# ST Oracle Patching (19.25) MASTER Jan/ 2025

YF: March 2025 Changes made following ST9 Oracle Patching

# Create Stub AWS Client

Since we are not using AWS, we will not be using the AWS Client. However, certain Ansible tasks expect the AWS Client to exist. Therefore, we mimic this functionality with a stub script, *aws-stub*, defined currently – see file.

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This must be installed in **/usr/sbin** to ensure it is ahead in the PATH of the real aws client, which is installed in **/usr/local/bin**, but is not configured and is non-functional.

For clarity this script is called *aws-stub*and a symlink is used to map it to *aws* as expected by the Ansible. The script file should be readable and executable for all users.

**chmod +x /usr/sbin/aws-stub**

**ln -s /usr/sbin/aws-stub /usr/sbin/aws**

# Create emctl agent stub

**vi /u01/app/oracle/emctl**

**set -x**

**echo 'emctl agent not installed'**

**chmod +x /u01/app/oracle/emctl**

Then add to **hmpps-env-configs-unilink/delius-unilink-orc9/ansible/group\_vars/all.yml:**

**emctl\_agent: /u01/app/oracle/emctl**

# Set Application

Add to hmpps-env-configs-unilink/delius-unilink-orc9/ansible/group\_vars/all.yml

**application: delius**

# Download 19.25 Software

Place in /u01/software/19c/patches:

* p6880880\_190000\_Linux-x86-64.12.2.0.1.43.zip (Opatch)
* p36866740\_190000\_Linux-x86-64.zip (19.25 Combo)

See patch document to find download.

## Create Unilink Environment Configurations

In the Github repository **hmpps-env-configs** the configuration parameters and Ansible variables for the various AWS environments are held.

We need to mimic this structure for the Unilink databases. This can be done simply by copying **hmpps-env-configs** to a new directory, **hmpps-env-configs-unilink**. Note that this is general a local directory on the Ansible controller, not an actual Github repository.

New “environments” can be created within this structure, for example by copying **delius-core-dev** to **delius-unilink-st10** and amending the Ansible variables accordingly. These will vary by environment but typical changes may be:

* The **hosts** file should refer to the Unilink instances, not EC2 instances. There should only be a **delius\_primarydb** group since there are no MIS components, and no Data Guard standby databases.
* In **group\_vars/delius\_primarydb.sql** the database name should be changed (ie. For **database\_global\_database, database\_taf\_service, database\_primary\_unique** and **database\_primary\_sid**)
* If any default SPFILE parameters have been overridden, ensure that these are correct for the environment.
* If there are user accounts specified, ensure that these are authorized Unilink users.

## Pull Repositories hmmps

**git pull hmpps-env-configs**

**git pull hmpps-delius-operational-automation**

Edit **./playbooks/oracle\_release\_update/playbook.yml**

Comment **oracle\_interim\_patch, update\_oem, delius\_oem\_metrics**

From this:

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To this:

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Edit playbooks/oracle\_release\_update/oracle\_release\_update/tasks/upgrade\_opatch.yml

From this:

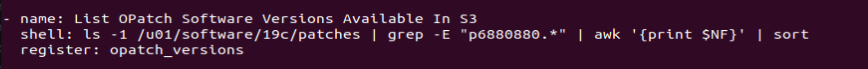


To this:

