

Upgrading from 1.2.x of Linuxha.net to 1.4.x.

Before you start

It is important to ensure that both nodes have consistent data! Please check using “clstat” that all data is in “sync” format – and do not continue to upgrade the cluster until that is true for all applications and file systems. To ensure this is the case use the “clstat” command with all applications running to check the file systems are in “Sync” status.

```
# clstat
Cluster: centos5 - UP

      Node      Status
centos5s1      UP
centos5s2      UP

Application    Node      State  Started  Monitor  Stale  Fail-over?
  apache centos5s1  STARTED  0:00:00  Running    0      Yes
  mysql  centos5s1  STARTED  0:00:00  Running    0      Yes
```

Shut down the Cluster

The upgrade from 1.2.x to 1.4.x requires a new DRBD module and so firstly you need to shut-down the cluster:

```
# clhalt -F
```

Back up Existing data

The next step is important – back up all your application data – just in case there is a problem. Obviously the commands here will depend on the file systems you cluster and the device

```
# tar cvjf /backup-diskrack/clusterdata-20071209.tar.bz2 /mysql/data /apache
```

Install New Software Version

Now install the software – again the steps depend on the package type, though for an RPM-based environment the following command should be used – **on both nodes**.

```
# rpm -e linuxha12
# rpm -Uvh linuxha14-1.4.0-1.noarch.rpm
```

Check the installation log in the “root” home directory;

```
# cat ~/postinstall-linuxha14-1.4.0.stdout
```

At bottom of the output should appear similar to the below – any errors should be investigated:

```
#####
Installation of DRBD was successful
#####

Installation Summary

DRBD Kernel module      : OK
Machine reset (dusp)    : OK
MII fallback binary     : OK
Send ARP fallback binary: OK
```

Once this has been done on both nodes move on to the next section.

Following Software Update

Whilst the cluster is still down use the “clstat” command – all applications should indicate that a rebuild is required, for example:

```
Cluster: centos5 - DOWN

  Node      Status
centos5s1   DOWN
centos5s2   DOWN

Application Node   State Started Monitor Stale Fail-over?
mysql        N/A   DOWN   N/A     N/A     N/A     N/A     [Rebuild]
apache       N/A   DOWN   N/A     N/A     N/A     N/A     [Rebuild]
```

The first thing to do following the installation is to upgrade all your applications – this can be done automatically using the “clbuildapp” commands. **Please note that if you have not ensured the previous file systems are synchronised, the the command will likely fail with:**

```
ERROR 23/11/2007 01:27:14 Meta data version v7 found for both nodes, but not consistent!
ERROR 23/11/2007 01:27:14 If you wish to force the local copy to be consistent [and
ERROR 23/11/2007 01:27:14 overwrite the remote copy] please re-run with the --forcesync
ERROR 23/11/2007 01:27:14 flag.
```

This can be overcome using the –forcesync command – run it from the node with the data which you wish to keep!

So repeat the “clbuildapp” command for each application in the cluster, in this case for example the commands entered would be:

```
# clbuildapp -A mysql
# clbuildapp -A apache
```

Once this step is complete the "clstat" command should indicate to rebuilds are necessary:

```
# clstat
Cluster: centos5 - DOWN

      Node      Status
centos5s1     DOWN
centos5s2     DOWN

Application   Node      State  Started  Monitor  Stale  Fail-over?
mysql         N/A      DOWN   N/A      N/A      N/A    N/A
apache        N/A      DOWN   N/A      N/A      N/A    N/A
```

Start the cluster

Now the cluster can be started – though the application should remain down:

```
# clform --noapps
INFO 08/12/2007 23:46:55 Validated checksum for cluster configuration
INFO 08/12/2007 23:46:55 SSH communication to centos5s2 will be:
INFO 08/12/2007 23:46:55 192.168.1.205 ("a" network)
INFO 08/12/2007 23:46:55 Checking that the cluster is not already running...
INFO 08/12/2007 23:46:55 *** ATTEMPTING TO FORM CLUSTER centos5 ***
INFO 08/12/2007 23:46:56 Starting cldaemon on centos5s1...
INFO 08/12/2007 23:46:57 Starting cldaemon on centos5s2...
INFO 08/12/2007 23:46:57 Waiting for cluster to form...
INFO 08/12/2007 23:47:04 Cluster centos5 started successfully.
```

Note: The "--noapps" option ensures that even if applications have been configured to automatically start on cluster formation they will not be started.

