>70502 Cluster Replication Inhibited</p> <p>31114 DB replication over SOAP has failed</p> <p>31106 Database merge to parent failure</p> <p>31107 Database merge from child failure</p> <p>31101 Database replication to slave failure</p> <p>31102 Database replication from master failure</p> <p>31113 DB replication manually disabled</p> <p>31282 HA Management Fault</p> <p>Backout of the server is complete when the 'Initial backout Completed Successfully...' shows in the Upgrade Operation column. The server will show running release of 11.5.X , role is back to standby role and up to date value is set to "N".</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">BOD (2 Servers)</td> </tr> <tr> <td>BOD-B</td> <td>Minor</td> <td>N</td> <td>Standby</td> <td>12.2.0.0_32.1.0</td> <td>11.5.0.0_39.1.0</td> <td>✓ Initiate backout Completed Successfully at Nov 10, 2016 8:21:29</td> </tr> <tr> <td>BOD-A</td> <td>Minor</td> <td>Y</td> <td>Active</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>✓ Initiate upgrade Completed Successfully at Nov 9, 2016 19:22:09</td> </tr> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation	BOD (2 Servers)							BOD-B	Minor	N	Standby	12.2.0.0_32.1.0	11.5.0.0_39.1.0	✓ Initiate backout Completed Successfully at Nov 10, 2016 8:21:29	BOD-A	Minor	Y	Active	11.5.0.0_39.1.0	12.2.0.0_32.1.0	✓ Initiate upgrade Completed Successfully at Nov 9, 2016 19:22:09																												
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<p>3 <input type="checkbox"/></p>	<p>CMP GUI: Continue the backout of the BOD clusters. Next operation is failover to the 11.5.X server.</p> <p>NOTE: Up to 4 clusters can be backed out at the same time, selecting one at a time.</p>	<p>Select the partially backed out cluster to backout.</p> <p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the checkbox for the cluster (Select one cluster at a time.) <ol style="list-style-type: none"> Click Continue Rollback. When hovering over the button, it will inform you to failover to old version. <table border="1"> <thead> <tr> <th colspan="2">Continue Rollback</th> <th colspan="5">Resume Upgrade</th> </tr> <tr> <th colspan="2">Failover to old version BOD (back)</th> <th>Up to Date</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> </tr> </thead> <tbody> <tr> <td colspan="7">BOD (2 Servers)</td> </tr> <tr> <td>BOD-B</td> <td>Minor</td> <td>N</td> <td>Standby</td> <td>12.2.0.0_32.1.0</td> <td>11.5.0.0_39.1.0</td> </tr> <tr> <td>BOD-A</td> <td>Minor</td> <td>Y</td> <td>Active</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> </tr> </tbody> </table> <ol style="list-style-type: none"> Click OK to confirm and continue with the operation. It will begin to failover the cluster. <p>Wait until the server fails over before selecting the next cluster. This will take a minute or two.</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 colspan="6">BOD (2 Servers)</td> </tr> <tr> <td>BOD-B</td> <td>Minor</td> <td>N</td> <td>Active</td> <td>12.2.0.0_32.1.0</td> <td>11.5.0.0_39.1.0</td> </tr> <tr> <td>BOD-A</td> <td>Minor</td> <td>Y</td> <td>Standby</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> </tr> </tbody> </table>	Continue Rollback		Resume Upgrade					Failover to old version BOD (back)		Up to Date	Server Role	Prev Release	Running Release	BOD (2 Servers)							BOD-B	Minor	N	Standby	12.2.0.0_32.1.0	11.5.0.0_39.1.0	BOD-A	Minor	Y	Active	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	BOD (2 Servers)						BOD-B	Minor	N	Active	12.2.0.0_32.1.0	11.5.0.0_39.1.0	BOD-A	Minor	Y	Standby	11.5.0.0_39.1.0	12.2.0.0_32.1.0
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Software Upgrade Procedure

Step	Procedure	Result
4 <input type="checkbox"/>	<p>CMP GUI: Reapply the configuration to the BOD cluster that completed the failover successfully.</p>	<p>Navigate to: BOD → Configuration → <BOD cluster name> → System</p> <p>The selected cluster will have the status of Degraded. This is expected</p> <ul style="list-style-type: none"> Click Reapply Configuration. <p>The running version is successfully changed to the previous 11.5.X release</p>  <p>NOTE: The status still showing Degraded is a normal reporting event because the servers currently have different releases.</p>
5 <input type="checkbox"/>	<p>CMP GUI: Complete backout of cluster(s)</p> <p>NOTE: The backout of a single server takes approximately 35 minutes to complete.</p> <p>NOTE: Up to 4 clusters can be backed out at the same time, selecting one at a time.</p>	<ul style="list-style-type: none"> Select the partially Backed out cluster <p>Upgrade → Upgrade Manager</p> <ol style="list-style-type: none"> Select the checkbox for the cluster (one cluster at a time) Click Continue Rollback. When hovering over the button, it will inform you of the server to get backed out.  <p>Click OK to confirm and continue with the operation. It will begin to backout. Follow the progress 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>Expected Critical Alarms</p> <ul style="list-style-type: none"> 31283 Lost Communication with server 31227 HA availability status failed 70001 QP_procMgr failed <p>Expected Major Alarms</p> <ul style="list-style-type: none"> 70004 QP Processes down for maintenance 31233 HA Path Down 31126 Audit blocked <p>Expected Minor Alarms</p> <ul style="list-style-type: none"> 70503 Server Forced Standby 70507 Upgrade In Progress 70500 System Mixed Version 70501 Cluster Mixed Version 78001 Rsync Failed

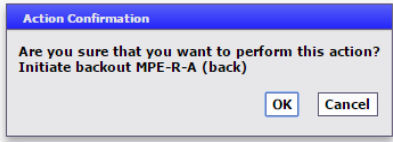
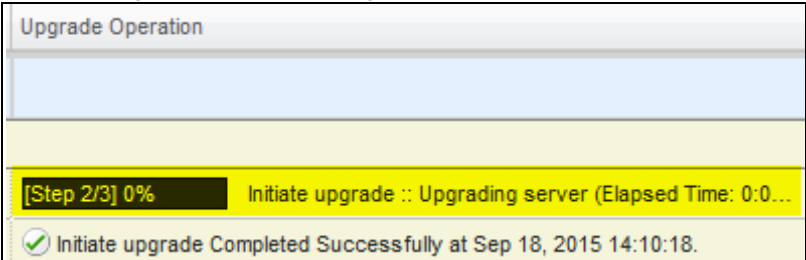
Software Upgrade Procedure

Step	Procedure	Result																												
		<p>70502 Cluster Replication Inhibited</p> <p>31114 DB replication over SOAP has failed</p> <p>31106 Database merge to parent failure</p> <p>31107 Database merge from child failure</p> <p>31101 Database replication to slave failure</p> <p>31102 Database replication from master failure</p> <p>31113 DB replication manually disabled</p> <p>31282 HA Management Fault</p> <p>Backout of the servers is complete when the message 'Initiate backout Completed Successfully...' shows in the Upgrade Operation column. All of the servers will be on the previous release, up to date value is set to "N" and show active/standby.</p> <table border="1"> <thead> <tr> <th colspan="7">BOD (2 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>BOD-B</td> <td></td> <td>N</td> <td>Active</td> <td>12.2.0.0_32.1.0</td> <td>11.5.0.0_39.1.0</td> <td>Initiate backout Completed Successfully at Nov 10, 2016 8:21:29</td> </tr> <tr> <td>BOD-A</td> <td></td> <td>N</td> <td>Standby</td> <td>12.2.0.0_32.1.0</td> <td>11.5.0.0_39.1.0</td> <td>Initiate backout Completed Successfully at Nov 10, 2016 8:56:59</td> </tr> </tbody> </table>	BOD (2 Servers)							Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation	BOD-B		N	Active	12.2.0.0_32.1.0	11.5.0.0_39.1.0	Initiate backout Completed Successfully at Nov 10, 2016 8:21:29	BOD-A		N	Standby	12.2.0.0_32.1.0	11.5.0.0_39.1.0	Initiate backout Completed Successfully at Nov 10, 2016 8:56:59
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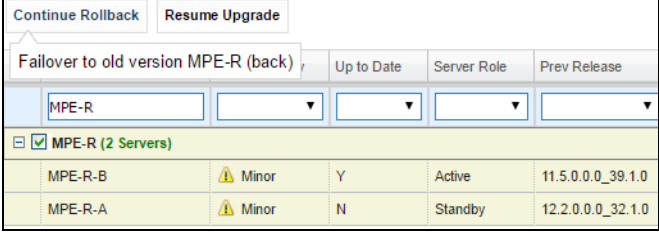
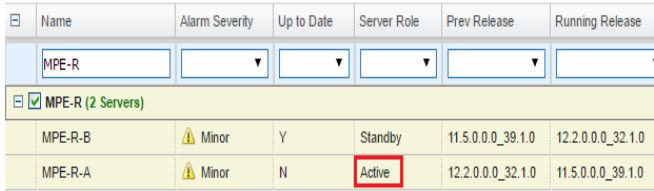
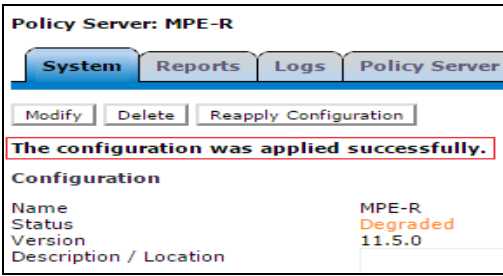
16.3.4 Backout Fully Upgraded MPE-S/R Cluster(s)

