Oracle® Communications Performance Intelligence Center

Upgrade Guide

Release 10.5.0.1.0

G34791-01

June 2025

ORACLE

Oracle® Communications Performance Intelligence Center Upgrade Guide, Release 10.5.0

CAUTION: Use only the guide downloaded from Oracle Help Center (OHC).

Refer to Appendix section for instructions on accessing My Oracle Support and Oracle Help Center.

Table of Contents

MY ORACLE SUPPORT

My Oracle Support (MOS) is your initial point of contact for any of the following requirements:

- **Product Support:**

  The generic product related information and resolution of product related queries.

- **Critical Situations:**

  A critical situation is defined as a problem with the installed equipment that severely affects service, traffic, or maintenance capabilities, and requires immediate corrective action. Critical situations affect service and/or system operation resulting in one or several of these situations:

  - A total system failure that results in loss of all transaction processing capability
  - Significant reduction in system capacity or traffic handling capability
  - Loss of the system's ability to perform automatic system reconfiguration
  - Inability to restart a processor or the system
  - Corruption of system databases that requires service affecting corrective actions
  - Loss of access for maintenance or recovery operations
  - Loss of the system ability to provide any required critical or major trouble notification

Any other problem severely affecting service, capacity/traffic, billing, and maintenance capabilities may be defined as critical by prior discussion and agreement with Oracle.

Training Need:

Oracle University offers training for service providers and enterprises.

A representative at Customer Access Support (CAS) can assist you with MOS registration.

Call the CAS main number at 1-800-223-1711 (toll-free in the US), or call the Oracle Support hotline for your local country from the list at http://www.oracle.com/us/support/contact/index.html. When calling, make the selections in the sequence shown below on the Support telephone menu:

1. Select 2 for New Service Request
2. Select 3 for Hardware, Networking and Solaris Operating System Support
3. Select 2 for Non-technical issue

You will be connected to a live agent who can assist you with MOS registration and provide Support Identifiers. Simply mention you are a Tekelec Customer new to MOS.

MOS is available 24 hours a day, 7 days a week.

1. INTRODUCTION

Overview

This document describes the major upgrade procedures for the "Oracle Communications Performance Intelligence Center" system at Release **10.5.0.1.0**, also referred as **"considered"** release in this document.

This document is intended for use by trained engineers in software installation on both Oracle and HP hardware. A working-level understanding of Linux, Oracle Database and command line interface is expected to successfully use this document.

It is strongly recommended that prior to performing an installation of the operating system and applications software, the user read through this document.

Related Publications

For information about additional publications that are related to this document, refer to the Release Notice document. The Release Notice document is published as a part of the Release Documentation and is also published as a separate document on the Oracle Help Center.

For security and firewall information refer Security Guide, of the considered release.

Requirements and Prerequisites

Hardware Requirements
Please refer to Hardware Guidelines, of the considered release.

Software Requirements

The following software is required for the considered release upgrade.

Take in consideration you might need also the software from the installed release in case you would have to proceed a disaster recovery. Refer to 10.2.1 Maintenance Guide and PIC 10.3 Maintenance Guide for detailed instruction.

The engineers must look on the latest patch available on MOS rather than using the GA release. The recommended patch will be available on MOS Information Center

Note: For specific versions and part numbers, see the Performance Intelligence Center Release Notice.

The following software is required for the Performance Intelligence Center 10.4 upgrade.

Oracle Communication GBU deliverables:

- Management Server
- Mediation Server
- Mediation Protocol
- Acquisition Server
- Acquisition Datafeed
- TPD

All the software must be downloaded from Oracle Software Delivery Cloud (OSDC)

https://edelivery.oracle.com/

Please refer to KM notes which are constantly updated with last improvements:

Title	MOS
Upgrade Oracle Communications Performance Intelligence Center**,** Is providing some guidances	KM_1984685.2

Reference Documents

[1] Platform Configuration Guide, Tekelec Platform release 8.10

[2] TPD Initial Product Manufacture, Tekelec Platform release 8.10

[3] PM&C Incremental Upgrade, Tekelec Platform release 8.10

[4] HP Solutions Firmware Upgrade Pack 2.2.10, Tekelec Platform release 8.10

[5] Oracle Firmware Upgrade Pack, Tekelec Platform release 8.10

[6] Tekelec Default Passwords, CGBU_ENG_24_2229 (restricted access, refer to Appendix A: My Oracle Support)

[7] Hardware Guide, G10371-01, Performance Intelligence Center release 10.5

[8] Security Guide, G10370-01, Performance Intelligence Center release 10.5

[9] Release Notice, G10367-02, Performance Intelligence Center release 10.5.0.1

[10] Patch Installation Guide, G10364-01, Performance Intelligence Center release 10.5, (formerlyIncremental Upgrade)

[11] Installation Guide, G10362-01, Performance Intelligence Center release 10.5.0.1

[12] Maintenance Guide, F26312-01, Performance Intelligence Center release 10.5

[13] 10.2.1 Maintenance Guide, E77489-01, Performance Intelligence Center release 10.2.1

[14] 10.3.0 Maintenance Guide, E98799-01, Performance Intelligence Center release 10.3.0

2. Major Upgrade Overview Flowcharts

Performance Intelligence Center High-level Major Upgrade

This flowchart describes the Performance Intelligence Center high-level major upgrade overview. Referring to the graphic below the applicable order of each component is depicted and for each component the applicable flowchart is identified by section of this document where it is located.

Described major upgrade procedures are applicable to systems installed in 10.2.1 and 10.3.0 releases. Following this procedure, the system will be upgraded to 10.4.0 release

It is recommended to upgrade the firmware needs to the latest Oracle supported levels for all hardware components, however this firmware upgrade is not mandatory.

The system on the source release may install all patches applicable to source release prior the major upgrade, but it is not mandatory. However once the system is updated to target release it is mandatory to apply all the available necessary patches.

In PIC 10.4, the upgrade will be performed using the incremental upgrade procedure, in this procedures there is no need for the OS re-installation. The PIC applications can be directly upgraded without the OS re-install. The OL upgrade should be managed separately and is not considered in the PIC application upgrade.

PIC 10.5 & 10.5.0.1 does not support major upgrade. Customers need to follow disaster recovery mechanism to migrate from 10.4.0.4 to 10.5 or 10.4.0.4 to 10.5.0.1.

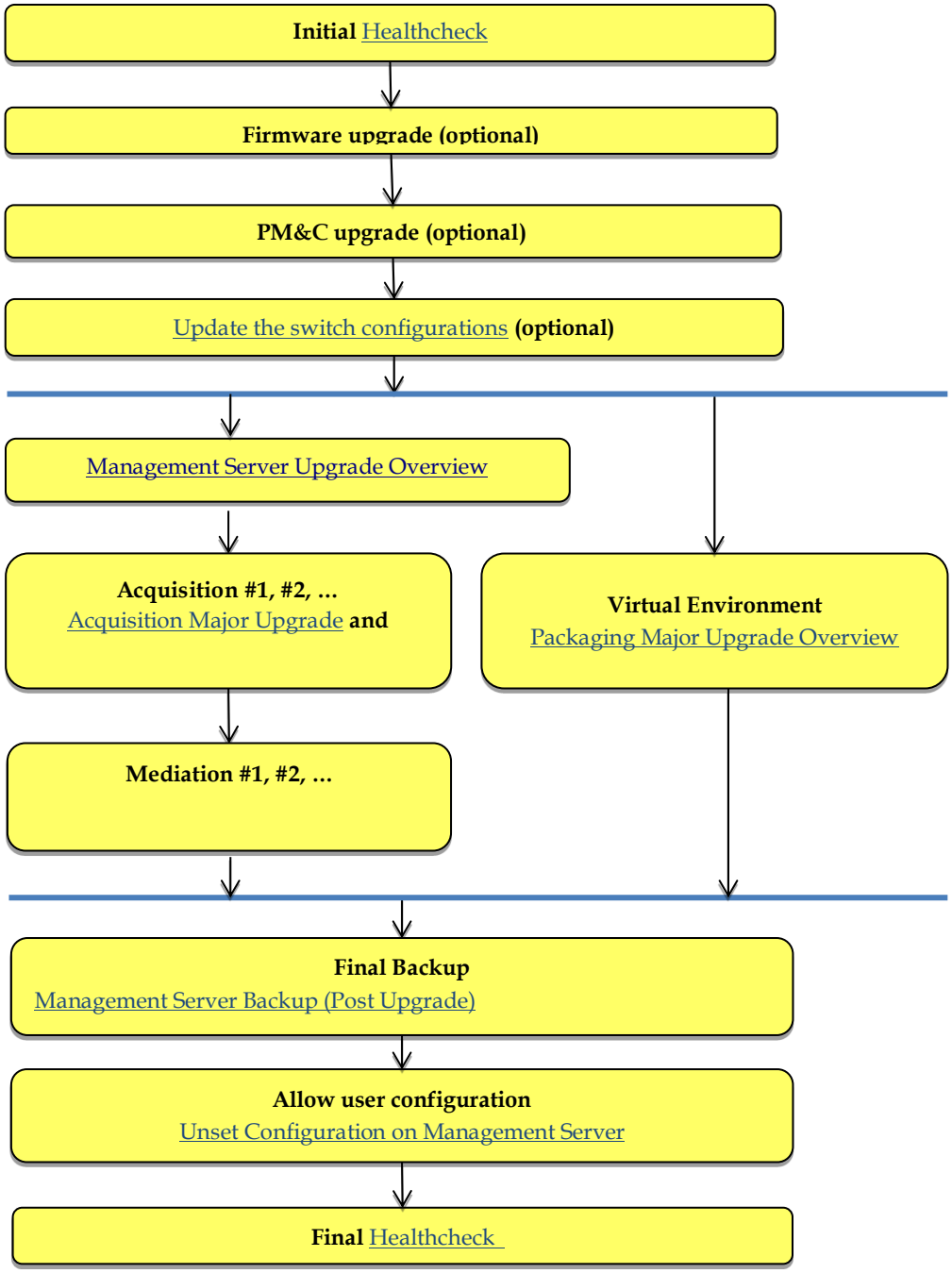
PIC 10.5.0.1 NSP does not support major upgrade from 10.5. Customers need to follow disaster recovery mechanism to migrate from 10.5 NSP to 10.5.0.1 NSP.

PIC 10.5.0.1 IXP & XMF support DIU upgrade. DIU ISO will be used to upgrade IXP & XMF from 10.5 to 10.5.0.1.

Note:

1. Initial health check at least 2 weeks before the planned operation in order to have time to replace defective hardware
2. Optional Firmware upgrade to the latest release available.
3. PM&C Platform upgrade for potential security fixes
4. In case the upgrade of management server is upgraded using the OS re-installation mode then pre-upgrade health checkup and global healthcheck from this document should be performed and for the upgrade procedure the Installation document should be followed. The NSP database backup must be validated and saved for the OS re-install mode.

Figure 1. High level upgrade



Packaging Major Upgrade Overview

This chapter covers packages combining multiple Performance Intelligence Center components in a Virtual Environment.

These packages are for the “Integrated DSR Monitoring Prepackage” and for any customized packaging compliant with the Installation Guide, of the release 10.5.0.1.0.

All components are upgraded individually in their own Virtual Machine, considered as the host of each component. In other words, the same approach than for legacy upgrade can be applied

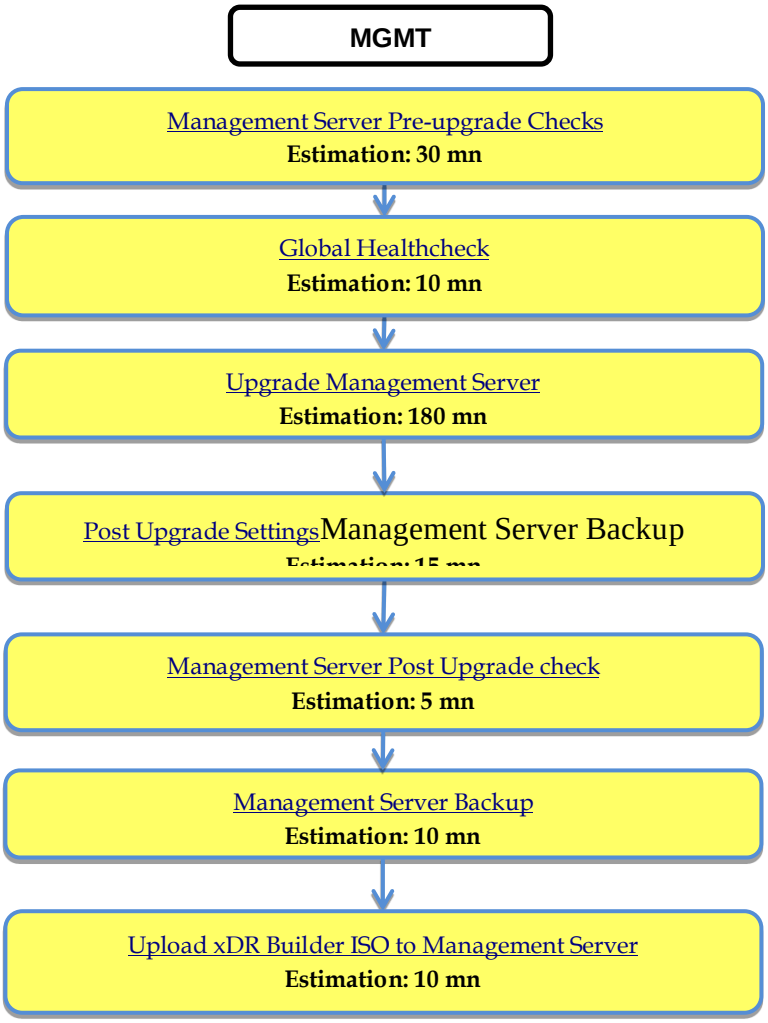
Management Server Upgrade Overview

The major upgrade on MGMT standard server shall use the incremental upgrade strategy, where the system will be upgraded with latest release without the need for any OS or application re-installation. The configuration database is used and migrated during the procedure.

Note: PIC 10.5.0.1 does not support Major upgrade from 10.4.0.4 of 10.5. Take the DB backup of 10.4 or 10.5 MGMT & restore in fresh installed PIC 10.5.0.1 MGNT for the migration.

The upgrade procedure is valid for configurations of previous release (10.2.1 and 10.3.0) on Standard Oracle Linux platform

Figure 2. Management Server Major Upgrade



Acquisition Major Upgrade Overview

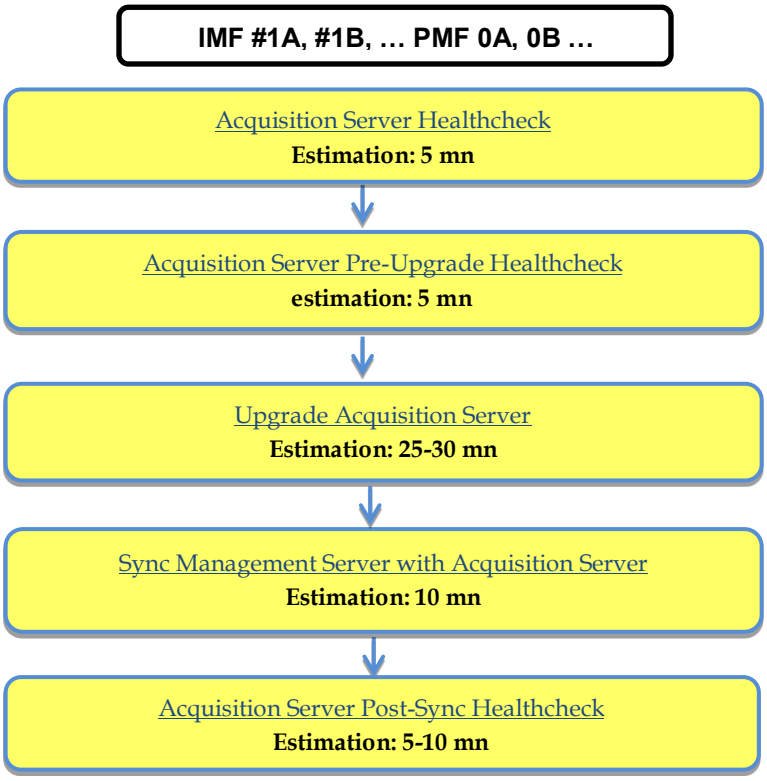
This flowchart depicts the sequence of procedures that must be executed to upgrade standalone Probed Acquisition Server and Integrated Acquisition subsystem.
For **Integrated DSR Monitoring** based on Probed Acquisition, proceed in the same manner.

Note: PIC 10.5.0.1 Acquisition server supports only DIU upgrade as a part of major upgrade. Please follow DIU upgrade section for the major upgrade of PIC 10.5.0.1 Acquisition server.

Depending on the number of servers for a particular function, the required procedures depicted in the flowchart will need to be repeated.

CAUTION: This procedure is introducing some data loss for the customer.

Figure 3. Acquisition Major Upgrade


IMF #1A, #1B, … PMF 0A, 0B …
Acquisition Server Healthcheck
Estimation: 5 mn
Acquisition Server Pre-Upgrade Healthcheck
estimation: 5 mn
Upgrade Acquisition Server
Estimation: 25-30 mn
Sync Management Server with Acquisition Server
Estimation: 10 mn
Acquisition Server Post-Sync Healthcheck
Estimation: 5-10 mn

Mediation Server Major Upgrade Overview

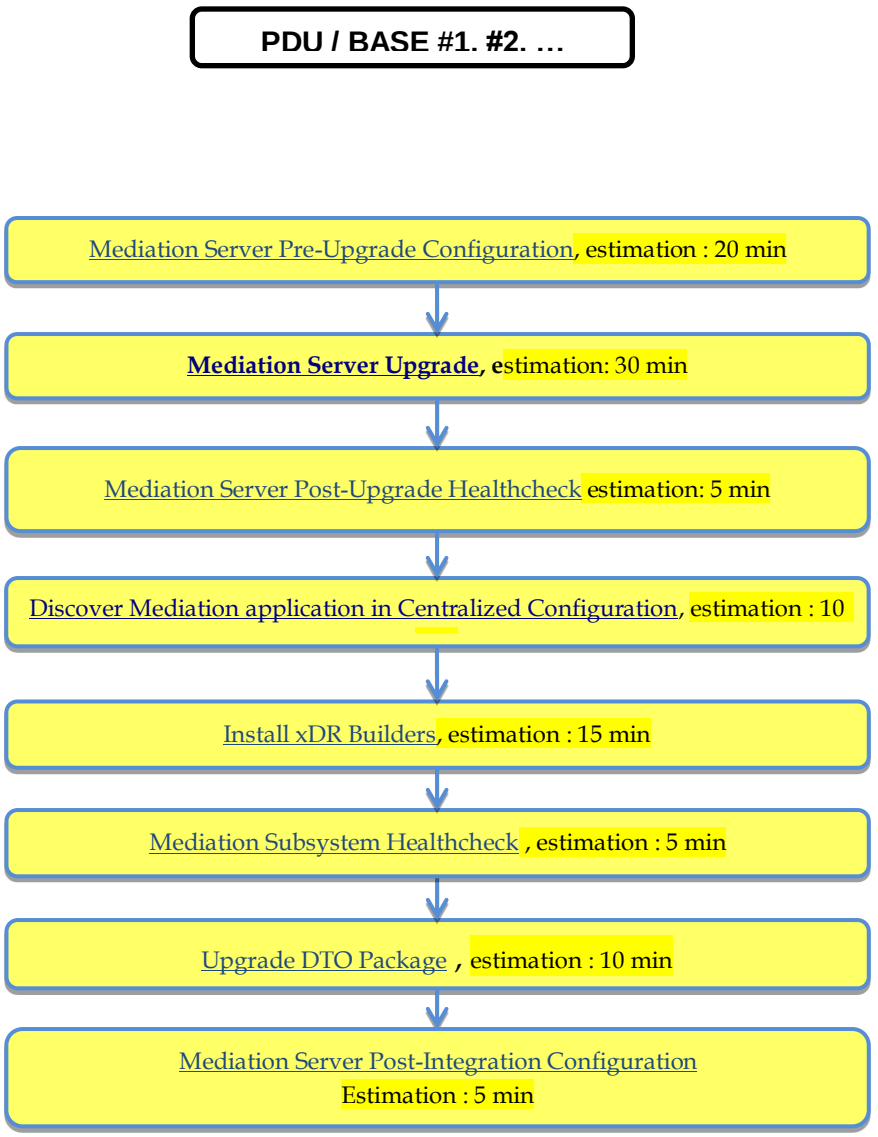
This flowchart depicts the sequence of procedures that must be executed to upgrade the Mediation subsystem and associated server functions.

