

Novell Cluster Services: Tips, Tricks and Issues Lab

OES06

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SECTION 1 Novell Cluster Services Tips Tricks and Issues Exercises

In these exercises you will step through a number of tasks needed to keep and maintain a healthy cluster environment.

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Exercise 1-1 Recreate the SBD Partition

Recreating the SBD is needed if you have a drive failure and the SBD disk needs to be replaced. This is also used if the SBD partition ever gets completely corrupted and the `sbdutil -i` can not fix it.

1. Take the cluster off line
 - a. From node1 open a terminal session by right clicking on the desktop and selecting open in terminal
 - b. Enter the command **cluster down**
 - c. When asked to confirm the shut down of the cluster enter **yes**
2. Delete the current SBD partition
 - a. At the command prompt enter **nssmu**
 - b. Select **Devices**
 - c. highlight the **sdb** device
 - d. Press **F3** to init the device
 - e. When asked to confirm the Initialization of the device enter **Y**
 - f. Choose **DOS**
 - g. At the message **cluster lock is already in use..initialize anyway** respond **Y**
 - h. Confirm that this device is still set for sharing if not press **F6** to share
 - i. Exit nssmu by pressing **ESC** until it is closed
3. Create the SBD partition
 - a. at the command prompt enter `sbdutil -c -d /dev/sdb`
4. Confirm that the SBD partition has been created
 - a. at the command prompt enter **sbdutil -f**
5. Restart the cluster
 - a. At the command prompt on node1 enter **cluster join**
 - b. On the noe2 VM open an terminal and the command prompt enter **cluster join**

(End of Exercise)

Exercise 1-2 Create a NSS Cluster Resource in NSSMU

In this exercise you will create a NSS clustered resource using nssmu, later you will create one using the command line utilities of NLVM.

1. On the master node (node1 most probably) at the command prompt enter **nssmu**
2. Select **Devices**
3. Select **sd** and press **F3 > Y**
4. Select **DOS** and press **enter**
5. Make sure it is set to be shareable the press **ESC**
6. Select **Pools**
7. Press the **insert** key
8. Enter the pool name **monitor_me** and press **enter**
9. Select **sd** and press **enter** and **enter** to select full size
10. Select **F3** to accept
11. Using the arrow key select the **IP Address** field press **enter** and enter the address 172.17.0.21 then press enter again an arrow down to apply and press **enter**
12. Press **ESC**
13. Select **Volumes** and press **enter**
14. Press **insert**
15. Enter a volume name of **monitor_me_vol** press **enter** and **N** for no encryption
16. The Select the **MONITOR_ME** pool and press **enter**
17. Press Esc till nssmu closes
18. Confirm that the resource is working by entering at the command line each of the following commands:
 - cluster resources
 - mount
 - ncpcn volumes

(End of Exercise)

Exercise 1-3 Resource Monitoring

Resource monitoring allows Novell Cluster Services to detect when an individual resource on a node has failed independently of its ability to detect node failures. Monitor scripts can be customized to watch NCP volumes, IP addresses, anything that you can put in a bash script you can put in a monitor script. This expands clustering ability to fail over from only a SBD or heartbeat failure, to anything the administrator can imagine.

1. Enable monitor script
 - a. Open Firefox and launch iMonitor by entering **172.17.0.11/nps** as the url
 - b. Login with the following:
 - Username **admin.novell**
 - Password **novell**
 - Tree **CLUSTER-TREE**
 - c. Select **Clusters > Cluster Manager**
 - d. Browse to and select **cluster.novell**
 - e. Select the **MONITOR_ME_SERVER** resource by clicking on the link
 - f. Select the **Monitoring** tab
 - g. Check the **Enable Resource Monitoring** box
 - h. Change **Maximum Local Failures** to **0**
 - i. Select **Apply**
 - j. select **OK** to the warning
 - k. Select the **Scripts** tab
 - l. Select the **Monitor Script**
 - m. Take note of the **exit_on_error ncpcn volume MONITOR_ME_VOL** line then select **OK** to close
2. Offline and Online the MONITOR_ME_SERVER resource
 - a. in iManager select **Clusters > Cluster Manager**
 - b. Check the box in front of **MONITOR_ME_SERVER** and select **Offline**
 - c. Check the box in front of **MONITOR_ME_SERVER** and select **Online** then **OK**
3. Test the monitor Script
 - a. at the command prompt in a terminal window enter the following:
tail -f /var/opt/novell/log/ncs/MONITOR_ME_SERVER.monitor.out
 - b. Open another terminal session on node1
 - c. At that command prompt enter **ncpcn dismount MONITOR_ME_VOL**

this will cause the "exit_on_error ncpcon volume MONITOR_ME_VOL" command in the monitor script to fail

- d. After the monitor script fails at the command prompt type **cluster status** and see that the resource went comatose
- e. From the command line enter less **/var/log/messages**
- f. Enter **G** to go to the end of the files the scroll back to learn what messages were put into this file as a results of the failure.

