Steps to Install and Configure Arcserve r17.0 on a Microsoft Windows 2012 MSCS Cluster

To start off with, let's try to setup the basic pre-requisites of the cluster setup.

Configuring Windows 2012 MSCS Cluster

- To begin with Install **"Failover Clustering Feature"** on both Nodes participating in the cluster
- Ensure the Cluster Nodes are Joined to the Domain
- DNS is configured / Check Name Resolution

1. Typical Example

You have to see if DNS resolution is working you can see if the DNS server you are configured to query knows what it's talking about. Using the NSLOOKUP command shows this information.

```
C:\WINDOWS\>nslookup
Default Server:  example.testarchyd.com
Address:  167.206.112.3

> www.example.com
Server:  example.testarchyd.com
Address:  167.206.112.3

Non-authoritative answer:
Name:    www.example.testarchyd.com
Addresses:  216.109.118.74, 216.109.118.75, 216.109.118.77, 216.109.117.110
          216.109.117.204, 216.109.117.205, 216.109.118.69, 216.109.118.71
Aliases:  www.example.testarchyd.com
```

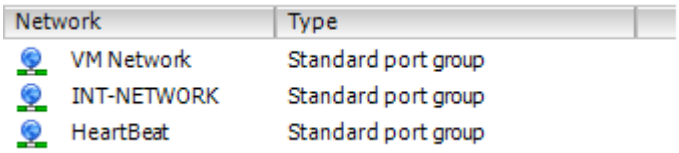
Now, it's possible to ping with the –a switch to also verify if DNS resolution is work. Pinging Example's IP address with the –a switch produces the DNS name of the system.

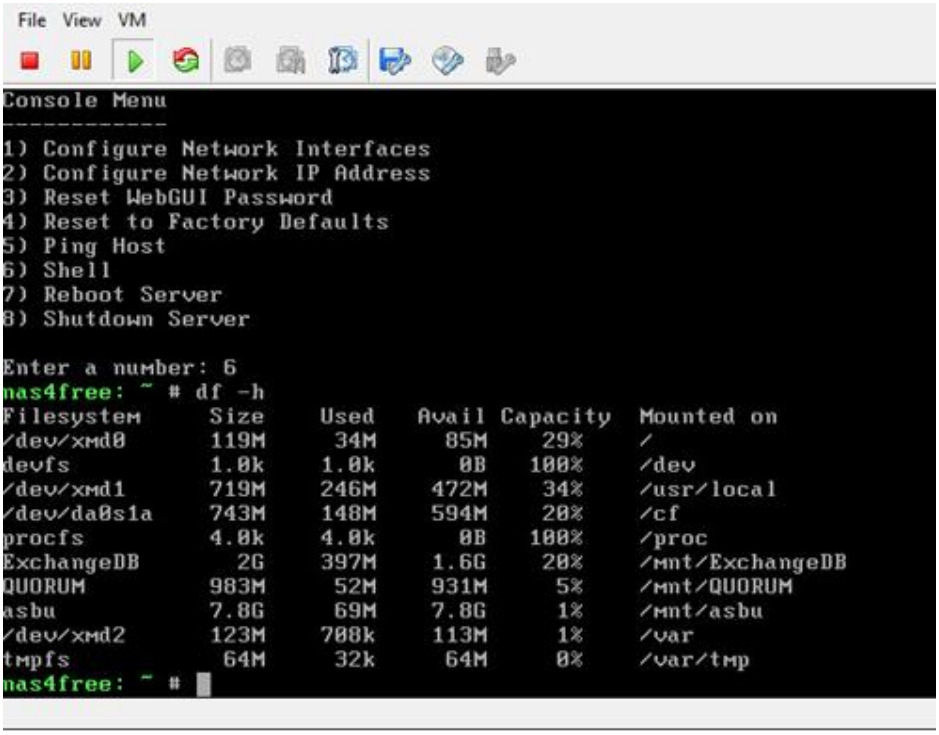
```
C:\WINDOWS\SYSTEM32>ping -a 216.109.118.74

Pinging .www.example.com [216.109.118.74] with 32 bytes of data:

Reply from 216.109.118.74: bytes=32 time=22ms TTL=51
Reply from 216.109.118.74: bytes=32 time=25ms TTL=51
Reply from 216.109.118.74: bytes=32 time=27ms TTL=51
Reply from 216.109.118.74: bytes=32 time=32ms TTL=51

Ping statistics for 216.109.118.74:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 22ms, Maximum = 32ms, Average = 26ms
```

- Firewalls Are Stopped ICMP requests are Enabled
- Ping from all the servers are successful
- Continue to configure the disks and network cards
- Add two network cards each to the virtual nodes from the ESX configuration

Initial Configuration (Network Card/Disks)

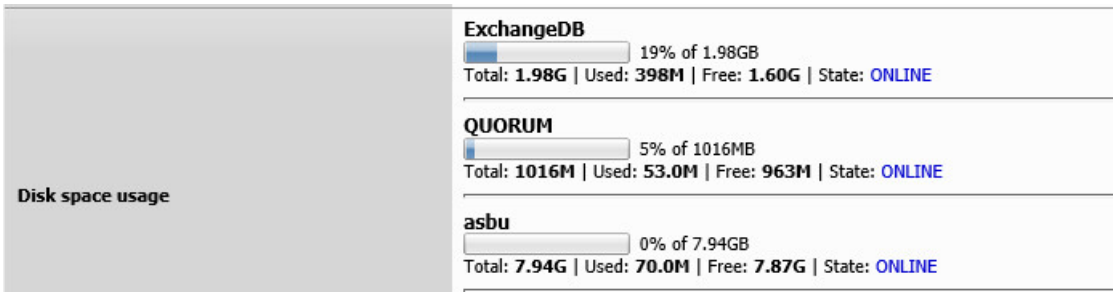
1. Configuring /Attaching Hard Disks to the NAS (to configure them through iSCSI and present them to the cluster)
2. Adding Network Cards to the two Nodes (Public /Private IP's)





This is how the Disks are displayed when NAS4free is connected via IP from a remote machine using IE

From The UI of NAS4Free we need to configure the Disks Attached, through Disk Management -> ZFS Storage Pool and configure iSCSI Initiators/Targets/Portals