The Mediation subsystem consists of the following types of servers at the beginning of the procedure:

- Mediation PDU storage server (not existing for Mediation freshly installed in 10.2)
- Mediation Base server

Mediation subsystem major upgrade procedure is triggered from one server only and runs in parallel on all servers in the subsystem.

Figure 4. Mediation Major Upgrade



Note: PIC 10.5.0.1 Mediation server supports only DIU upgrade as a part of major upgrade. Please follow DIU upgrade section for the major upgrade of PIC 10.5.0.1 Mediation server.

3. Major Backout Overview Flowcharts

The **backout is** design to come back to the previous release. It will be done using the DR procedures of the source release installed, Maintenance Guide of Release 10.4.0

Management Server Major Backout

NSP application major backout is implemented as a Disaster Recovery procedure. Follow Maintenance Guide 10.4.0 of the source release to find a Disaster Recovery Procedure.

Acquisition Server Major Backout

Acquisition application major backout is implemented as a Disaster Recovery procedure. Follow Maintenance Guide of 10.4.0 of the source release to find a Disaster Recovery Procedure.

Mediation Server Major Backout

Mediation application major backout is implemented as a Disaster Recovery procedure. Follow Maintenance Guide of 10.4.0 the source release to find a Disaster Recovery Procedure.

4. Healthcheck

Mediation Subsystem Healthcheck

This procedure describes how to run the automatic healthcheck of the Mediation subsystem, including connectivity to the DWS:

1. Open a terminal window and log in on any Mediation Server in the Mediation subsystem you want to analyze.
2. As cfguser, run:

```
$ analyze_subsystem.sh
```

The script gathers the healthcheck information from all the configured servers in the subsystem. A list of checks and associated results is generated. There might be steps that contain a suggested solution. Analyze the output of the script for any errors. Issues reported by this script must be resolved before any further use of this server.

The following examples show the structure of the output, with various checks, values, suggestions, and errors.

Example of overall output:

```
[cfguser@ixp2222-1a ~]$ analyze_subsystem.sh
---------------------------------------------------- ANALYSIS OF SERVER ixp2222-1a STARTED
----------------------------------------------------
10:16:05: STARTING HEALTHCHECK PROCEDURE - SYSCHECK=0
10:16:05: date: 05-20-11, hostname: ixp2222-1a
10:16:05: TPD VERSION: 4.2.3-70.86.0
10:16:05: IXP VERSION: [7.1.0-54.1.0]
10:16:05: XDR BUILDERS VERSION: [7.1.0-36.1.0]
10:16:05: ----------------------------------------------
10:16:05: Analyzing server record in /etc/hosts
10:16:05:           Server ixp2222-1b properly reflected in /etc/hosts file
10:16:05: Analyzing IDB state
10:16:05:           IDB in START state
...
12:21:48: Analyzing disk usage
...
10:24:09: ENDING HEALTHCHECK PROCEDURE WITH CODE 0
END OF ANALYSIS OF SERVER ixp2222-1b

ixp2222-1a TPD:[ 4.2.3-70.86.0 ] IXP:[ 7.1.0-54.1.0 ] XB:[ 7.1.0-36.1.0 ]    0
test(s) failed
ixp2222-1b TPD:[ 4.2.3-70.86.0 ] IXP:[ 7.1.0-54.1.0 ] XB:[ 7.1.0-36.1.0 ]    0

test(s) failed
```

Example of a successful test:

```
10:24:08: Analyzing DaqServer table in IDB
10:24:08:             Server ixp2222-1b reflected in DaqServer table

Example of a failed test:

12:21:48: Analyzing IDB state
12:21:48: >>> Error: IDB is not in started state (current state X)
12:21:48: >>> Suggestion: Verify system stability and use 'prod.start' to start
 the product
```

Open a terminal window and log in as cfguser on any Mediation Server in the Mediation subsystem and use the following command to have the list of the DatawareHouse

```
[cfguser@ixp0101-1a ~]$ Imysql.client
Welcome to the MySQL monitor.    Commands end with ; or \g.
Your MySQL connection id is 16501
Server version: 5.1.66 Source distribution

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> select concat(Login , '/' , Password , '@' , Host , '/' , Instance) from DatawareHouse;
+-------------------------------------------------------------+
| concat(Login , '/' , Password , '@' , Host , '/' , Instance) |
+-------------------------------------------------------------+
| IXP/IXP@10.253.142.203/IXP                                  |
| IXP/IXP@10.253.142.204/IXP                                  |
+-------------------------------------------------------------+
1 row in set (0.01 sec)

mysql> exit
```

Then, for each line, make sure that the database is accessible by using the following command:

```
[cfguser@ixp0101-1a ~]$ sqlplus IXP/IXP@10.253.142.203/IXP

SQL*Plus: Release 11.2.0.2.0 Production on Thu Sep 11 04:57:14 2014

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```

```
Connected to:
Oracle Database 11g Enterprise Edition Release 11.2.0.3.0 - 64bit Production
With the Partitioning, Automatic Storage Management, OLAP, Data Mining
and Real Application Testing options

SQL> exit
```

Note: Some of the xDR/KPI sessions are stored on different servers in the xDR Storage pool. As Centralized xDR Builder upgrade is analyzing all session that are configured on particular Mediation subsystem, all Oracle servers where those sessions are stored must be accessible. Otherwise Centralized xDR Builder upgrade will fail.

Acquisition Server Healthcheck

This procedure describes how to run the health check script on Acquisition servers.

The script gathers the health check information from each server in the Integrated Acquisition subsystem or from Probed Acquisition server. The script should be run from all the servers of the Integrated Acquisition subsystem or probed server. The output consists of a list of checks and results, and, if applicable, suggested solutions.

1. Run the automatic healthcheck script and verify output
   a. Run analyze_server.sh script as cfguser on all the servers in the sub-system :
      ```
      $ analyze_server.sh -i
      ```
   b. Analyze the output of the script for errors. Issues reported by this script must be resolved before any further usage of this server. Verify no errors are present. If the error occurs, refer to **Error! Reference source not found.**

      Note: For a standalone, there will be only one server in the output. Example output for a healthy server:

Example output for a healthy server in a subsystem:

```
04:57:30: STARTING HEALTHCHECK PROCEDURE - SYSCHECK=0
04:57:31: date: 02-26-16, hostname: imf9040-1a
04:57:31: TPD VERSION: 7.6.2.0.0-88.58.0
04:57:31: XMF VERSION: [ 10.4.0.0.0-1.7.0 ]
04:57:32: ------------------------------------------------
04:57:32: Checking disk free space
04:57:32:         No disk space issues found
04:57:32: Checking syscheck - this can take a while
04:57:43:         No errors in syscheck modules
04:57:44: Checking statefiles
04:57:44:         Statefiles do not exist
04:57:44: Checking runlevel
04:57:45:         Runlevel is OK (4)
04:57:45: Checking upgrade log
04:57:45:         Install logs are free of errors
04:57:45: Analyzing date
04:57:46:         NTP deamon is running
04:57:46:         IP of NTP server is set
```

```
04:57:46:        Server is synchronized with ntp server
04:57:47: Analyzing IDB state
04:57:47:        IDB in START state
04:57:47: Checking IDB database
04:57:48:        iaudit has not found any errors
04:57:48: Analyzing processes
04:57:49:        Processes analysis done
04:57:49: Analysing database synchronization
04:57:50:        Either Database synchronization in healthy state or errors found are non-blocking
04:57:50: Checking weblogic server entry
04:57:50:        Appserver is present
04:57:50: All tests passed. Good job!
04:57:51: ENDING HEALTHCHECK PROCEDURE WITH CODE 0
```

Management Server Pre-Upgrade Healthcheck and Settings

This procedure describes pre-upgrade checks on Management Server together with a few configuration settings.

Note: In Final Health Check, this procedure must be skipped.

1. Builder Upload and Dry Run
   This step is added as a pre-upgrade check to inform user about possible removal of dictionary fields that impact the queries and filters. In this step, it is only recommended to install new xdr builder RPM on management server when it is still on previous release and execute the Dry Run report from upgrade utility.

   I. Install Builder ISO on Management Server

   a. Copy the xDR builder ISO to the Management Server primary Weblogic server or insert xDR Builder CD-ROM.
   b. Login to the Management Server.
   c. As root run:

   ```
   # cd /opt/nsp/scripts/oracle/cmd
   # ./install_builder.sh
   ```

   d. You will be prompted:

   ```
   Please enter path to Builder CDROM or ISO [/media/cdrom]
   ```

   e. Choose one of the following:

   - If you have used ISO file enter the exact path including the ISO name
   - If you have used CDROM press <ENTER>

   f. Wait until installation finishes.

   II. Verification of ISO installation on Management Server.

   a. Login to the NSP application interface as TklcSrv user.
   b. Click Upgrade Utility
   c. Click on Manage Builder Rpm on the left tree.

   It will display the list of the xDR builder rpm. One of them is the one that belongs to the ISO file installed in the previous step. The state will be Not Uploaded.

   The list will also display the supported platform of the builder ISO file. The supported platform can be “32 bit”, “64 bit” or “32,64 bit”. The supported platform “32, 64 bit” means that same

version of builder ISO has been installed twice, one that supports 32 bit and the other that supports 64bit.

III. Dry run

a. Login to the NSP GUI as TklcSrv user.
b. Launch Upgrade Utility
c. Click on Manage Builder Rpm on the left tree.

   It will display the list of the xDR builder rpm. Select the RPM which you want to upgrade and choose **Dry Run** option from the tool bar.

d. Dry Report will be generated for each dictionary indicating changes done on the new dictionaries (Added/Removed/Deprecated field(s))

   This report is just an information at this time but will be very useful to finalize the upgrade and to prepare in advance what would be required to be done. It will also display the name of the configuration which are using deprecated field and configurations which will become incompatible after removal of field.

   If there are configurations (Query/Protraq/xDR filter) on the removed field, then modify those configurations to remove the use of removed field. Otherwise those configurations will be removed from the NSP when you upload the builder RPM.

   The dry run can't anymore be executed once the new package would be installed on the Mediation subsystem but you would have access to similar information on the deprecated fields menu you can access from the utility home page.

IV. Uninstall the Builder RPM from management server

a. Login to the NSP GUI asTklcSrv user and Launch Upgrade Utility
b. Click on Manage Builder Rpm on the left tree.
c. It will display the list of the xDR builder rpm. Select the RPM which was used for dry run and click the delete option from the tool bar.

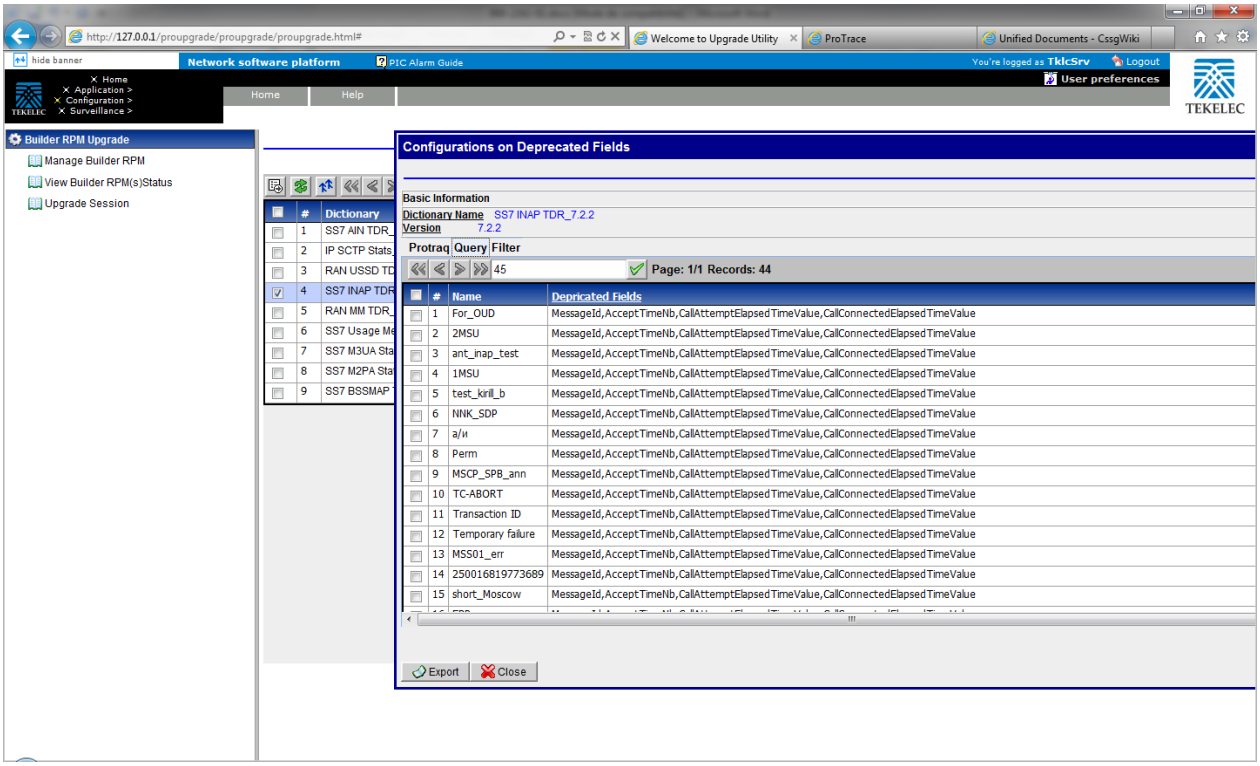
Upgrade Configurations using Deprecated Field(s)

This step is to be performed to upgrade configurations which are using Deprecated field(s) so as to make sure none of the configuration will use Deprecated field which may get removed in later releases.
Note that a patch was never introducing new deprecated field and this procedure should be rarely necessary.

1. Login to Management application interface as TklcSrv user.
2. Click **Upgrade Utility**
3. Click **Dictionaries with Deprecated Field(s)** link on home page, this will a list of dictionaries having deprecated field(s).
4. Select any one of the dictionaries and choose **View Dependent Configurations** icon from tool bar.
   This will display list of KPIs, Queries and Filters using deprecated fields. You can also export this list by clicking on **Export** button given on that popup. If there are no dependent configurations then this list will be empty.

   Take care to check each Tab and not Only the default one KPI.

The Screen shot bellow shows an example where the job has not been done at the end of the previous upgrade.



2. Performance Intelligence Center backup

The main goal of this step is to make sure that for upgrade latest backup is taken and backup must contain the global backup. The latest backup shall already contain the global backup so the latest available nightly backup can be used, however it is always recommended to take the global backup manually.

Make sure that before the backup is taken all the pending configuration changes are applied and if not then apply the configuration changes.

Go to the path /opt/nsp/scripts/oracle/cmd and run the below script.

```
# sh launch_pic_global_backup.sh
```

Note: The script will prompt for the Management DB password during execution. Please provide the DB password.

The above script will take the Management Server backup on one box server or oracle box server along with the Mediation Server/Acquisition Server backup at path /opt/oracle/backup/NSP_BACKUP_XX_XX_XX_XX_XX_XX

Note: Please verify export realm directory inside upgrade backup (/opt/oracle/backup/upgrade_backup/exportrealm) directory on one box server or primary box server that its content has latest timestamp (approximately the same timestamp when the latest backup folder was created).

Any changes done after the backup will be lost!

3. Check Management Server Backup is valid

This procedure describes different steps to be followed for checking the backup of Management Server is valid. It is useful to have this backup in case of restoring the setup need arising from upgrade failure
There must be one directory for the last seven days and it is recommended to copy in a safe place the full content of at least the last of this directory.

```
# cd /opt/oracle/backup
# ls -lh
drwxrwxrwx 9 root     root            4096 Jun 28 22:01 NSP_BACKUP_06_28_12_22_00_01
drwxrwxrwx 9 root     root            4096 Jun 29 22:01 NSP_BACKUP_06_29_12_22_00_02
drwxrwxrwx 9 root     root            4096 Jun 30 22:01 NSP_BACKUP_06_30_12_22_00_01
drwxrwxrwx 9 root     root            4096 Jul   1 22:01 NSP_BACKUP_07_01_12_22_00_01
drwxrwxrwx 9 root     root            4096 Jul   2 22:01 NSP_BACKUP_07_02_12_22_00_01
drwxrwxrwx 9 root     root            4096 Jul   3 22:01 NSP_BACKUP_07_03_12_22_00_01
drwxrwxrwx 9 root     root            4096 Jul   4 22:01 NSP_BACKUP_07_04_12_22_00_01
```

a. Check whether the Management Server backup is on external drives or not.

Login as root on Management Server and execute below commands.