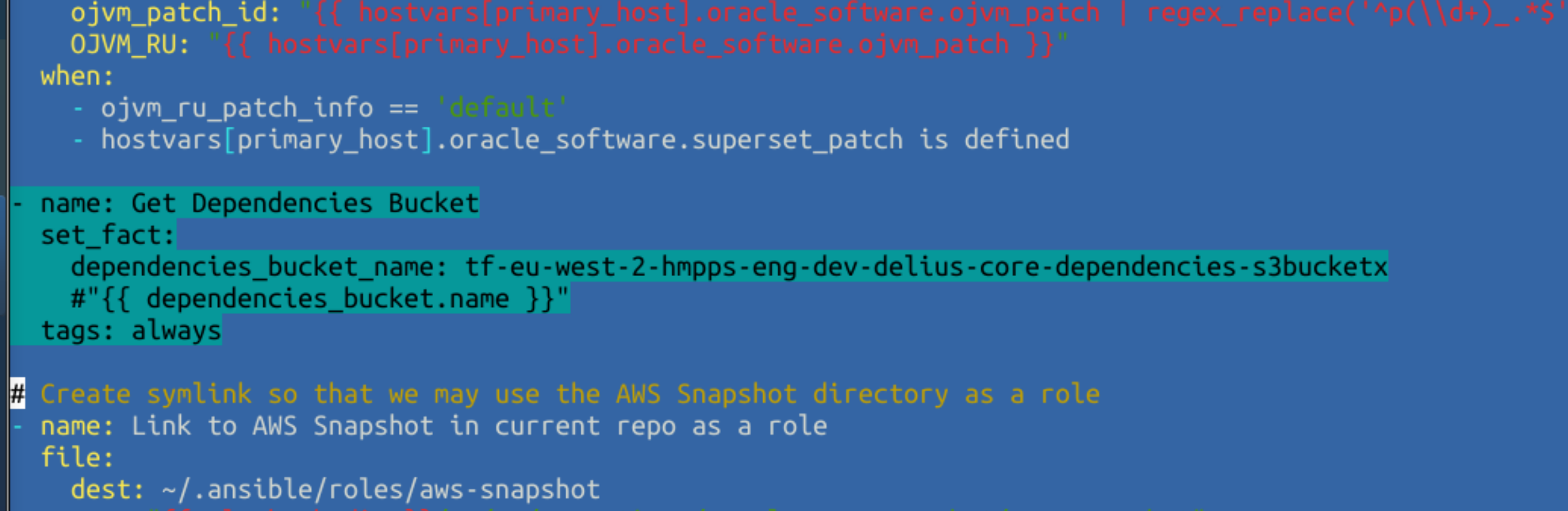
**- name:** **List OPatch Software Versions Available In S3**

**shell: ls -1 /u01/software/19c/patches | grep -E "p6880880.\*" | awk '{print $NF}' | sort**

**register: opatch\_versions**



Edit **playbooks/oracle\_release\_update/oracle\_release\_update/tasks/main.yml:**



## Prepare Clone

**# vi ~/.bashrc**

- add the following lines to the end of file:

**export ANSIBLE\_HOME=$HOME/\_aws**

**export ANSIBLE\_CONFIG=$ANSIBLE\_HOME/ansible.cfg**

#:wq!

**cd $ANSIBLE\_HOME**

Run the following:

**ansible-playbook -vv -i $ANSIBLE\_HOME/hmpps-env-configs-unilink/delius-unilink-orc12/ansible/hosts $ANSIBLE\_HOME/hmpps-delius-operational-automation/ansible/playbooks/test/playbook.yml | tee -a st12\_patching\_1925\_test.log**

Run the following:

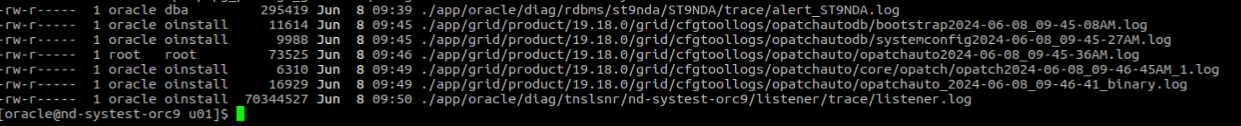
**ansible-playbook -vv -i $ANSIBLE\_HOME/hmpps-env-configs-unilink/delius-unilink-orc12/ansible/hosts $ANSIBLE\_HOME/hmpps-delius-operational-automation/playbooks/oracle\_release\_update/playbook.yml --extra-vars "target\_hosts=delius\_primarydb" --extra-vars "oracle\_patch\_directory=/u01/software/19c/patches" --extra-vars "combo\_patch\_info=\"**36866740**:**p36866740\_190000\_Linux-x86-64.zip**:(19.25)\"" --extra-vars "gi\_ru\_patch\_info=\"\"" --extra-vars "ojvm\_ru\_patch\_info=\"\""** **--extra-vars "dependencies\_bucket\_name=\"\"" --extra-vars "opatch\_info=\"**6880880**:** p6880880\_190000\_Linux-x86-64.12.2.0.1.43.zip**\"" --extra-vars "apply\_mode=prepare-clone" | tee -a st12\_patching\_1925\_prepare.log**

**On ST12 db host:**

**cd /u01/app**

**watch -n 30 'find . -name "\*.log" -print 2>/dev/null | xargs ls -ltr | grep "Mar 21" | tail'**

Analyze Existing Home for Patch Conflicts



Prepare Clone of /u01/app/grid/product/19.22.0/grid in /u01/app/grid/product/19.25.0/grid including DBRU

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Description automatically generated with medium confidence

~~NB: The AWS Engineering environment is referenced by~~ **~~hmpps-engineering-platform-terraform~~**~~. While this is not relevant to the Unilink databases it contains some variables which are required by the Ansible code and must be included. No AWS OEM or RMAN Catalog updates are performed.~~

## Add Patch Files

Ensure that the **delius\_primarydb.yml** file contains the 19.25 patch configuration in the **oracle\_software** dictionary variable.

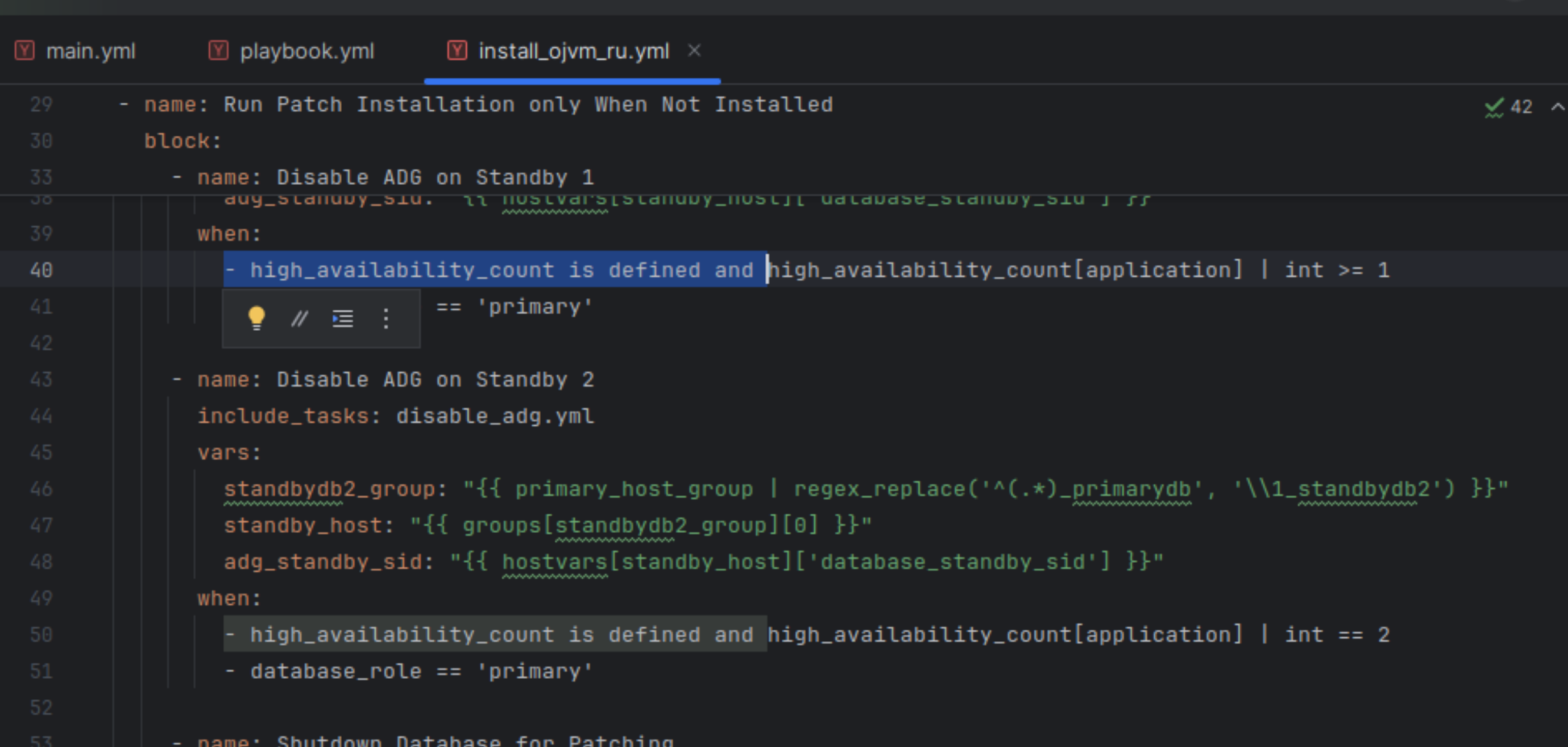
|  |
| --- |
| oracle\_software:  version: '19.25'  combo\_patch: p36866740\_190000\_Linux-x86-64.zip  opatch:  version: 12.2.0.1.43  filename: p6880880\_190000\_Linux-x86-64.12.2.0.1.43.zip |