Step	Procedure	Result																																																																						
1 <input type="checkbox"/>	<p>CMP GUI: Verify the status of affected clusters</p>	<p>Upgrade Manager → Upgrade Manager</p> <p>Confirm status of the cluster to be backed out:</p> <ul style="list-style-type: none"> Primary Active CMP is on release 12.2 All Standby servers are on release 12.2 Up to Date column shows Y for all servers <p>EXAMPLE</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">CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td>Site1-CMP-A</td> <td></td> <td>Y</td> <td>Active</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 2, 2016 18:52:01</td> </tr> <tr> <td>Site1-CMP-B</td> <td></td> <td>Y</td> <td>Standby</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 2, 2016 18:52:01</td> </tr> <tr> <td colspan="7">MPE-R (2 Servers)</td> </tr> <tr> <td>MPE-R-B</td> <td></td> <td>Y</td> <td>Active</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 8, 2016 23:30:18</td> </tr> <tr> <td>MPE-R-A</td> <td></td> <td>Y</td> <td>Standby</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 9, 2016 7:13:48</td> </tr> <tr> <td colspan="7">MPE-S (2 Servers)</td> </tr> <tr> <td>MPE-S-A</td> <td></td> <td>Y</td> <td>Standby</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 9, 2016 11:50:59</td> </tr> <tr> <td>MPE-S-B</td> <td></td> <td>Y</td> <td>Active</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 9, 2016 11:18:59</td> </tr> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation	CMP Site1 Cluster (2 Servers)							Site1-CMP-A		Y	Active	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 2, 2016 18:52:01	Site1-CMP-B		Y	Standby	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 2, 2016 18:52:01	MPE-R (2 Servers)							MPE-R-B		Y	Active	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 8, 2016 23:30:18	MPE-R-A		Y	Standby	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 9, 2016 7:13:48	MPE-S (2 Servers)							MPE-S-A		Y	Standby	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 9, 2016 11:50:59	MPE-S-B		Y	Active	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 9, 2016 11:18:59
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2 <input type="checkbox"/>	<p>CMP GUI: Rollback standby MPE-R server</p> <p>NOTE: The backout of a single server takes approximately 40 minutes to complete.</p> <p>NOTE: Up to 4 clusters can be backed out at the same time, selecting one at a time.</p>	<p>Select the upgraded clusters to backout.</p> <p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the checkbox for the cluster (Select one cluster at a time) <ul style="list-style-type: none"> a) Click Start Rollback. When hovering over the button, it will inform you of the server to backout, in this case it will be the current standby server. <table border="1"> <thead> <tr> <th colspan="2">Start Rollback</th> <th colspan="2">Start Upgrade</th> </tr> <tr> <th colspan="7">Initiate backout MPE-R-A (back)</th> </tr> <tr> <th>Severity</th> <th>Up to Date</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> <th colspan="2"></th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td colspan="2"></td> </tr> <tr> <td colspan="7">MPE-R (2 Servers)</td> </tr> <tr> <td>MPE-R-B</td> <td>Minor</td> <td>Y</td> <td>Active</td> <td>11.5.0.0_39.1.0</td> <td colspan="2">12.2.0.0_32.1.0</td> </tr> <tr> <td>MPE-R-A</td> <td>Minor</td> <td>Y</td> <td>Standby</td> <td>11.5.0.0_39.1.0</td> <td colspan="2">12.2.0.0_32.1.0</td> </tr> </tbody> </table>	Start Rollback		Start Upgrade		Initiate backout MPE-R-A (back)							Severity	Up to Date	Server Role	Prev Release	Running Release										MPE-R (2 Servers)							MPE-R-B	Minor	Y	Active	11.5.0.0_39.1.0	12.2.0.0_32.1.0		MPE-R-A	Minor	Y	Standby	11.5.0.0_39.1.0	12.2.0.0_32.1.0																									
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MPE-R-B	Minor	Y	Active	11.5.0.0_39.1.0	12.2.0.0_32.1.0																																																																			
MPE-R-A	Minor	Y	Standby	11.5.0.0_39.1.0	12.2.0.0_32.1.0																																																																			

Software Upgrade Procedure

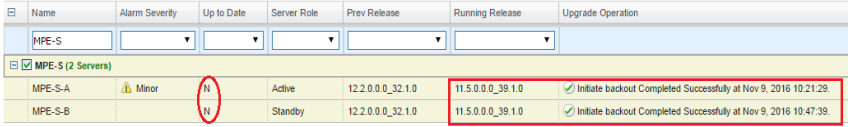
Step	Procedure	Result																																			
		<p>b) Click OK to confirm and continue with the operation. It will begin to backout.</p>  <p>Follow the progress status in the Upgrade Operation column.</p>  <p>The server backing out will go into OOS state. Wait until the server goes to an OOS state before selecting the next cluster to backout. 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>Expected Critical Alarms</p> <ul style="list-style-type: none"> 31283 Lost Communication with server 31227 HA availability status failed 70001 QP_procmgr failed <p>Expected Major Alarms</p> <ul style="list-style-type: none"> 70004 QP Processes down for maintenance 31233 HA Path Down <p>Expected Minor Alarms</p> <ul style="list-style-type: none"> 70503 Server Forced Standby 70507 Upgrade In Progress 70500 System Mixed Version 70501 Cluster Mixed Version 78001 Rsync Failed 70502 Cluster Replication Inhibited 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 31102 Database replication from master failure 31113 DB replication manually disabled 31282 HA Management Fault <p>Backout of the servers is complete when the 'Initial backout Completed Successfully...' shows in the Upgrade Operation column. The server will show running release of 11.5.X , role is back to standby role and up to date value is set to "N".</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>MPE-R</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="7">MPE-R (2 Servers)</td> </tr> <tr> <td>MPE-R-B</td> <td>Minor</td> <td>Y</td> <td>Active</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 8, 2016 20:04:48</td> </tr> <tr> <td>MPE-R-A</td> <td>Minor</td> <td>N</td> <td>Standby</td> <td>12.2.0.0_32.1.0</td> <td>11.5.0.0_39.1.0</td> <td>Initiate backout Completed Successfully at Nov 8, 2016 21:38:07</td> </tr> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation	MPE-R							MPE-R (2 Servers)							MPE-R-B	Minor	Y	Active	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 8, 2016 20:04:48	MPE-R-A	Minor	N	Standby	12.2.0.0_32.1.0	11.5.0.0_39.1.0	Initiate backout Completed Successfully at Nov 8, 2016 21:38:07
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Software Upgrade Procedure

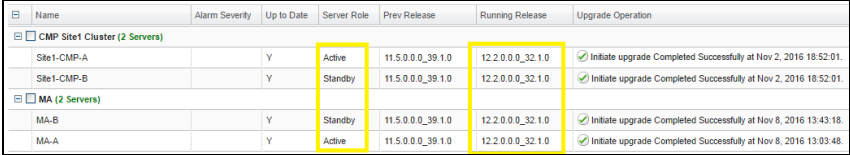
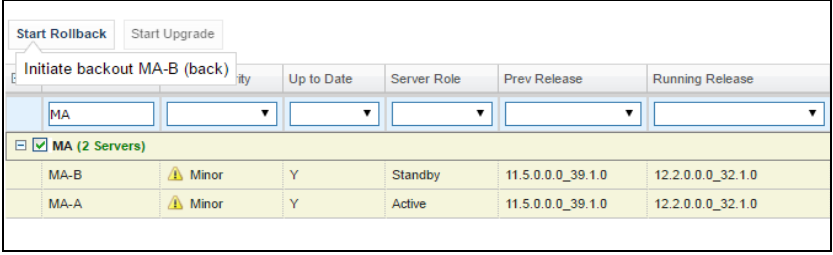
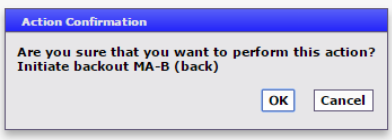
Step	Procedure	Result
3 <input type="checkbox"/>	<p>CMP GUI: Continue the backout of the MPE-R clusters. Next operation is failover to the 11.5.X server.</p> <p>NOTE: Up to 4 clusters can be backed out at the same time, selecting one at a time.</p>	<p>Select the partially backed out cluster to backout. Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the checkbox for the cluster (Select one cluster at a time) <p>Click Continue Rollback. When hovering over the button, it will inform you to failover to old version.</p>  <p>Click OK to confirm and continue with the operation. It will begin to failover the cluster.</p> <p>Wait until the server fails over before selecting the next cluster. This will take a minute or two.</p> 
4 <input type="checkbox"/>	<p>CMP GUI: Reapply the configuration to the MPE-R cluster that completed the failover successfully.</p>	<p>Navigate to: Policy Server → Configuration → <MPE-R cluster name> → System</p> <p>The selected cluster will have the status of Degraded. This is expected</p> <ul style="list-style-type: none"> Click Reapply Configuration. <p>The running version is successfully changed to the previous 11.5.X release</p>  <p>NOTE: The status still showing Degraded is a normal reporting event because the servers currently have different releases.</p>
5 <input type="checkbox"/>	<p>CMP GUI: Complete backout of cluster(s)</p> <p>NOTE: The backout of a single server takes approximately 35 minutes to complete.</p> <p>NOTE: Up to 4 clusters can be backed out at the same time, selecting one at a time.</p>	<ul style="list-style-type: none"> Select the partially Backed out cluster <p>Upgrade → Upgrade Manager</p> <p>Select the checkbox for the cluster (one cluster at a time)</p> <ol style="list-style-type: none"> Click Continue Rollback. When hovering over the button, it will inform you of the server to get backed out.

Step	Procedure	Result
		<div style="border: 1px solid black; padding: 5px;"> </div> <p>b) Click OK to confirm and continue with the operation. It will begin to backout.</p> <p>Follow the progress status in the Upgrade Operation column.</p> <div style="border: 1px solid gray; padding: 5px;"> </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>Expected Critical Alarms</p> <ul style="list-style-type: none"> 31283 Lost Communication with server 31227 HA availability status failed 70001 QP_procmgr failed <p>Expected Major Alarms</p> <ul style="list-style-type: none"> 70004 QP Processes down for maintenance 31233 HA Path Down 31126 Audit blocked <p>Expected Minor Alarms</p> <ul style="list-style-type: none"> 70503 Server Forced Standby 70507 Upgrade In Progress 70500 System Mixed Version 70501 Cluster Mixed Version 78001 Rsync Failed 70502 Cluster Replication Inhibited 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 31102 Database replication from master failure 31113 DB replication manually disabled 31282 HA Management Fault <p>Backout of the server is complete when the message 'Initiate backout Completed Successfully...' shows in the Upgrade Operation column. All of the servers will be on the previous release, up to date value is set to "N" and show active/standby.</p> <div style="border: 1px solid gray; padding: 5px;"> </div>
6	<input type="checkbox"/> CMP GUI: Rollback standby MPE-S cluster(s)	<p>Follow same instructions above in this procedure to roll back upgraded MPE-S cluster(s).</p> <p>Successful Roll back operation of the MPE-S servers indicates successfully completion, up to date flag indicates "N" and running release has the 11.5.X release for both MPE-S servers.</p>

Software Upgrade Procedure

Step	Procedure	Result
		
THIS PROCEDURE HAS BEEN COMPLETED		

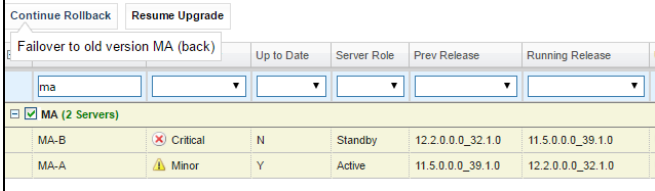
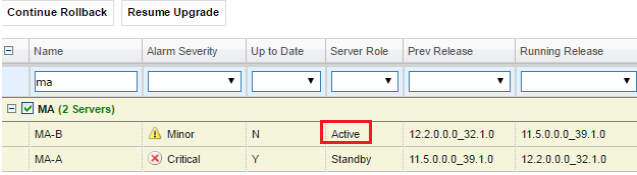