```
# cd /opt/oracle/backup
# df –h .
Filesystem                    Size  Used Avail Use% Mounted on
/dev/sdd1             275G  1.1G  274G   1% /usr/TKLC/oracle/backup
```

The outputs shown above are examples but they shows that /usr/TKLC/oracle/backup directory is mounted on /dev/mapper/nsp_backup_vol partition in case of blade machines or on /dev/sdd1 partition in case of RMS machines. These partitions are on external storage array. If the output is not similar as shown above then do not proceed further and refer to **Error! Reference source not found.**

b. Check the content of the last backup directory

```
-rw-r--r--  1 root     root         391K Mar 24 22:01 apache-conf.tgz
-rw-r--r--  1 root     root          169 Mar 24 22:01 backup.log
-rw-r--r--  1 root     root          186 Mar 24 22:00 boot.properties
drwxr-xr-x 10 root     root         4.0K Mar 24 22:00 config
-rw-r--r--  1 root     root         6.9K Mar 24 22:01 customer_icon.jpg
-rw-r--r--  1 oracle oinstall 3.0M Mar 24 22:01 ExpNSP.dmp.gz
-rw-r--r--  1 oracle oinstall   52K Mar 24 22:01 ExpNSP.log
drwxr-xr-x  2 root     root         4.0K Mar 24 22:00 exportrealm
```

```
-rw-r--r--  1 root  root  230k Mar 24 22:01 failedconnection.txt
-rw-r--r--  1 root  root  2.5K Mar 24 22:01 global_versions.properties
-rw-r--r--  1 root  root   235 Mar 24 22:01 hosts
-rw-r--r--  1 root  root  1585 Mar 24 22:01 hosts.csv
-rw-r--r--  1 root  root   163 Mar 24 22:01 ifcfg-eth01
-rw-r--r--  1 root  root    23 Mar 24 22:01 ifcfg-eth02
-rw-r--r--  1 root  root   47K Mar 24 22:01 install.log
drwxrwxrwx  2 root  root  4096 Mar 24 22:01 IXP
-rw-r--r--  1 root  root   59M Mar 24 22:01 jmxagentproperties.tgz
drwxr-xr-x  7 root  root  4.0K Mar 24 22:00 ldap
-rw-r--r--  1 root  root    85 Mar 24 22:01 network
-rw-r--r--  1 root  root   600 Mar 24 22:01 nsp_setenv.sh
-rw-r--r--  1 root  root  1.6K Mar 24 22:01 ntp.conf
-rw-r--r--  1 root  root   298 Mar 24 22:01 optional_modules_list
-rw-r--r--  1 root  root   320 Mar 24 22:00 preBackupTests.log
-rw-r--r--  1 root  root   148 Mar 25 05:44 restore_10.248.19.35.log
-rw-r--r--  1 root  root    64 Mar 24 22:00 SerializedSystemIni.dat
-rw-------  1 root  root     0 Mar 24 22:01 snmpd.conf
drwxrwxrwx  2 root  root  4096 Mar 24 22:01 XMF
```

Make sure the file ExpNSP.dmp.gz exist and have a size coherent with the amount of data of your customer. Check the content of ExpNSP.log

Check the content of **Mediation** backup folder

```
-rw-r--r-- 1 root  root  610 Mar 24 22:01 IXP_ixp1000-1a.tgz
-rw-r--r-- 1 root  root  645 Mar 24 22:01 IXP_ixp1000-1b.tgz
-rw-r--r-- 1 root  root  560 Mar 24 22:01 IXP_ixp1000-1z.tgz
```

Copy following file manually from all the servers in mediation sub-system and keep inside mediation backup for individual servers

/usr/TKLC/TKLCixp/prod/lib/plugins/build/SCTPPathNaming.cnf

Check the content of **Acquisition** backup folder

```
-rw-r--r-- 1 root  root  296 Mar 24 22:01 XMF_xmf-9010.tgz
```

Verify that global_version.properties file must be present in the latest backup directory, verify that

a. global_version.properties file inside the latest backup directory.
b. ExpNSP.dmp.gz file should not be empty and check no errors in the content of ExpNSP.log
c. In exportrealm directory four files i.e. DefaultAuthenticator.dat, DefaultCredentialMapper.dat, XACMLAuthorizer.dat, XACMLRoleMapper.dat should be present
d. Copy the SSL certificates if present on the server and keep them into backup directory /opt/oracle/backup/NSP_BACKUP_XX_XX_XX_XX_XX_XX

   Note: The above certificates must be restored manually after the management server upgrade to prevent warning about the SSL certificate error in case of https access.
e. run healthcheck:

For the ISO file, run:

```
# sh /mnt/upgrade/health_check/healthcheck_nspbackup.sh
```

```
[root@nsp9 health_check]# sh healthcheck_nspbackup.sh
Last NSP backup is /opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01
Verifying expected files in /opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01 directory
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/jmxagentproperties.tgz File exists
[ OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/bulkconfig File exists [ OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/ExpNSP.dmp.gz File exists [ OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/hosts File exists [ OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/ifcfg-eth0 File does not exists [ NOT
OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/ifcfg-eth1 File does not exists [ NOT
OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/ifcfg-eth01 File does not exists [ NOT
OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/ifcfg-eth02 File exists [ OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/ifcfg-bond0.3 File exists [ OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/ifcfg-bond0.4 File does not exists
[ NOT OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/network File exists [ OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/nsp_setenv.sh File exists [ OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/ntp.conf File exists [ OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/optional_modules_list File exists
[ OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/snmpd.conf File exists [ OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/apache-conf.tgz File exists [ OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/exportrealm/DefaultAuthenticator.dat
File exists [ OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/exportrealm/DefaultCredentialMapper.d
at File exists [ OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/exportrealm/XACMLAuthorizer.dat
File exists [ OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/exportrealm/XACMLRoleMapper.dat
File exists [ OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/customer_icon.jpg File exists [ OK ].
/opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/global_versions.properties File exists
[ OK ].
Verifying size of NSP DMP file
  /opt/oracle/backup/NSP_BACKUP_03_30_14_22_00_01/ExpNSP.dmp.gz file size is [ OK ]
Health check complete
```

Note: In above example eth01 & eth02 interface will be present in case of RMS and ifcfg-bond0.3 && ifcfg-bond0.4 will be available in case of blade server. Note that Blade is no more supported in this release.

f. Copy backup directory

i. Login as a root user on Management Server.

ii. Verify the Management Server backup on which the healthcheck was performed is present and is the latest backup. Execute the below command to find out the latest backup directory:

```
# ls -dtr /opt/oracle/backup/NSP* | tail -1
/opt/oracle/backup/NSP_BACKUP_09_03_14_22_00_01
```

In case of any discrepancy, don't proceed further and refer to **Error! Reference source not found.**.

iii. Verify the size of Management Server backup & space available on external server to be used for storing backup.

Command to verify the size of the backup:

```
# du -sh /opt/oracle/backup/NSP_BACKUP_XX_XX_XX_XX_XX_XX
89M         /opt/oracle/backup/NSP_BACKUP_09_03_14_22_00_01
```

Command to verify the available space on the external server, where the backup is to be copied:

```
# Login to the server as root
# df –kh
Filesystem                      Size  Used Avail Use% Mounted on
/dev/mapper/vgroot-plat_root   1008M  333M  625M  35% /
tmpfs                            20G     0   20G   0% /dev/shm
/dev/sda1                       248M   41M  196M  18% /boot
/dev/mapper/vgroot-plat_tmp    1008M   43M  915M   5% /tmp
/dev/mapper/vgroot-plat_usr     4.0G  2.6G  1.2G  69% /usr
/dev/mapper/vgroot-plat_var    1008M  184M  774M  20% /var
/dev/mapper/vgroot-plat_var_tklc 7.9G  6.3G  1.3G  84% /var/TKLC
/dev/mapper/vgroot-plat_nsp     237G   20G  205G   9% /usr/TKLC/nsp
/dev/mapper/vgroot-plat_oracle  7.9G  4.4G  3.2G  59% /usr/TKLC/oracle11
```

Select the partition where the sufficient space is available for the backup and use that partition for copying. The above output is just the sample output and it can be different depending on the external server used.

iv. Copy the latest backup folder on the external server at the path identified in the previous step, using below command