## Switch Clone on Standby

This step may be skipped as there are no standby databases.

## Switch Clone on Primary

Amend the following playbook top add the “variable is defined” clause as highlighted below:



..then run following to switch to clone Oracle Home:

sqlplus / as sysdba

grant execute on sys.utl\_http to GSMADMIN\_INTERNAL, MDSYS, CTXSYS;

**cd $ANSIBLE\_HOME**

**ansible-playbook -vv -i $ANSIBLE\_HOME/hmpps-env-configs-unilink/delius-unilink-orc12/ansible/hosts $ANSIBLE\_HOME/hmpps-delius-operational-automation/playbooks/oracle\_release\_update/playbook.yml --extra-vars "target\_hosts=delius\_primarydb" --extra-vars "oracle\_patch\_directory=/u01/software/19c/patches" --extra-vars "combo\_patch\_info=\"default\"" --extra-vars "gi\_ru\_patch\_info=\"\"" --extra-vars "ojvm\_ru\_patch\_info=\"\"" --extra-vars "opatch\_info=\"default\"" --extra-vars "apply\_mode=switch-clone" --extra-vars "{'database':{'delius':{'high\_availability\_count':0},'mis':{'high\_availability\_count':0},'misboe':{'high\_availability\_count':0},'misdsd':{'high\_availability\_count':0}}}" | tee -a st12\_patching\_switch\_1925.log**

select patch\_id, action, status, action\_time, description from dba\_registry\_sqlpatch;

/u01/app/oracle/product/19.25.0/db/OPatch/datapatch -verbose

set echo on;

connect / as sysdba

ALTER SESSION SET CURRENT\_SCHEMA = SYS;  
@?/rdbms/admin/utlrp.sql  
select comp\_id, version, status where comp\_id = 'SDO';

spool off

Note that OEM updates related to the Release Update will be skipped as no configured Oracle agent will be detected.

