

Overcoming OPatch Issues

It is every DBA's nightmare to be given the task of patching an Oracle environment during a tight scheduled downtime window, to be rewarded with problems, resulting in failure. Maybe even having to resort to an Oracle Home backup with no new patches applied. The following paragraphs aim to explain and provide solutions to some of the "gotchas" I have experienced when patching Oracle 11.1.0.7.

The Patch Set Update

Installing Interim Patches

Patch Set Updates (PSUs) are proactive cumulative patches containing recommended bug fixes that are released on a regular and predictable schedule. PSUs include recommended Patch Bundles and Critical Patch Updates (CPUs). The 5th digit in the Oracle version is incremented for each PSU released against the patch set version.

When installing interim patches on top of 11.1.0.7.1 PSU, it is possible to encounter an OPatch error code 73 as seen in the example below.

```
[oracle@g###01a patches]$ unzip p7006588_111071_Linux-x86-64.zip
Archive:  p7006588_111071_Linux-x86-64.zip
  creating: 7006588/
  creating: 7006588/files/
  creating: 7006588/files/lib/
  creating: 7006588/files/lib/libserver11.a/
  inflating: 7006588/files/lib/libserver11.a/kfn.o
  inflating: 7006588/files/lib/libserver11.a/kfnc.o
  inflating: 7006588/files/lib/libserver11.a/ksmp.o
  inflating: 7006588/files/lib/libserver11.a/kspt.o
  creating: 7006588/etc/
  creating: 7006588/etc/config/
  inflating: 7006588/etc/config/inventory.xml
  inflating: 7006588/etc/config/actions.xml
  creating: 7006588/etc/xml/
  inflating: 7006588/etc/xml/GenericActions.xml
  inflating: 7006588/etc/xml/ShiphomeDirectoryStructure.xml
  inflating: 7006588/README.txt
[oracle@g###01a patches]$ cd 7006588/
[oracle@g###01a 7006588]$ opatch apply
Invoking OPatch 11.1.0.6.2
Oracle Interim Patch Installer version 11.1.0.6.2
Copyright  2007, Oracle Corporation.  All rights reserved.
Central Inventory  : /u01/app/oraInventory
   from            : /etc/oraInst.loc
OPatch version    : 11.1.0.6.2
OUI version       : 11.1.0.7.0
OUI location      : /u01/app/oracle/product/11.1.0/asm/oui
Log file location :
/u01/app/oracle/product/11.1.0/asm/cfgtoollogs/opatch/opatch2009-12-
08_15-07-33PM.log
ApplySession failed: Patch ID is null.
```

System intact, OPatch will not attempt to restore the system
OPatch failed with error code 73

Solution

Upgrade OPatch to 11.1.0.6.8 or higher will resolve the issue.

Oracle recommends that all customers be on the latest version of OPatch. Oracle Doc ID: 224346.1 provides the instructions to update OPatch to the latest version.

Installing CRS Patch Bundle #1

The CRS Bundle Patch has been renamed as CRS PSU. CRS PSU and RDBMS PSU are two separate patches.

For 11.1.0.7, the CRS PSU is patch 8287931 and the RDBMS PSU is patch 8833297.

Despite what the README.txt file says in patch 8287931, using opatch napply to install and invoking [pre/post]rootpatch.sh may result in numerous errors, even causing corruption to your CRS Oracle Home.

The Opatch Auto option

As stated in Oracle Documentation (Oracle® Universal Installer and OPatch User's Guide), "The opatch auto command automates all of these tasks for patching the CRS home and all other applicable RDBMS homes". The auto option has been available since Oracle 10gR2. Although a great utility, the auto option is not without problems.

The syntax for opatch auto is:

```
<CRSHome>/Opatch/opatch auto <patch_directory>
```

Opatch Auto Fails verifying resources

ERROR verify failure: exit code 34560 for patch_crs

Solution

Opatch is bundled with Oracle Configuration Manager. The OCM path must include an actual ocm.rsp response file and not just path.