```
# scp -r /opt/oracle/backup/NSP_BACKUP_XX_XX_XX_XX_XX_XX <Server
IP>/<Directory_Path>
```

Global Healthcheck

Note: In Final Health Check, this procedure must be skipped.

CAUTION: Make sure you can access the iLO/iLOM interface of all servers and you can open the remote console for each server. The software installation through SSH is blocked and it can be done only on the server console itself or using iLO for HP servers and iLOM for Oracle servers.

1. System Cleanup

Discuss with the customer to clean up the system as much as possible in order to reduce the risk and avoid any issue due to some objects that would no more be used.

2. Engineering Document

   Make sure you get the latest available engineering document and it is up to date.

   The latest version should be documented on the Customer Info Portal, as well as the current password for the admin users

3. xDR Session Status

   Navigate from the home screen to Troubleshooting Application

   NOTE: Look for any sessions that are lagging behind the current time.

   a. View All records
   b. Filter by end date
   c. End date must be the correct time
   d. Screen capture the information

   Verify which sessions are lagging.

   Statistics sessions must also be considered but take in consideration records are periodically generated.

   Try to access the session it-self and check the session content and especially make sure the PDU are properly recorded.

4. Systems Alarms

   Access the system alarm and fix all alarms on the system. In case some alarms can't be fixed due to overloaded system for example, the remaining alarms before the upgrade must be captured in order to compare with the alarms we would get at the end of the upgrade.

5. Alarm Forwarding

   Make Sure the Target Server is added in hosts file. Remove entry for 127.0.0.1 and add alias localhost for the Target Server in the hosts file.

   For Example the /etc/hosts should look like below. Here the entry corresponds to the target server.

   xx.xx.xx.xxx hostname localhost

   Connect on Management Server and Navigate in platcfg menu to check the SNMP and SMTP configuration.

   Make sure the SNMP and SMTP configuration are up to date in the Engineering Document.

6. KPI Application

   Access to KPI configuration and check which configuration are NOT-SYNC

7. Dashboard

   Access to Dashboard configuration and check each dashboard is working fine

8. DataFeed

   Access to the DataFeed configuration and capture the Feed Status

   Make sure each Feed configuration is Documented in the Engineering Document

9. Scheduler

   Access to the Scheduler and check the scheduled tasks configured are working as expected.

   Make sure each task is documented in the Engineering Document.

5. Management Server Major Upgrade

This section provides the procedures for upgrading the Applications.

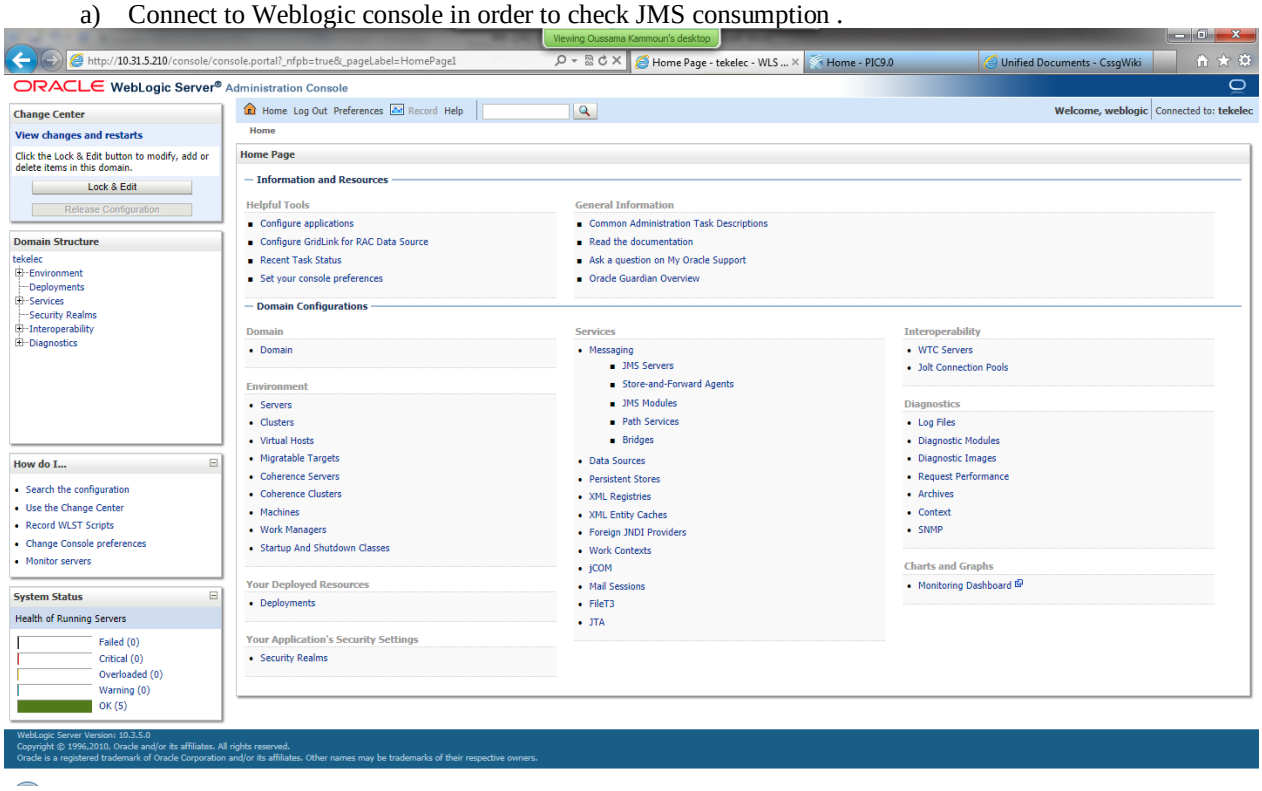
Management Pre-Upgrade Check

1. **Make sure you executed the sections:**
   a) Management Pre-Upgrade Health check and settings
   b) Performance Intelligence Center backup
   c) Upgrade configuration using deprecated fields
   d) Check Management Backup is Valid

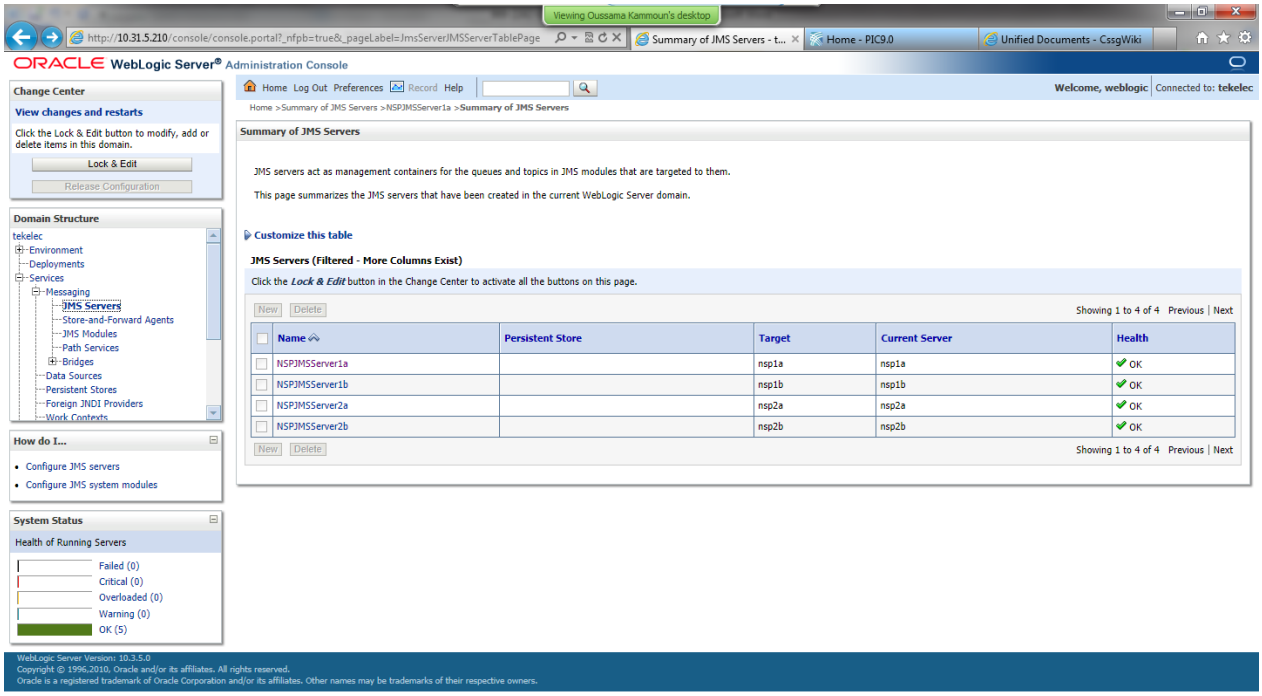
2. **Pause JMS and Purge terminated alarm**

   Note: Weblogic 12.2.1.0.0 has a bug (Bug 22481818) affecting JMS module. So, in order to fix it you need to apply a patch: Patch 21830665

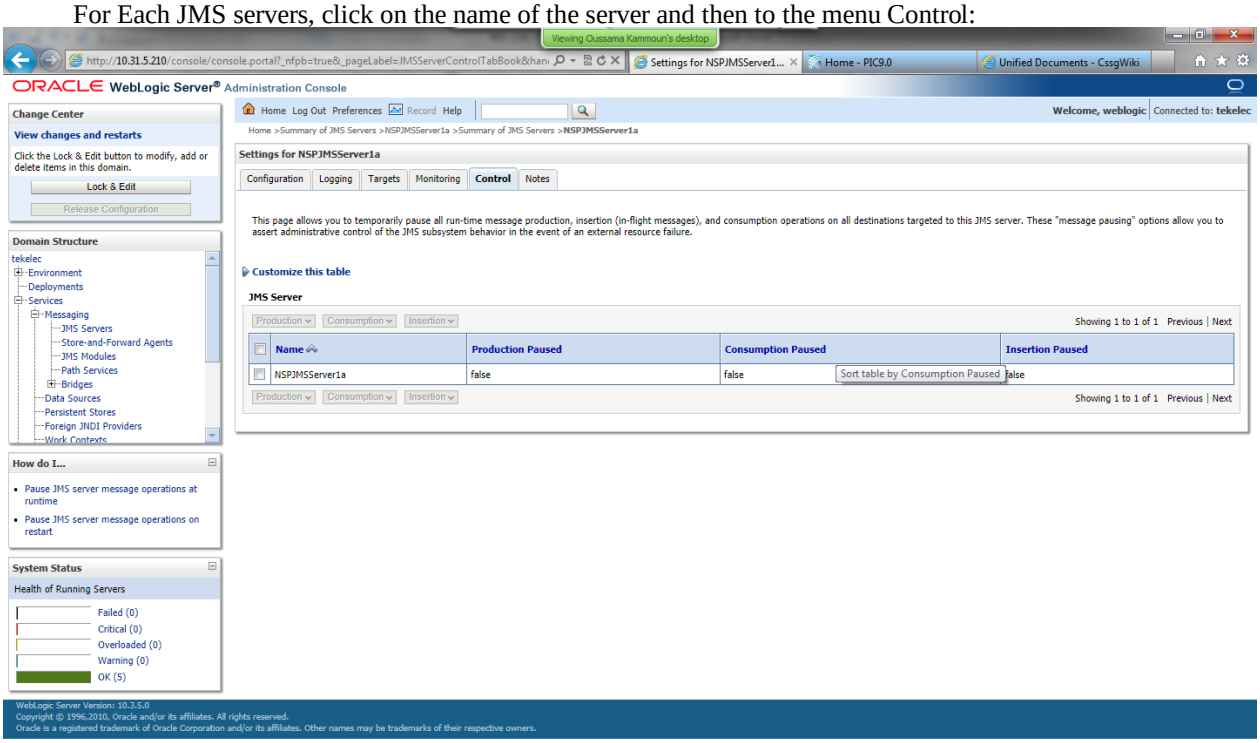
   a) Connect to Weblogic console in order to check JMS consumption .



In the Services section, go to messaging and then JMS Servers menu:

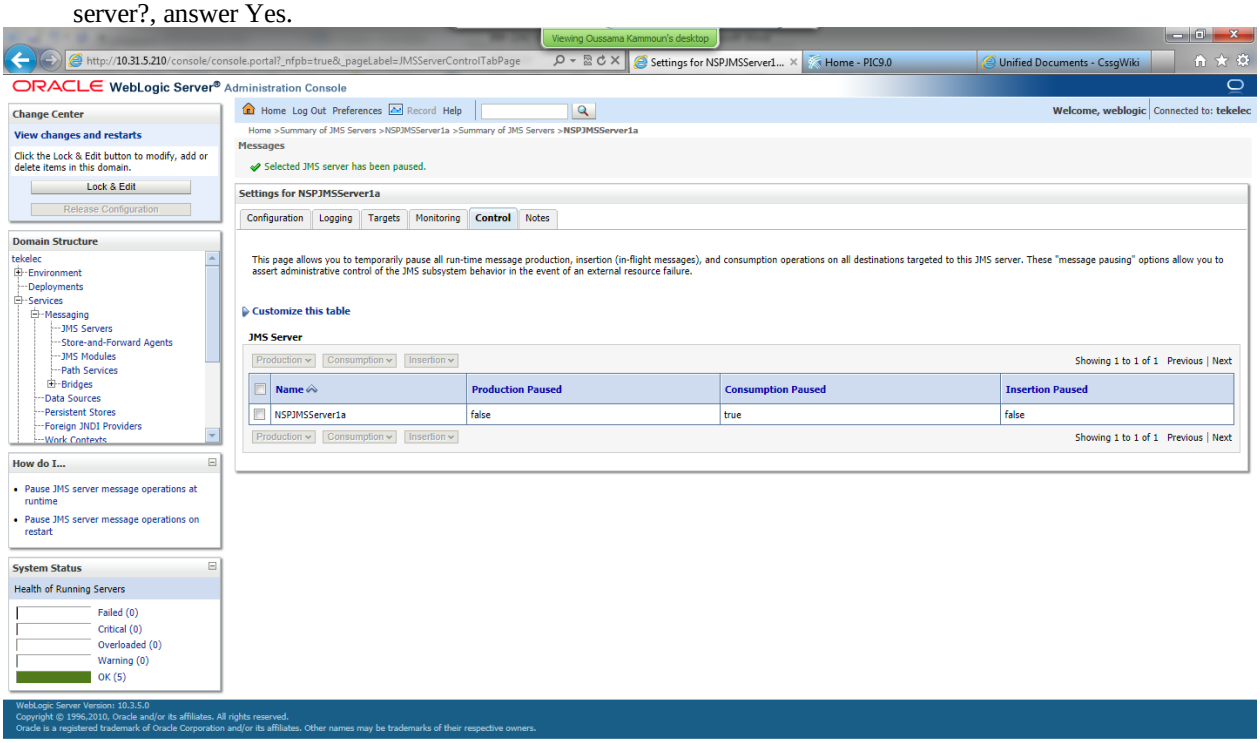


For Each JMS servers, click on the name of the server and then to the menu Control:



If the value in consumption paused is true, this server is paused and you can return to previous step in order to check the status of the next JMS server.
If the value is false like of the screenshot, select the checkbox in order to activate the menu consumption, and

then select pause. When asked to confirm if you Are sure you want to pause consumption for this JMS server?, answer Yes.



The value in consumption paused is true now as expected, so you can return to the JMS server list in order to check the status of the next one, or continue next step if this was the last one.

3. **Check minimum free disk space in /opt/oracle/backup**

   a) As root run:

   ```
   # df -kh /opt/oracle/backup
   ```

   Example output:

   ```
   Filesystem            Size  Used Avail Use% Mounted on
   /dev/cciss/c0d2p1      67G   11G   57G  16% /opt/oracle/backup
   ```

   b) Check the space available under Avail column of this table. This should be at least 15-20 GB approx. e.g. in above table shown total space available is 57GB.

   Note: If total available space is less than 2 GB, then do not continue with upgrade. Refer to **Error! Reference source not found.**.

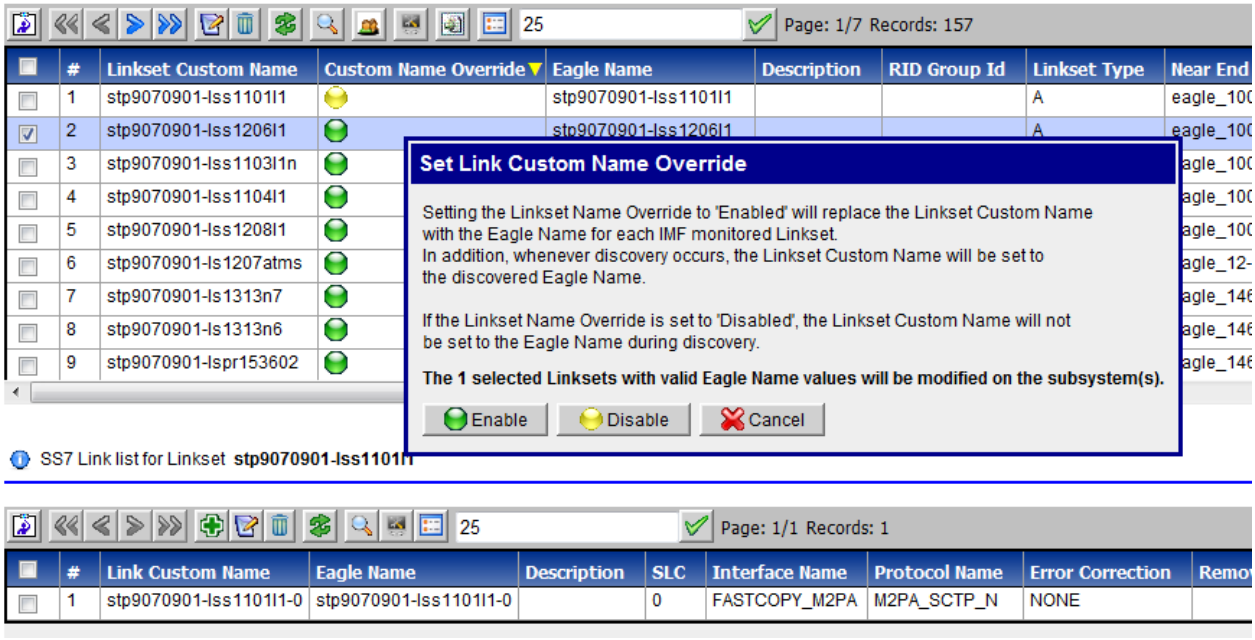
4. **Generate the "Bulk Export Configurations" and "Create Configuration Report"**

   Go to the Centralized Configuration home page and click on the link to generate this files.
   Keep it in a safe place on your laptop in the worst case where even a disaster recovery would not work with would help you to get in information, in order to re-create the configuration.

5. **Synchronize the Integrated Acquisition**

   Go to the Centralized Configuration and synchronize the Integrated Acquisition in the acquisition part before to start any operation in order to avoid discovering new links while the upgrade. Proceed to an "Apply changes" if some are to do.

   Take care if the Custom Name Override feature is enable on the link set, the names would be replaced by the one used on the Eagle.
   The function is available on the Linksets list page tool bar.



Upgrade Management Server

1. Check Management Server Backup

   Note: This is the time user can copy the verified backup from the external server to this server, if not already present.

   a. Login as root user on the server.
   b. Verify the Management Server backup on which the healthcheck was performed using "section **Check Management Server Backup is valid** "is present and is the latest backup. Execute the below command to find out the latest backup directory:

   ```
   # ls -dtr /opt/oracle/backup/NSP* | tail -1
   /opt/oracle/backup/NSP_BACKUP_09_03_14_22_00_01
   ```

   c. Change the rights of the Backup before starting the upgrade.

   ```
   # chmod -R 777 /opt/oracle/backup/NSP_BACKUP*
   ```

   In case of any discrepancy, don't proceed with upgrade and refer to **Error! Reference source not found.**

2. **Upgrade Management Server**

   a) Login as root user on terminal console of Management server.
   b) Copy the Management ISO on server.
   c) Mount the ISO file

   ```
   # mount -o loop iso_path /mnt/upgrade
   ```

   where iso_path is the absolute path of the Management ISO image, which includes the name of the image (for example, /var/ORCL/iso_file_name.iso).
   d) As root, run:
   Note: Run this procedure via iLO or through any disconnectable console only.

   ```
   # /mnt/upgrade/upgrade_nsp.sh
   ```

   Note: /mnt/upgrade is the mount point where Management ISO is mounted
   e) Wait for Management upgrade to get complete. Remove this file to save disk space.
   As root, run:

rm -f /var/ORCL/iso_file

where iso_file is the absolute path of the ISO image, which includes the name of the image.

After the installation the server will restarts automatically. Log back in and review the Management installation log (/var/log/nsp/install/nsp_install.log. If Management did not install successfully, contact **MOSError! Reference source not found.**

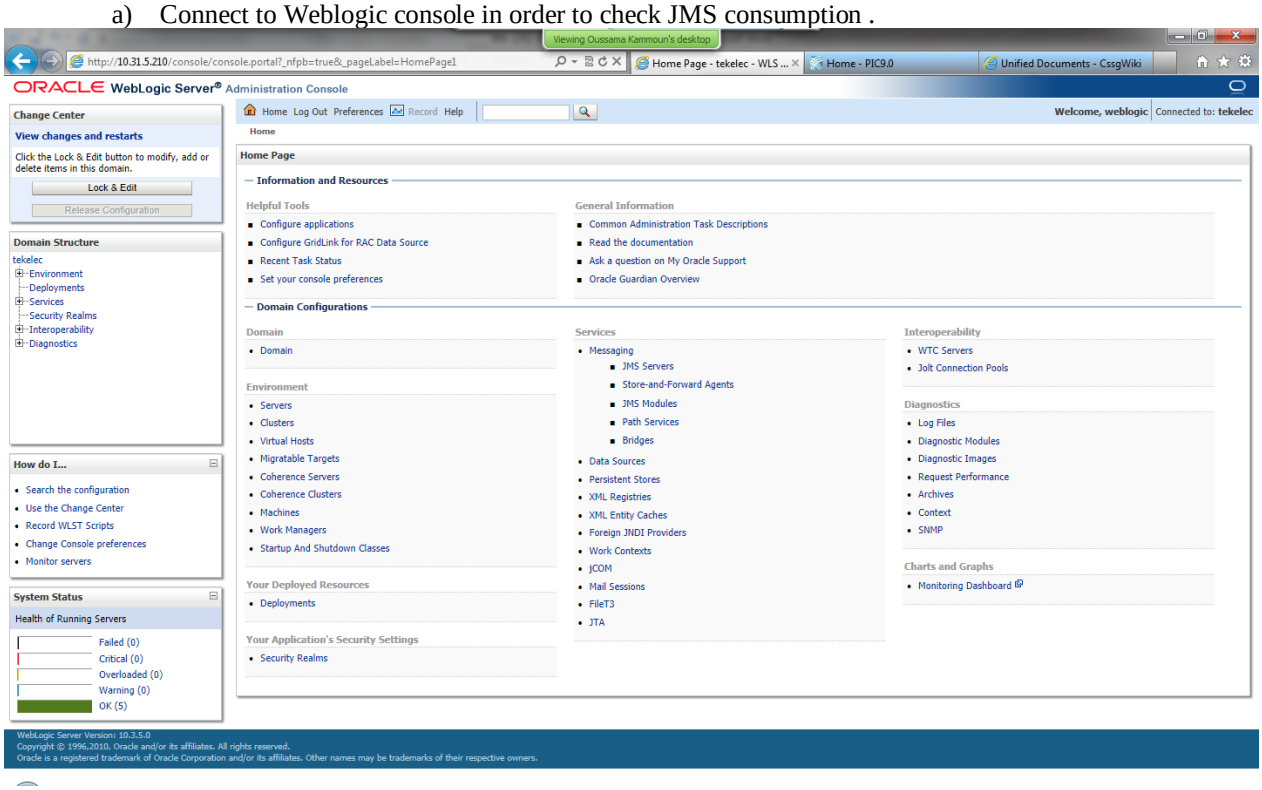
Post-Upgrade Settings

1. **Resume JMS Consumption**

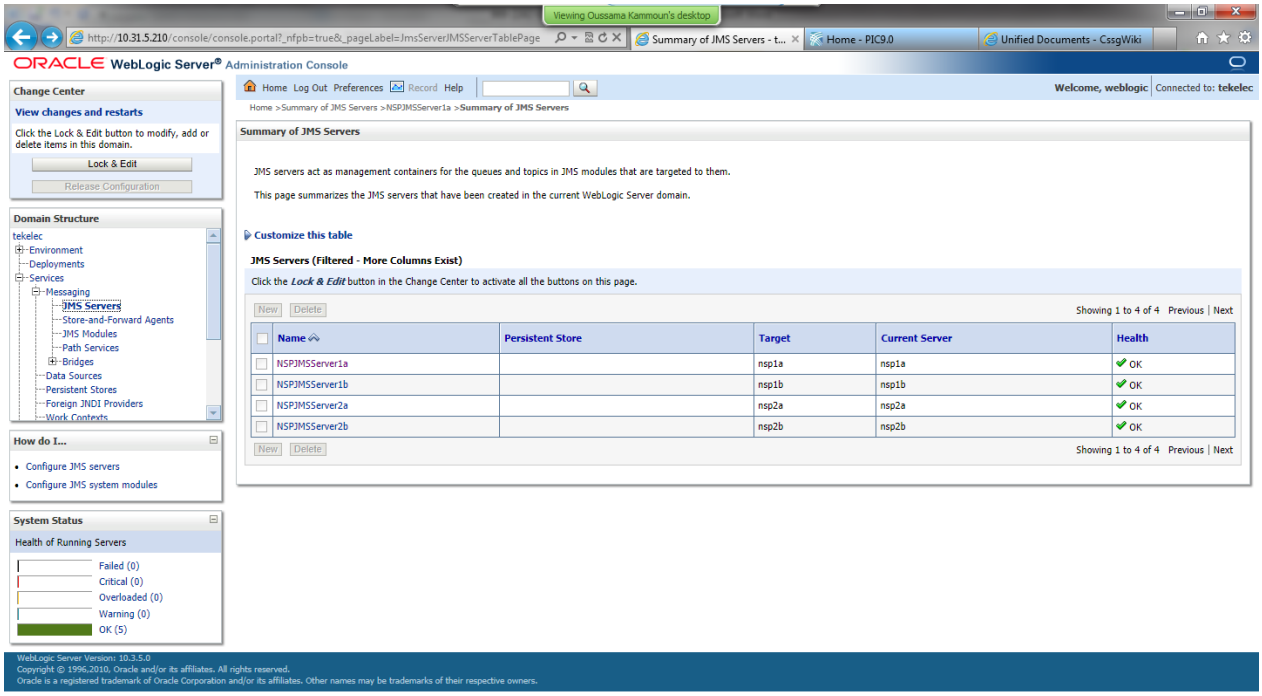
   On Management Standard Server the JMS consumption must be resumed from weblogic console.

   Note: Weblogic 12.2.1.0.0 has a bug (Bug 22481818) affecting JMS module. So, in order to fix it you need to apply a patch: Patch 21830665

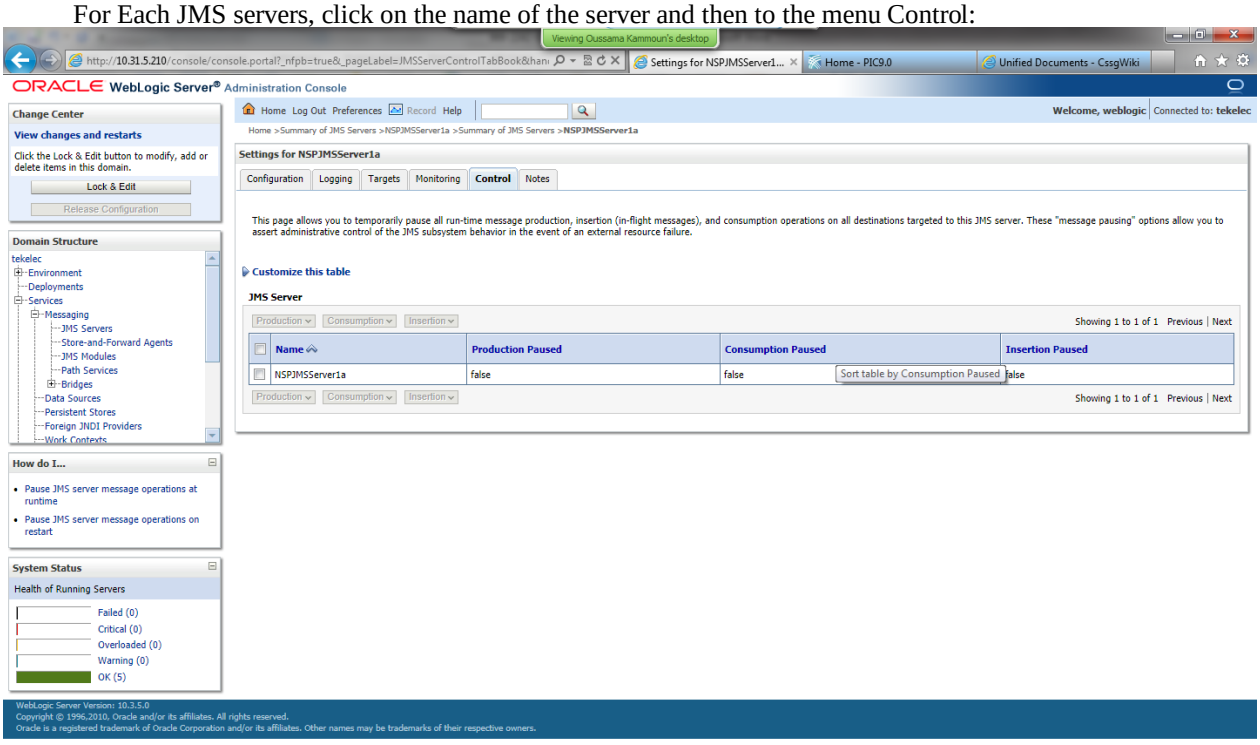
   a) Connect to Weblogic console in order to check JMS consumption .



In the Services section, go to messaging and then JMS Servers menu:

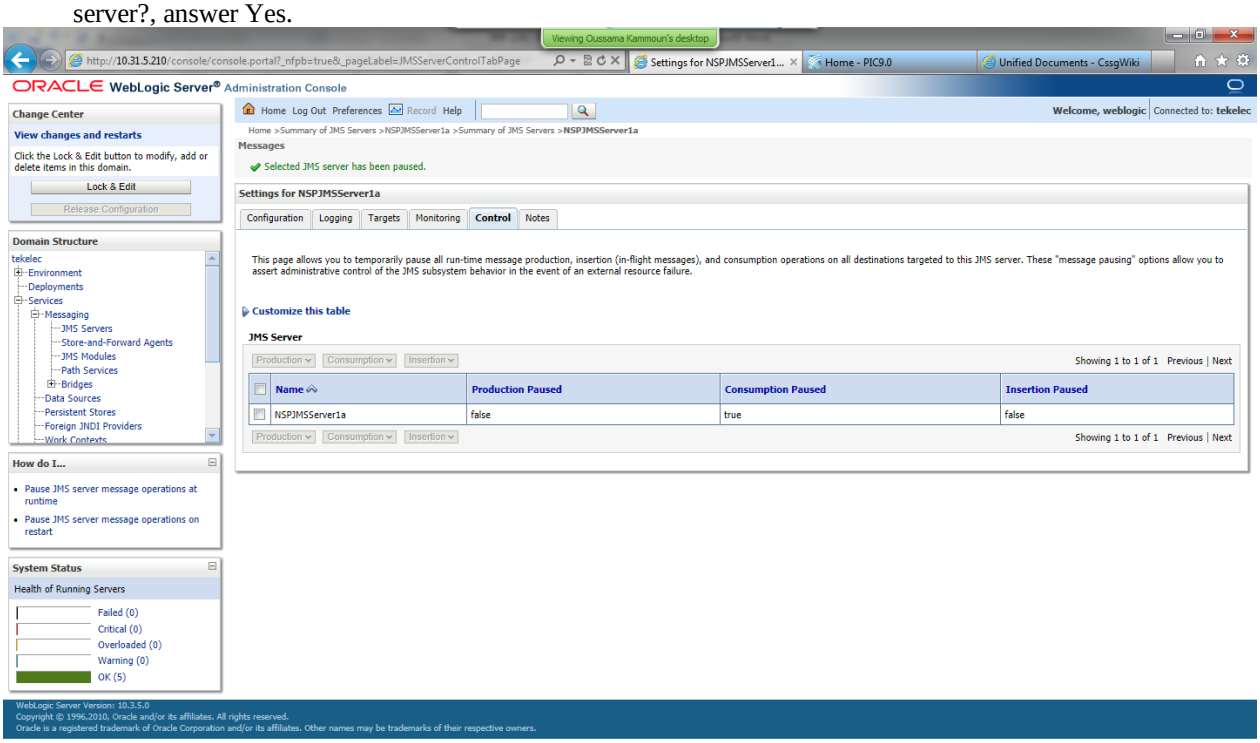


For Each JMS servers, click on the name of the server and then to the menu Control:



If the value in consumption paused is true, this server is paused and you can resume the consumption.
If the value is true like of the screenshot, select the checkbox in order to activate the menu consumption, and then select resume. When asked to confirm if you Are sure you want to resume consumption for this JMS

server?, answer Yes.



The value in consumption paused is false now as expected, so you can return to the JMS server list in order to check the status of the next one, or continue next step if this was the last one.

DB Security

1. Copy the CreateAndAttachUserProfile.sh, CreateAndAttachUserProfile.sql, CreatePasswordVerificationFunction.sql to /u01/app/oracle/product/19.3.0/dbhome_1/dbs/: as *oracle* user