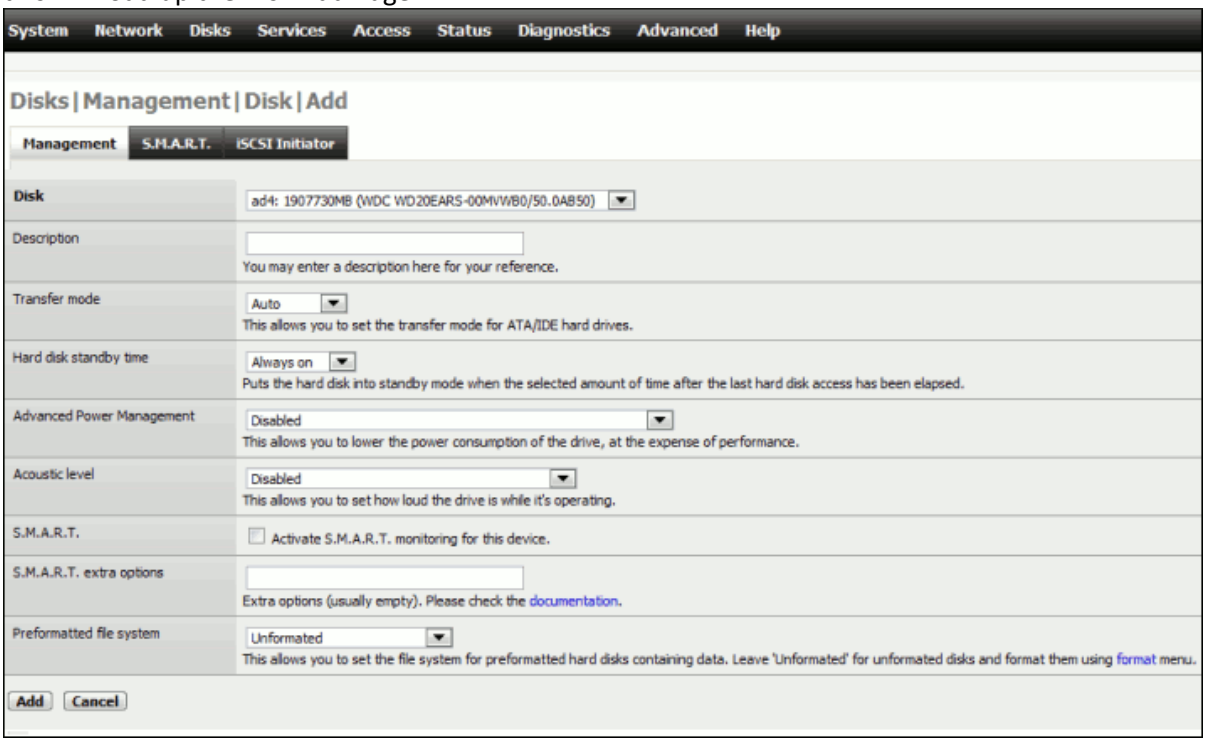


NAS4Free Guide for creating an iSCSI target from a ZFS volume

1 - Pull down the "**DISKS**" Menu from the top navigation bar and then select "**MANAGEMENT**".

2 - Click the

this will load up the Disk Add Page.



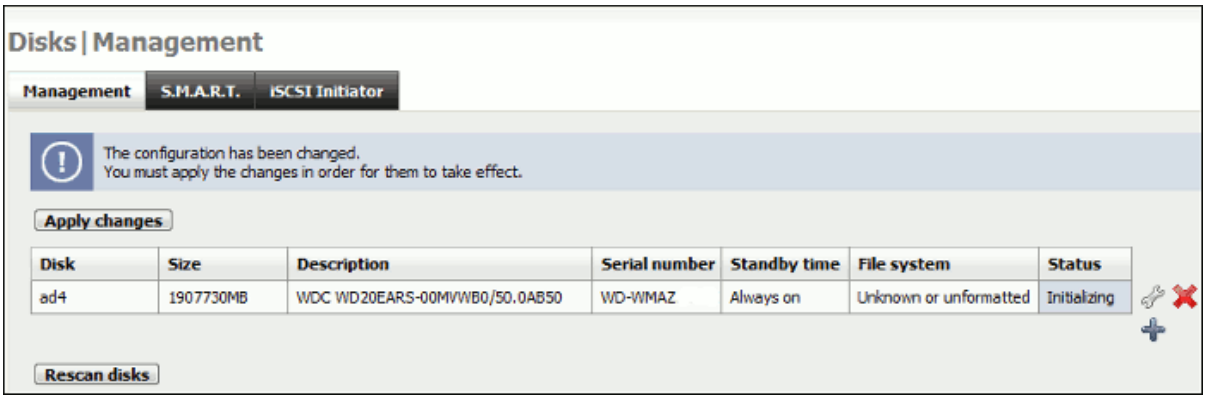
3 - Using the drop down Menu, select the drive you are adding.

4 - Give it a Description

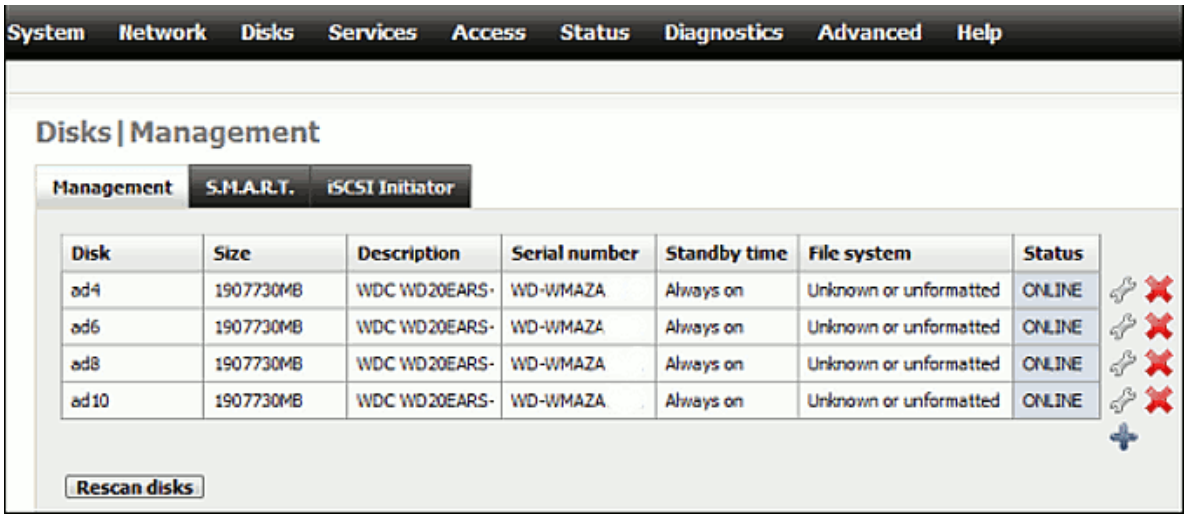
5 - I left the following settings in their default positions, but depending on your configuration you can change them.

- A - Transfer Mode at Auto.
- B - Hard Disk Standby Time to "Always on".
- C - Advanced Power Management to "Disabled".
- D - Acoustic Level.
- E - S.M.A.R.T NOT Ticked.

6 - Preformatted file System was left to Unformatted. By setting this to Unformatted we can use the format option in NAS4Free.
7 - Click the "**ADD**" Button.