E.g.

```
<CRSHome>/Opatch/ocm/bin/ocm.rsp
```

instead of:

<CRSHome>/OPatch/ocm/bin

To generate a OCM response file, execute the following commands as root user

```
cd <CRSHome>/OPatch/ocm/bin
<CRSHome>/OPatch/ocm/bin/emocmrsp
```

ERROR verify failure: exit code 32512 for cat

```
[root@d###01a PSUpatches]$ <CRSHome>/OPatch/patch auto
/u02/PSUpatches/8287931
```

```
auto_patch.pl: log file is /u02/PSUpatches/patchauto_2010-05-
27_15:12:45.log
Discovering environment to patch
```

```
Checking if Clusterware is up
```

```
Looking for configured cluster nodes
```

```
. .
```

```
Oracle version for Oracle Home /u01/app/oracle/product/11.1.0/asm/ is
11.1.0.7.0
```

```
The patch is applicable for this Oracle Home
```

```
/u01/app/oracle/product/11.1.0/asm/
verify failure: exit code 32512 for cat
```

```
Action failed, do you want to retry it? (y/n/abort/N/N1-N2/help):
```

```
n
ignored at user request, continuing
```

Solution

This error can be ignored as confirmed in Doc ID: 844983.1

ERROR verify failure: exit code 18688 for patch_crs

You cannot continue from this error, Opatch will exit. To discover why I had hit this particular error I ran the following command manually from the opatch auto screen output:

```
Executing /u01/app/oracle/product/11.1.0/crs/OPatch/patch napply -
local -silent -ocmrf
/u01/app/oracle/product/11.1.0/crs/OPatch/ocm/bin/ocm.rsp -oh
/u01/app/oracle/product/11.1.0/crs -id 8287931 as oracle on d****01a
```

```
verify failure: exit code 18688 for patch_crs
```

```
Action failed, do you want to retry it? (y/n/abort/N/N1-N2/help):
```

Re-executing command manually as oracle user:

```
[oracle@D****01A 111070]$
/u01/app/oracle/product/11.1.0/crs/OPatch/opatch napply -local -
silent -ocmrf
/u01/app/oracle/product/11.1.0/crs/OPatch/ocm/bin/ocm.rsp -oh
/u01/app/oracle/product/11.1.0/crs -id 8287931
Invoking OPatch 11.1.0.6.9

Oracle Interim Patch Installer version 11.1.0.6.9
Copyright (c) 2009, Oracle Corporation. All rights reserved.

UTIL session

Oracle Home      : /u01/app/oracle/product/11.1.0/crs
Central Inventory : /u01/app/oraInventory
  from            : /etc/oraInst.loc
OPatch version   : 11.1.0.6.9
OUI version      : 11.1.0.7.0
OUI location     : /u01/app/oracle/product/11.1.0/crs/oui
Log file location :
/u01/app/oracle/product/11.1.0/crs/cfgtoollogs/opatch/opatch2010-05-
27_15-16-23PM.log

Patch history file:
/u01/app/oracle/product/11.1.0/crs/cfgtoollogs/opatch/opatch_history.
txt

Invoking utility "napply"
Checking conflict among patches...
Checking if Oracle Home has components required by patches...
Checking conflicts against Oracle Home...
OPatch continues with these patches: 8287931

Do you want to proceed? [y|n]
Y (auto-answered by -silent)
User Responded with: Y

Running prerequisite checks...
Prerequisite check "CheckApplicable" failed.
The details are:

Patch 8287931:
Copy Action: Destination File
"/u01/app/oracle/product/11.1.0/crs/install/onsconfig" is not
writeable.
'oracle.crs, 11.1.0.7.0': Cannot copy file from 'onsconfig' to
'/u01/app/oracle/product/11.1.0/crs/install/onsconfig'

UtilSession failed: Prerequisite check "CheckApplicable" failed.

OPatch failed with error code 73
```

Solution

From the above output we see that file:

`/u01/app/oracle/product/11.1.0/crs/install/onsconfig` is not writeable.