Start the Applications

Now each of the applications should be started, and the output of each carefully viewed:

```
# clstartapp -A apache -V
INFO 08/12/2007 23:49:00 Validated checksum for cluster configuration
INFO 08/12/2007 23:49:00 TIMESTAMP: 2007.12.08 23:49:00
INFO 08/12/2007 23:49:00 Checked that node names resolve to IP addresses
INFO 08/12/2007 23:49:00 Validated Build run has completed against this configuration.
INFO 08/12/2007 23:49:00 Maximum start-up time for application: 20
INFO 08/12/2007 23:49:00 Loading DRBD kernel module locally.
INFO 08/12/2007 23:49:01 Validated metadata compatibility in /dev/apachevg/lv01_meta.
INFO 08/12/2007 23:49:02 Loading DRBD kernel module on remote host.
INFO 08/12/2007 23:49:03 Attempting to register application apache as starting...
INFO 08/12/2007 23:49:03 Application registered successfully as starting.
INFO 08/12/2007 23:49:05 Local DRBD devices started successfully.
INFO 08/12/2007 23:49:05 Ssh communication to centos5s2 via 192.168.1.205.
INFO 08/12/2007 23:49:05 DRBD: Skipping ENBD decisioning and relying on meta data...
INFO 08/12/2007 23:49:05 Attempting to start DRBD services on centos5s2.
INFO 08/12/2007 23:49:09 DRBD devices started successfully on centos5s2.
INFO 08/12/2007 23:49:09 Validated consistency of available data for DRBD.
INFO 08/12/2007 23:49:09 Both data copies believed good.
INFO 08/12/2007 23:49:09 Locking will be attempted via port 9903
INFO 08/12/2007 23:49:09 Successfully connected to lock server.
INFO 08/12/2007 23:49:09 Checking for existing primary application IP addresses...
INFO 08/12/2007 23:49:11 No application primary IP addresses found.
INFO 08/12/2007 23:49:11 Attempt to get lock for NBD_CLIENT
INFO 08/12/2007 23:49:11 Attempting to make local DRBD devices primary...
INFO 08/12/2007 23:49:12 Attempt to release lock for NBD_CLIENT
INFO 08/12/2007 23:49:12 All local DRBD now primary.
INFO 08/12/2007 23:49:13 Running "/sbin/fsck -t ext3 -a /dev/drbd0"...
INFO 08/12/2007 23:49:13 Running "PATH=$PATH:/sbin:/bin:/usr/sbin; mount -t ext3 -o
rw /dev/drbd0 /apache"...
```

```
INFO 08/12/2007 23:49:13 File systems mounted on DRBD devices.
INFO 08/12/2007 23:49:13 Attempt to get lock for NET
INFO 08/12/2007 23:49:13 Configuring 192.168.1.37: ifconfig eth0:1 inet 192.168.1.37
INFO 08/12/2007 23:49:13 Sending Builtin Gratuitous arp for eth0:1
INFO 08/12/2007 23:49:13 Attempt to release lock for NET
INFO 08/12/2007 23:49:13 Applications start completed successfully
Application apache started successfully
```

The above shows the application started as expected – the **bold** text showing that the meta data was valid for the newer version of DRBD.

Once all applications have been started ensure all DRBD is synchronised:

```
# clstat
Cluster: centos5 - UP

      Node      Status
centos5s1      UP
centos5s2      UP

Application    Node      State  Started  Monitor  Stale  Fail-over?
  apache      centos5s1  STARTED  0:00:02  Running    0      Yes
  mysql      centos5s1  STARTED  0:00:00  Running    0      Yes
```

Of course if the `-forcesync` option was used some data may automatically be synchronising at this time.