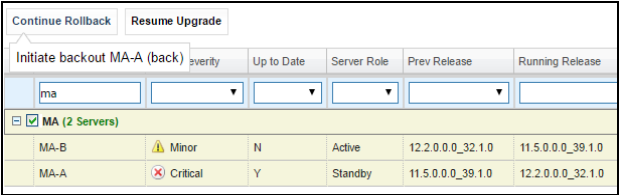
16.3.5 Backout Fully Upgraded MA Cluster(s)

Step	Procedure	Result
1 <input type="checkbox"/>	CMP GUI: Verify the status of affected clusters	<p>Upgrade Manager → Upgrade Manager</p> <p>Confirm status of the cluster to be backed out:</p> <ul style="list-style-type: none"> Primary Active CMP is on release 12.2 All Standby servers are on release 12.2 Up to Date column shows Y for all servers <p>EXAMPLE</p> 
2 <input type="checkbox"/>	CMP GUI: Rollback standby MA server NOTE: The backout of a single server takes approximately 40 minutes to complete. NOTE: Up to 4 clusters can be backed out at the same time, selecting one at a time.	<p>Select the upgraded clusters to backout. Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the checkbox for the cluster (Select one cluster at a time) <ol style="list-style-type: none"> Click Start Rollback. When hovering over the button, it will inform you of the server to backout, in this case it will be the current standby server.  <ol style="list-style-type: none"> Click OK to confirm and continue with the operation. It will begin to backout.  <p>Follow the progress status in the Upgrade Operation column.</p>

Software Upgrade Procedure

Step	Procedure	Result																												
		<div style="border: 1px solid black; padding: 5px;"> <p>Upgrade Operation</p> <hr/> <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>The server backing out will go into OOS state. 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. These will be cleared after the cluster is completely backed out.</p> <p>Expected Critical Alarms</p> <p>31283 Lost Communication with server 31227 HA availability status failed 70001 QP_procmgr failed</p> <p>Expected Major Alarms</p> <p>70004 QP Processes down for maintenance 31233 HA Path Down</p> <p>Expected Minor Alarms</p> <p>70503 Server Forced Standby 70507 Upgrade In Progress 70500 System Mixed Version 70501 Cluster Mixed Version 78001 Rsync Failed 70502 Cluster Replication Inhibited 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 31102 Database replication from master failure 31113 DB replication manually disabled 31282 HA Management Fault</p> <p>Backout of the servers is complete when the 'Initial backout Completed Successfully...' shows in the Upgrade Operation column. The server will show running release of 11.5.X , role is back to standby role and up to date value is set to "N".</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">MA (2 Servers)</td> </tr> <tr> <td>MA-B</td> <td>Critical</td> <td>N</td> <td>Standby</td> <td>12.2.0.0_0_32.1.0</td> <td>11.5.0.0_0_39.1.0</td> <td>✔ Initiate backout Completed Successfully at Nov 8, 2016 11:44:47</td> </tr> <tr> <td>MA-A</td> <td>Minor</td> <td>Y</td> <td>Active</td> <td>11.5.0.0_0_39.1.0</td> <td>12.2.0.0_0_32.1.0</td> <td>✔ Initiate upgrade Completed Successfully at Nov 8, 2016 10:15:18.</td> </tr> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation	MA (2 Servers)							MA-B	Critical	N	Standby	12.2.0.0_0_32.1.0	11.5.0.0_0_39.1.0	✔ Initiate backout Completed Successfully at Nov 8, 2016 11:44:47	MA-A	Minor	Y	Active	11.5.0.0_0_39.1.0	12.2.0.0_0_32.1.0	✔ Initiate upgrade Completed Successfully at Nov 8, 2016 10:15:18.
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MA-B	Critical	N	Standby	12.2.0.0_0_32.1.0	11.5.0.0_0_39.1.0	✔ Initiate backout Completed Successfully at Nov 8, 2016 11:44:47																								
MA-A	Minor	Y	Active	11.5.0.0_0_39.1.0	12.2.0.0_0_32.1.0	✔ Initiate upgrade Completed Successfully at Nov 8, 2016 10:15:18.																								
3	<input type="checkbox"/> <p>CMP GUI: Continue the backout of the MA clusters. Next operation is failover to the 11.5.X server.</p> <p>NOTE: Up to 4 clusters can be backed out at the same time, selecting one at a</p>	<p>Select the partially backed out cluster to backout.</p> <p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> • Select the checkbox for the cluster (Select one cluster at a time) <ul style="list-style-type: none"> a) Click Continue Rollback. When hovering over the button, it will inform you to failover to old version. 																												

Software Upgrade Procedure

Step	Procedure	Result
	time.	 <p>b) Click OK to confirm and continue with the operation. It will begin to failover the cluster.</p> <p>Wait until the server fails over before selecting the next cluster. This will take a minute or two.</p> 
4	<input type="checkbox"/> CMP GUI: Reapply the configuration to the MA cluster that completed the failover successfully.	<p>Navigate to: Policy Server → Management Agents → <MA cluster name> → System</p> <p>The selected cluster will have the status of Degraded. This is expected</p> <ul style="list-style-type: none"> Click Reapply Configuration. <p>The running version is successfully changed to the previous 11.5.X release</p>  <p>NOTE: The status still showing Degraded is a normal reporting event because the servers currently have different releases.</p>
5	<input type="checkbox"/> CMP GUI: Complete backout of MA cluster NOTE: The backout of a single server takes approximately 35 minutes to complete. NOTE: Up to 4 clusters can be backed out at the same time, selecting one at a time.	<ul style="list-style-type: none"> Select the partially Backed out cluster <p>Upgrade → Upgrade Manager</p> <p>Select the checkbox for the cluster (one cluster at a time)</p> <p>a) Click Continue Rollback. When hovering over the button, it will inform you of the server to get backed out.</p>  <p>b) Click OK to confirm and continue with the operation. It will begin to backout.</p> <p>Follow the progress status in the Upgrade Operation column.</p>

Software Upgrade Procedure

Step	Procedure	Result																			
		<div style="border: 1px solid black; padding: 2px;"> <p>Upgrade Operation</p> <hr/> <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>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>Expected Critical Alarms</p> <p> 31283 Lost Communication with server 31227 HA availability status failed 70001 QP_procmgr failed </p> <p>Expected Major Alarms</p> <p> 70004 QP Processes down for maintenance 31233 HA Path Down 31126 Audit blocked </p> <p>Expected Minor Alarms</p> <p> 70503 Server Forced Standby 70507 Upgrade In Progress 70500 System Mixed Version 70501 Cluster Mixed Version 78001 Rsync Failed 70502 Cluster Replication Inhibited 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 31102 Database replication from master failure 31113 DB replication manually disabled 31282 HA Management Fault </p> <p>Backout of the server is complete when the message 'Initiate backout Completed Successfully...' shows in the Upgrade Operation column. All of the servers will be on the previous release, up to date value is set to "N" and show active/standby.</p> <div style="border: 1px solid black; padding: 2px;"> <table border="1"> <thead> <tr> <th colspan="7">MA (2 Servers)</th> </tr> </thead> <tbody> <tr> <td>MA-B</td> <td>N</td> <td>Active</td> <td>12.2.0.0.0_32.1.0</td> <td>11.5.0.0.0_39.1.0</td> <td>✓ Initiate backout Completed Successfully at Nov 8, 2016 11:44:7.</td> </tr> <tr> <td>MA-A</td> <td>N</td> <td>Standby</td> <td>12.2.0.0.0_32.1.0</td> <td>11.5.0.0.0_39.1.0</td> <td>✓ Initiate backout Completed Successfully at Nov 8, 2016 12:19:07.</td> </tr> </tbody> </table> </div>	MA (2 Servers)							MA-B	N	Active	12.2.0.0.0_32.1.0	11.5.0.0.0_39.1.0	✓ Initiate backout Completed Successfully at Nov 8, 2016 11:44:7.	MA-A	N	Standby	12.2.0.0.0_32.1.0	11.5.0.0.0_39.1.0	✓ Initiate backout Completed Successfully at Nov 8, 2016 12:19:07.
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MA-B	N	Active	12.2.0.0.0_32.1.0	11.5.0.0.0_39.1.0	✓ Initiate backout Completed Successfully at Nov 8, 2016 11:44:7.																
MA-A	N	Standby	12.2.0.0.0_32.1.0	11.5.0.0.0_39.1.0	✓ Initiate backout Completed Successfully at Nov 8, 2016 12:19:07.																
THIS PROCEDURE HAS BEEN COMPLETED																					

16.3.6 Backout Fully Upgraded Secondary/Primary CMP Cluster

In case a Secondary CMP cluster is deployed, it needs to be backed out first. The following procedure applies to both Primary and Secondary CMP clusters.

NOTE: The Secondary CMP Site2 cluster should be backed out first if deployed followed by the Primary CMP Site1 cluster.

Step	Procedure	Result
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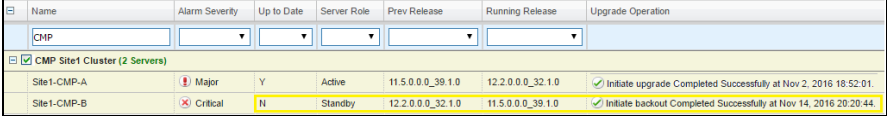
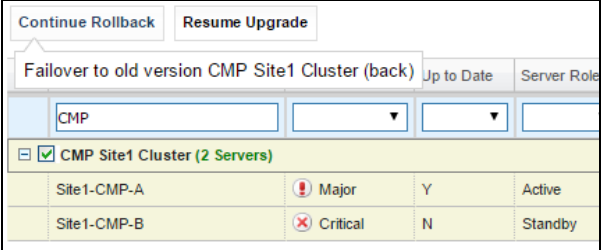
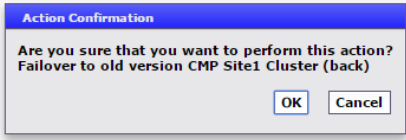
Software Upgrade Procedure

NOTE: The Secondary CMP Site2 cluster should be backed out first if deployed followed by the Primary CMP Site1 cluster.