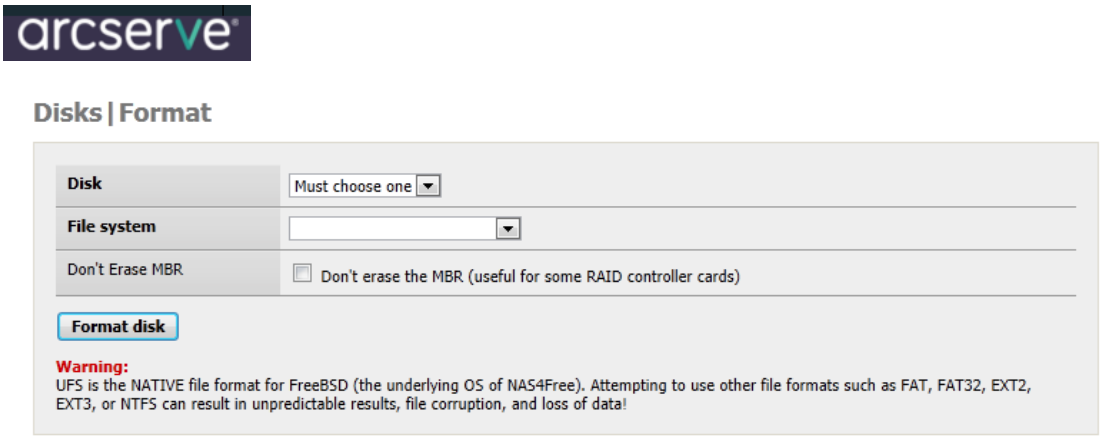
8 - Click the "**APPLY CHANGES**" Button.



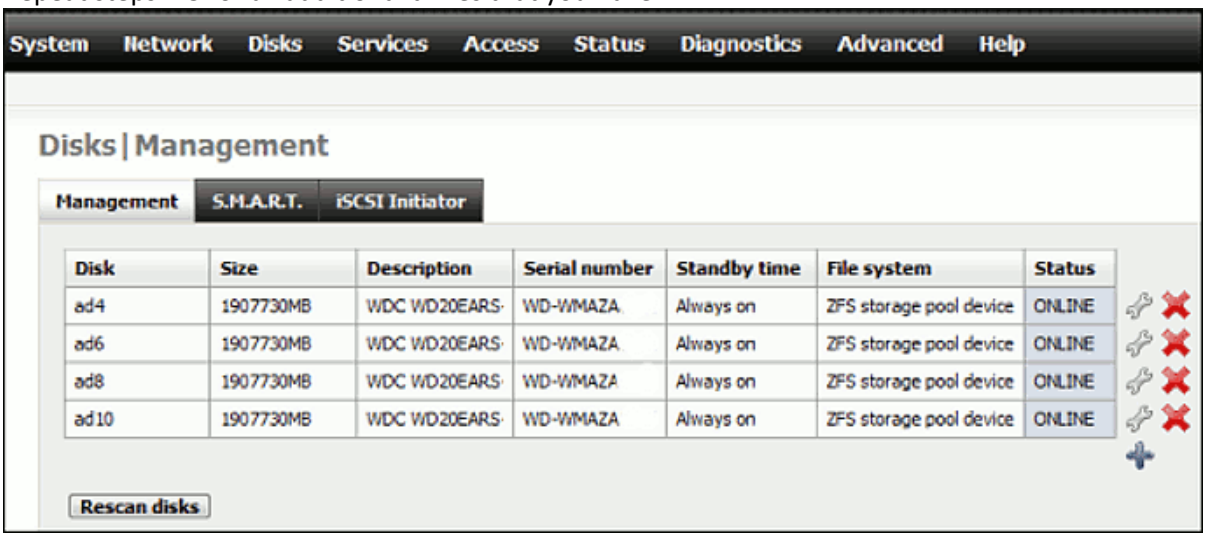
All drives should now appear in the disc Management Page. All Drives should have a "**STATUS**" of "**ONLINE**"

Formatting Drives

When all the drives are added I now format them into ZFS.
1 - Pull down the "**DISKS**" Menu on the top Navigation Bar and select "**FORMAT**".



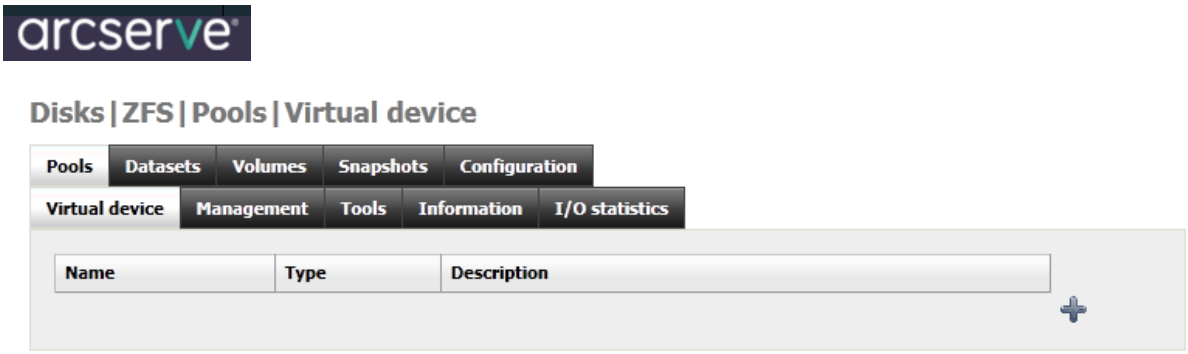
2 - Select Drive which should now appear in the dropdown.
3 - Select ZFS Storage Pool Device for the File System.
4 - I erased my MBR so left the "Don't Erase MBR" Setting UNCHECKED.
5 - Click the "**FORMAT DISK**" Button.
Repeat steps 2-5 for all additional drives that you have.



Pull down the "**DISKS**" Menu on the top Navigation Bar and then select "**MANAGEMENT**" again to check that the formatting of all drives was successful.

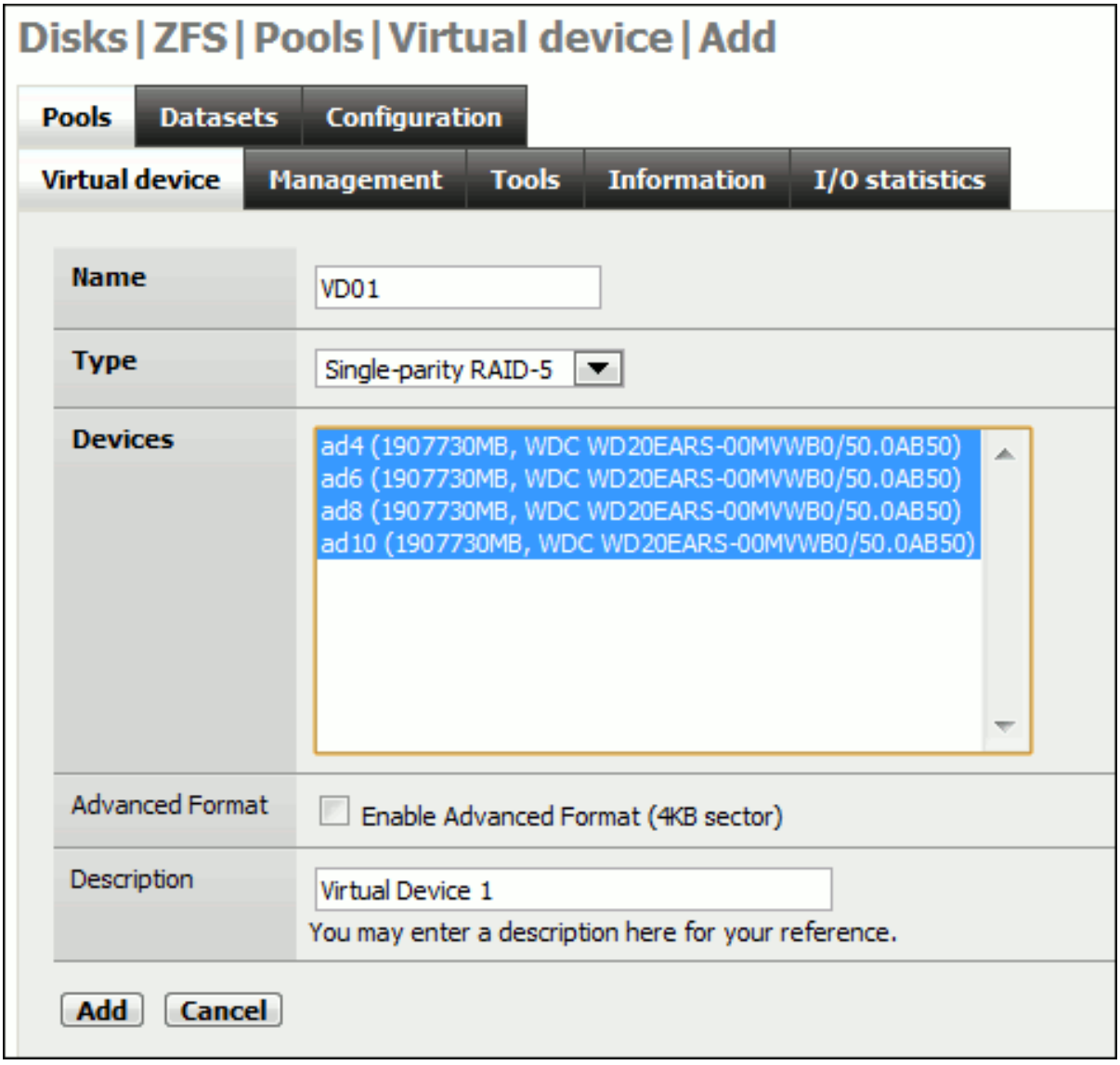
Creating a ZFS Virtual Device.