```
# cd /u01/app/oracle/product/19.3.0/dbhome_1/dbs/
   chmod 777 CreateAndAttachUserProfile.sh
   chown oracle:oinstall CreateAndAttachUserProfile.sh
   chown oracle:oinstall CreateAndAttachUserProfile.sql
   chown oracle:oinstall CreatePasswordVerificationFunction.sql
# su - oracle
# cd /u01/app/oracle/product/19.3.0/dbhome_1/dbs/
./CreateAndAttachUserProfile.sh NSP/<PASSWORD>@NSP NSP NSP
```

2. Provide privileges to NSP user : as *oracle* user

```
# sqlplus / as sysdba

ALTER SYSTEM SET SEC_CASE_SENSITIVE_LOGON = TRUE SCOPE = SPFILE;
ALTER SYSTEM SET GLOBAL_NAMES = FALSE SCOPE = SPFILE;
ALTER SYSTEM SET REMOTE_LOGIN_PASSWORDFILE = 'EXCLUSIVE' SCOPE = SPFILE;
ALTER SYSTEM SET SQL92_SECURITY = FALSE SCOPE = SPFILE;
REVOKE EXECUTE ON DBMS_ADVISOR FROM PUBLIC;
REVOKE EXECUTE ON DBMS_JOB FROM PUBLIC;
REVOKE EXECUTE ON DBMS_LDAP FROM PUBLIC;
REVOKE EXECUTE ON DBMS_LOB FROM PUBLIC;
REVOKE EXECUTE ON DBMS_OBFUSCATION_TOOLKIT FROM PUBLIC;
REVOKE EXECUTE ON DBMS_SCHEDULER FROM PUBLIC;
REVOKE EXECUTE ON DBMS_SQL FROM PUBLIC;
REVOKE EXECUTE ON DBMS_XMLGEN FROM PUBLIC;
REVOKE EXECUTE ON UTL_FILE FROM PUBLIC;
REVOKE EXECUTE ON UTL_INADDR FROM PUBLIC;
REVOKE EXECUTE ON UTL_TCP FROM PUBLIC;
REVOKE EXECUTE ON UTL_SMTP FROM PUBLIC;
REVOKE EXECUTE ON UTL_HTTP FROM PUBLIC;

GRANT EXECUTE ON DBMS_JOB TO NSP,NSP_LOG,DBSNMP,SYSTEM;
GRANT EXECUTE ON DBMS_LOB TO NSP,NSP_LOG;
GRANT EXECUTE ON DBMS_OBFUSCATION_TOOLKIT TO NSP,NSP_LOG,DBSNMP,SYSTEM;
GRANT EXECUTE ON DBMS_SCHEDULER TO NSP,NSP_LOG,DBSNMP,SYSTEM;
GRANT EXECUTE ON DBMS_SQL TO NSP,NSP_LOG,DBSNMP,SYSTEM;
GRANT EXECUTE ON UTL_FILE TO NSP,NSP_LOG,DBSNMP,SYSTEM;
GRANT EXECUTE ON UTL_TCP TO DBSNMP,SYSTEM;
GRANT EXECUTE ON UTL_SMTP TO DBSNMP,SYSTEM;
GRANT EXECUTE ON DBMS_LOB TO XDB;
GRANT EXECUTE ON UTL_FILE TO XDB;
GRANT EXECUTE ON DBMS_SQL TO XDB;
GRANT EXECUTE ON DBMS_JOB TO XDB;
GRANT EXECUTE ON DBMS_STATS TO XDB;
GRANT EXECUTE ON UTL_RAW    TO XDB;
GRANT CREATE JOB TO NSP;

Exit;
```

1. **Generate DWS and DataFeed Database Credentials** (**optional**, only needed if post upgrade password should be changed or server was re-installed during disaster.)

   As root user execute below commands

   ```
   # cd /opt/nsp/scripts/oracle/cmd
   # ./modifyPassword.sh
   ```

   The script shall prompt for the Database Usename, Database Service Name, Database IP, old password, new password and wallet password. The credentials provided for DWS server must be same as configured earlier in Management server for the DWS server. This procedure has to be executed individually for each of the DWS servers. The above steps to sync the DWS credentials can be done here i.e. after the Management Upgrade or can be done after Upgrade of all OCPIC Components.

In case the user wishes to modify the database user profile then section "**Modification of the user Profile in Database**" can be referred from the OCPIC 10.3 Maintenance Guide

Note: Follow the Oracle Secure password guidelines for setting up the database password. The password may only contain special characters from # ! % ^ & * ( ) _ + - { } [ ] ; : . , < > ? ~. This is only applicable for the NSP and IXP user.

2. **Restrict access of NSP frontend to HTTPS (Mandatory)**

   Disable access to HTTP

   a. Open a terminal console and Login as a root user on Management Server One-Box server
   b. Edit /etc/httpd/conf/httpd.conf file and search for line "Listen 80"
   c. Remove the line "Listen 80"
   d. Restart httpd daemon

```
/bin/systemctl restart httpd.service
```

3. NSP Applications Documentation

   Note: Document for application is automatically installed along with NSP application installation

   To verify document installation login into NSP application interface and navigate to **Help ➤ User Manual** Index page for that application opens. (Each application should be tested and also the link to the PDF should be tested to see if the printable PDF file opens.)

   In case you have problems to access some applications such ProTrace, ProTraq or CCM try to empty you browser cache.

4. **Refer to PIC Maintenance Guide to perform Post Installation configuration:**

   a. Configure Mail Server (Optional)
   b. Configure Authenticated Mail Server (Optional)
   c. Configure SNMP Management Server (Optional)

5. **Transfer Ownership of TklcSrv object**

   Note: Follow the steps only if some object bellowing to TklSrv were created in previous version

   a. Open a web browser and log in to the NSP application interface TklcSrv user.
   b. Navigate to security application ➤ Transfer ownership value
   c. Transfer all the TklcSrv object to and other user (tekelec for example)

6. **Change Customer Icon (Optional)**

   This procedure describes how to change the customer icon (for example, replace the standard Tekelec logo with a customer logo). This procedure is optional.

   a. Open a terminal window and log in as root on One box.
   b. Copy the customer icon file (customer_icon.jpg) to the /opt/www/nsp/resources directory of respective servers.

c. Verify the customer icon properties:
   - The file name must be customer_icon.jpg.
   - The file must belong to user tekelec in group tekelec.
   - The compression format must be Jpeg.
   - Optimum width/height ratio is 1.25.
   - Any image can be used; the suggested minimum width/height is 150 pixels.

7. Revoke DBA role from NSP user , see Maintenance Guide of the considered release

8. To enhance alarm description and classification. (Optional)

   Note: By default Management Server keep existing alarm classification.

   a. Open a terminal window and log in as root user on Management Server (one box).
   b. Change user to Oracle and execute given command with Management Server database sql user and password.

```
# su – oracle
# sqlplus user/password
@/usr/TKLC/nsp/nsp-package/framework/core/dist/coreDB/sql/CORdb_AlarmEnhancement_data.sql
```

9. To enhance openssl security

As a root user edit ssl.conf under path /etc/httpd/conf.d/

a. Add **-TLSv1** to SSLProtocol

```
SSLProtocol ALL -SSLv2 -SSLv3 -TLSv1
```

b. Comment the existing SSLCipherSuite and add the below line.

```
#SSLCipherSuite HIGH:3DES:!aNULL:!MD5:!SEED:!IDEA
SSLCipherSuite ALL:!aNULL:!ADH:!eNULL:!LOW:!EXP:!NULL:!RC4:!RC2:!DES:!3DES:!SHA:!MD5+HIGH:+MEDIUM

Save the file and rstart the apache http server
# service httpd restart
```

10. To enable session point code

    a. Update the value to false in NSP db(which is “TRUE” by default)

```
#su - oracle
#sqlplus user/password
UPDATE COR_SYSTEM_CONFIG SET CONFIGURATION_VALUE='false' where CONFIGURATION_NAME='SESSION_POINTCODE_ENABLED';
```

    b. Retrigger the Session_Point_Code.sh script as a tekelec user.

```
#su – tekelec
#cd /opt/nsp/nsp-package/framework/install/dist/install/optional/exec
#sh Session_Point_Code.sh
```

Management Server Post-Upgrade Check

1. Open a terminal window and log in as root on the Management Server
2. As root, run:

```
# /opt/nsp/scripts/procs/post_upgrade_sanity_check.sh
```

   Note: When user will execute this script it will automatically accept the upgrade.

3. Review the Management Server installation logs (/var/log/nsp/install/nsp_install.log).

   Verify the following:

   - PORT 80 is DISABLED
   - Oracle server health is OK
   - WebLogic health for ports 5556, 7001, 8001 is OK
   - Log on to weblogic console and Verify the following:
     - All servers are in running and in OK state
     - Application deployments are in Active and OK state.

Management Server Backup

This procedure describes how to perform a backup from a Management Server successfully upgraded, in order to avoid restore the backup from previous release in case you would face in issue while the Acquisition Server and Mediation Server upgrade.

```
# ll /opt/oracle/backup/
```

Output should be:

```
drwxrwxrwx 3 oracle oinstall      4096 Apr   8 14:38 upgrade_backup
```

If the permission of /opt/oracle/backup/upgrade_backup is not set as per above snapshot, perform the below step

```
#chmod 777 /opt/oracle/backup/upgrade_backup
```

As root run on management server:

```
# . $HOME/.bash_profile; cd /opt/nsp/scripts/oracle/cmd; sh ./launch_pic_global_backup.sh >../trc/cronNSP.log 2>&1
```

This command might take a long time depending on the size of the backup. Refer to the section "**Check Management Server Backup is valid**" in order to make sure everything went fine.

Once the backup is complete, move this backup to some other server. Also make sure the latest backup is the one with which the Major Upgrade was performed.

Path from where backup has to be moved:

```
# /opt/oracle/backup/
```

Note: Edit the cronjob by performing the below steps:

```
#crontab -e
```

Comment out the launch_pic_global_backup.sh entry by putting a hash (#) at the beginning.

You might use the command crontab –l to display the list of jobs scheduled. Below should be the updated entry.

```
# crontab -l
#00 22 * * * . $HOME/.bash_profile; cd /opt/nsp/scripts/oracle/cmd;
sh ./launch_pic_global_backup.sh >../trc/cronNSP.log 2>&1
```

Upload xDR Builder ISO to Management Server

This procedure describes how to trigger the xDR builder installation on the Mediation subsystem from the CCM.

Note 1: In case of failure in this step this is not blocking for the Acquisition Server upgrade but only for the Mediation Server. This will give some time to investigate the reason of this over the day. Refer to **Error! Reference source not found.**.

1. Install Builder ISO on Management Server
    a. Copy the xDR builder ISO to the Management Server or insert xDR Builder CD-ROM.
    b. Login to the Management Server

    As root run:

    ```
    # cd /opt/nsp/scripts/oracle/cmd
    # ./install_builder.sh
    ```

    c. You will be prompted:

    ```
    Please enter path to Builder CDROM or ISO [/media/cdrom]
    ```

    d. Choose one of the following:

    - If you have used ISO file enter the exact path including the ISO name
    - If you have used CDROM press <ENTER>

    e. Wait until installation finishes.
2. Verification of ISO installation on Management Server.
    a. Login to the NSP application interface as TklcSrv user.
    b. Click Upgrade Utility
    c. Click on Manage Builder Rpm on the left tree.

    It will display the list of the xDR builder rpm. One of them is the one that belongs to the ISO file installed in the previous step. The state will be **Not Uploaded**.

    The list will also display the supported platform of the builder ISO file. The supported platform can be “32 bit”, “64 bit” or “32,64 bit”. The supported platform “32,64 bit” means that same

version of builder ISO has been installed twice, one that supports 32 bit and the other that supports 64bit.

3. Dry run
    a. Login to the NSP GUI as TklcSrv user.
    b. Launch Upgrade Utility
    c. Click on Manage Builder Rpm on the left tree.

       It will display the list of the xDR builder rpm. Select the RPM which you want to upgrade and choose **Dry Run** option from the tool bar.

    d. Dry Report will be generated for each dictionary indicating changes done on the new dictionaries (Added/Removed/Deprecated field(s)) and you will have to take in account at the end of upgrade (after section 7.6 Install xDR Builder is completed)

       This report is just an information at this time but will be very useful to finalize the upgrade and to prepare in advance what would be required to be done. It will also display the name of the configuration which are using deprecated field and configurations which will become incompatible after removal of field.

       If there are configurations (Query/Protraq/xDR filter) on the removed field, then modify those configurations to remove the use of removed field. Otherwise those configurations will be removed from the NSP when you upload the builder RPM.

       The dry run can't anymore be executed once the new package would be installed on the Mediation subsystem but you would have access to similar information on the deprecated fields menu you can access from the utility home page.

4. Upload Builder RPM
    a. Mark the requested builder RPM with the Not Uploaded state and press Upload in the toolbar.
    b. A dialog box will appear. Click on Continue to continue the RPM upload.
    c. After the successful upload the RPM state will change to Uploaded
    d. In case the RPM upload fails, then the state of will change back to "Not Uploaded" or "Query/Filter Upgrade Failed".
        - If the builder RPM upload fails in creating new builder and dictionaries then the state is "Not Uploaded", after failure. At this state, this step can be repeated once the failure issues are resolved.
        - If the builder RPM upload fails in upgrading the configurations (Query/xDR filter) then the state is "Query/Filter Upgrade Failed" after failure.

5. Upgrade Queries and Filters

   In case the state of the RPM is "Query/Filter Upgrade Failed", then only configurations (Query/xDR filter) are required to be upgraded. Below are steps for the same

    a. Mark the requested builder RPM with the "Query/Filter Upgrade Failed" state and press "Upgrade Queries and Filters" button in the toolbar.
    b. A dialog box will appear. Click on Continue to continue the upgrade.
    c. After the successful upload the RPM state will change to Uploaded
6. View Dictionary Upgrade Status

In case the state of the RPM is “Query/Filter Upgrade Failed”, then the status of upgrade of queries and filters for the dictionaries can be viewed. Below are the steps for the same

a. Mark the requested builder RPM with the “Query/Filter Upgrade Failed” state and press "Display Dictionary Upgrade Status” button in the toolbar.
b. Dictionary Upgrade Status will be generated for each upgraded/new dictionary indicating whether the Queries and filters have been upgraded or not for this dictionary.

6. Acquisition Server Major Upgrade

The steps mentioned in this chapter must be executed from iLO or similar non disconnect able media.

Acquisition Server Upgrade

The upgrade of acquisition server is performed in similar manner for both real and virtual hardware platforms. The application upgrade is done using the TPD based upgrade procedures. The upgrade should be done for all the servers in the sub-system in case of integrated acquisition server. The sub-system upgrade should be done sequentially so that traffic could be processed during the upgrade also.

Before starting the upgrade, please take care to add **xmf_install_mode** parameter in the bulkconfig file. This parameter should be added for the virtualized mode integrated acquisition sub-system to differentiate between pass-thru mode and OVS mode. Refer **Appendix B** from Installation Guide for more details on the parameter.

 **CAUTION: Please perform step2 using ILO or any non-disconnect able media**.

Acquisition Server Pre-Upgrade Healthcheck

This procedure describes how to run the syscheck and analyze the output to determine the state of the Acquisition Server before upgrading the Acquisition application.

1. Log in as root on the Acquisition server that you want to install the Acquisition application.
2. Run:
   ```
   # syscheck
   ```
3. Review the fail_log file (/var/TKLC/log/syscheck/fail_log) for any errors.
   ```
   Example ouput for a healthy system:
   Running modules in class disk... OK
   Running modules in class proc... OK
   Running modules in class system... OK
   Running modules in class hardware... OK