Step	Procedure	Result																																																																
1	<p><input type="checkbox"/> CMP GUI: Verify the status of the CMP clusters</p>	<p>Upgrade Manager → System Maintenance</p> <p>Confirm status of the cluster to be backed out:</p> <ul style="list-style-type: none"> The CMP is on release 12.2 Up to Date column shows Y for all servers in Primary CMP cluster <p>NOTE: The Filter button can be used to show only the CMP servers. Enter CMP in the Name field.</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>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>Site1-CMP-A</td> <td></td> <td>Y</td> <td>Active</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> </tr> <tr> <td>Site1-CMP-B</td> <td></td> <td>Y</td> <td>Standby</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> </tr> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	CMP						CMP Site1 Cluster (2 Servers)						Site1-CMP-A		Y	Active	11.5.0.0_39.1.0	12.2.0.0_32.1.0	Site1-CMP-B		Y	Standby	11.5.0.0_39.1.0	12.2.0.0_32.1.0																																		
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Site1-CMP-A		Y	Active	11.5.0.0_39.1.0	12.2.0.0_32.1.0																																																													
Site1-CMP-B		Y	Standby	11.5.0.0_39.1.0	12.2.0.0_32.1.0																																																													
2	<p><input type="checkbox"/> CMP GUI: backout standby CMP cluster</p> <p>NOTE: Backout of one server will take approximately 40 minutes to complete.</p>	<p>Select the Primary CMP cluster to backout.</p> <p>Upgrade → Upgrade Manager</p> <ul style="list-style-type: none"> Select the checkbox for the CMP cluster <ol style="list-style-type: none"> Click Start Rollback. When hovering over the button, it will inform you of the server to get backed out, in this case it will be the current standby server. Click OK to confirm and continue with the operation. It will begin to backout. The server will go into an OOS server Role <table border="1"> <thead> <tr> <th colspan="2">Start Rollback</th> <th colspan="2">Start Upgrade</th> <th colspan="4">Initiate backout Site1-CMP-B (back)</th> </tr> <tr> <th></th> <th>Severity</th> <th>Up to Date</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> <th colspan="2"></th> </tr> </thead> <tbody> <tr> <td>CMP</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td colspan="2"></td> </tr> <tr> <td colspan="8">CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td>Site1-CMP-A</td> <td>Major</td> <td>Y</td> <td>Active</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td colspan="2"></td> </tr> <tr> <td>Site1-CMP-B</td> <td></td> <td>Y</td> <td>Standby</td> <td>11.5.0.0_39.1.0</td> <td>12.2.0.0_32.1.0</td> <td colspan="2"></td> </tr> </tbody> </table> <p>Follow the progress of the status in the Upgrade Operation column.</p> <table border="1"> <thead> <tr> <th>Site1-CMP-B</th> <th>Alarm Severity</th> <th>Up to Date</th> <th>Server Role</th> <th>Prev Release</th> <th>Running Release</th> <th>Progress</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>Site1-CMP-B</td> <td>Critical</td> <td>N</td> <td>Standby</td> <td>12.2.0.0_32.1.0</td> <td>12.2.0.0_32.1.0</td> <td>Step 1/1] 2%</td> <td>Initiate backout :: Initiate backout (Elapsed Time: 0:00:06)</td> </tr> </tbody> </table> <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>Expected Critical Alarms</p> <ul style="list-style-type: none"> 31283 Lost Communication with server 31227 HA availability status failed 70001 QP_procmgr failed 31236 HA Link Down 	Start Rollback		Start Upgrade		Initiate backout Site1-CMP-B (back)					Severity	Up to Date	Server Role	Prev Release	Running Release			CMP								CMP Site1 Cluster (2 Servers)								Site1-CMP-A	Major	Y	Active	11.5.0.0_39.1.0	12.2.0.0_32.1.0			Site1-CMP-B		Y	Standby	11.5.0.0_39.1.0	12.2.0.0_32.1.0			Site1-CMP-B	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	Progress	Operation	Site1-CMP-B	Critical	N	Standby	12.2.0.0_32.1.0	12.2.0.0_32.1.0	Step 1/1] 2%	Initiate backout :: Initiate backout (Elapsed Time: 0:00:06)
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Software Upgrade Procedure

NOTE: The Secondary CMP Site2 cluster should be backed out first if deployed followed by the Primary CMP Site1 cluster.

Step	Procedure	Result																																			
		<p>Expected Major Alarm</p> <p>70004 QP Processes down for maintenance 31233 HA Path Down</p> <p>Expected Minor Alarms</p> <p>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 31102 Database replication from master failure 31113 DB replication manually disabled 70503 Server Forced Standby 70507 Upgrade In Progress 70500 System Mixed Version 70501 Cluster Mixed Version 78001 Rsync Failed 70502 Cluster Replication Inhibited</p> <p>Backout of the server is complete when the 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>  <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>CMP</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="7">CMP Site1 Cluster (2 Servers)</td> </tr> <tr> <td>Site1-CMP-A</td> <td>Major</td> <td>Y</td> <td>Active</td> <td>11.5.0.0.0_39.1.0</td> <td>12.2.0.0.0_32.1.0</td> <td>Initiate upgrade Completed Successfully at Nov 2, 2016 18:52:01</td> </tr> <tr> <td>Site1-CMP-B</td> <td>Critical</td> <td>N</td> <td>Standby</td> <td>12.2.0.0.0_32.1.0</td> <td>11.5.0.0.0_39.1.0</td> <td>Initiate backout Completed Successfully at Nov 14, 2016 20:20:44</td> </tr> </tbody> </table>	Name	Alarm Severity	Up to Date	Server Role	Prev Release	Running Release	Upgrade Operation	CMP							CMP Site1 Cluster (2 Servers)							Site1-CMP-A	Major	Y	Active	11.5.0.0.0_39.1.0	12.2.0.0.0_32.1.0	Initiate upgrade Completed Successfully at Nov 2, 2016 18:52:01	Site1-CMP-B	Critical	N	Standby	12.2.0.0.0_32.1.0	11.5.0.0.0_39.1.0	Initiate backout Completed Successfully at Nov 14, 2016 20:20:44
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3	<p><input type="checkbox"/> CMP GUI: Continue the backout. Next operation is failover</p>	<ul style="list-style-type: none"> Select Primary CMP cluster. <p>Upgrade → Upgrade Manager</p> <p>Select the checkbox for the CMP cluster</p> <ol style="list-style-type: none"> Click Continue Rollback. When hovering over the button, it will say 'Failover to old version...'  <ol style="list-style-type: none"> Click OK to confirm and continue with the operation. It will begin to failover the cluster.  <p>Failover takes a couple minutes.</p>																																			

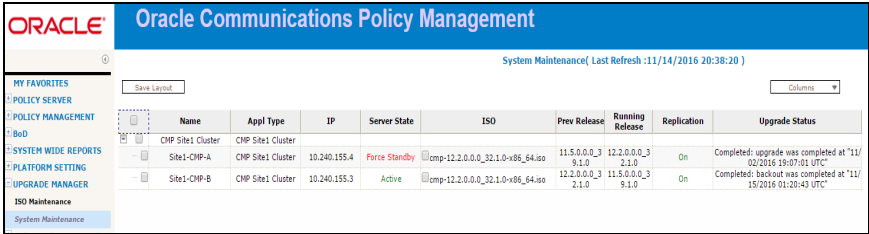
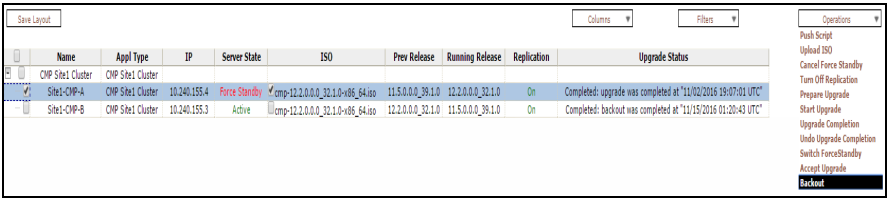
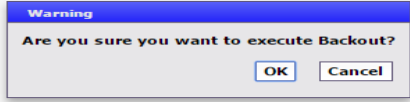
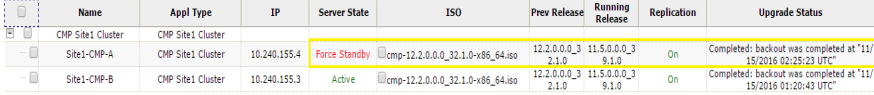
Software Upgrade Procedure

NOTE: The Secondary CMP Site2 cluster should be backed out first if deployed followed by the Primary CMP Site1 cluster.

Step	Procedure	Result
4 <input type="checkbox"/>	CMP GUI: Log back in to the CMP VIP	<p>After failover, you will be required to log back in to the 11.5.X CMP GUI using the CMP VIP.</p> 
5 <input type="checkbox"/>	CMP GUI: Verify release	Navigate to Help → About . Verify the release number is now back to 11.5.X.

Software Upgrade Procedure

NOTE: The Secondary CMP Site2 cluster should be backed out first if deployed followed by the Primary CMP Site1 cluster.

Step	Procedure	Result
6	<p><input type="checkbox"/> CMP GUI (release 11.5.X): Continue the backout of the CMP cluster</p> <p>NOTE: Backout of one server will take approximately 30 minutes to complete.</p>	<p>Upgrade → System Maintenance</p> <ul style="list-style-type: none"> Select the checkbox for the remaining server in the CMP cluster. The server will be on 12.2 and show Forced Standby  <p>a) Select Operations → Backout</p>  <p>b) Click OK to continue</p>  <p>Follow the progress in the Upgrade Status column. Wait until the server to backout comes to backout complete.</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>Expected Critical Alarms</p> <p>31283 Lost Communication with server</p> <p>Expected Major Alarm</p> <p>31233 HA Path Down 31236 HA Link Down 70004 QP Processes down for maintenance</p> <p>Expected Minor Alarms</p> <p>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 31102 Database replication from master failure 31113 DB replication manually disabled 31284 HA Remote Subscriber Heartbeat Warning</p>

Software Upgrade Procedure

NOTE: The Secondary CMP Site2 cluster should be backed out first if deployed followed by the Primary CMP Site1 cluster.