**watch -n 30 'find . -name "\*.log" -print 2>/dev/null | xargs ls -ltr | grep "Mar 13" | tail'**

**cd /u01/app/oracle/product**

**tail -f ./19.25.0/db/rdbms/log/opatch/opatch2025-01-24\_14-59-43PM\_1.log**

**tail -f ./19.25.0/db/rdbms/log/opatch/opatch2024-06-03\_16-01-54PM\_1.log**

## Disable Snapshot Standby Database

This step may be skipped as there are no standby databases.

## Install OJVM on Standby Database

This step may be skipped as there are no standby databases.

## Install SQL Plan Management Purge Job

**ansible-playbook -vv -i $ANSIBLE\_HOME/hmpps-env-configs-unilink/delius-unilink-orc12/ansible/hosts $ANSIBLE\_HOME/hmpps-delius-operational-automation/playbooks/****delius-artefacts-playbook.yml --extra-vars "hosts=delius\_primarydb" --extra-vars "****deploy\_plan\_management=yes"**

## Delete old Oracle Homes

**# yum install jq**

**export ORA\_DEINSTALL\_VERSION=19.16.0; ansible-playbook -vv -i $ANSIBLE\_HOME/hmpps-env-configs-unilink/delius-unilink-orc12/ansible/hosts $ANSIBLE\_HOME/hmpps-delius-operational-automation/playbooks/oracle\_release\_update/deinstall\_oracle.yml --extra-vars "target\_hosts=delius\_primarydb" --extra-vars "****oracle\_grid\_oracle\_home=/u01/app/grid/product/$ORA\_DEINSTALL\_VERSION/grid" --extra-vars "****oracle\_database\_oracle\_home=/u01/app/oracle/product/$ORA\_DEINSTALL\_VERSION/db"**

**ST11/12:**

**Remove GI home:**[**https://dohdatabase.com/2023/07/03/how-to-remove-an-old-oracle-grid-infrastructure-19c-home/**](https://dohdatabase.com/2023/07/03/how-to-remove-an-old-oracle-grid-infrastructure-19c-home/)

**Remove DB home:**

**Check if there still processes that are using old oracle database home:**

**lsof +D /u01/app/oracle/product/19.0.0/db**

**ansible-playbook -vv -i $ANSIBLE\_HOME/hmpps-env-configs-unilink/delius-unilink-orc12/ansible/hosts $ANSIBLE\_HOME/hmpps-delius-operational-automation/playbooks/oracle\_release\_update/deinstall\_oracle.yml --extra-vars "target\_hosts=delius\_primarydb" --extra-vars "****oracle\_database\_oracle\_home=/u01/app/oracle/product/19.0.0/db"**

**cd /u01/app/oracle/product/19.0.0/db/deinstall**

**./deinstall**

**#****./deinstall -silent -checkonly -o /tmp/ansible.909w1xvkdeinstall\_response**

## Gather New Statistics

These are set up via an automated job.

**select PROGRAM\_TYPE, ENABLED from dba\_scheduler\_programs where PROGRAM\_NAME = 'GATHER\_STATS\_PROG';**  
  
**select \***

**from DBA\_AUTOTASK\_JOB\_HISTORY**

**where client\_name = 'auto optimizer stats collection'**

**order by 3 desc;**

-- Check if status are up-to-date

**select \***

**from dba\_tab\_stats\_history**

**where owner = 'DELIUS\_APP\_SCHEMA'**

**order by stats\_update\_time desc;**

**select count(\*)**

**from dba\_tab\_statistics**

**where owner = 'DELIUS\_APP\_SCHEMA'**

**and stale\_stats = 'YES';**

-- To refresh stats straight away, run this:

**BEGIN**

**DBMS\_STATS.gather\_schema\_stats(**

**ownname => 'DELIUS\_APP\_SCHEMA'**

**,degree => 1**

**,no\_invalidate => FALSE**

**);**

**END;**

## Install Alfresco Wallet

**DECLARE**

**l\_wallet\_dir VARCHAR2(512) := '/u01/app/oracle/product/19.25.0/db/dbs/alfresco\_wallet';**

**BEGIN**

**SPGConfig.set\_alfresco\_wallet('file:' || l\_wallet\_dir);**

**--**

**COMMIT;**

**END;**

**/**

**SELECT**

**SPGCONFIG.get\_alfresco\_url AS alf\_url,**

**LENGTH(SPGCONFIG.get\_alfresco\_url) AS alf\_url\_LEN,**

**SPGCONFIG.get\_alfresco\_user AS alf\_user,**

**SPGCONFIG.get\_alfresco\_wallet AS alf\_wallet**

**FROM dual;**

*Test ALF URL; if necessary run the below Ansible playbook, and then test again:*

**ansible-playbook -vv -i $ANSIBLE\_HOME/hmpps-env-configs-unilink/delius-unilink-orc12/ansible/hosts $ANSIBLE\_HOME/hmpps-delius-operational-automation/playbooks/delius-artefacts-playbook.yml --extra-vars "hosts=delius\_primarydb" --extra-vars "****deploy\_alfresco\_wallet=yes" | tee -a ./ALF\_ST12\_setup.log**

## Smoke Test

Check Oracle version

sqlplus / as sysdba

Check alert file

Issue:

ORA-31934: error occurred while shrinking the materialized view log at kkzlRunSA:prepare

ORA-06550: line 1, column 90:

PLS-00103: Encountered the symbol "NULL" when expecting one of the following:

then or

The symbol "then" was substituted for "NULL" to continue.

ORA-31934: Error Occurred While Shrinking The Materialized View Log At KkzlRunSA:execute (Doc ID 2692621.1)

Connect to sys and run:

alter system set "\_mv\_refresh\_shrink\_log"=false scope=both;

Get tester to check app

End of Main Document

**NOTES SECTION – progress during patching**

Notes – ST8 19.25 May 2024

*Prepare-clone*

unzip -Z1 <file.zip> To only list files

Issues

-Ansible prepare-clone fails

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Comment out hmpps-delius-operational-automation/playbooks/oracle\_release\_update/playbook.yml

-Download Error

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I had a space in the parameter before the patch – it made the parameter list wrong

-Patch conflict, need later Opatch

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Description automatically generated

-active oo session

cd /u01  
find . -name oopsessioninfo.ser -print  
rm ./app/grid/product/19.16.0/grid/.opatchauto\_storage/nd-systest-orc9/oopsessioninfo.ser

-stop emct agent failed

created /u01/app/oracle/emctl

just contains echo ‘oem not installed’

Then added emctl\_agent=/u01/app/oracle/emctl to

hmpps-env-configs-unilink/delius-unilink-orc9/ansible/group\_vars/all.yml

Starting Again – oop files were missing – I think I removed them but they were needed for the switch clone.

from oracle:

# GRID

cd /u01/app/grid/product/19.25.0/grid/deinstall

./deinstall -logdir /home/oracle/admin/work/deinstall

from root:

cd /u01/app/grid/product

rm -rf 19.25.0

# DB

cd /u01/app/oracle/product/19.25.0/db/deinstall

./deinstall -logdir /home/oracle/admin/work/deinstall

Specify the list of database names that are configured in this Oracle home []:

from root:

cd /u01/app/oracle/product

rm -rf 19.25.0

cat /u01/app/oraInventory/ContentsXML/inventory.xml

*Switch-clone*

ISSUE: failed near the end with the following:

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says high\_availability\_count not set.

