HCUK Oracle 12c WebLogic and HTTP Server Patching Automation

Deploy and Apply User Guides

# Introduction

This document is intended to be a DBA user guide or manual on how to use the Linux BASH scripts created to assist with the deployment and application of Oracle Patch Set Updates (PSUs) to Oracle 12.1.3.0 WebLogic or HTTP Servers running on Linux x86-64 hosts.

There are 2 different BASH scripts required as the first (the “deploy” script) is used to automate the remote execution of the second (the “apply” script). It is intended that these scripts and all required patches are hosted on a central host, so that by the use of SSH keys it is possible to apply the patches using OPatch on another host remotely.

The deploy and apply scripts have many similar command line options, with any given to the deploy script used with the execution of the apply script. These options will be explained in detail later on in this user guide.

The deploy script is essentially a wrapper script that is used to call or execute the apply script against one or more remote hosts. This executable BASH script is called: **deploy\_PSU\_12c\_WLS\_OHS.sh**

The apply script does the actual stopping, patching and restarting of Oracle services on each of the remote hosts and can be used on its own if required and copied to the target host. This executable BASH script is called: **apply\_PSU\_12c\_WLS\_OHS.sh**

Also, by utilising NFS it is possible to avoid the need to copy files to the remote host. If the required NFS share is unavailable and there is enough disk space available then an attempt to SCP the required files is made, with all files removed after patching is completed.

All scripts, directories and Oracle patches can be found under the NFS share served by mvlp-rep1 and mounted to each OEM Management Servers (mvlt-omgt1, hvlt-omgt1, mvlp-omgt1, hvlp-omgt1) under the base directory:  
**/share/dbadir/PSU\_deploy**

Under the **PSU\_deploy** base directory is the following directories:  
**bin** – contains the executable deploy and apply BASH scripts   
**log** – stores log files generated  
**psu** – is the base directory for each set of Oracle patches to be applied  
**ssh** – contains useful scripts for adding SSH keys on remote hosts if required (SCP it to the host then execute it there)

The deploy script should be executed as the **oraoem** user on any of the **OEM Management Servers** as the SSH key for each of these users is already in the .ssh/authorized\_keys file on most non-production hosts and the mvlp-rep1:/share NFS share mounted correctly.

The execution of the deploy script creates a main log file within the log directory, as well as a log file for each remote host and service that is being patched, with a copy of this left on the remote host within the OS user’s home directory.

# Preparation

## SSH Keys

It is a requirement to have the necessary SSH keys in place so that the deploy script can copy the apply script to each host to be patched and execute this remotely. For most non-production hosts this is already in place for the oraoem user on all OEM Management Servers. If it is required to add the SSH keys to a remote host user’s .ssh/authorized\_keys file then the script **add\_OMS\_SSH\_keys.sh** should be copied to the host and executed there.

## OPatch Version Checks

Prior to patching it may be required to update OPatch on each remote host and one of the first things that the apply script checks is that it is at least version 13.2.0.0.0 or higher.

## NFS Utilisation by Remote Hosts

If NFS is to be used then on each remote host to be patched the share mvlp-rep1:/share must be mounted as /share and accessible to the remote OS user (usually called oracle). Also, all Oracle patch zip files that contain the patches to be applied must be unzipped in advance and be located within a correctly named directory, which has the following naming convention:   
${**BASE\_DIR**}/**psu**/${**COMP\_TYPE**}\_${**ORA\_VER**}\_${**PSU\_VER**}  
Where:  
**BASE\_DIR** is the base directory within the NFS share that all required files are stored under, such as “/share/dbadir/PSU\_deploy”  
**COMP\_TYPE** is the Oracle component type, which is either WLS or OHS  
**ORA\_VER** is the Oracle version, which currently can only be 12.1.3.0  
**PSU\_VER** is the Oracle PSU version, which currently can either be 180717 or 181016  
And **psu** is the name of the directory within the BASE\_DIR that contains the directories for each set of unzipped patches to be applied.

For example, the full path to the directory containing the unzipped July 2018 PSU and any other patches to apply for a 12.1.3.0 WebLogic Server would be:  
/share/dbadir/PSU\_deploy/psu/WLS\_12.1.0.2\_180717

If NFS is not to be used or is unavailable to the remote hosts then the deploy script checks if there is at least 2 times (double) the amount of space required to store both all the zipped and unzipped files within the OS users home directory. For large PSUs this is likely to fail, but for small one off patches it may be fine and succeed.

## The Host List File

In order to make use of the deploy script it is required to first create a “host list file” of the remote hostnames to apply the PSU to. Each entry within this plain text file must be on a single line.

For example, lines within the host list file for the test OHS instances on hosts mvld-cm22w1 and mvld-cm22w2 would be:  
mvld-cm22w1  
mvld-cm22w2

In this example the Oracle HTTP Server on mvld-cm22w1 would be stopped, patched and restarted first followed by mvld-cm22w2.