Step	Procedure	Result																																																																												
7 <input type="checkbox"/>	CMP GUI: Remove Forced standby	<p>Upgrade → System Maintenance</p> <ul style="list-style-type: none"> Select the checkbox for the remaining server in the CMP cluster. The server will be on 11.5.X and show Forced Standby <p>NOTE: A refresh of the current screen may be necessary at the 40 minute mark.</p> <p>Select Operations → Cancel Forced Standby</p> <p style="text-align: right; color: blue;">System Maintenance (Last Refresh: 11/15/2016 07:53:46)</p> <div style="border: 1px solid #ccc; padding: 5px;"> <p>Save Layout Columns ▾ Filters ▾ Operations ▾</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Name</th> <th>Appl Type</th> <th>IP</th> <th>Server State</th> <th>ISO</th> <th>Prev Release</th> <th>Running Release</th> <th>Replication</th> <th>Upgrade Status</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/></td> <td>CMP Site1 Cluster</td> <td>CMP Site1 Cluster</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Push Script Upload ISO</td> </tr> <tr style="background-color: #e0e0e0;"> <td><input checked="" type="checkbox"/></td> <td>Site1-CMP-A</td> <td>CMP Site1 Cluster</td> <td>10.240.155.4</td> <td>Forced Standby</td> <td>cmp-12.2.0.0_32.1.0-x86_64.iso</td> <td>12.2.0.0_32.1.0</td> <td>11.5.0.0_39.1.0</td> <td>On</td> <td>Completed: backout was completed at "11/15/2016 02:25:02"</td> <td>Cancel Force Standby Turn Off Replication</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Site1-CMP-B</td> <td>CMP Site1 Cluster</td> <td>10.240.155.3</td> <td>Active</td> <td>cmp-12.2.0.0_32.1.0-x86_64.iso</td> <td>12.2.0.0_32.1.0</td> <td>11.5.0.0_39.1.0</td> <td>On</td> <td>Completed: backout was completed at "11/15/2016 04:20:04"</td> <td>Prepare Upgrade Start Upgrade</td> </tr> </tbody> </table> </div> <p>Note that server state updates to "StandBy" :</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Name</th> <th>Appl Type</th> <th>IP</th> <th>Server State</th> <th>ISO</th> <th>Prev Release</th> <th>Running Release</th> </tr> </thead> <tbody> <tr> <td><input type="checkbox"/></td> <td>CMP Site1 Cluster</td> <td>CMP Site1 Cluster</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr style="background-color: #e0e0e0;"> <td><input checked="" type="checkbox"/></td> <td>Site1-CMP-A</td> <td>CMP Site1 Cluster</td> <td>10.240.155.4</td> <td>Standby</td> <td>cmp-12.2.0.0_32.1.0-x86_64.iso</td> <td>12.2.0.0_32.1.0</td> <td>11.5.0.0_39.1.0</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Site1-CMP-B</td> <td>CMP Site1 Cluster</td> <td>10.240.155.3</td> <td>Active</td> <td>cmp-12.2.0.0_32.1.0-x86_64.iso</td> <td>12.2.0.0_32.1.0</td> <td>11.5.0.0_39.1.0</td> </tr> </tbody> </table>		Name	Appl Type	IP	Server State	ISO	Prev Release	Running Release	Replication	Upgrade Status	Operations	<input type="checkbox"/>	CMP Site1 Cluster	CMP Site1 Cluster								Push Script Upload ISO	<input checked="" type="checkbox"/>	Site1-CMP-A	CMP Site1 Cluster	10.240.155.4	Forced Standby	cmp-12.2.0.0_32.1.0-x86_64.iso	12.2.0.0_32.1.0	11.5.0.0_39.1.0	On	Completed: backout was completed at "11/15/2016 02:25:02"	Cancel Force Standby Turn Off Replication	<input type="checkbox"/>	Site1-CMP-B	CMP Site1 Cluster	10.240.155.3	Active	cmp-12.2.0.0_32.1.0-x86_64.iso	12.2.0.0_32.1.0	11.5.0.0_39.1.0	On	Completed: backout was completed at "11/15/2016 04:20:04"	Prepare Upgrade Start Upgrade		Name	Appl Type	IP	Server State	ISO	Prev Release	Running Release	<input type="checkbox"/>	CMP Site1 Cluster	CMP Site1 Cluster						<input checked="" type="checkbox"/>	Site1-CMP-A	CMP Site1 Cluster	10.240.155.4	Standby	cmp-12.2.0.0_32.1.0-x86_64.iso	12.2.0.0_32.1.0	11.5.0.0_39.1.0	<input type="checkbox"/>	Site1-CMP-B	CMP Site1 Cluster	10.240.155.3	Active	cmp-12.2.0.0_32.1.0-x86_64.iso	12.2.0.0_32.1.0	11.5.0.0_39.1.0
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8 <input type="checkbox"/>	Final Syscheck	<p>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.</p> <p>If the CMP you just backed out of was the Secondary (Site2) CMP, repeat this procedure for the Primary (Site1) CMP before progressing to the next Procedure.</p>																																																																												
THIS PROCEDURE HAS BEEN COMPLETED																																																																														

APPENDIX A. TVOE AND PM&C SERVER UPGRADE

Adding TVOE software image to TVOE host

STEP	Use this procedure to add the TVOE software image to the TVOE host. <i>Check off (✓) each step as it is completed. If this procedure fails, contact Oracle Support.</i>	
	Task	Description
1 <input type="checkbox"/>	TVOE Host: Verify there is enough space on the server for TVOE software image	Log in to the TVOE host and run the following to verify there is sufficient space: <pre>\$ df -h /var/TKLC/upgrade/</pre> <p>The system returns output similar to the following to indicate the disk usage of where the TVOE software image should reside.</p> <pre>Filesystem Size Used Avail Use% Mounted on /dev/mapper/vgroot-plat_var_tklc 4.0G 848M 3.0G 23% /var/TKLC</pre> <p>If the "Avail" column is smaller than the size of the TVOE software image, contact Oracle Support for information about how to proceed.</p>
2 <input type="checkbox"/>	Add TVOE software image to TVOE host	Place a copy of the TVOE software image into the /var/TKLC/upgrade/ directory on the TVOE host by utilizing scp or USB media. <ul style="list-style-type: none"> • SCP from customer PC using Linux From the command line of a Linux machine, use the following command to copy the backup ISO image to the TVOE host: <pre>\$ scp <path_to_image> <user>@<TVOE_ip>:/var/TKLC/upgrade/</pre> <p>Where <path_to_image> is the path to the TVOE ISO image local to the Customer PC and <TVOE_ip> is the TVOE IP address. <user> should be <i>admusr</i> for TVOE releases 2.5 or newer.</p> • SCP from customer PC using Windows Use WinSCP to copy the TVOE ISO image to the TVOE host. • USB Media <ol style="list-style-type: none"> 1. Attach the USB media to the TVOE host. 2. Login on the TVOE host and run the following to list ISOs on the USB media: <pre>\$ sudo ls /media/*/*.iso /media/usb/TVOE-3.0.3.x.x_86.4.0-x86_64.iso</pre> <p>Replacing <PATH_TO_TVOE_ISO> with the output of the command above, copy the ISO to the /var/TKLC/upgrade directory: <pre>\$ sudo cp <PATH_TO_TVOE_ISO> /var/TKLC/upgrade/</pre> </p> 3. Unmount the USB media: <pre>\$ sudo umount /media/usb</pre>

---End of Procedure---

A.1 TVOE Upgrade

Software Upgrade Procedure

STEP	<p>This procedure provides basic steps to upgrade the PM&C Server to 6.0.3 and the TVOE host to 3.0.3</p> <p>NOTE: The TVOE upgrade procedure can be executed either during the same maintenance window as PM&C upgrade or in a separate maintenance window.</p> <p>NOTE: If PM&C TVOE host cannot be upgraded at this time then PM&C upgrade must not be attempted.</p> <ul style="list-style-type: none"> • TVOE Pre-Upgrade Validation • Pre-Upgrade Backup • Add TVOE Software Image to TVOE HOST • Add PM&C Upgrade Software to PM&C Server • Stand Alone TVOE Host Upgrade • TVOE Post-Upgrade Validation • PM&C upgrade • Stand Alone TVOE Upgrade Accept • PM&C Upgrade Accept <p>NOTE: It is recommended NOT to accept TVOE upgrade until after PM&C upgrade has been accepted for the following reasons:</p> <ul style="list-style-type: none"> • If you're upgrading from PM&C 5.5, this release cannot be deployed on an upgraded TVOE 3.0.3 system. • If an issue occurs during PM&C upgrade it may require disaster recovery for which TVOE upgrade will have to be rejected to allow PM&C 5.5 to be re-deployed. • A reject cannot be performed after an upgrade has been accepted. 	
1. <input type="checkbox"/>		<p>NOTE: Upgrade of TVOE host will shut down all guest OS (including PM&C) during the upgrade. Still, prior to upgrading the TVOE host, ensure the PM&C server is gracefully shut down.</p>

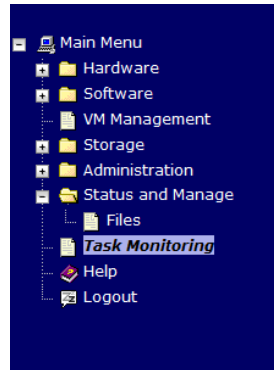
Software Upgrade Procedure

2.
□

Check any in-progress task(s) on PM&C

On a supported web browser, log in to PM&C GUI as *pmacadmin*
Navigate to PM&C GUI background tasks page:

Main Menu > Task Monitoring



- Verify all tasks are complete indicated by green 100% progress

NOTE: If any task shows in-progress (blue or red) then wait for the task to complete prior to continuing the next step.

The screenshot shows the 'Background Task Monitoring' page with a table of tasks. The table has a 'Filter' dropdown and columns for ID, Task, Target, Status, Running Time, Start Time, and Progress. At the bottom, there are buttons for 'Delete Completed', 'Delete Failed', and 'Delete Selected'.

ID	Task	Target	Status	Running Time	Start Time	Progress
131	Backup PM&C		PM&C Backup successful	0:00:01	2015-03-06 05:00:01	100%
130	Backup PM&C		PM&C Backup successful	0:00:01	2015-03-05 05:00:01	100%
129	Backup PM&C		PM&C Backup successful	0:00:02	2015-03-04 05:00:01	100%
128	Backup PM&C		PM&C Backup successful	0:00:02	2015-03-03 05:00:02	100%
127	Upgrade	Enc:10001 Bay:3F	Success	0:28:39	2015-03-02 16:03:01	100%
126	Upgrade	Enc:20001 Bay:10F	Success	0:39:51	2015-03-02 16:02:30	100%
125	Upgrade	Enc:10001 Bay:9F	Success	0:35:00	2015-03-02 15:46:03	100%
124	Install OS	Enc:10001 Bay:3F	Done: TPD.install-5.1.1_73.5.3-CentOS5.8.x86_64	0:16:31	2015-03-02 15:46:18	100%
123	Install OS	Enc:20001 Bay:10F	Done: TPD.install-5.1.1_73.5.3-CentOS5.8.x86_64	0:19:43	2015-03-02 15:37:59	100%
122	Install OS	Enc:10001 Bay:9F	Done: TPD.install-5.1.1_73.5.3-CentOS5.8.x86_64	0:19:33	2015-03-02 15:25:24	100%
121	Upgrade	Enc:20001 Bay:11F	Success	0:28:13	2015-03-02 14:23:28	100%
120	Upgrade	Enc:10001 Bay:11F	Success	0:29:07	2015-03-02 14:23:27	100%
119	Upgrade	Enc:20001 Bay:3F	Success	0:33:25	2015-03-02 14:22:36	100%

Software Upgrade Procedure

<p>7.</p> <input type="checkbox"/>	<p>Verify the Upgrade status</p>	<p>Log in to TVOE as <i>admusr</i></p> <pre>login as: admusr admusr@100.64.31.173's password: Last login: Wed Dec 7 08:10:12 2016 from 10.75.12.57 ===== This system has been upgraded but the upgrade has not yet been accepted or rejected. Please accept or reject the upgrade soon. =====</pre> <p>Verify the upgraded TVOE revision by executing the following command:</p> <pre>\$appRev</pre> <p>You'll get an output similar to this:</p> <pre>[admusr@slak-tvoe ~]\$ appRev Install Time: Wed Dec 7 09:44:48 2016 Product Name: TVOE Product Release: 3.0.3.0.0_86.46.0 Base Distro Product: TPD Base Distro Release: 7.0.3.0.0_86.46.0 Base Distro ISO: TPD.install-7.0.3.0.0_86.46.0-OracleLinux6.7-x86_64.iso ISO name: TVOE-3.0.3.0.0_86.46.0-x86_64.iso OS: OracleLinux 6.7</pre> <p>Execute now:</p> <pre>\$sudo verifyUpgrade</pre> <p>No output is expected from this command. Any output will display potential issues.</p> <p>And finally, a syscheck:</p> <pre>\$sudo syscheck</pre> <pre>[admusr@slak-tvoe ~]\$ sudo syscheck Running modules in class disk... OK Running modules in class hardware... OK Running modules in class net... OK Running modules in class proc... OK Running modules in class system... OK Running modules in class upgrade... OK LOG LOCATION: /var/TKLC/log/syscheck/fail_log [admusr@slak-tvoe ~]\$</pre>
<p>8.</p> <input type="checkbox"/>		<p>NOTE: It is recommended not to accept TVOE upgrade until after PM&C upgrade has been accepted for the following reasons:</p> <ul style="list-style-type: none">• Some older PM&C releases cannot be deployed on upgraded TVOE 3.0.3 system.• If issues occurs during PM&C upgrade it may require disaster recovery for which TVOE upgrade will have to be rejected to allow older PM&C to be re-deployed.• A reject cannot be performed once an upgrade has been accepted.