Same issue ST8

Had to run the following which was missed from sys:

BEGIN

FOR u IN (SELECT username

FROM dba\_users

WHERE username IN ('DELIUS\_POOL','GDPR\_POOL','DELIUS\_APP\_SCHEMA','DELIUS\_APP\_SCRIPTS','DELIUS\_CFO','DELIUS\_MIS','DELIUS\_READ\_ONLY\_USER','DELIUS\_USERSHARE\_SCHEMA','DELIUS\_USER\_SUPPORT')

OR username IN ('NDMIS\_DATA','MIS\_LANDING','NDMIS\_ARC','NDMIS\_CDC\_SUBSCRIBER','NDMIS\_FORMS\_2030','NDMIS\_LOADER','NDMIS\_WORKING')

OR username IN ('B14AUD','B14CMS')

OR username IN ('IPSAUD','IPSCMS','BODSLOCAL','BODSCENTRAL')) LOOP

EXECUTE IMMEDIATE 'ALTER USER '||u.username||' ACCOUNT UNLOCK';

END LOOP;

END;

Notes – ST6 19.25 June 2024

*Prepare-clone*

Issue:

Failed patch issue:  
  
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Description automatically generated

looks like only part file – copied from /tmp again as file sizes were different

Logs

TASK [oracle\_release\_update : Show Output of Preparing Clone] \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

task path: /home/david/workspace/hmpps-delius-operational-automation/playbooks/oracle\_release\_update/oracle\_release\_update/tasks/prepare\_clone.yml:155

ok: [nd-systest-orc9] =>

result.stdout: |2-

OPatchauto session is initiated at Fri May 31 15:26:03 2024

System initialization log file is /u01/app/oracle/product/19.16.0/db/cfgtoollogs/opatchautodb/systemconfig2024-05-31\_03-26-14PM.log.

Session log file is /u01/app/oracle/product/19.16.0/db/cfgtoollogs/opatchauto/opatchauto2024-05-31\_03-26-28PM.log

The id for this session is K6RJ

Executing OPatch prereq operations to verify patch applicability on home /u01/app/oracle/product/19.16.0/db

Patch applicability verified successfully on home /u01/app/oracle/product/19.16.0/db

Executing patch validation checks on home /u01/app/oracle/product/19.16.0/db

Patch validation checks successfully completed on home /u01/app/oracle/product/19.16.0/db

Verifying SQL patch applicability on home /u01/app/oracle/product/19.16.0/db

SQL patch applicability verified successfully on home /u01/app/oracle/product/19.16.0/db

Copying the files from the existing oracle home /u01/app/oracle/product/19.16.0/db to a new location. Please wait...

Clone of oracle home /u01/app/oracle/product/19.16.0/db is /u01/app/oracle/product/19.25.0/db on host nd-systest-orc9

Copying the files from the existing oracle home /u01/app/oracle/product/19.16.0/db to a new location is successful.

Creating clone for oracle home /u01/app/oracle/product/19.16.0/db.

Clone operation successful for oracle home /u01/app/oracle/product/19.16.0/db.

Performing post clone operation for oracle home /u01/app/oracle/product/19.16.0/db.

Performing post clone operation was successful for oracle home /u01/app/oracle/product/19.25.0/db.

Start applying binary patch on home /u01/app/oracle/product/19.25.0/db

Binary patch applied successfully on home /u01/app/oracle/product/19.25.0/db

Running rootadd\_rdbms.sh on home /u01/app/oracle/product/19.25.0/db

Successfully executed rootadd\_rdbms.sh on home /u01/app/oracle/product/19.25.0/db

OPatchAuto successful.

--------------------------------Summary--------------------------------

Patching is completed successfully. Please find the summary as follows:

Host:nd-systest-orc9

SIDB Home:/u01/app/oracle/product/19.16.0/db

Version:19.0.0.0.0

Summary:

==Following patches were SKIPPED:

Patch: /u01/software/19c/patches/36031453/35940989/35956421

Reason: This patch is not applicable to this specified target type - "oracle\_database"

Patch: /u01/software/19c/patches/36031453/35940989/33575402

Reason: This patch is not applicable to this specified target type - "oracle\_database"

Patch: /u01/software/19c/patches/36031453/35940989/36115038

Reason: This patch is not applicable to this specified target type - "oracle\_database"