   LOG LOCATION: /var/TKLC/log/syscheck/fail_log
   ```

Upgrade Acquisition Server

1. **Copy ISO image to the server**
   Copy ISO image to the /var/TKLC/upgrade directory of the server.
2. **Upgrade the server**
   a) As root on the Acquisition server
   b) Enter platcfg configuration menu
      ```
      # su - platcfg
      ```
   c) Navigate to Maintenance ➤ Upgrade
   d) Select Initiate Upgrade
   e) Select the desired upgrade media
3. **Upgrade completed**
   The server will reboot and after the reboot, login prompt will be displayed.
4. **Check the log**

a) In platcfg navigate to Diagnostics > View Upgrade Logs > Upgrade Log
b) Check on the bottom of the file the upgrade is complete

5. **Verify if JRE is installed, if not installed then install JRE using Appendix C from Installation Guide**

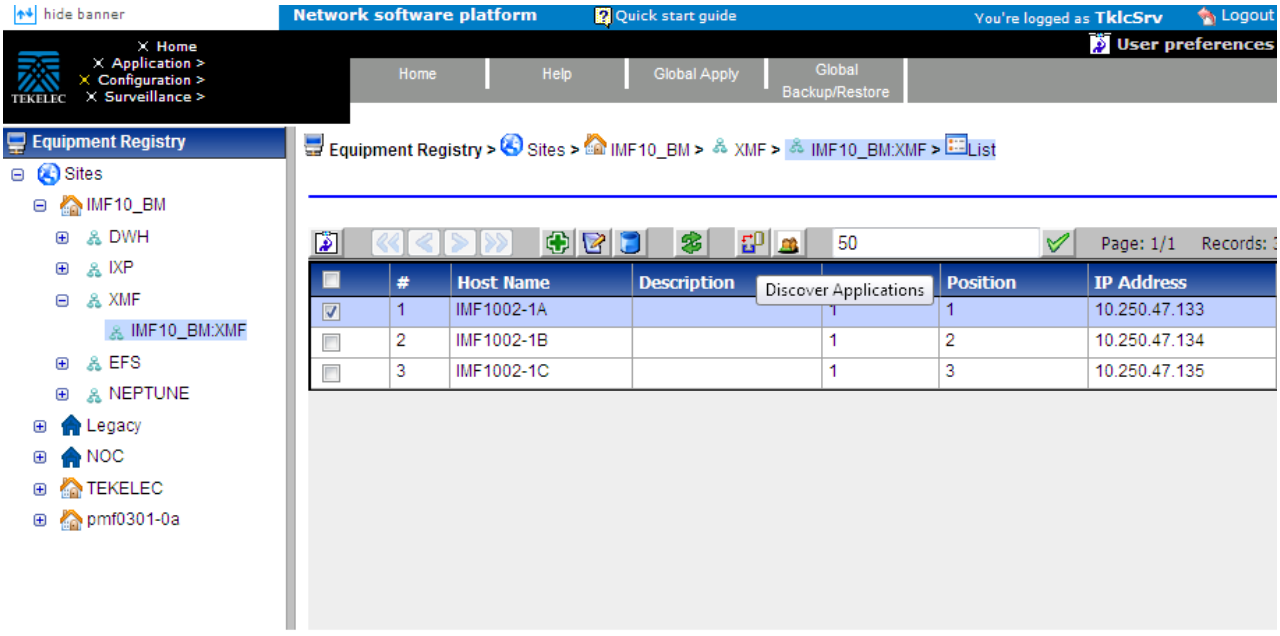
Sync Management Server with Acquisition Server

1. Discover Acquisition Application on Management Server

   Note: in case of DSR Monitoring, as the Acquisition server is not declared in the Centralized Configuration, move on to the next step "Sync database credentials".

   Execute the steps given below when all the servers of the sub-system are upgraded or if it is a standalone server

   a. From supported browser login to the NSP Application GUI as privileged user
   b. Go to the Centralized Configuration
   c. Navigate to Equipment Registry Perspective in left tree panel.
   d. Navigate to the subsystem.
   e. Select the Acquisition subsystem to synchronize by clicking on XMF under the correct Site name.
   f. This will list the subsystem in the table
   g. Select the Acquisition server and click on Discover Applications. The discover applications action should be done for each Acquisition server in the sub-system.



2. Sync Database Credentials (optional)

Execute procedure described in section **Sync Database Credentials** in Maintenance Guide, of the considered release. This step is only required if the wallet is not synced to the acquisition server or if acquisition server was re-installed during the upgrade caused by some unrecovereable scenario.

3. Apply Change

   Note: in case of DSR Monitoring, move on to the next step "Rebuild configuration".

   a. To Apply Changes for each subsystem go to Acquisition ➤ Sites ➤ XMF.
   b. Right click on subsystem and click on Apply Changes option on menu.

   Note: If apply changes fails, then verify the accessibility of the VIP from the Management Server. If VIP address is accessible from Integrated Acquisition servers but is not accessible from Management Server, then it may be due to Cisco switch ARP table, refer to procedure **Flush ARP table** in Hardware Guidelines, of the considered release.

4. Rebuild configuration, this step is only needed on the Probed server configured for integrated DSR monitoring. The step is needed only in case of the probed server had to be re-installed because of unrecoverable scenario.

   Note: these steps are to be executed in case of DSR Monitoring only.

   a. From the Centralized Configuration, take note of the Name and IP of the OCDSR, from the Equipment Registry, Sites ➤ <*site_name*> ➤ OCDSR
   b. Login as cfguser on the Acquisition server.
   c. Run the following command to rebuild the configuration:
      ```
      $ webServerCLI addDsr --name=<ocdsr_name> --ip=<ocdsr_ip>
      ```

   Note: <ocdsr_name> is the name of OCDSR and <ocdsr_ip> is its IP, both collected from the Centralized Configuration.

Acquisition Server Post-Sync Healthcheck

This procedure describes how to run the healthcheck script on Acquisition servers.

The script gathers the healthcheck information from acquisition server. The script should be run from each of the server of the Acquisition subsystem or on stand-alone server. The output consists of a list of checks and results, and, if applicable, suggested solutions

Note: It may be possible that on login user see a message to accept or reject the upgrade, if the user has logged on to the server too soon after the reboot following upgrade. User can ignore such message as it will be cleared automatically when the startup of the server is complete.

1. Open a terminal window and log in as cfguser on each server in the Acquisition subsystem or Standalone server.
2. Run the automatic healthcheck script.
   ```
   $ analyze_server.sh -i
   ```
   Analyze the output of the script for errors. Issues reported by this script must be resolved before any further usage of this server. Verify no errors are present.

If the error occurs, refer to refer to **Error! Reference source not found.**

Example output for a healthy server in a subsystem:

```
04:57:30: STARTING HEALTHCHECK PROCEDURE - SYSCHECK=0
04:57:31: date: 02-26-16, hostname: imf9040-1a
04:57:31: TPD VERSION: 7.6.2.0.0-88.58.0
04:57:31: XMF VERSION: [ 10.4.0.0.0-1.8.0 ]
04:57:32: ------------------------------------------------
04:57:32: Checking disk free space
04:57:32:         No disk space issues found
04:57:32: Checking syscheck - this can take a while
04:57:43:         No errors in syscheck modules
04:57:44: Checking statefiles
04:57:44:         Statefiles do not exist
04:57:44: Checking runlevel
04:57:45:         Runlevel is OK (4)
04:57:45: Checking upgrade log
04:57:45:         Install logs are free of errors
04:57:45: Analyzing date
04:57:46:         NTP deamon is running
04:57:46:         IP of NTP server is set
04:57:46:         Server is synchronized with ntp server
04:57:47: Analyzing IDB state
04:57:47:         IDB in START state
04:57:47: Checking IDB database
04:57:48:         iaudit has not found any errors
04:57:48: Analyzing processes
04:57:49:         Processes analysis done
04:57:49: Analysing database synchronization
04:57:50:         Either Database synchronization in healthy state or errors found are non-blocking
04:57:50: Checking weblogic server entry
04:57:50:         Appserver is present
04:57:50: All tests passed. Good job!
04:57:51: ENDING HEALTHCHECK PROCEDURE WITH CODE 0
```

1. **Test the VIP function.**

a) After sync from Management, the VIP will be available to access the active master server in the site. In order to verify the VIP setup please login to any server in the subsystem and execute the iFoStat command. As cfguser run:

```
$ iFoStat
```

Example of correct output:

```
query 10.236.2.79 for failover status
+---------+-------+-----+-----------+----------+------+---------------------+
| name    | state | loc | role      | mGroup   | assg | HbTime              |
+---------+-------+-----+-----------+----------+------+---------------------+
| IMF-1a  | IS    | 1A  | ActMaster | sde_m2pa |    8 | 2009-06-19 23:14:08 |
| IMF-1b  | IS    | 1B  | StbMaster | sde_stc  |    6 | 2009-06-19 23:14:06 |
| IMF-1c  | IS    | 1C  | Slave     |          |    0 | 2009-06-19 23:14:06 |
+---------+-------+-----+-----------+----------+------+---------------------+
```

b) The state should be ‘IS’ for all servers and the HbTime time should be updated every few seconds.

7. Mediation Server Major Upgrade

This section provides the procedures for installing the Integrated xDR Platform (Mediation) application. The upgrade procedure for the real and virtualized hardware platform will remain same.

Upgrade Mediation Server

This procedure is executed on each server in the subsystem in parallel. The parallel installation is triggered from one server in the subsystem; it cannot be triggered more than once per subsystem. The procedure must be triggered from any dis-connectable medium or using ILO.

If the path naming feature is used Backup the files
/usr/TKLC/TKLCixp/prod/lib/plugins/build/SCTPPathNaming.cnf

Mediation Server Pre-Upgrade Configuration

This procedure describes how to configure Mediation Server prior to upgrading the application.

1. Verify each server healthcheck.
    a. Run syscheck. Log in as root on the server that you want to install the application
    As root, run:

    ```
    # syscheck
    ```

    Review the /var/TKLC/log/syscheck/fail_log file for any errors. Example output of healthy server:

    ```
    Running modules in class disk...
    OK
    Running modules in class proc...
    OK
    Running modules in class system...
    OK
    Running modules in class hardware...
    OK
    LOG LOCATION: /var/TKLC/log/syscheck/fail_log
    ```

    Resolve each error before you continue with the procedure.

    Note: Errors of NTP in syscheck can be ignored at this time, as NTP server is not configured. Refer to How to configure NTP under Appendix C:Procedures of 10.3.0 Installation Guide.

    Note: Step b and c has to be executed if error occur in this step.

    b. If the server has an external disk storage attached verify the disks state.

    Check to which slot an external storage is connected. As root run:

    ```
    # hpssacli ctrl all show
    ```

    Example output:

    ```
    # hpssacli ctrl all show
    Smart Array P410i in Slot 0 (Embedded) (sn: **********)
    ```

```
Smart Array P411 in Slot 1                    (sn: ************    )
```

Now show a detailed report for each disk. As root run:

```
# hpssacli ctrl slot=slot_number pd all show
```

where slot_number is the number of the slot received in previous step. All disks must be in OK state. Example output:

```
# hpssacli ctrl slot=2 pd all show
Smart Array P411 in Slot 1
array A
physicaldrive 1:0 (port 1:id 0 , Parallel SCSI, 300 GB, OK)
physicaldrive 1:1 (port 1:id 1 , Parallel SCSI, 300 GB, OK)
physicaldrive 1:2 (port 1:id 2 , Parallel SCSI, 300 GB, OK)
physicaldrive 1:3 (port 1:id 3 , Parallel SCSI, 300 GB, OK)
physicaldrive 1:4 (port 1:id 4 , Parallel SCSI, 300 GB, OK)
physicaldrive 1:5 (port 1:id 5 , Parallel SCSI, 300 GB, OK)
physicaldrive 1:8 (port 1:id 8 , Parallel SCSI, 300 GB, OK)
array B
physicaldrive 2:0 (port 2:id 0 , Parallel SCSI, 300 GB, OK)
physicaldrive 2:1 (port 2:id 1 , Parallel SCSI, 300 GB, OK)
physicaldrive 2:2 (port 2:id 2 , Parallel SCSI, 300 GB, OK)
physicaldrive 2:3 (port 2:id 3 , Parallel SCSI, 300 GB, OK)
physicaldrive 2:4 (port 2:id 4 , Parallel SCSI, 300 GB, OK)
physicaldrive 2:5 (port 2:id 5 , Parallel SCSI, 300 GB, OK)
physicaldrive 2:8 (port 2:id 8 , Parallel SCSI, 300 GB, OK)
```

c. If the server has a SAN disk storage verify the vdisks are attached to the server.

Check to which vdisk are connected. As root run:

```
# multipath -ll
```

Example of output:

```
mpathc (3600c0ff000daf12a289f0b5501000000) dm-2 HP,P2000 G3 FC
size=3.0T features='1 queue_if_no_path' hwhandler='0' wp=rw
|-+- policy='round-robin 0' prio=130 status=active
| |- 1:0:1:22 sde 8:64   active ready running
| `- 2:0:2:22 sdi 8:128 active ready running
`-+- policy='round-robin 0' prio=10 status=enabled
  |- 1:0:0:22 sdc 8:32   active ready running
  `- 2:0:1:22 sdg 8:96   active ready running
mpathb (3600c0ff000daf029689c0b5501000000) dm-1 HP,P2000 G3 FC
size=3.0T features='1 queue_if_no_path' hwhandler='0' wp=rw
|-+- policy='round-robin 0' prio=130 status=active
| |- 1:0:0:21 sdb 8:16   active ready running
| `- 2:0:1:21 sdf 8:80   active ready running
`-+- policy='round-robin 0' prio=10 status=enabled
  |- 1:0:1:21 sdd 8:48   active ready running
  `- 2:0:2:21 sdh 8:112 active ready running
```

Mediation Server Upgrade

This procedure describes how to upgrade the Mediation server application on the TPD platform.

Before you perform this procedure, make sure that you have the appropriate Mediation Server ISO file available.
Note: Run this procedure via iLO.

On C class blade server, As root run

```
# multipath -ll
```

The output of the above command should show that volume names and LUN numbers have been provided.

1. Log in and distribute the ISO file
   a) Open a terminal window and log in as root on the server you that you want to install the Mediation application.
   b) Distribute the media:
      - On the c-class blade server download the ISO from the PM&C ISO repository. ISOs are available on the PM&C server under the /var/TKLC/smac/image directory. Store the ISO file to /var/TKLC/upgrade directory.

2. Validate the installation media
   a) Enter the **platcfg menu**.
      As root, run:
      ```
      # su - platcfg
      ```
   b) Select **Maintenance -> Upgrade -> Validate Media**.
   c) Select the desired upgrade media and press Enter.
      The validation process must complete without errors. You should receive the following message:
      ```
      CDROM is Valid
      ```

      If any errors are reported during this validation process, then **DO NOT USE** this media to install the application.

3. Upgrade the application
   1. Permit root ssh login

   On each Mediation server permit root ssh login.
   a) As root run:
      ```
      # /usr/TKLC/plat/sbin/rootSshLogin --permit
      ```

   2. Run parallel Mediation subsystem patch installation
   Note: Run this step on where server where you distributed the Mediation ISO. This step will trigger the parallel patch installation on all servers in the subsystem.
   b) As root run:
      ```
      # misc_upgrade_subsystem.sh -i iso_filename
      ```
      where *iso_filename* is the name of the Mediation ISO file that has been previously distributed on this server.
   c) You will be prompted to confirm the upgrade; then, you will be asked to enter the root password. The **patch installation** is triggered on all the servers of the subsystem.

   3. **Monitor parallel Mediation patch installation**
   Note: The whole subsystem is upgrading now. Keep logged on the server where you have triggered the parallel upgrade, as you will see the progression. The server will reboot after successful upgrade.
   a) Once the server where you have triggered the parallel upgrade is accessible again, start monitoring script: it will apply some subsystem post-upgrade settings, after all the servers have

successfully upgraded (and rebooted). As root run:

```
# misc_upgrade_subsystem.sh --postsync
```

You will see the regular monitoring of the upgrade progress. Keep this script running and look for successfully upgraded servers. **Do not interrupt** the script. Wait until the results of upgrade are shown and synchronization is restored. Monitor the script output for any errors. The logs for the upgrade must be verified at /var/TKLC/log/upgrade/upgrade.log on the server from where the upgrade is triggered. If any error appears, refer to **Error! Reference source not found.Error! Reference source not found.**. The script will only finish once all servers in the subsystem have finished the upgrade.

4. Install JRE
   a) Execute "**JRE Installation**" procedure from Appendix C in Installation Guide of the considered release. This step is only needed incase the JRE is not available post upgrade on the server.

5. Analyze the Upgrade log

   Review the upgrade log (/var/TKLC/log/upgrade/upgrade.log) for any errors.
   If there are any errors, refer to **Error! Reference source not found.**

Mediation Server Post-Upgrade Healthcheck

This procedure describes how to run the server health check after the application has been installed on the server.

1. Log in on the server that you want to analyze.
2. As cfguser, run:

```
$ analyze_server.sh -p
```

The script gathers the health check information from the server. A list of checks and associated results are generated. There might be steps that contain a suggested solution. Analyze the output of the script for any errors. Issues reported by this script must be resolved before any further use of this server.

The following examples show the structure of the output, with various checks, values, suggestions, and errors.

Example of overall output:

```
$ analyze_server.sh
12:40:30: STARTING HEALTHCHECK PROCEDURE - SYSCHECK=0
12:40:30: date: 08-22-11, hostname: ixp8888-1a
12:40:30: TPD VERSION: 4.2.4-70.90.0
12:40:30: IXP VERSION: [ 10.0.0-64.2.0 ]
12:40:30: XDR BUILDERS VERSION: [ 10.0.0-37.1.0 ]
12:40:30: ------------------------------------------------
12:40:31: Analyzing server record in /etc/hosts
12:40:31: Server ixp8888-1a properly reflected in /etc/hosts file
12:40:31: Analyzing IDB state
12:40:31: IDB in START state
12:40:31: Analyzing shared memory settings
12:40:31: Shared memory set properly
```

```
.....
12:43:02: All tests passed!
12:43:02: ENDING HEALTHCHECK PROCEDURE WITH CODE 2
```

Example of a successful test:

```
12:40:31: Analyzing server record in /etc/hosts
12:40:31: Server ixp8888-1a properly reflected in /etc/hosts file
```

Example of a failed test:

```
12:21:48: Analyzing IDB state
12:21:48: >>> Error: IDB is not in started state (current state X)
12:21:48: >>> Suggestion: Verify system stability and use 'prod.start' to start the product
```

Note: if the following error shows up during server analysis, it can be simply ignored, as the alarm will be cleared after Integrate Customer Network step (see below) will have been executed.