Software Upgrade Procedure

9. <input type="checkbox"/>	Remove the TVOE ISO version file to free up disk space	Logged in from previous step, issue the following <pre>\$sudo rm /var/TKLC/upgrade/TVOE-3.0.3.0.0_86.46.0-x86_64.iso</pre>
---------------------------------------	--	---

A.2 PM&C Upgrade

STEP	This procedure provides instructions to perform software upgrade of the PM&C. Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.	
1. <input type="checkbox"/>	Start the PM&C guest	<p>If not already logged in to the TVOE host as <i>admusr</i>, do so.</p> <p>Start the PM&C guest if not already started: Query the list of guests to check whether the PM&C guest is in state "running".</p> <pre>\$ sudo virsh list --all Id Name State ----- 1 <pmac_name> running</pre> <p>If it's running, skip to the next step. If it's not running, issue the following command.</p> <pre>\$ sudo virsh start <pmac_name> Domain <pmac_name> started</pre>
2. <input type="checkbox"/>	Close any active browser sessions to PM&C	If any open browsers are connected to PM&C, close them before proceeding
3. <input type="checkbox"/>	Login to the TVOE host as root	<p>From the TVOE host CLI, issue the following command to log on to the PM&C guest as <i>admusr</i>:</p> <pre>\$sudo virsh console <pmac_name></pre> <p>--NOTE: It might be needed to hit <ENTER> twice</p> <p>Verify the correct ISO file is located in the /var/TKLC/upgrade directory of the PM&C guest. If not, copy the PM&C ISO to /var/TKLC/upgrade on the PM&C guest.</p> <p>Verify by issuing the following command:</p> <pre># ls -lth /var/TKLC/upgrade</pre>
4. <input type="checkbox"/>	Execute upgrade from PM&C Server	<p>From PM&C guest as <i>admusr</i> (accessed via the TVOE <i>virsh console</i> in the previous step), run the <i>platcfg</i> utility:</p> <pre># sudo su - platcfg</pre>

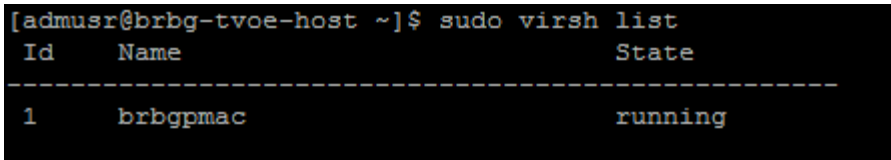
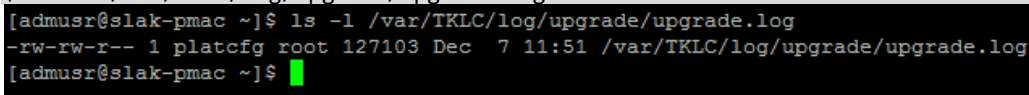
Software Upgrade Procedure

<p>5. <input type="checkbox"/></p>	<p>In “platcfg” utility select “Initiate Upgrade” to start the upgrade process</p>	<p>platcfg: Maintenance→Upgrade→Initiate Upgrade</p> <ul style="list-style-type: none"> • Select “Initiate Upgrade” to start the upgrade process • Wait for the “Choose Upgrade Media Menu” screen to display before proceeding to the next step <pre> +-----+ Choose Upgrade Media Menu +-----+ /dev/sr0 - CDROM ^ MAC-6.0.3.0.2_60.28.0-x86_64.iso - 6.0.3.0.2_60.28.0 # Exit ~ v +-----+-----+-----+ </pre> <ul style="list-style-type: none"> • Select the new PM&C 6.0.3 target ISO filename and press the [ENTER] key to start the upgrade process • The upgrade will begin and after 20 minutes, the connection will be lost as it reboots. • Do not take any action on the PM&C until the server reboots. The reboot takes approximately 5 minutes. • Once you log back in to PM&C you will see something similar to this: <pre> login as: admusr admusr@100.64.31.171's password: Last login: Wed Dec 7 10:35:39 2016 from 10.75.12.57 ===== This system has been upgraded but the upgrade has not yet been accepted or rejected. Please accept or reject the upgrade soon. ===== [admusr@slak-pmac ~]\$ █ </pre>
<p>6. <input type="checkbox"/></p>	<p>PM&C GUI: Verify the upgrade after 30 minutes</p>	<p>Open a browser and type in the IP address of the PM&C server</p> <p>Login as <i>pmacadmin</i></p> <p>Verify the release at the top of the page.</p> <hr/> <p>ORACLE Platform Management & Configuration 6.0.3.0.2-60.28.0</p> <hr/> <p>Navigate to the task manager and verify all tasks are complete. DO NOT proceed with the next step until all tasks are completed.</p> <p>Tasks still in progress:</p>

Software Upgrade Procedure

Background Task Monitoring						
Filter						Help
						Wed Dec 07 18:07:22 2016 UTC
ID	Task	Target	Status	State	Running Time	
511	Add Enclosure	Enc:702	OpenHpi Deamon Started	IN_PROGRESS	0:01:02	
510	Add Enclosure	Enc:701	OpenHpi Deamon Started	IN_PROGRESS	0:00:37	
509	Add Enclosure	Enc:702	Enclosure added - starting monitoring	COMPLETE	0:06:01	
508	Add Enclosure	Enc:701	Enclosure added - starting monitoring	COMPLETE	0:08:06	
507	Add Enclosure	Enc:702	Enclosure added - starting monitoring	COMPLETE	0:06:01	
506	Add Enclosure	Enc:701	Enclosure added - starting monitoring	COMPLETE	0:06:30	
505	Backup PM&C		PM&C Backup successful	COMPLETE	0:00:04	
504	Backup PM&C		PM&C Backup successful	COMPLETE	0:00:04	

A.3 Verify PM&C Upgrade

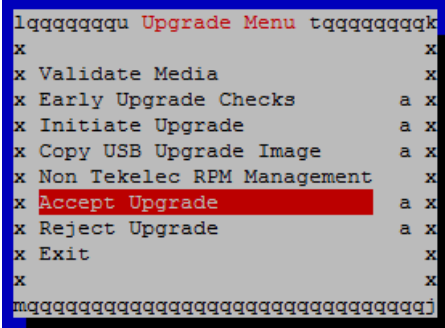
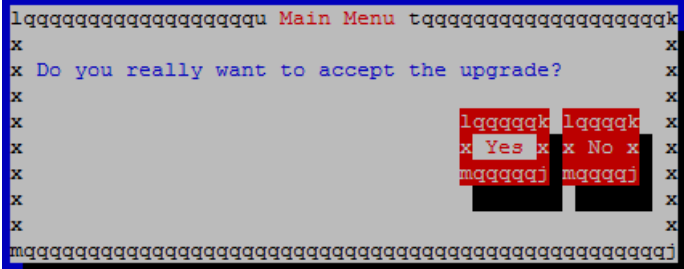
S T E P #	<p>This procedure provides instructions to verify success of the PM&C upgrade and perform other required post upgrade steps</p> <p>Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.</p>	
1.	<input type="checkbox"/>	<p>Access PM&C guest console</p> <ul style="list-style-type: none"> Log on to TVOE host SSH as <i>admusr</i> Verify that the PM&C console is running by issuing the following command <pre>\$ sudo virsh list</pre>  <pre>[admusr@brbg-tvoe-host ~]\$ sudo virsh list Id Name State ----- 1 brbgpmac running</pre> <p>Log on to PM&C guest console by issuing the following command from the TVOE console:</p> <pre>\$ sudo virsh console <pmac_name></pre> <p>Remember to press [Enter] twice.</p> <p>NOTE: If you connected from the TVOE console, the guest session to PM&C is broken with CTRL+]</p>
2.	<input type="checkbox"/>	<ul style="list-style-type: none"> Logged in to the PM&C console, execute the following command <pre>\$ ls -l /var/TKLC/log/upgrade/upgrade.log</pre>  <pre>[admusr@slak-pmac ~]\$ ls -l /var/TKLC/log/upgrade/upgrade.log -rw-rw-r-- 1 platcfg root 127103 Dec 7 11:51 /var/TKLC/log/upgrade/upgrade.log [admusr@slak-pmac ~]\$</pre> <p>And verify that the date and timestamps up the upgrade align with the actual time of the upgrade.</p>