Once you have gotten NAS4Free to recognise, format and present your drives in the WebGUI, you will now proceed to create a virtual device consisting of these drives.
1 - Go to "**DISKS**" Tab at the top navigation bar and then select "**ZFS**".
2 - Click on the "**Virtual Device**" Tab.



3 - Click the

.



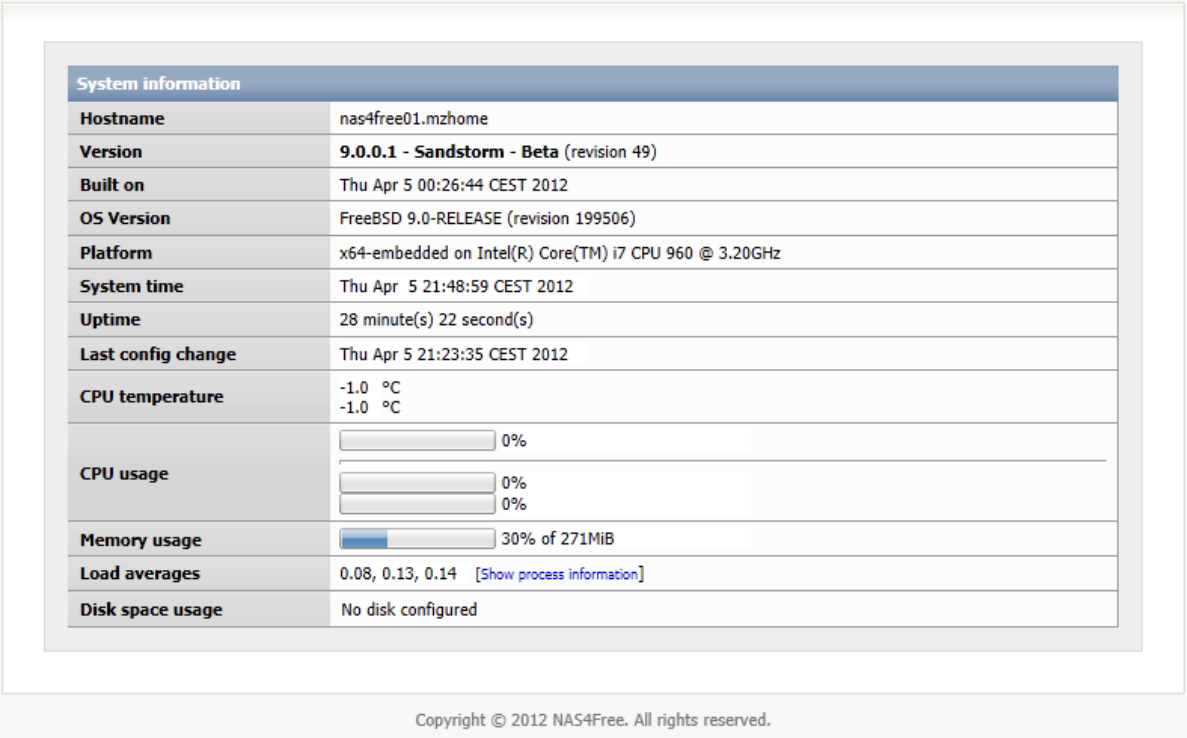
4 - Enter a Name (I called mine VD01).

5 - Select a Type (I personally selected Single Parity Raid 5 which is RAIDz1 in ZFS speak).

6 - Now select ALL the DEVICES SO THEY TURN BLUE!! OTHERWISE YOU WILL GET AN ERROR.

7 - I didn't select Advanced Format.
8 - Enter a Description.
9 - Click the "**ADD**" Button. After clicking the "**ADD**" Button you will be returned to the Virtual Device page in ZFS.

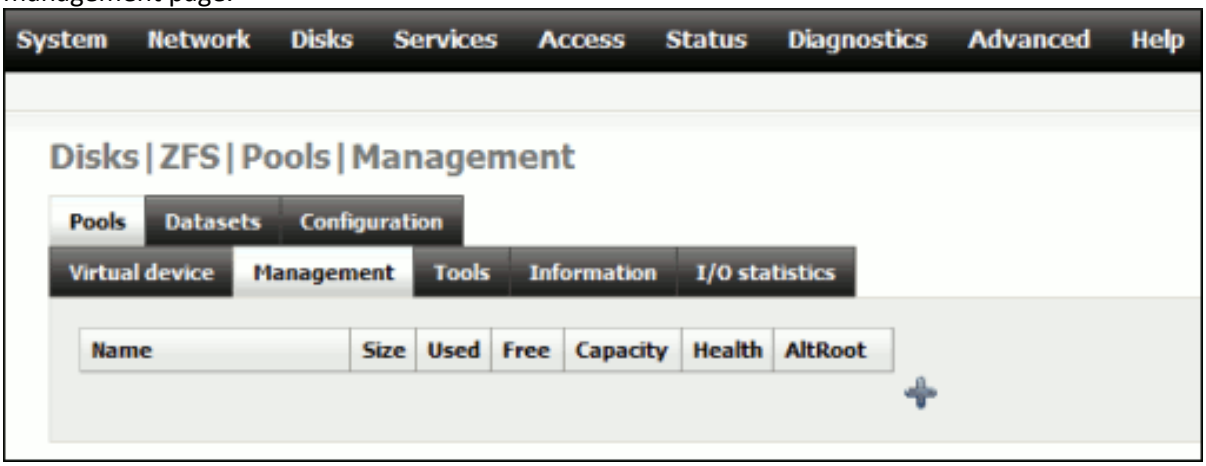
Now the drives have been added to NAS4Free they still have to be made available for NAS4Free to manage.