It may be possible to paralyze both the deploy and apply and perform patching activities against multiple hosts at one time by creating additional host list files and executing the deploy script in multiple sessions.

# Using the Deploy Script

The deploy script is essentially a wrapper that is used to call or execute the apply script against one or more remote hosts, as determined by what is listed within the host list file, which is one of its mandatory command line parameters. Prior to executing the apply script it does a number of other checks and if it encounters a fatal problem it should exit with a non-zero return code.

The file name of the executable BASH script is: **deploy\_PSU\_12c\_WLS\_OHS.sh**

## Deploy Script Usage

If executed without any parameters or one that is incorrect or is either “-help” or “-h” then the following usage statement is displayed:

deploy\_PSU\_12c\_WLS\_OHS.sh [-hostList=HOST\_LIST\_FILE] [-component=COMP\_TYPE] [-version=ORA\_VER] [-PSU=PSU\_VER] {-NMUname=NM\_USERNAME} {-NMPword=NM\_PWORD} {-noPrompt} {-debug} {-dryRun} {-testRun} {-help}

Where:

-hostList|-hl - Required. Full path to a file listing all hosts to apply patches to

-component|-c - Required. Specify the Oracle component to stop and apply patches to (either WLS or OHS)

-version|-v - Required. Specify the Oracle 12c WLS/OHS version (currently only 12.1.3.0 is valid)

-PSU|-psu - Required. Specify the Oracle PSU date to apply to the Oracle Home (format must be YYMMDD and currently only 180717 is valid)

-NMUname|-u - Optional. Node Manager / Admin Server username (usually the same for both)

-NMPword|-p - Optional. Node Manager / Admin Server password (usually the same for both)

-noPrompt|-np - Optional. Do not prompt the user (not set by default)

-dryRun|-dr - Optional. Do not apply any patches but attempt to restart services (not set by default)

-testRun|-tr - Optional. Only display the apply scripts usage message on each host (not set by default)

-debug|-d - Optional. Display additional debug output to screen (not set by default)

-help|-h - Optional. Display this usage message and exit

## Deploy Script Examples

Listed below are some example usages of the deploy script.

deploy\_PSU\_12c\_WLS\_OHS.sh -hostList=/tmp/OHS\_12c\_180717.lst -c=OHS -v=12.1.3.0 -psu=180717 -d -np -dr -tr

deploy\_PSU\_12c\_WLS\_OHS.sh -hostList=/tmp/WLS\_12c\_180717.lst -c=WLS -v=12.1.3.0 -psu=180717 -np –dr

## Deploy Script Parameters

The deploy script command line parameters are each explained in more detail below. They may be specified in any order.

### hostList

* A mandatory parameter whose value refers to a locally accessible file
* Lists all hosts to attempt to connect to and apply patches to in sequential order
* Each entry is on a single line
* This parameter can be replaced with “-hl”

### component

* A mandatory parameter whose value may be either WLS for WebLogic Server or OHS for HTTP Server
* This parameter and its value is passed on to the execution of the apply script on the host being patched
* This parameter can be replaced with “-c”

### version

* A mandatory parameter whose value may only be 12.1.3.0
* This parameter and its value is passed on to the execution of the apply script on the host being patched
* This parameter can be replaced with “-v”

### PSU

* A mandatory parameter whose value may only be 180717
* This parameter and its value is passed on to the execution of the apply script on the host being patched
* This parameter can be replaced with “-psu”

### NMUname

* An optional parameter whose value sets what user to attempt to connect to the Node Manager as
* This is also used as the username when connecting to a WLS Admin Server
* If not set a default username of “weblogic” is used for Node Manager and Admin Server connect attempts
* This parameter and its value is passed on to the execution of the apply script on the host being patched
* This parameter can be replaced with “-u”

### NMPword

* An optional parameter whose value sets what password to use when connecting to the Node Manager
* This is also used as the password when connecting to a WLS Admin Server
* If not set a default password of “weblog1c” is used for Node Manager and Admin Server connect attempts
* This parameter and its value is passed on to the execution of the apply script on the host being patched
* This parameter can be replaced with “-p”

### noPrompt

* An optional parameter with no value required
* If this is set then the user is not ever prompted and the script attempts to complete in full
* This parameter is passed on to the execution of the apply script on the host being patched
* This parameter can be replaced with “-np”

### dryRun

* An optional parameter with no value required
* If this is set then no patches are applied but all running services on the remote host are restarted
* This parameter is passed on to the execution of the apply script on the host being patched
* This parameter can be replaced with “-dr”

### testRun

* An optional parameter with no value required
* If this is set then no patches are applied and no services on the remote host are restarted
* This parameter is passed on to the execution of the apply script on the host being patched
* This parameter can be replaced with “-tr”

### debug

* An optional parameter with no value required
* If this is set then additional information is displayed on screen and in log files
* This parameter is passed on to the execution of the apply script on the host being patched
* This parameter can be replaced with “-d”

### help

* An optional parameter with no value required
* If this is set then just the usage message is displayed and all other parameters are ignored
* This parameter can be replaced with “-h”

# Using the Apply Script

The apply script does the actual stopping, patching and restarting of Oracle services on each of the remote hosts after the deploy script first copies it to the host. It can be executed directly on a remote host running Oracle 12c WLS or OHS if this is required.