(End of Exercise)

Exercise 1-4 Create a clustered Resources in iManager

In this set of exercises you will use iManager to create a cluster resource

1. Launch iManager and logging using the following:
 - Username: **admin.novell**
 - Password: **novell**
 - Tree: **cluster-tree**
2. Initialize the device **sdd**
 - a. Select **Storage>Devices**
 - b. Browse to and select there server **node1.novell**
 - c. Select **sdd** then **Initialize** then **OK** to continue
 - d. Ensure the box **Shareable for clustering** is marked. Then select Apply
3. Create the pool **IMANAGERPOOL** and cluster enable it with the address **172.17.0.22**
 - a. Select **Storage>Pools**
 - b. Select **New**
 - c. Enter a name of **IMANAGERPOOL** then **Next**
 - d. Check the box for **sdd** and enter the full size of the pool and check the box for **Cluster Enable on Creation** the select **Next**
 - e. In the IP Address fields enter **172.17.0.22** then select finish
4. Create the volume **IMANAGER VOL**
 - a. In iManager select **Storage>Volumes**
 - b. Select **New**
 - c. In the Name field enter **IMANAGERVOL** then select **Next**
 - d. Check the box next to **IMANAGERPOOL** and select **Next**
 - e. Accept the defaults and select **Finish**
5. Check to see if it is clustered
 - a. In iManager select **Clusters>Cluster Manager**
 - b. Browes to and select **cluster.novell**
 - c. Look for the **IMANAGERPOOL**

(End of Exercise)

Exercise 1-5 Comatose Server Duplicate IP Address

When a resource goes comatose it is best to find out why before bringing the resource back on line. Just bringing a comatose server back on can cause cascade failures and put the entire cluster at risk.

In this exercise you will trouble shoot a duplicate IP address issue.

1. Online COMATOSE1_SERVER
 - a. In a terminal window on node1 at the prompt enter the following:
cluster online comatose1_server node1
2. Online COMATOSE2_SERVER
 - a. In a terminal window on node1 at the prompt enter the following:
cluster online comatose2_server node1
3. Confirm that COMATOSE2_SERVER went comatose
 - a. In a terminal window on node1 at the prompt enter the following:
cluster status
4. Investigate why the resource went comatose
 - a. at the terminal prompt on node one enter the following:
vi /var/opt/novell/log/ncs/COMATOSE2_SERVER.load.out
Go to the bottom by entering **G** as part of the onlining process the node tries to ping the proposed IP address of the resource if it gets a response then it recognizes this as a problem and the resource goes comatose.
5. Fix COMATOSE2_SERVER so it will not go comatose again
 - a. If needed open iManger and login
 - Username: **admin.novell**
 - Password: **novell**
 - Tree: **cluster-tree**
 - b. Select **Clusters > Cluster Manager**
 - c. If needed browse to and select **cluster.novell**
 - d. Select the Hyper link that is **COMATOSE2_SERVER**
 - e. Select the **Scripts** tab
 - f. Edit the line: **exit_on_error add_secondary_ipaddress 172.17.0.24** to **exit_on_error add_secondary_ipaddress 172.17.0.25**
 - g. Select **OK** the **OK** to the BCC warning
6. Offline and then Online the resource
 - a. From the Cluster manager check the box next to **COMATOSE2_SERVER**
 - b. Select Offline

- c. From the Cluster manager check the box next to **COMATOSE2_SERVER**
- d. Observe the resource come on line

(End of Exercise)

Exercise 1-6 Comatose Server Due to Missing Program

In this exercise you will discover what happen when you attempt to online a resource that does has a program in the load script that has not been installed on the resource.