Pull down the "**STATUS"** Menu on the top navigation bar and select "**SYSTEM**", you will see the Disc you have been setting up are still not here "No Disc Configured".

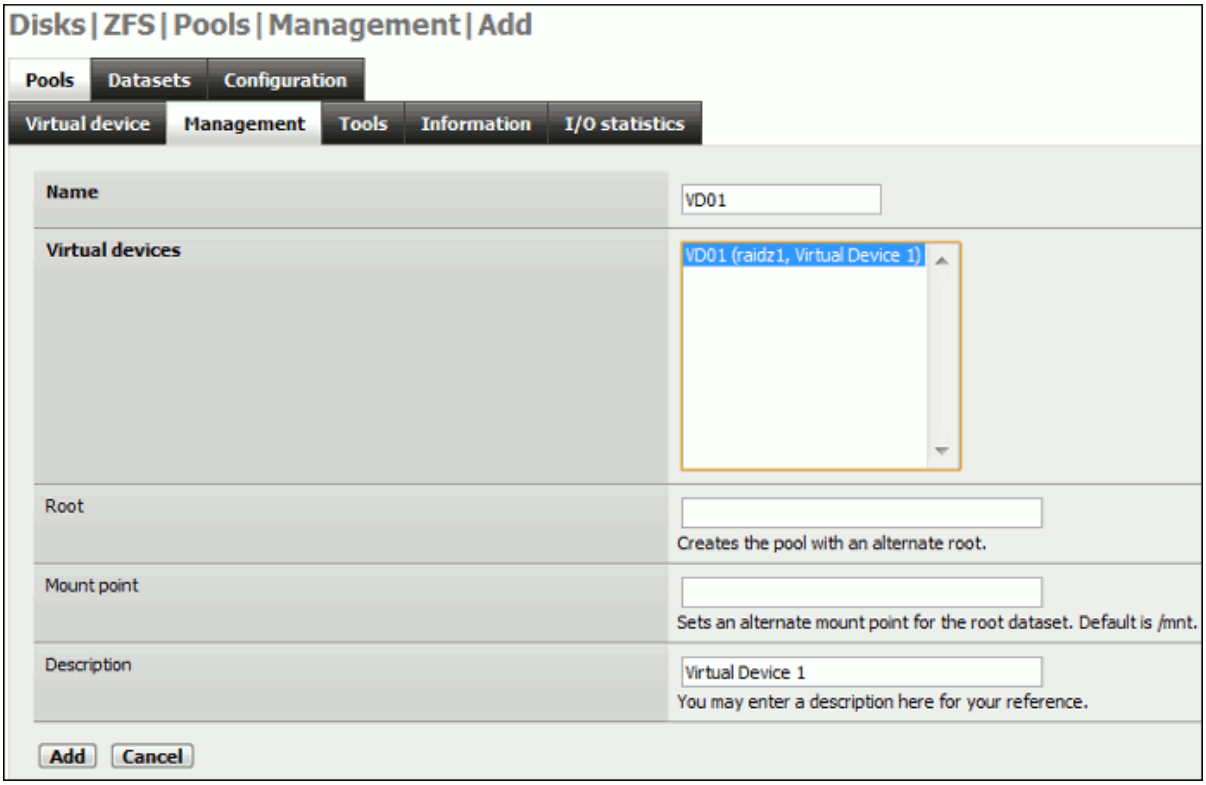
Adding device to ZFS Management page

1 - Pull down the “**DISKS**” Menu on the top Navigation Bar and select “**ZFS**”. This will load up the management page.



2 - Click the

.



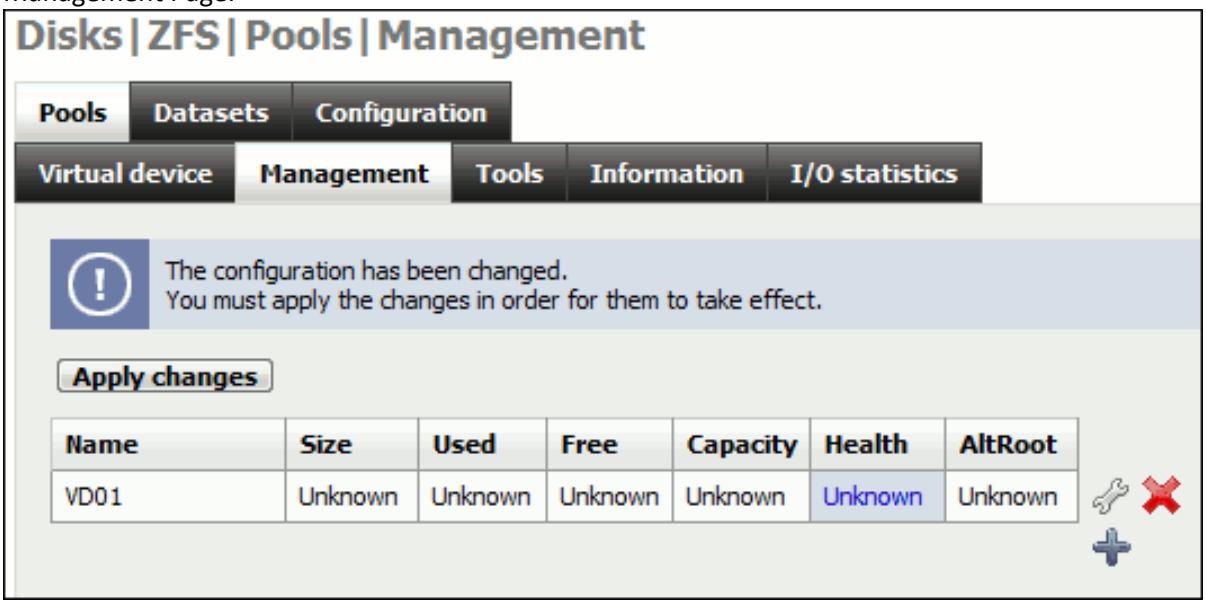
3 - Enter a Name (I gave mine the exact same name as what I gave the Virtual Device: VD01)

4 - SELECT THE VIRTUAL DEVICE SO IT IS TURNED BLUE!!! AGAIN THIS HAS TO BE SELECTED.