==Following patches were SUCCESSFULLY applied:

Patch: /u01/software/19c/patches/36031453/35940989/35943157

Log: /u01/app/oracle/product/19.25.0/db/cfgtoollogs/opatchauto/core/opatch/opatch2024-05-31\_15-37-59PM\_1.log

Patch: /u01/software/19c/patches/36031453/35940989/35967489

Log: /u01/app/oracle/product/19.25.0/db/cfgtoollogs/opatchauto/core/opatch/opatch2024-05-31\_15-37-59PM\_1.log

Out of place patching clone home(s) summary

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Host : nd-systest-orc9

Actual Home : /u01/app/oracle/product/19.16.0/db

Version:19.0.0.0.0

Clone Home Path : /u01/app/oracle/product/19.25.0/db

OPatchauto session completed at Fri May 31 15:55:42 2024

Time taken to complete the session 29 minutes, 39 seconds

Prepare-clone ST8 19.25 Jan 2025

Failed with connection removed 19.25 grid and database – see above – and restarted:

The grid completed ok but database failed with:  
  
 OPatchauto session is initiated at Thu Jan 16 19:13:46 2025

OPATCHAUTO-72083: Performing bootstrap operations failed.

OPATCHAUTO-72083: The bootstrap execution failed because failed to detect Grid Infrastructure setup due to java.lang.NullPointerException.

OPATCHAUTO-72083: Fix the reported problem and re-run opatchauto. In case of standalone SIDB installation and Grid is not installed re-run with -sidb option.

rm ./app/oracle/product/19.22.0/db/.opatchauto\_storage/nd-systest-orc9/oopsessioninfo.ser

rm ./app/oracle/product/19.25.0/db/.opatchauto\_storage/nd-systest-orc9/oopsessioninfo.ser

Then removed 19.25 database – start again. In theory should see grid 19.25 is done and try just db

# DB

cd /u01/app/oracle/product/19.25.0/db/deinstall

./deinstall -logdir /home/oracle/admin/work/deinstall

Specify the list of database names that are configured in this Oracle home []:

from root:

cd /u01/app/oracle/product

rm -rf 19.25.0

Then re-run.

Seems to have worked – need to check further.

Switch Clone ST8 24th Jan 2024

Same as last time when 19.22 was patched:  
  
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says high\_availability\_count not set.

From above, failed in ojvm

select con\_id, comp\_id, comp\_name, version, status from cdb\_registry where comp\_id='JAVAVM';

Seems ok? Check more

As per last time: ran the following which was missed from sys:

BEGIN

FOR u IN (SELECT username

FROM dba\_users

WHERE username IN ('DELIUS\_POOL','GDPR\_POOL','DELIUS\_APP\_SCHEMA','DELIUS\_APP\_SCRIPTS','DELIUS\_CFO','DELIUS\_MIS','DELIUS\_READ\_ONLY\_USER','DELIUS\_USERSHARE\_SCHEMA','DELIUS\_USER\_SUPPORT')

OR username IN ('NDMIS\_DATA','MIS\_LANDING','NDMIS\_ARC','NDMIS\_CDC\_SUBSCRIBER','NDMIS\_FORMS\_2030','NDMIS\_LOADER','NDMIS\_WORKING')

OR username IN ('B14AUD','B14CMS')

OR username IN ('IPSAUD','IPSCMS','BODSLOCAL','BODSCENTRAL')) LOOP

EXECUTE IMMEDIATE 'ALTER USER '||u.username||' ACCOUNT UNLOCK';

END LOOP;

END;

find . \*.yml -print | xargs grep "Disable ADG on Standby 1" 2>/dev/null

Also missed the step at the end of main.yml to clear up oop files

cd /u01/app/oralce/product

find . -name oopsessioninfo.ser -print

A screen shot of a computer program

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But left these in place.