To fix the permission problem, execute the following command as root user:

```
chmod 754 /u01/app/oracle/product/11.1.0/crs/install/onsconfig
```

Then startup CRS stack and re-execute opatch auto.

ERROR verify failure: exit code 65280 for cat

You cannot continue from this error, Opatch will fail and exit. This error relates to a problem with ssh between the nodes.

The Opatch log file shows the error which occurs after the perl script auto_patch.pl invokes the "cat" command:

```
Wed Jun 9 08:50:17 2010: Oracle version for Oracle Home
/u01/app/oracle/product/11.1.0/asm is 11.1.0.7.0
Wed Jun 9 08:53:39 2010: remote: invoked with -v cat oracle
d****01a n /bin/cat /u01/app/oracle/product/11.1.0/crs/a.txt
Wed Jun 9 08:53:39 2010: run: invoked with -v cat oracle n
/usr/bin/ssh d****01a
/u01/app/oracle/product/11.1.0/crs/OPatch/crs/auto_patch.pl -x -v 0 -
oh /u01/app/oracle/product/11.1.0/crs -och
/u01/app/oracle/product/11.1.0/crs -patchn 8287931 -patchdir
/patchdir /bin/cat /u01/app/oracle/product/11.1.0/crs/a.txt
Wed Jun 9 08:53:39 2010: run: exit code 65280 after /usr/bin/ssh
d****01a /u01/app/oracle/product/11.1.0/crs/OPatch/crs/auto_patch.pl
-x -v 0 -oh /u01/app/oracle/product/11.1.0/crs -och
/u01/app/oracle/product/11.1.0/crs -patchn 8287931 -patchdir
/patchdir /bin/cat /u01/app/oracle/product/11.1.0/crs/a.txt
Wed Jun 9 08:53:39 2010: verify: invoke with cat
/patchdir/patchauto_2010-06-09_08:39:42.2.tmp 65280
Wed Jun 9 08:53:39 2010: osimulate is
```

Wed Jun 9 08:53:39 2010: verify failure: exit code 65280 for cat

```
Wed Jun 9 08:53:39 2010: Action failed, do you want to retry it?
(y/n/abort/N/N1-N2/help):
```

Interestingly the tmp file provides the real error:

```
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@      WARNING: POSSIBLE DNS SPOOFING DETECTED!      @
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
The RSA host key for d****01a has changed,
and the key for the according IP address 196.6.204.10
is unknown. This could either mean that
DNS SPOOFING is happening or the IP address for the host
and its host key have changed at the same time.
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@      WARNING: REMOTE HOST IDENTIFICATION HAS CHANGED!      @
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
IT IS POSSIBLE THAT SOMEONE IS DOING SOMETHING NASTY!
Someone could be eavesdropping on you right now (man-in-the-middle
attack)!
It is also possible that the RSA host key has just been changed.
The fingerprint for the RSA key sent by the remote host is
50:94:28:e6:b1:18:7b:ac:d2:ee:d0:33:4c:b8:6c:1f.
Please contact your system administrator.
```

```
Add correct host key in /home/oracle/.ssh/known_hosts to get rid of
this message.
Offending key in /home/oracle/.ssh/known_hosts:4
RSA host key for ****01a has changed and you have requested strict
checking.
Host key verification failed.
```

Solution

From the above output we see there is an issue with RSA key fingerprint #4 causing problems with ssh to remote node. The solution is:

1. Edit the /home/oracle/.ssh/known_hosts file and remove the offending record.
2. Perform user equivalence check for the oracle user

```
su - oracle
ssh <node1> date
ssh <node2> date
```
3. The first time you execute the above commands the OS will prompt for a password. Once the correct password is entered, the RSA host key will be reset.
4. Perform user equivalence check again to verify
5. startup CRS stack and re-execute opatch auto