5 - I kept these options as default:

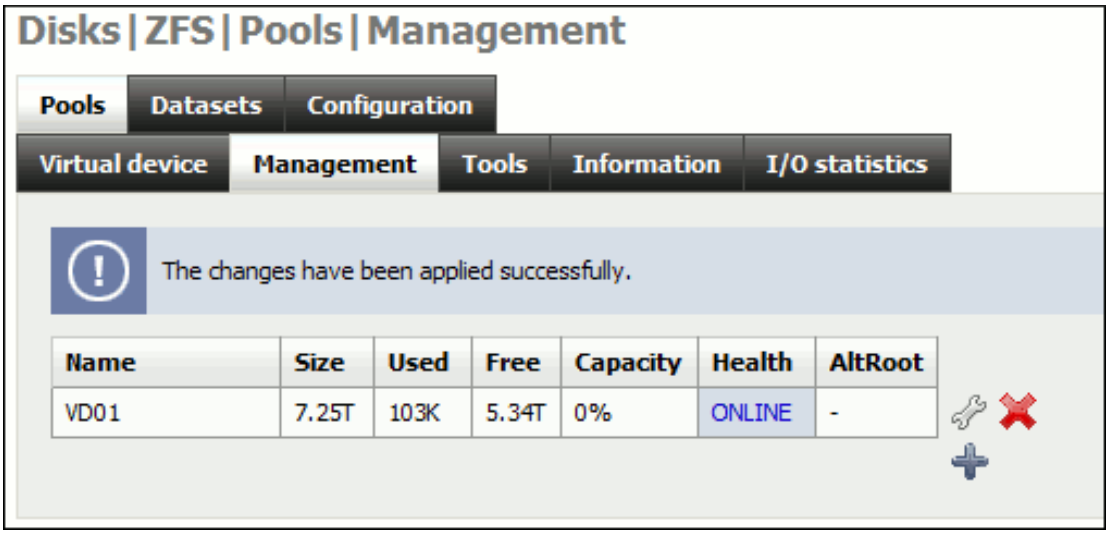
- A - Root.
- B - Mount Point.

6 - I entered a name for the Description. Click the "**ADD**" Button. You will then be returned to the Management Page.

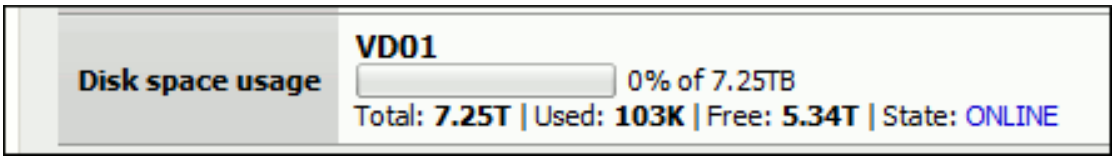


Everything is listed as UNKNOWN. DO NOT WORRY. YOU MUST APPLY THE CHANGES!

7 - Click the "**APPLY CHANGES**" Button!



8 - Now all the values should have changed and the virtual device is now online. Just to make sure, Pull down the "**STATUS"** Menu on the top navigation bar and select "**SYSTEM**", you should now see the Disc.

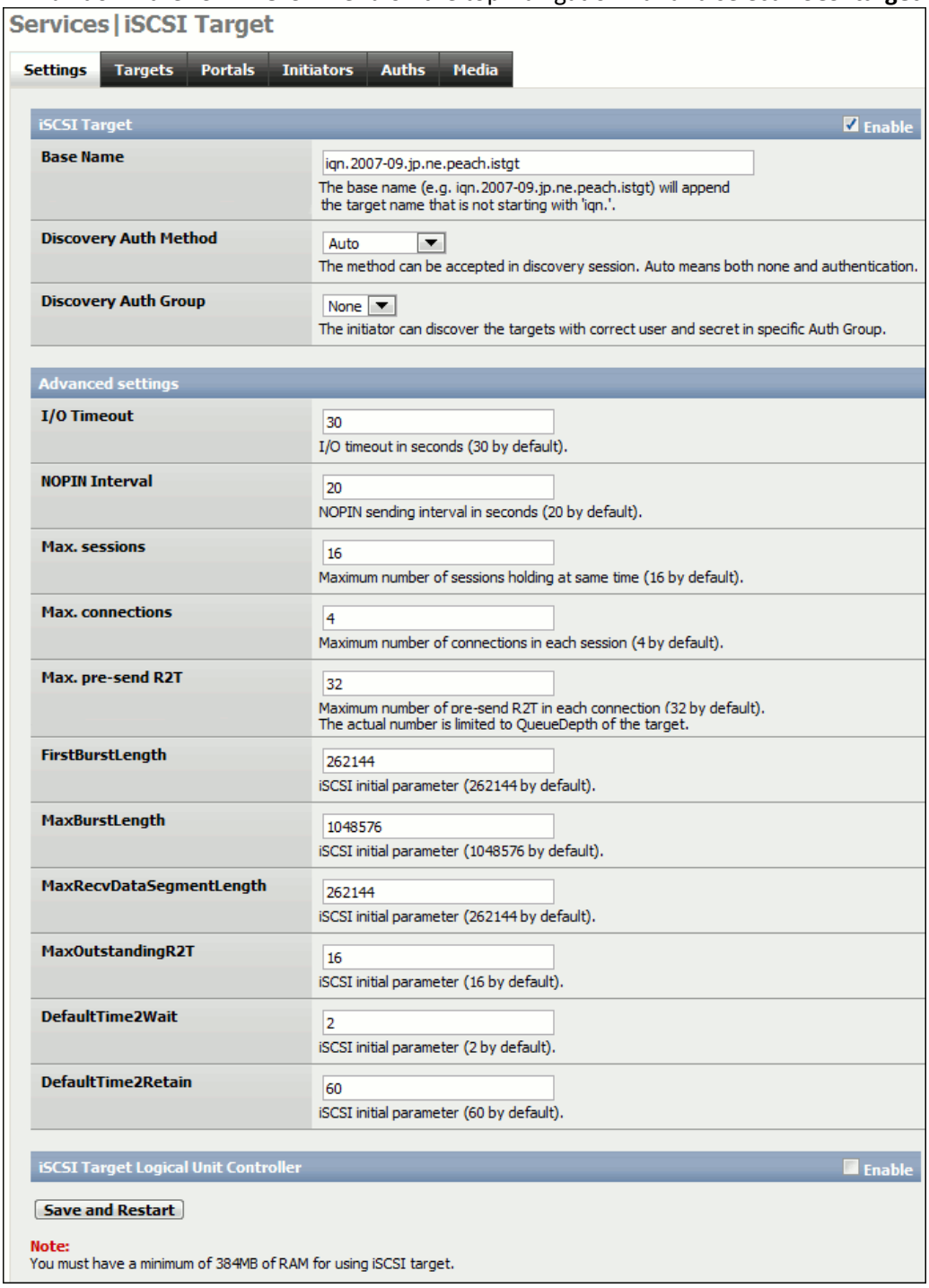


9 - **Take note of the FREE space! You will need this value for later**.

Create an iSCSI target

Now with the disc managed and configured correctly in ZFS we are now going to create an iSCSI Target.