```
12:21:48: >>> Error: Alarm raised for tpdServerUpgradePendingAccept...
12:21:48: >>> Suggestion: Check /var/TKLC/log/syscheck/fail_log...
```

In any other cases, after attempting the suggested resolution, if the test fails again, refer to **Error! Reference source not found.**.

Discover Mediation application in Centralized Configuration

1. Generate wallet for DWS connection and Sync Database Credentials (**only needed in case of mediation server was re-installed post disaster recovery**)

   Execute procedure described in section **Modify Database Password** in Maintenance Guide, however user can keep the new password same as old one. The step is just needed to create DWS credentials in the wallet and sync to the mediation servers present in the sub-system.

   Note: The above step **must** also be done for all the **Datafeeds configured** on the **OTO** server.

2. Set VIP (**only needed in case of mediation server was re-installed post disaster recovery)**

   As cfguser, run on 1A server only:

   ```
   #    setSSVIP <vip IP address>
   ```

3. Discover the Mediation Servers and apply configuration
   a) Open a web browser and log in on the NSP application interface.
   b) Open the Centralized Configuration application.
   c) Navigate to Equipment Registry.
   d) Open Sites and open the site; then open IXP.
   e) Select the subsystem; select the first server and click Discover Applications in the toolbar.
   f) Proceed as well for each server of the subsystem.
   g) Navigate to Mediation.
   h) Open Sites and open the site; then, open IXP.
   i) Right-click the subsystem and select Apply changes...

j) Click Next and Next.
k) Click Apply Changes and confirm.
l) When change is complete, verify there is no error on the result page.

4. **Verify ssh keys are exchanged between management server's tekelec user and mediation servers' cfguser**

   a. As tekelec user on management server, perform ssh using cfguser on each of the mediation server in the sub-system. The user should be able to login to mediation server without asking any password.

   b. If keys are not exchanged then run "Sync Database Credentials" procedure from PIC 10.4 Maintenance Guide

5. **Revoke root ssh login**

   On each Mediation server revoke root ssh login.

   a) As root run:

```
# /usr/TKLC/plat/sbin/rootSshLogin --revoke
```

Install xDR Builders

This procedure describes how to trigger the xDR Builders installation on the Mediation subsystem from the CCM.

1. Associate the xDR Builders RPM with the Mediation subsystem
   a) Open a web browser and log in as TklcSrv on the NSP application interface.
   b) Open the Upgrade Utility.
   c) Click View Builder RPM Status in the left tree. A list of the Mediation subsystems appears.
   d) Select one or more Mediation subsystems and click Associate RPM Package. A list of Builder RPMs that are uploaded in NSP appears.
   e) Select the appropriate xDR Builder RPM and click Associate.
      If the association is successful, then the list of the subsystems is updated. The RPM Name column contains the new RPM package name and Association Status is marked as OK. If the association fails, refer to **Error! Reference source not found.**

2. Apply the configuration to the Mediation subsystem
   a) Logout from TklcSrv and login with any other user with sufficient privilege for Centralized Configuration application.
   b) Open the Centralized Configuration application.
   c) Navigate to Mediation.
   d) Open Sites and open the site; then, open IXP.
   e) Right-click the subsystem and select Apply changes...
   f) Click Next.
   g) Click Apply Changes (***WARNING***: ***Not as TklcSrv user***).
   h) When change is complete, verify there are no errors on the result page.

3. Install the xDR Builders RPM on Mediation Server
   a) Return to the main page of the NSP application interface.
   b) Open the Upgrade Utility.
   c) Click View Builder RPM Status in the left tree.
      The available Mediation subsystem with their respective RPM Associate Status and Install Status appears.
   d) Before initiating the builder installation, make sure the Builder RPM that you want to install on the Mediation subsystem is associated with the Mediation subsystem as indicated by RPM Name **column** and Association Status marked as OK. Also, Install Status should contain either - or No Started.

e) Select one or more Mediation subsystems and click Install RPM Package. If the installation is successful, the Install status changes to OK. If the installation fails contact the Oracle **Error! Reference source not found.**.

4. Sessions upgrade
   a) Click **Upgrade Session** link on left tree, this display all the sessions to be upgraded due to upgrade of associated dictionary.
   b) Select one or more session(s) (use ctrl key for selecting multiple sessions) with **Session Upgrade Status** as either **Need Upgrade** or **Error** and choose Upgrade icon from tool bar.
   You may use available quick filter options on this list page to filter out sessions which you want to upgrade in one go.
   Caution: Do not choose more than 5 sessions to be upgraded in one go.
   Once upgrade is initiated for a session, its **Upgrade Status** will become **Upgrade Initiated**.
   c) Once session is upgraded its **Upgrade Status** will become **Upgraded Successfully**.

5. Re-Sync the ProTraq Configurations

   a) Open a web browser and log in to the NSP application interface tekelec user.

   b) Navigate to ProTraq Application.

   c) Re-Sync all ProTraq Configurations by selecting each configuration and click “Synchronize and Activate Configuration” from the Configurations List Toolbar.

6. Restore the file ***usr/TKLC/TKLCixp/prod/lib/plugins/build/SCTPPathNaming.cnf*** from the mediation backup corresponding to individual servers in the mediation sub-system.

Mediation Subsystem Healthcheck

This procedure describes how to run the automatic healthcheck of the Mediation subsystem.

1. Open a terminal window and log in on any Mediation Server in the Mediation subsystem you want to analyze.
2. As cfguser, run:

```
$ analyze_subsystem.sh
```

The script gathers the healthcheck information from all the configured servers in the subsystem. A list of checks and associated results is generated. There might be steps that contain a suggested solution. Analyze the output of the script for any errors. Issues reported by this script must be resolved before any further use of this server.
The following examples show the structure of the output, with various checks, values, suggestions, and errors.

Example of overall output:

```
$ analyze_subsystem.sh
--------------------------------------------------
ANALYSIS OF SERVER ixp0907-1a STARTED
--------------------------------------------------
```

```
09:39:25: STARTING HEALTHCHECK PROCEDURE - SYSCHECK=0
09:39:25: date: 05-17-15, hostname: ixp0907-1a
09:39:25: TPD VERSION: 7.6.2.0.0-88.58.0
09:39:26: IXP VERSION: [ 10.4.0.0.0-1.9.0 ]
09:39:26: XDR BUILDERS VERSION: package TKLCxdrbuilders is not installed
09:39:27: ------------------------------------------------
09:39:27: Analyzing server record in /etc/hosts
09:39:28:         Server ixp0907-1a properly reflected in /etc/hosts file
09:39:28: Analyzing IDB state
09:39:29:         IDB in START state
09:39:29: Analyzing shared memory settings
09:39:30:         Shared memory set properly
09:39:30: Analyzing IXP Licence
09:39:31:         Ixp Licence Valid
09:39:31: Analyzing mount permissions
09:39:32:         Writing enabled for pdu_1
09:39:32:         Writing enabled for pdu_2
09:39:33:         All mount permissions set properly
09:39:33: Analyzing date
09:39:33:         NTP deamon is running
09:39:34:         IP of NTP server is set
09:39:34: Checking CPU usage
09:39:34:         CPU usage check done
09:39:35: Running iaudit
09:39:36:         iaudit did not find any errors
09:39:37: Analyzing synchronization of server
09:39:38:         Role of server is StbMaster
09:39:38:         ActMaster server - ixp0907-1b
09:39:39:         StbMaster server - ixp0907-1a
09:39:40:         Server synchronizating properly
09:39:40: Analyzing NSP servers settings
09:39:41:         nsp_primary reflected in /etc/hosts
09:39:41:         Ping to nsp_primary OK
09:39:42:         nsp_secondary reflected in /etc/hosts
09:39:42:         Ping to nsp_secondary OK
09:39:42:         nsp_oracle reflected in /etc/hosts
09:39:43:         Ping to nsp_oracle OK
09:39:43:         Oracle on nsp_oracle accessible
09:39:44: Analyzing disk usage
09:39:44:         Space not exceeded
09:39:45: Analyzing JMX agent properties
09:39:45:         Instance ID of JMX agent OK
09:39:47:         IxpMbean [ application type IXP+2 ] located
09:39:47: Checking syscheck - this can take a while
09:39:49:         No active alarms
09:39:50: Checking services
09:39:50:         NFS service is running
09:39:51:         Portmap service is running
09:39:51: Analyzing ssh keys
```

```
09:39:51:          Ping to ixp0907-1a OK
09:39:52:          Ping to ixp0907-1b OK
09:39:52:          Ping to ixp0907-1c OK
09:39:52:          Ping to ixp0907-1d OK
09:39:53:          All keys for cfguser accounts exchanged
09:39:53: Analyzing DaqServer table in IDB
09:39:54:          Server ixp0907-1a reflected in DaqServer table
09:39:55:          Server ixp0907-1b reflected in DaqServer table
09:39:55:          Server ixp0907-1c reflected in DaqServer table
09:39:56:          Server ixp0907-1d reflected in DaqServer table
09:39:58:          VIP is set in DaqSubSystem table
09:39:59:          VIP is set in HaVipDef table
09:39:59:          Ping to 10.250.70.115 OK
09:40:00:          VIP is accessible
09:40:00: Analyzing processes
09:40:29: >>> Error: There are too many Dataflow processings (18). Should be 10 at most
09:40:29: >>> Suggestion: Dataflows should be redistributed to other servers
09:40:30:          Processes analysis done
09:40:30: Analyzing Data Feed status
09:40:31:          Data Feed analysis OK
09:40:31:          pdu_1 found in /etc/exports
09:40:32:          pdu_2 found in /etc/exports
09:40:32: Analyzing bulkconfig content
09:40:33:          BulkConfig content is consistent
09:40:33: All tests passed!
09:40:33: ENDING HEALTHCHECK PROCEDURE WITH CODE 0
END OF ANALYSIS OF SERVER ixp0907-1a

-----------------------------------------------------
ANALYSIS OF SERVER ixp0907-1b STARTED
-----------------------------------------------------

09:40:38: STARTING HEALTHCHECK PROCEDURE - SYSCHECK=0
…
09:41:39: All tests passed!
09:41:39: ENDING HEALTHCHECK PROCEDURE WITH CODE 0
END OF ANALYSIS OF SERVER ixp0907-1b

-----------------------------------------------------
ANALYSIS OF SERVER ixp0907-1c STARTED
-----------------------------------------------------

09:41:44: STARTING HEALTHCHECK PROCEDURE - SYSCHECK=0
…
09:42:40: All tests passed!
09:42:40: ENDING HEALTHCHECK PROCEDURE WITH CODE 0
END OF ANALYSIS OF SERVER ixp0907-1c

-----------------------------------------------------
```

```
ANALYSIS OF SERVER ixp0907-1d STARTED
-----------------------------------------------------

09:42:44: STARTING HEALTHCHECK PROCEDURE - SYSCHECK=0
…
09:43:24: All tests passed!
09:43:25: ENDING HEALTHCHECK PROCEDURE WITH CODE 0
END OF ANALYSIS OF SERVER ixp0907-1d

ixp0907-1a          TPD: [ 7.0.1.0.0-86.20.0 ]          IXP: [ 10.3.0.0.0-3.2.0 ]          XB: None
0 test(s) failed
ixp0907-1b          TPD: [ 7.0.1.0.0-86.20.0 ]          IXP: [ 10.3.0.0.0-3.2.0 ]          XB: [ 10.3.0.0.0-
3.2.0 ]          0 test(s) failed
ixp0907-1c          TPD: [ 7.0.1.0.0-86.20.0 ]          IXP: [ 10.3.0.0.0-3.2.0 ]          XB: [ 10.3.0.0.0-
3.2.0 ]          0 test(s) failed
ixp0907-1d          TPD: [ 7.0.1.0.0-86.20.0 ]          IXP: [ 10.3.0.0.0-3.2.0 ]          XB: [ 10.3.0.0.0-
3.2.0 ]          0 test(s) failed
```

Example of a successful test:

```
10:24:08: Analyzing DaqServer table in IDB
10:24:08:       Server ixp2222-1b reflected in DaqServer table
```

Example of a failed test:

```
12:21:48: Analyzing IDB state
12:21:48: >>> Error:    IDB is not in started state (current state X)
12:21:48: >>> Suggestion: Verify system stability and use 'prod.start' to start the product
```

Upgrade DTO Package

Whenever you will install or upgrade Mediation Server to a new version you need to keep DataWarehouse compatible. You need to upgrade the DTO package there. DataWarehouse is being used as an external xDR Storage.

The DataWarehouse is expected to have installed Oracle database and database instance with created login, password, data table space with name DATA_CDR and index table space with name DATA_IND. Such server must be already installed with DTO schema and package.

Such DataWarehouse need to be already added to management Centralized Configuration and configured.

This procedure describes how to upgrade DTO package on the DataWarehouse. This procedure doesn't describe how to install the DataWarehouse.

Note: If the customer refuses to provide you the SYS user password, you can provide him the files CreateDTOPkgS.sql and CreateDTOPkgB.sql to the customer DBA in order for him to proceed with the upgrade himself.

1. Check DTO package version

Note: Check the previous DTO package version that is installed on the DataWarehouse.

a) Open a terminal window and log in to ActMaster server of the Mediation subsystem from which this DataWarehouse server is reachable.
As **cfguser** run:

```
$ iqt -L DatawareHouse
```

Note down Alias and Instance name of the DataWarehouse.

b) Connect to the DataWarehouse.
As **cfguser** run:

```
$ sqlplus /@<alias>
```

Where *alias is* taken from the output in previous step.

c) Check the DTO package version:

```
SQL> select pkg_dto.getversion from dual;
```

Quit the SQL console.

```
SQL> quit
```

2. Upgrade DTO package

As **cfguser** from any server of the Mediation subsystem run:

```
$ cd_oracle_utils
$ UpgradeDTOPkg.sh -a <ALIAS> <USER_NAME> <IP> <SID>
Or
$ UpgradeDTOPkg.sh <USER_NAME> <IP> <SID>
```

where:

- *ALIAS* is the Oracle DWS alias name obtained in step 1
- *IP* is the DWS IP address
- *SID* is the database instance nameobtained in step 1(Optional, default value: 'IXP')
- *USER_NAME* is the DWH user name (optional, default value: 'IXP')

Note: In case UpgradeDTOPkg.sh is used with "-a" option then it will only ask password for the "sys" user. If the script is invoked without "-an" option then it will ask password for "sys" and DWH user name. Refer to TR006061 for the default value for the SYS password.

3. Verify DTO package upgrade

Note: Check External DataWarehouse if the DTO package has been successfully upgraded.

a) Connect to the DataWarehouse.
As **cfguser** run:

```
$ sqlplus /@<alias>
```

Where *alias is* taken from the output received in the first step.

b) Check the DTO package version :

```
SQL> select pkg_dto.getversion from dual;
```

Check if version of DTO package increased after upgrade. Quit the SQL console.

```
SQL> quit
```

Mediation Server Post-Integration Configuration

This procedure describes how to integrate a CSV server into a Mediation subsystem; such a server is used by the CSV streaming feed feature to store CSV files on a server that is not part of a Mediation subsystem.

Note: For the CSV streaming feed feature, instead of using a dedicated server provided by the customer, it is possible to use a PDU server which is part of the current Mediation subsystem or which is part of another Mediation subsystem (as long as all the servers are in the same LAN).

Note: The following procedures describe how to setup shared directories using the NFS v3 protocol; it may be possible to use NFS v4, but the commands to execute are not described here (you should refer to linux and NFS documentation to learn how to use NFS v4 protocol).

1. Configure the shared directory on the sharing server
   a) Select an existing directory or already mounted local file system in which the exported files will be stored.

      Note: Be sure the shared directory has read/write/execute access rights for Mediation's cfguser user. If the user cfguser also exists on the sharing server, with the same UID as on the Mediation servers, create the shared directory as cfguser (or mount the local file system in a directory owned by cfguser); in any other case, set RWX access rights on the shared directory for everybody.

   b) Update the exports file. As root, execute:

      If the server uses a versioning system like rcstool, first check out the file:

      ```
      # rcstool co /etc/exports
      ```

      Edit /etc/exports and add this line (<*path_to_share*> is the directory or path to file system to share, <*ip_ixp_export*> is the IP address of an Mediation Server); add as many lines as Mediation Servers that will remotely access this shared directory

      <*path_to_share*> <*ip ixp export*>(rw,sync,anonuid=-1)

      If needed, check in the file:

      ```
      # rcstool ci /etc/exports
      ```

   c) Restart the NFS services. As root execute:

      ```
      # chkconfig --levels 345 nfs on
      # service rpcbind restart
      # service nfs restart
      ```

2. Mount the shared directory on Mediation Server side

Note: These steps are to be executed on each Mediation Server that will remotely access the shared directory of the sharing server.

   a) Create the mount point. As root, execute:

      ```
      # mkdir /var/TKLC/ixp/StoreExport
      # chown cfguser:cfg /var/TKLC/ixp/StoreExport
      ```

   b) Update the fstab file. As root, execute:

      ```
      # rcstool co /etc/fstab
      ```

      Edit /etc/fstab and add this line (<*ip_server_nfs*> is the IP address of the sharing server):

      <ip server nfs>:<*path_to_share*> /var/TKLC/ixp/StoreExport nfs rw,rsize=32768,wsize=32768,soft 0 0

      ```
      # rcstool ci /etc/fstab
      # mount --all
      ```

   c) Restart the NFS services. As root execute:

      ```
      # chkconfig --levels 345 nfs on
      ```

```
# service rpcbind restart
# service nfs restart
```

Note: The firewall must be disabled on the shared CSV server. If the CSV server is maintained by Oracle(Tekelec) then following steps must be performed to disable the firewall as root user

a) chkconfig --levels 345 iptables off
b) service iptables stop

If the CSV server is not maintained by Oracle then firewall must be disabled or configured to allow the nfs connections.

8. Knowledge Base Procedures

ReInstall Operating system

50 mins per server

Refer **TPD Installation** in Installation Guide, of the considered release.

Resize /var/TKLC partition

Note: Resize of /var/TKLC partition should be done only when required specially in case of management server where the size of ISOs is large.

Once the OS is install type the df -kh command to check the space in /var/TKLC partition.

Example:

```
[root@hostname1357185304]# df -kh
Filesystem                    Size  Used Avail Use% Mounted on
/dev/mapper/vgroot-plat_root
                              992M  595M  347M  64% /
/dev/mapper/vgroot-plat_tmp
                              992M   34M  908M   4% /tmp
/dev/mapper/vgroot-plat_var
                              992M  845M   97M  90% /var
/dev/mapper/vgroot-plat_var_tklc
                              3.9G  442M  3.3G  12% /var/TKLC
/dev/mapper/vgroot-plat_usr
                              3.9G  2.1G  1.7G  55% /usr
```

If space is less than 7.9 G then in order to resize /var/TKLC partition you need to be perform below mentioned steps on all servers IPM (blade and RMS) before installing applications/thirdparty product :

```
init 2
umount /dev/mapper/vgroot-plat_var_tklc
lvextend -L +4G /dev/mapper/vgroot-plat_var_tklc
e2fsck -f /dev/mapper/vgroot-plat_var_tklc
resize2fs -p /dev/mapper/vgroot-plat_var_tklc
reboot
```

How To Mount the ISO file from PM&C ISO Repository

This procedure describes different steps to follow to mount ISO's in PM&C repository from a blade server.

1. Add ISO in PM&C repository

   a) Distribute the media:

   - For physical media insert the application CD/DVD into drive of PM&C server
   - For the ISO file check that iso is present under /var/TKLC/smac/image/isoimages/home/smacftpusr/ directory. If no copy the

ISO.

2. Add iso into PM&C repository

   a) On the PM&C gui navigate to Main Menu ➤ Software ➤ Software Configuration ➤ ManageSoftware Images
   b) On the next screen choose image, put description and press Add New Image.
   c) Wait till the adding of image is completed.

3. Record the path of the ISO

   a) On the command line of the Management Server running PM&C, run the exportfs command to list the paths of the exported ISOs.

```
# exportfs
```

   b) In the sample output below, there are 5 ISOs exported, the PM&C application, TPD, NSP package, Oracle and WebLogic You will need record the path of the ISO that you want to mount on a blade, as this path will be required in the mount command.

```
# exportfs
/usr/TKLC/smac/html/TPD/PMAC--2.2.0_22.4.0--872-1818-01         169.254.102.0/24
usr/TKLC/smac/html/TPD/TPD--3.2.0_62.12.0—TPD                   169.254.102.0/24
/usr/TKLC/smac/html/TPD/NSP--7.0.0-3.5.0--872-2128-101          169.254.102.0/24
/usr/TKLC/smac/html/TPD/Oracle--10.3.0.3-8--872-2115-01         169.254.102.0/24
/usr/TKLC/smac/html/TPD/Weblogic--10.3-1.2.0--872-2114-101      169.254.102.0/24
```

4. Login to blade server

Login as root user on the blade server where you want to mount the ISO

5. Start portmap service

As root run:

```
# service portmap start
```

6. Start nfslock service

As root run:

```
# service nfslock start
```

7. Create ISO mount point

As root run:

```
# mkdir /mnt/local_mount_point
```

where *local_mount_point* is the ISO mount point on the local blade server. Example:

```
# mkdir /mnt/oracle_iso
```

8. Mount ISO

As root run:

```
# mount management_server_ip:export_pathlocal_mount_point
```

where *management_server_ip* is the control network IP address of the PM&C server, *export_path*is the export path you received in step 3 and *local_mount_point* is the mount point you have created in step 7. Example:

```
# mount 169.254.102.4:/usr/TKLC/smac/html/TPD/oracle_10_1_0_2 /mnt/oracle_iso
```

Adding ISO Images to the PM&C Image Repository

Refer to Platform Configuration Guide, Tekelec Platform release 7.3

How to connect a server console using iL0 ssh connection

Open a ssh connection using the server iLO IP address and login with the iLO user and password

```
login as: root
root@10.31.5.100's password:
User:root logged-in to ILOUSE921N4VQ.tekelec.com(10.31.5.100)
iLO 2 Advanced 2.05 at 13:38:05 Dec 16 2010
Server Name: hostname1368545964
Server Power: On

</>hpiLO->
```

Than use the vsp command to access the server console and login with the OS user and password

```
</>hpiLO-> vsp

Starting virtual serial port.
Press 'ESC (' to return to the CLI Session.