The file name of the executable BASH script is: **apply\_PSU\_12c\_WLS\_OHS.sh**

## Apply Script Usage

If executed without any parameters or one that is incorrect or is either “-help” or “-h” then the following usage statement is displayed:

apply\_PSU\_12c\_WLS\_OHS.sh [-component=COMP\_TYPE] [-version=ORA\_VER] [-PSU=PSU\_VER] {-NMUname=NM\_USERNAME} {-NMPword=NM\_PWORD} {-stageDir=BASE\_DIR} {-noPrompt} {-debug} {-dryRun} {-help}

Where:

-component|-c - Required. Specify the Oracle component to stop and apply patches to (either WLS or OHS)

-version|-v - Required. Specify the Oracle 12c WLS/OHS version (currently only 12.1.3.0 is valid)

-PSU|-psu - Required. Specify the Oracle PSU date to apply to the Oracle Home (format must be YYMMDD and currently only 180717 is valid)

-NMUname|-u - Optional. Node Manager / Admin Server username (usually the same for both)

-NMPword|-p - Optional. Node Manager / Admin Server password (usually the same for both)

-stageDir|-s - Optional. Staging directory with all unzipped patches (default is under /share/dbadir/PSU\_deploy/psu)

-noPrompt|-np - Optional. Do not prompt the user (not set by default)

-dryRun|-dr - Optional. Do not apply any patches but attempt to restart services (not set by default)

-debug|-d - Optional. Display additional debug output to screen (not set by default)

-help|-h - Optional. Display this usage message and exit

## Apply Script Examples

Listed below are some example usages of the apply script.

apply\_PSU\_12c\_WLS\_OHS.sh -component=WLS -version=12.1.3.0 -PSU=180717 -noPrompt -dryRun

apply\_PSU\_12c\_WLS\_OHS.sh -c=OHS -v=12.1.3.0 -psu=180717 -d -np -s=/u01/oracle/software/OHS\_12.1.3.0\_180717

## Apply Script Parameters

The apply script command line parameters are each explained in more detail below. They may be specified in any order.

### hostList

* A mandatory parameter whose value refers to a locally accessible file
* Lists all hosts to apply patches in sequential order
* Each entry is on a single line
* This parameter can be replaced with “-hl”

### component

* A mandatory parameter whose value may be either WLS for WebLogic Server or OHS for HTTP Server
* This parameter can be replaced with “-c”

### version

* A mandatory parameter whose value may only be 12.1.3.0
* This parameter can be replaced with “-v”

### PSU

* A mandatory parameter whose value may only be 180717

### NMUname

* An optional parameter whose value sets what user to attempt to connect to the Node Manager as
* This is also used as the username when connecting to a WLS Admin Server
* The AS\_UNAME variable can be set to specify a different username for WLS Admin Server connect attempts
* If not set a default username of “weblogic” is used for all Node Manager and Admin Server connect attempts
* This parameter can be replaced with “-u”

### NMPword

* An optional parameter whose value sets what password to use when connecting to the Node Manager
* This is also used as the password when connecting to a WLS Admin Server
* The AS\_PWORD variable can be set to specify a different password for WLS Admin Server connect attempts
* If not set a default password of “weblog1c” is used for Node Manager and Admin Server connect attempts
* If it is set a default password of “weblog1c” is used for Node Manager second connect attempt
* This parameter can be replaced with “-p”

### noPrompt

* An optional parameter with no value required
* If this is set then the user is not ever prompted and the script attempts to complete in full
* This parameter can be replaced with “-np”

### dryRun

* An optional parameter with no value required
* If this is set then no patches are applied but all running services on the remote host are restarted
* This parameter can be replaced with “-dr”

### testRun

* An optional parameter with no value required
* If this is set then no patches are applied and no services on the remote host are restarted
* This parameter can be replaced with “-tr”

### debug

* An optional parameter with no value required
* If this is set then additional information is displayed on screen and in log files
* This parameter can be replaced with “-d”

### help

* An optional parameter with no value required
* If this is set then just the usage message is displayed and all other parameters are ignored
* This parameter can be replaced with “-h”