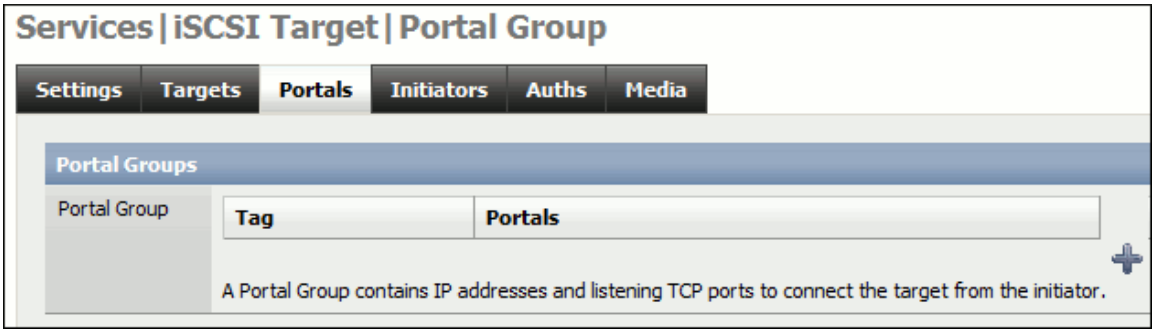
1 - Pull down the "**SERVICES**" Menu on the top Navigation Bar and select "**iSCSI target**".



2. Click the "**ENABLE**" checkbox for iSCSI Target in the upper right corner of the page.
3. Leave everything else alone, change nothing.
4. Click the "**Save and Restart**" Button.

Adding a Portal

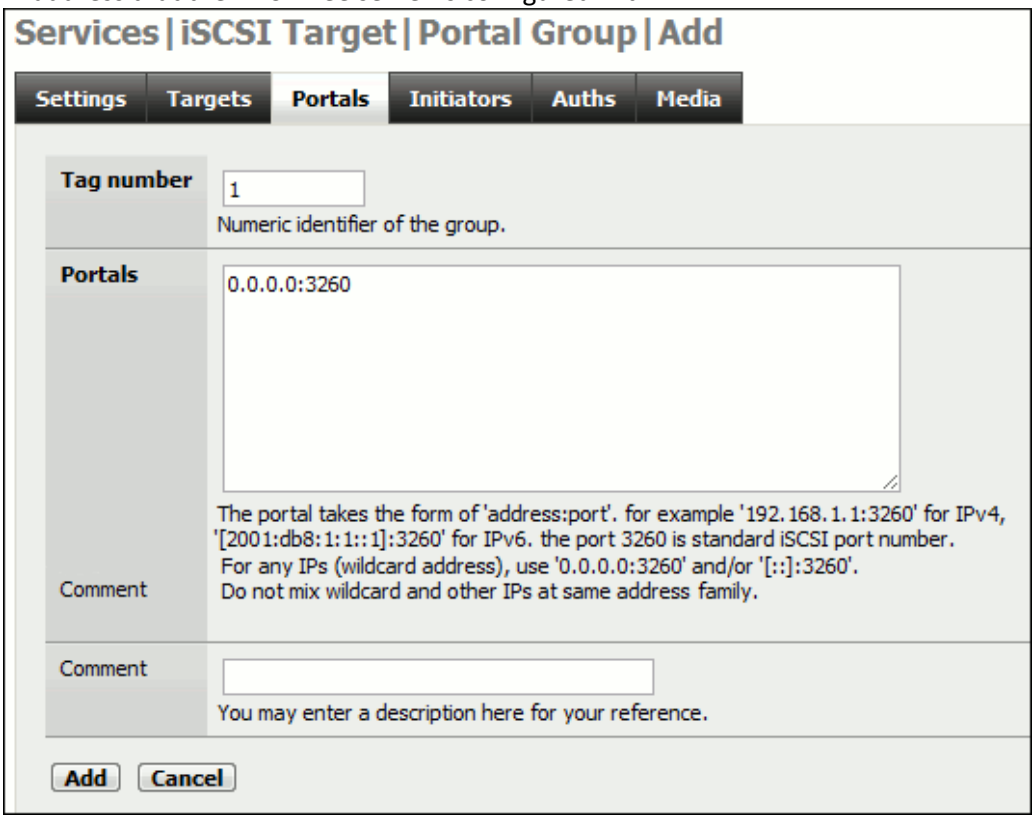
This will allow you to configure how the iSCSI target will be seen or reported on the network.
Now click the "**PORTALS**" tab.



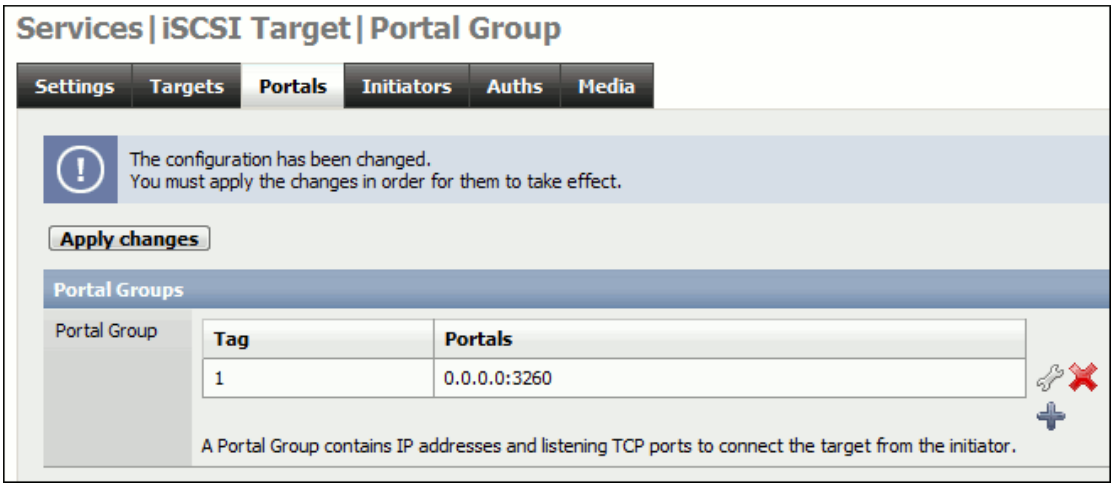
1 - Click the

.

2 - For the benefit of this document I left it at its default which is to allow it to be accessed VIA any IP address that the NAS4Free server is configured with.



3 - Click the “**ADD**” Button.



4 - Click the “**Apply Changes**” Button in the Portal Group Page.