1. Online COMATOSE3_SERVER
 - a. In a terminal session on node1 at the command line enter cluster online **COMATOSE3_SERVER node1**
 - b. Enter **cluster status** to see that the resource is comatose
2. Investigate Why the resource went comatose
 - a. In a terminal window on node1 a the command prompt enter:
vi /var/opt/novell/log/ncs/COMATOSE3_SERVER.load.out
 - b. Enter **G** to go to the bottom of the file
 - c. Notice that when is tried to start GroupWise (rcgrpwise) that is was not on the server. Find the line that reads:
++ rcgrpwise start
/opt/novell/ncs/lib/ncsfncs: line 37: rcgrpwise: command not
3. Fix by editing the load script
 - a. In iManager select **Clusters > Cluster Manager**
 - b. Browse to and select **cluster.novell**
 - c. Select the hyper link that is **COMATOSE3_SERVER**
 - d. Select the **Scripts** tab
 - e. Comment out the line that reads **exit_on_error rcgrpwise start** by placing an **#** at the start of the line
 - f. Select **OK** and **Ok** to the BCC warning
 - g. Offline and the Online the resource and confirm you fix

(End of Exercise)

Exercise 1-7 Bad Configuration Exercise

In this exercise you will see the results of an mis-configuration

1. Online COMATOSE4_SERVER
 - a. At the command line in a terminal window on node1 enter:
cluster online **COMATOSE4_SERVER node1**
 - b. As quick as you can enter **watch cluster status** to watch the as it loads and goes comatose
 - c. Once it has enter **Ctrl +c** to exit watch
2. Investigate why the resource went comatose
 - a. At a command prompt in a terminal window on node1 enter
vi /var/opt/novell/log/ncs/COMATOSE4_SERVER.load.out
It might appear that Bind failed. Upon closer examination you can see the reason (elapsed time = 690 usecs). If you look several lines above (10 or 12) you will see a command sleep 70.

This 70 seconds is longer than the time out for the online script to run, so by the time it starts running the ncpcn bind command it is already started the unload of the cluster resource.

This can be confirmed by the date stamps in the file.
3. Fix the resource so it loads
This can be done two ways the first is to increase the load time out
 - a. in iManager select **Clusters>Cluster Manager**
 - b. Browse to and select **cluster.novell**
 - c. Select the hyper link that is **COMATOSE4_SERVER**
 - d. Select the **Scripts** tab
 - e. Increase the time out to **2** minutes
 - f. Select Ok and Ok at the BCC warning
 - g. Offline and Online the resource
Or you could remark out the Sleep 70 command from the load script.

(End of Exercise)

Exercise 1-8 iManager Exercises

Now lets look at two possible problems you might find in iManager. The first is a problem with Lum, the last is a problem with the Cluster IP address

1. Ensure that Node1 is the master node
2. From the command prompt in a terminal window enter
/tmp/lab/imanager1.sh
3. Login to iManager
 - Username: **admin.da**
 - Password: **novell**
 - Tree: **cluster-tree**
4. Select **Clusters>Cluster Manager**
5. Browse to and select **cluster.novell**
6. Note the error and read the Possible solution if you have the time you might try one or two.

The solution is that nanced is not running (LUM)
7. At the command prompt on node1 enter **renamed start**

Now lets look at the IP Address issue

(End of Exercise)

Exercise 1-9 iManager exercise IP Address Issue

1. Make sure that node1 is the master node
2. At the command prompt on node1 enter /tmp/lab/imanager2.sh
3. Login to iManager
 - Username: **admin.da**
 - Password: **novell**
 - Tree: **cluster-tree**
4. Select **Clusters>Cluster Manager**
5. Browse to and select **cluster.novell**
6. Take note of the error and possible solutions.

In this case the IP Address is no longer bound. there are two fixes

- a. Rebind the IP address to the board. At the command prompt enter:
ip -f inet addr add 172.17.0.20 /24 brd + dev eth0
- b. OR have node1 leave the cluster making node 2 the master

(End of Exercise)

Exercise 1-10 Extra things to do

If time you might explore some of the following command line commands

Cluster Commands

cluster help

cluster help {command}

cluster view

cluster stats display

cluster join

cluster leave

cluster down

cluster migrate

cluster maintenance

cluster pools

SBD commands

sbduutil -f

sbduutil -c -d /dev/sdc -n name

sbduutil -i

sbduutil -v | head

man sbduutil

(End of Exercise)