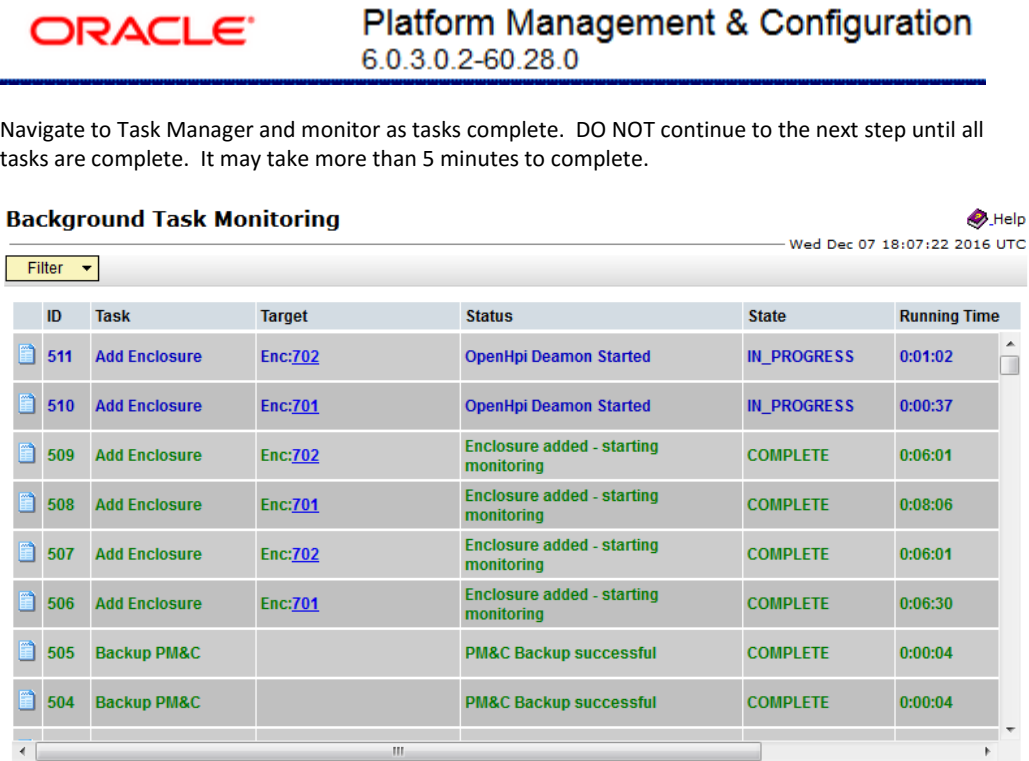
Software Upgrade Procedure

3. <input type="checkbox"/>	Verify that the release version has been updated	<ul style="list-style-type: none"> Execute the following command and verify the release <pre>\$ appRev [admusr@slak-pmac ~]\$ appRev Install Time: Wed Dec 7 11:50:31 2016 Product Name: PMAC Product Release: 6.0.3.0.2_60.28.0 Base Distro Product: TPD Base Distro Release: 7.0.3.0.0_86.45.0 Base Distro ISO: TPD.install-7.0.3.0.0_86.45.0-OracleLinux6.7-x86_64.iso ISO name: PMAC-6.0.3.0.2_60.28.0-x86_64.iso OS: OracleLinux 6.7</pre>
4. <input type="checkbox"/>	Verify successful completion through the upgrade log	<ul style="list-style-type: none"> Execute the following commands on PM&C <pre>\$ grep COMPLETE /var/TKLC/log/upgrade/upgrade.log [admusr@brbgpmac ~]\$ grep COMPLETE /var/TKLC/log/upgrade/upgrade.log 1419272892::UPGRADE IS COMPLETE</pre> <pre>\$sudo verifyUpgrade</pre> <p>NOTE: This command could take over a minute to complete. No output is expected, only the prompt should return. If there are messages, contact Oracle support.</p>
5.	Run syscheck	Run syscheck and verify everything is Ok <pre>\$ sudo syscheck</pre>

<p>6. <input type="checkbox"/></p>	<p>PM&C SSH CLI: Recreate the ssh_service with admusr credentials on PM&C guest console if it doesn't exist</p>	<p>Verify that the ssh service exists with admusr credentials by executing the following command:</p> <pre>\$ sudo netConfig --repo showService name=ssh_service</pre>  <p>If the results are similar to the above, i.e., Options include “usr: admusr” and an encrypted password, skip to the next step.</p> <p>If the results do not include the “usr: admusr” option or if the service does not exist, continue with this step:</p> <ul style="list-style-type: none"> Delete the ssh_service if it exists <pre>\$ sudo netConfig --repo deleteService name=ssh_service</pre> <p>--answer YES to the message if prompted--</p> <ul style="list-style-type: none"> Recreate ssh_service with <i>admusr</i> user - <pre>\$ sudo netConfig --repo addService name=ssh_service</pre> <p>Service type? (tftp, ssh, conserver, oa) ssh Service host? <pm&c_ip_address> Enter an option name (q to cancel): user Enter a value for user: admusr Enter an option name(q to cancel): password Enter a value for password: Duk***** Verify Password : Duk***** Enter an option name(q to cancel): q</p> <p>Example output</p>  <ul style="list-style-type: none"> Ensure the information entered is correct by executing the following command and compare the output with the configuration in the last step - <pre>\$ sudo netConfig --repo showService name=ssh_service</pre> <p>Example output</p> 
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Software Upgrade Procedure

7.	<input type="checkbox"/>	<p>If ALL health checks passed, accept PM&C server and TVOE upgrades.</p> <p>If health checks do not pass or a backout is needed, skip to Appendix B to reject/backout the upgrade in entirety. This will include both the PM&C server and the TVOE host.</p>
8.	<p><input type="checkbox"/></p> <p>Accept the upgrade for PM&C</p> <p>NOTE:Accept takes 5 minutes</p>	<p>Close any open PM&C GUI browsers</p> <p>NOTE: After accepting the upgrade, you will not be able to 'roll back' to the previous release.</p> <ul style="list-style-type: none"> Logon to PM&C guest console Run the platcfg utility – <pre>\$ sudo su - platcfg</pre> <p>Maintenance→Upgrade→Accept Upgrade</p>  <pre>lqqqqqqqu Upgrade Menu tqqqqqqqqk x x x Validate Media x x Early Upgrade Checks a x x Initiate Upgrade a x x Copy USB Upgrade Image a x x Non Tekelec RPM Management x x Accept Upgrade a x x Reject Upgrade a x x Exit x x x mqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqj</pre> <ul style="list-style-type: none"> Select "Accept Upgrade" and press the [ENTER] key  <pre>lqqqqqqqqqqqqqqqqqqqqqq Main Menu tqqqqqqqqqqqqqqqqqqqqqk x x x Do you really want to accept the upgrade? x x x x x x lqqqqqk lqqqqk x x x Yes x x No x x x mqqqqqj mqqqqj x x x x x mqqj</pre> <p>Select 'Yes' to start accept upgrade process.</p> <p>If a message shows up prompting to hit any key to continue, DO NOT hit any key, the server will reboot on its own.</p> <p>The connection will be lost while the PM&C reboots (approximately 5 minutes)...</p>

<p>9.</p>	<p>Health Checks</p>	<p>\$sudo syscheck</p> <p>Open a browser and launch the PM&C GUI.</p> <p>Verify the release at the top of the page.</p> <hr/>  <p>Navigate to Task Manager and monitor as tasks complete. DO NOT continue to the next step until all tasks are complete. It may take more than 5 minutes to complete.</p> <p>Background Task Monitoring Help</p> <p style="text-align: right;">Wed Dec 07 18:07:22 2016 UTC</p> <p>Filter ▾</p> <table border="1"> <thead> <tr> <th>ID</th> <th>Task</th> <th>Target</th> <th>Status</th> <th>State</th> <th>Running Time</th> </tr> </thead> <tbody> <tr> <td>511</td> <td>Add Enclosure</td> <td>Enc:702</td> <td>OpenHpi Daemon Started</td> <td>IN_PROGRESS</td> <td>0:01:02</td> </tr> <tr> <td>510</td> <td>Add Enclosure</td> <td>Enc:701</td> <td>OpenHpi Daemon Started</td> <td>IN_PROGRESS</td> <td>0:00:37</td> </tr> <tr> <td>509</td> <td>Add Enclosure</td> <td>Enc:702</td> <td>Enclosure added - starting monitoring</td> <td>COMPLETE</td> <td>0:06:01</td> </tr> <tr> <td>508</td> <td>Add Enclosure</td> <td>Enc:701</td> <td>Enclosure added - starting monitoring</td> <td>COMPLETE</td> <td>0:08:06</td> </tr> <tr> <td>507</td> <td>Add Enclosure</td> <td>Enc:702</td> <td>Enclosure added - starting monitoring</td> <td>COMPLETE</td> <td>0:06:01</td> </tr> <tr> <td>506</td> <td>Add Enclosure</td> <td>Enc:701</td> <td>Enclosure added - starting monitoring</td> <td>COMPLETE</td> <td>0:06:30</td> </tr> <tr> <td>505</td> <td>Backup PM&C</td> <td></td> <td>PM&C Backup successful</td> <td>COMPLETE</td> <td>0:00:04</td> </tr> <tr> <td>504</td> <td>Backup PM&C</td> <td></td> <td>PM&C Backup successful</td> <td>COMPLETE</td> <td>0:00:04</td> </tr> </tbody> </table>	ID	Task	Target	Status	State	Running Time	511	Add Enclosure	Enc:702	OpenHpi Daemon Started	IN_PROGRESS	0:01:02	510	Add Enclosure	Enc:701	OpenHpi Daemon Started	IN_PROGRESS	0:00:37	509	Add Enclosure	Enc:702	Enclosure added - starting monitoring	COMPLETE	0:06:01	508	Add Enclosure	Enc:701	Enclosure added - starting monitoring	COMPLETE	0:08:06	507	Add Enclosure	Enc:702	Enclosure added - starting monitoring	COMPLETE	0:06:01	506	Add Enclosure	Enc:701	Enclosure added - starting monitoring	COMPLETE	0:06:30	505	Backup PM&C		PM&C Backup successful	COMPLETE	0:00:04	504	Backup PM&C		PM&C Backup successful	COMPLETE	0:00:04
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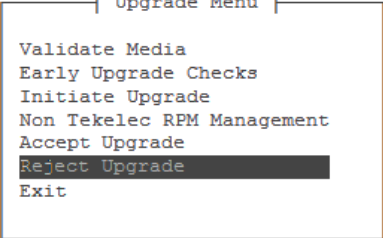
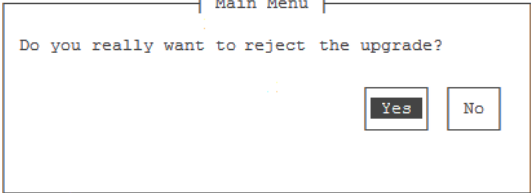
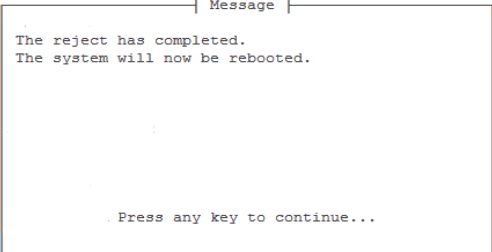
APPENDIX B. TVOE AND PM&C SERVER BACKOUT