</>hpiLO-> Virtual Serial Port active: IO=0x03F8 INT=4

CentOS release 6.3 (Final)
Kernel 2.6.32-279.5.2.el6prerel6.0.1_80.32.0.x86_64 on an x86_64

hostname1368545964 login:
CentOS release 6.3 (Final)
Kernel 2.6.32-279.5.2.el6prerel6.0.1_80.32.0.x86_64 on an x86_64
```

```
hostname1368545964 login:
CentOS release 6.3 (Final)
Kernel 2.6.32-279.5.2.el6prerel6.0.1_80.32.0.x86_64 on an x86_64

hostname1368545964 login: root
Password:
```

PM&C upgrade

Follow document PM&C Incremental Upgrade, Tekelec Platform release 7.3

Update the switch configurations

CAUTION: **If you are working remotely you may lose the connection on the system**

For **all the switches** configure the SSH access as explained in **Hardware Guide doc ID E66862,** of the **previous release 10.2**

For **each CISCO 3020** switch.

Configure the switch in order to add the commands from the step d

a) As there is no log file for the following steps it is recommended to enable the log feature from your terminal in case something would not work as expected and assistance is required.
b) Open a telnet session on the switch and then move from the user mode to privilege mode and then to config mode

```
Switch# enable
```

Note : for the default switch passwords refer to TR006061 (password dragon)

c) Check the current configuration in order to see if it needs to be updated.

```
Switch# show running-config
```

d) If some of the commands are missing go to the configuration mode and then paste the commands

```
Switch# configure terminal
link state track 1
!
interface Port-channel1
 description ISL_between_4948_and_3020
 link state group 1 upstream
 !
interface range GigabitEthernet0/1-16
 description bay.ethx
 link state group 1 downstream
 !
interface GigabitEthernet0/17-20
 description ISL_between_4948_and_3020
```

```
 channel-group 1 mode active
```

e) Check the configuration is modified as expected

```
Switch# show running-config
```

f) If the configuration is fine then you can save it in the flash in order to have it automatically reloaded if the switch reboot

```
Switch# copy running-config startup-config
```

g) If there is an issue in your config you can can reboot the switch without saving and then restart the config from the step a

```
Switch# reload
```

Unset Configuration on Management Server

Unset configuration application access restriction automatically set during Management Server upgrade by performing the below steps.

Note: Configuration application are automatically restricted to TklcSrv and tekelec user during Management Server upgrade. After required reconfiguration, Management Server shall return to normal.

1. Open a web browser and log in to the NSP application interface as TklcSrv user.
2. Navigate to security application ➤ Filter access
3. Select None for Restricted configuration setting.
4. Apply modification.

9. Management Server Backup (Post Upgrade)

This procedure describes how to perform a backup on a Management Server after successful upgrade.

```
# ll /opt/oracle/backup/
```

Output should be:

```
drwxrwxrwx 3 oracle oinstall      4096 Apr   8 14:38 upgrade_backup
```

If the permission of /opt/oracle/backup/upgrade_backup is not set as per above snapshot, perform the below step

```
#chmod 777 /opt/oracle/backup/upgrade_backup
```

Before proceeding with the Management Server backup, move back the backup which was copied to some other server as per steps mentioned in section **0**

```
# /opt/oracle/backup
```

As root run on mgmt. server:

```
# . $HOME/.bash_profile; cd /opt/nsp/scripts/oracle/cmd;
sh ./launch_pic_global_backup.sh >../trc/cronNSP.log 2>&1
```

This command might take a long time depending on the size of the backup. Refer to the section "**Check Management Server Backup is valid "of** the chapter Management Server Pre-Upgrade Healthcheck and Settings in order to make sure everything went fine.

Note:Edit the cron job by performing the below steps.

```
#crontab -e
```

Uncomment out the launch_pic_global_backup.sh entry by removing the hash(#) at the start.You might use the command crontab –l to display the list of jobs scheduled. Below should be the updated entry.

```
# crontab -l
00 22 * * * . $HOME/.bash_profile; cd /opt/nsp/scripts/oracle/cmd;
sh ./launch_pic_global_backup.sh >../trc/cronNSP.log 2>&1
```

10. DIU Upgrade of Mediation & Acquisition Server

Prerequisite:

In case of XMF, source partition is /dev/mapper/vgroot-imfdb
In case of IXP, source partition is /dev/mapper/vgroot-plat_ixpidb
In the output of df -kh, if the source partition is not having enough space to extract the 50GB (in short Avail Size is less than 50GB), then you should **increase the HDD.**

Increasing the size of HDD:

1.Identify the name & location of qcow image of the VM from the virt-manager.
2. Now via virt-manager keep the VM in shutdown state.

3. In the host machine navigate to the folder where the VM's corresponding qcow is present and run the below command:
qemu-img resize vm1.qcow2 +10G (vm1.qcow2 should be replaced with name that was found in step1 and 10 should be replaced with the extra size you want to increase by)
4. Turn on the VM.
5. Run the below commands on the VM:
parted /dev/sda resizepart 2 100%
pvresize /dev/sda2

Configure the server for performing DIU

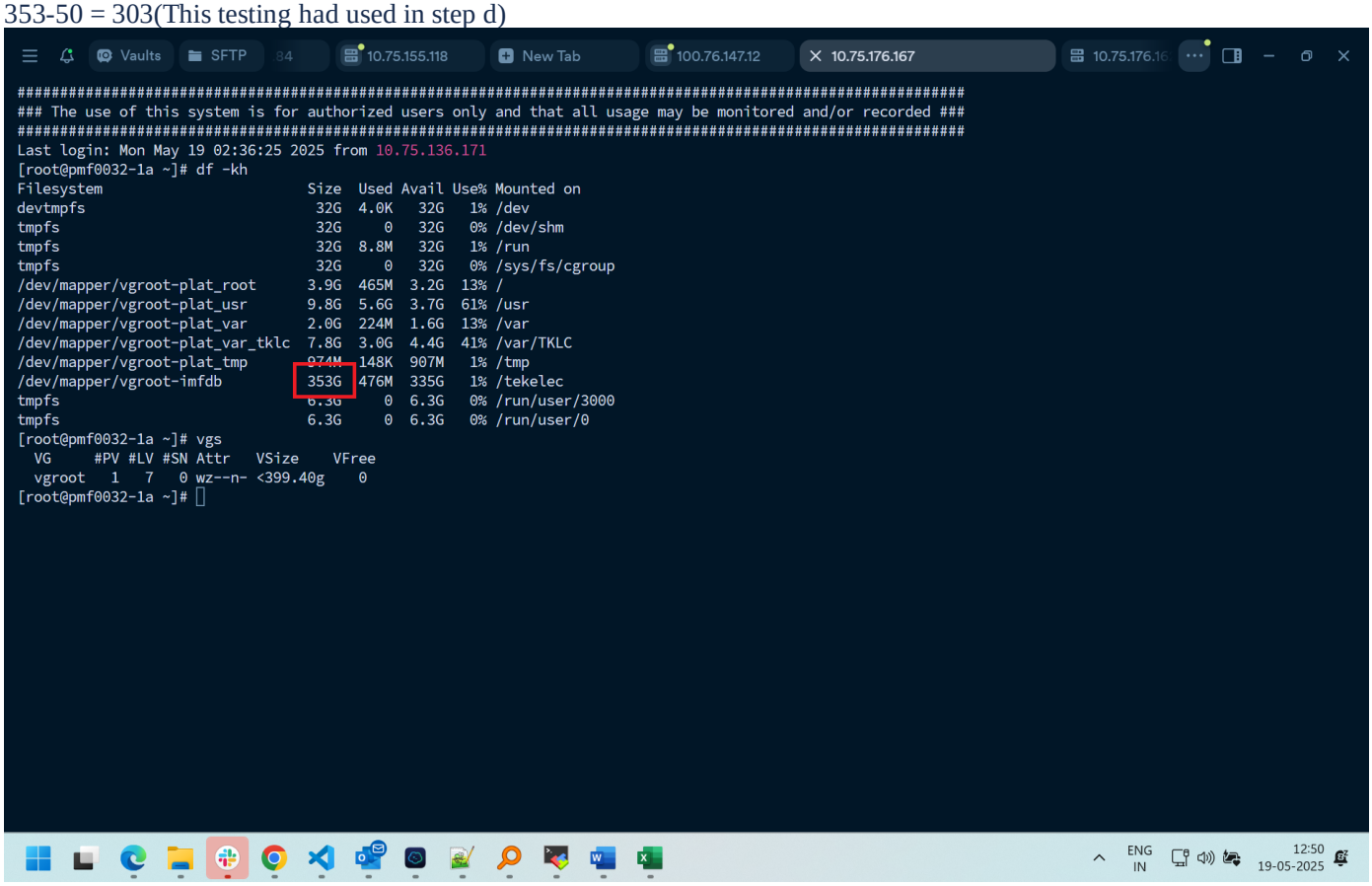
1. Take backup of the files using below commands:
   a. su - root
   b. cd ~
   c. cp /etc/hosts ~
   d. cp /etc/profile.d/TKLCplat_conf.sh ~
   e. cp /etc/fstab ~ (only for IXP)
   f. cp /etc/sysconfig/network-scripts/ifcfg-* ~ (only for XMF)

2. Run the below command to see the amount of free space:
vgs
(Free space(VFree) must be atleast 50GB) if free space is not adequate, then execute the steps mentioned below (steps 3,4,5,6).
If VFree >=50g directly go to step 6. 50GB is the minimum space required. It can be greater than or equal to 50GB and it is up to customer how much free space he wants to use.
Example [root@pmf0101-0a log]# vgs
VG #PV #LV #SN Attr VSize VFree
vgroot 1 7 0 wz--n- <568.40g 50g

3. Creating Free Space for DIU if not available in vgs
   a. su - cfguser
   b. prod.clobber -i

4. For XMF(PMF/IMF) The commands mentioned in point d and e have 2 sizes (303G and 50G). Its the total size of vgroot-imfdb partition and we are reducing it so that we can get 50GB free space User has to adjust their commands properly based on their VM size specifications Take reference from the attached screenshot (303G in step d is calculated by using the size in red square box-50)

353-50 = 303(This testing had used in step d)



su - root

a. umount /tekelec

b. fuser -mv /dev/mapper/vgroot-imfdb

c. e2fsck -f /dev/mapper/vgroot-imfdb

d. resize2fs /dev/mapper/vgroot-imfdb 303G

e. lvreduce -L -50G /dev/mapper/vgroot-imfdb

f. resize2fs /dev/mapper/vgroot-imfdb

g. mount /dev/mapper/vgroot-imfdb /tekelec

Note: If we get error "Target is busy" while unmounting in above umount command we need to do reboot and prod.clobber -i again.

For IXP:

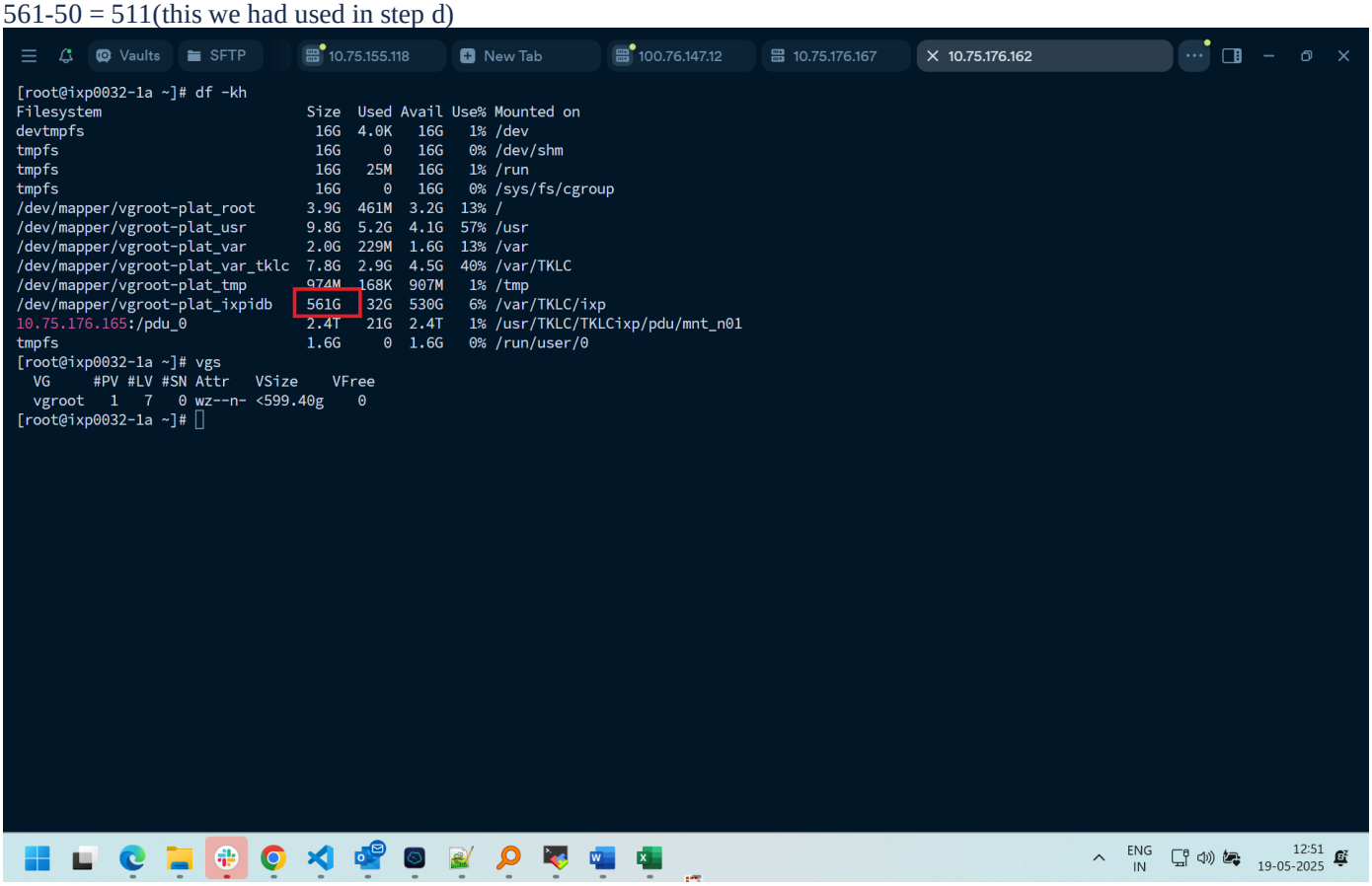
The commands mentioned in point d and e have 2 sizes (511G and 50G). Its the total size of vgroot-plat_ixpidb partition and

we are reducing it so that we can make 50GB free space.

User has to adjust their commands properly

Take reference from the attached screenshot (511G in step d is calculated by using the size in red square box-50)

561-50 = 511(this we had used in step d)



su - root

a. umount /var/TKLC/ixp

b. fuser -mv /dev/vgroot/plat_ixpidb

c. e2fsck -f /dev/vgroot/plat_ixpidb

d. resize2fs /dev/vgroot/plat_ixpidb 511G

e. lvreduce -L -50G /dev/vgroot/plat_ixpidb

f. resize2fs /dev/vgroot/plat_ixpidb

g. mount /dev/vgroot/plat_ixpidb /var/TKLC/ixp

Note: If we get error "Target is busy" while unmounting in above umount command we need to do reboot and

prod.clobber -i again.

5. su - cfguser

prod.start -i

6. Execute below set of commands only if VFree is greater than or equal to 50 in vgs command

a. su – root

b. init 2

c. lvextend -L +4G /dev/vgroot/plat_var_tklc (We are increasing the partition size by 4GB. Once again it's a minimum of 4GB and it can be greater than or equal to 4GB.)

d. shutdown -r -F now
e. resize2fs -p /dev/vgroot/plat_var_tklc

After all the above steps are completed, then only proceed to the next section.

Installation of DIU iso:

1. Place the DIU iso in /var/TKLC/upgrade/ folder

iso name for IXP is PIC-MEDSRV-10.5.0.1.0-5.0.0-x86_64-DIU.iso

iso name for PMF is PIC-PROBED-10.5.0.1.0-5.0.0-x86_64-PMF-DIU.iso

iso name for IMF is PIC-PROBED-10.5.0.1.0-5.0.0-x86_64-IMF-DIU.iso

Run validate media in platcfg menu. (su - platcfg → Maintenance → Dual Image Upgrade → Validate Media)

Run Install of Dual Image Upgrade (su - platcfg → Maintenance → Dual Image Upgrade → Initiate Background Upgrade)

Run apply of Dual Image Upgrade (su - platcfg → Maintenance → Dual Image Upgrade → Apply Upgrade)

System will reboot and DIU will resume after reboot till apply is completed.

Run accept/reject of Dual Image Upgrade (su - platcfg → Maintenance → Dual Image Upgrade → Accept Upgrade)

2. DIU Post Installation phase

a. su - root

b. cd ~

c. cp hosts /etc/hosts

d. cp TKLCplat_conf.sh /etc/profile.d/

In case of IXP

a. cp ~/fstab /etc

b. reboot

3. cd /etc/profile.d

source TKLCplat_conf.sh

4. Only for IMF

Place the non-DIU iso (PIC-PROBED-10.5.0.1.0-5.0.0-x86_64.iso) in /var/TKLC/upgrade/

The below steps must be executed from virt-manager console or virsh console.

For E5APP-B we can use telnet.

a. su - root

b. mount -o loop /var/TKLC/upgrade/PIC-PROBED-10.5.0.1.0-5.0.0-x86_64.iso /mnt/upgrade

c. While executing this command in IMF Setups sometimes a freeze will be noticed(stale PID) then user have to press q button from keyboard

rpm -ivh --force /mnt/upgrade/AppStream/Packages/TKLCplatxmf-10.5.0.1.0-5.0.0.noarch.rpm

d. rpm -ivh --force /mnt/upgrade/AppStream/Packages/ TKLCmf-10.5.0.1.0-5.0.0.x86_64.rpm

e. rpm -ivh --force /mnt/upgrade/AppStream/Packages/ TKLCoam-10.5.0.1.0-5.0.0.x86_64.rpm

5. Only for XMF

a. cd /etc/init.d

b. ./ServiceStarter.sh

c. reboot

6. For XMF (Optional)

This step is just to increase the partition size.

init 2
lvextend -L +320G /dev/vgroot/imfdb (320 should be replaced with VFree size when vgs is executed)
shutdown -r -F now
resize2fs -p /dev/vgroot/imfdb

7. For IXP (Optional)

This step is just to increase the partition size.

init 2
lvextend -L +530G /dev/vgroot/plat_ixpidb (530 should be replaced with VFree size when vgs is executed)
shutdown -r -F now
resize2fs -p /dev/vgroot/plat_ixpidb