S T E P #	<p>This procedure provides instructions to backout/reject the PM&C server upgrade.</p> <p>NOTE: A reject cannot be performed after an upgrade has been accepted.</p> <p>Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.</p>																			
1.	<input type="checkbox"/>	<p>Close any active browser sessions of PM&C</p> <p>Close any open browsers connected to PM&C before proceeding.</p>																		
2.	<input type="checkbox"/>	<p>If necessary, access PM&C guest console</p> <ul style="list-style-type: none"> • Log on to TVOE host as <i>admusr</i> • Verify PM&C console is running by issuing the following command <pre>\$sudo virsh list</pre> <pre>[root@brbgpmac-tvoe ~]# virsh list</pre> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Id</th> <th style="text-align: left;">Name</th> <th style="text-align: left;">State</th> </tr> </thead> <tbody> <tr> <td colspan="3">-----</td> </tr> <tr> <td>1</td> <td>brbgpmac</td> <td>running</td> </tr> </tbody> </table> <p>Log on to PM&C guest console by issuing the following command</p> <pre>\$sudo virsh console <pmacname></pre> <pre>[root@brbgpmac-tvoe ~]# virsh list</pre> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Id</th> <th style="text-align: left;">Name</th> <th style="text-align: left;">State</th> </tr> </thead> <tbody> <tr> <td colspan="3">-----</td> </tr> <tr> <td>1</td> <td>brbgpmac</td> <td>running</td> </tr> </tbody> </table> <pre>[root@brbgpmac-tvoe ~]# virsh console brbgpmac</pre> <pre>Connected to domain brbgpmac</pre> <pre>Escape character is ^]</pre> <pre>CentOS release 6.4 (Final)</pre> <pre>Kernel 2.6.32-358.18.1.el6prere16.5.1_82.26.0.x86_64 on an x86_64</pre> <pre>brbgpmac login: █</pre> <p>Log on to PM&C as <i>admusr</i> if needed – may not require a login.</p> <pre>Last login: Wed Jun 6 08:39:14 on ttyS0</pre> <pre> ===== </pre> <pre> This system has been upgraded but the upgrade has not yet </pre> <pre> been accepted or rejected. Please accept or reject the </pre> <pre> upgrade soon. </pre> <pre> ===== </pre> <pre>[admusr@pmac ~]\$</pre> <p>NOTE: To break the guest session to go back to TVOE host, enter CTRL+]</p>	Id	Name	State	-----			1	brbgpmac	running	Id	Name	State	-----			1	brbgpmac	running
Id	Name	State																		

1	brbgpmac	running																		
Id	Name	State																		

1	brbgpmac	running																		

Software Upgrade Procedure

<p>3. <input type="checkbox"/></p>	<p>Run "platcfg" utility on the PM&C Server</p>	<p>At the prompt, execute: <code>\$sudo su - platcfg</code></p> <p>Navigate to Maintenance→Upgrade</p>  <p>Select "Reject Upgrade" and press the [ENTER] key to start the reject process.</p> <p>The following window pops up, enter yes to begin the backout.</p>  <p>NOTE: 5 minutes into the backout, a reboot will complete the backout, the system reboots automatically.</p>
<p>4. <input type="checkbox"/></p>	<p>Backout requires reboot</p>	<p>The following image is only for illustrative purposes</p> <p>NOTE: DO NOT press any key when the window prompts, the system will reboot on its own.</p>  <p>NOTE: From this point on, it will take 20 minutes to complete the backout</p>
<p>5. <input type="checkbox"/></p>	<p>Wait for PM&C login prompt</p>	<p>Upon successful completion of backout, the user should be returned to a login prompt.</p> <p>Login as admusr.</p>

Software Upgrade Procedure

6. <input type="checkbox"/>	Verify backout completed	<p>Execute the following command to verify source PM&C release :</p> <pre>[admusr@pmac ~]# appRev Install Time: Thu Nov 13 10:04:56 2014 Product Name: PMAC Product Release: 5.5.2_55.20.0 Part Number ISO: 872-2586-102 Part Number USB: 872-2586-102 Base Distro Product: TPD Base Distro Release: 6.5.2_82.37.0 Base Distro ISO: TPD.install-6.5.2_82.37.0-CentOS6.5-x86_64.iso OS: CentOS 6.5</pre> <p>If the correct Product Release is not displayed, contact Oracle Customer Service and do not proceed until instructed by a Oracle Customer Care representative.</p>
7.	TVOE iLo SSH	<p>As <i>Administrator</i> on the TVOE iLO – log in through the iLO and execute the following command to check the logical drives that will be used for the backout.</p> <p>Login as <i>admusr</i> to the TVOE console</p> <pre>\$sudo /sbin/lvs -o lv_name,snap_percent @upgrade</pre> <p>Typical output:</p> <pre>LV snap % plat_root_snap 27.52 plat_usr_snap 7.70 plat_var_snap 5.08 plat_var_tklc_snap 19.14</pre> <p>NOTE: Anything below 50% is OK.</p>

Software Upgrade Procedure

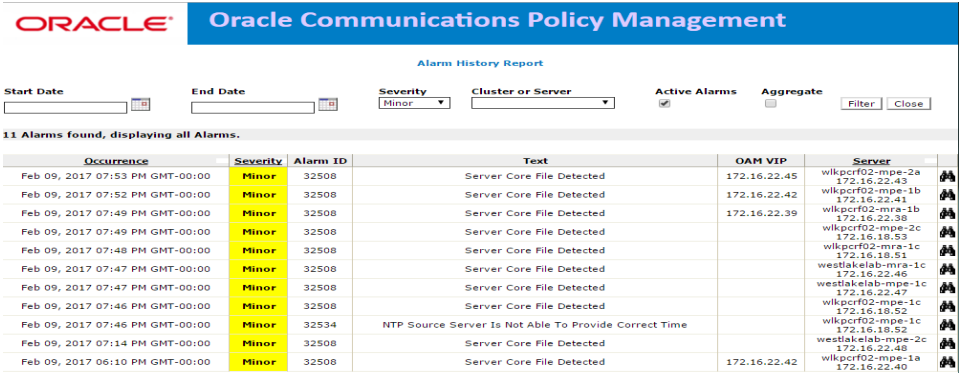
<p>8.</p>	<p>TVOE Server iLO: manually backout upgrade</p>	<p>At the prompt execute: <code>\$sudo su - platcfg</code></p> <p>Navigate to Maintenance→Upgrade</p> <div style="border: 1px solid black; padding: 5px;"> <pre> Upgrade Menu ----- Validate Media Early Upgrade Checks Initiate Upgrade Non Tekelec RPM Management Accept Upgrade Reject Upgrade Exit </pre> </div> <p>Select "Reject Upgrade" and press the [ENTER] key to start the reject process.</p> <p>The following window pops up, enter yes to begin the backout.</p> <div style="border: 1px solid black; padding: 5px;"> <pre> Main Menu ----- Do you really want to reject the upgrade? [Yes] [No] </pre> </div> <p>The system will undergo a backout. As part of the process the system will reboot several times.</p> <p>After completing the final reboot the login prompt will be presented. Some of the final startup output along with an example of the login prompt is shown below:</p> <p>Login as <i>admusr</i></p> <p>CentOS release 6.2 (Final) Kernel 2.6.32-220.17.1.el6prere16.0.0_80.16.0.x86_64 on an x86_64 hostname1342210584 login:</p>
<p>9.</p>	<p>TVOE Server iLO: check server health.</p>	<p>Log in and run the following:</p> <pre># appRev</pre> <div style="background-color: #f0f0f0; padding: 5px;"> <pre> Install Time: Wed Nov 12 20:41:30 2014 Product Name: TVOE Product Release: 2.5.2_82.37.0 Part Number ISO: 872-2525-101 Part Number USB: 872-2525-101 Base Distro Product: TPD Base Distro Release: 6.5.2_82.37.0 Base Distro ISO: TPD.install-6.5.2_82.37.0-CentOS6.5-x86_64.iso OS: CentOS 6.5 </pre> </div>
<p>10.</p>	<p>TVOE Server iLO: check server health</p>	<p>Run the following command to check the health of the server:</p> <pre># sudo alarmMgr --alarmStatus</pre> <p>If any output is produced, an alarm is present on the system. Contact Oracle for information about how to proceed.</p>
<p>11.</p>	<p><input type="checkbox"/> Clear browser cache</p>	<p>Clear browser cache to ensure that browser has the latest client-side code loaded. Refer to browser documentation if necessary.</p>

Software Upgrade Procedure

12.	PM&C GUI:	Login to the PM&C GUI to verify the old PM&C version
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APPENDIX C. CORRECTING SERVER CORE FILE DETECTED ALARMS

Appendix C: Correcting Server Core File Detected Alarms

S	After the upgrades, if old core file detected alarms are generated, this procedure corrects these alarms.	
T	This procedure should be performed during a maintenance window.	
E	Check off (✓) each step as it is completed. Boxes have been provided for this purpose under each step number.	
P	IF THIS PROCEDURE FAILS, CONTACT ORACLE TECHNICAL SERVICES AND ASK FOR ASSISTANCE.	
#	NOTE: THIS PROCEDURE SHOULD TAKE APPROXIMATELY 10 MINUTES PER BLADE OR RMS SERVER.	
1. <input type="checkbox"/>	CMP GUI: Login into the CMP GUI using VIP address as 'admin' or user with admin privileges	Login into the PCRF CMP GUI as 'admin' using the VIP IP Address
2. <input type="checkbox"/>	CMP GUI: Verify active alarms	<p>In the upper right hand corner of the GUI, click on Minor alarms and check if 'Server Core File Detected' alarm(s) are present.</p>  <p>If 'Server Core File Detected' alarms are present, then proceed to the next step, otherwise Stop and there is no need to perform this procedure.</p>
3. <input type="checkbox"/>	CMP GUI: Note down the server IP(s) for which 'Server Core File Detected' alarm was generated	Note down the server IP addresses for which 'Server Core File Detected' alarm was generated.
4. <input type="checkbox"/>	SSH CLI: Login to each of the servers and verify that core files are present	<p>Login as 'admusr' to each of the noted servers using SSH</p> <p>Change the user to 'root' and change directory to /var/TKLC/core</p> <pre style="background-color: #f0f0f0; padding: 5px;">\$ sudo su - # cd /var/TKLC/core # ls</pre>

Software Upgrade Procedure

Appendix C: Correcting Server Core File Detected Alarms

		<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 proc_id and will be different for each server.</p>
<p>5.</p> <p><input type="checkbox"/></p>	<p>SSH CLI: cat the core.java.<proc_id>.bt file</p>	<p>'cat' the core.java.<proc_id>.bt 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.<proc_id>.bt</pre> <p>Note: User may need to scroll up</p> <p>Example below:</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> <p><input type="checkbox"/></p>	<p>SSH CLI: Remove the corresponding core files</p>	<p>Remove the following files:</p> <ul style="list-style-type: none"> - /var/camiant/cores/corefile.java.<proc_id> - /var/TKLC/core/corefile.java.<proc_id>.bt - /var/TKLC/core/ corefile.java.<proc_id> <pre># cd /var/camiant/cores</pre> <pre># rm -rf core.java.<proc_id></pre> <pre># cd /var/TKLC/core</pre> <pre># rm -rf core.java.<proc_id>.bt</pre> <pre># rm -rf core.java.<proc_id></pre> <pre># exit</pre>

Software Upgrade Procedure

Appendix C: Correcting Server Core File Detected Alarms

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

APPENDIX D. 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>