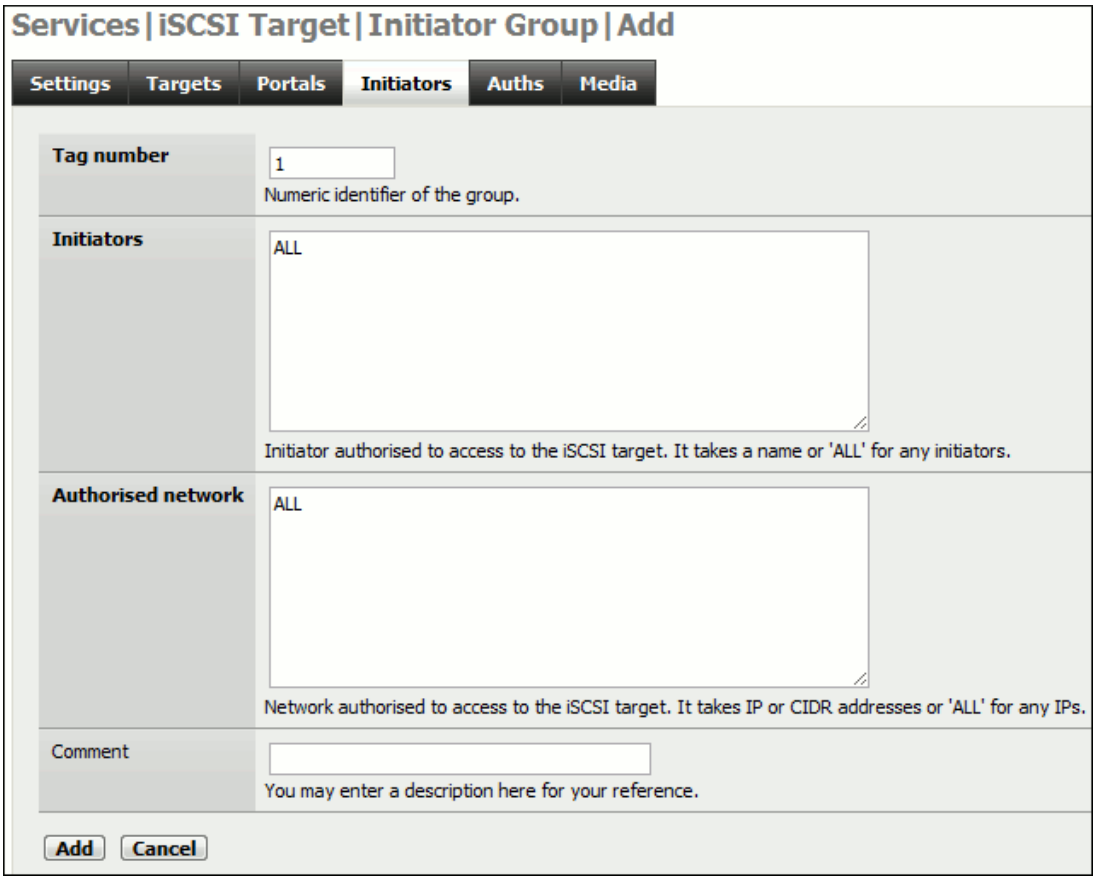
Adding an Initiator

Initiators are systems that can access an iSCSI target (in this case the ZFS storage we created above) here you can specify which machines via IP can initiate a communication with the iSCSI target.

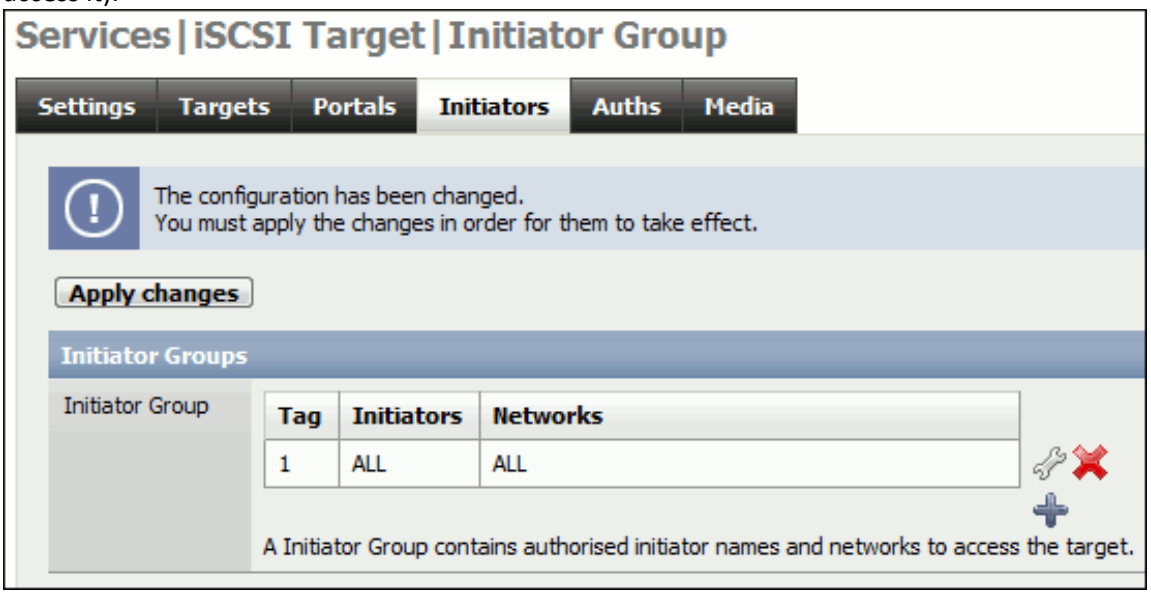
1 - Click on the “**Initiators**” Tab.

2 - Click the

.



3 - Here again I left all settings at their defaults and clicked the "**ADD**" Button. (Anything can access it).

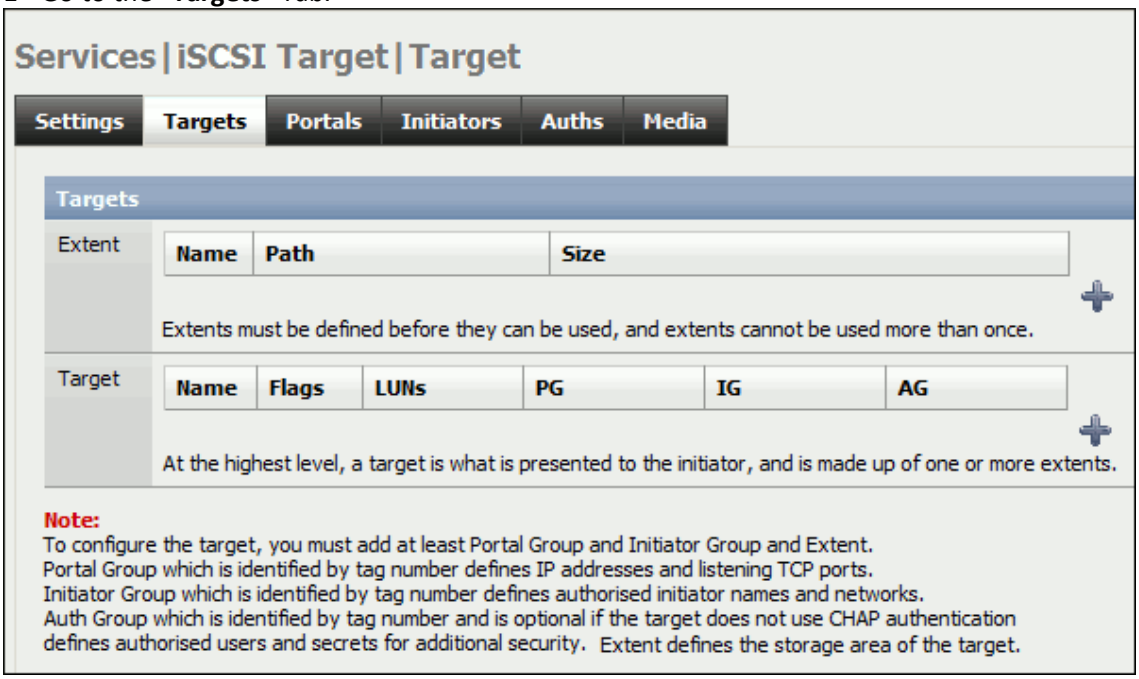


4 - Click the "**Apply Changes**" Button.

Create an Extent

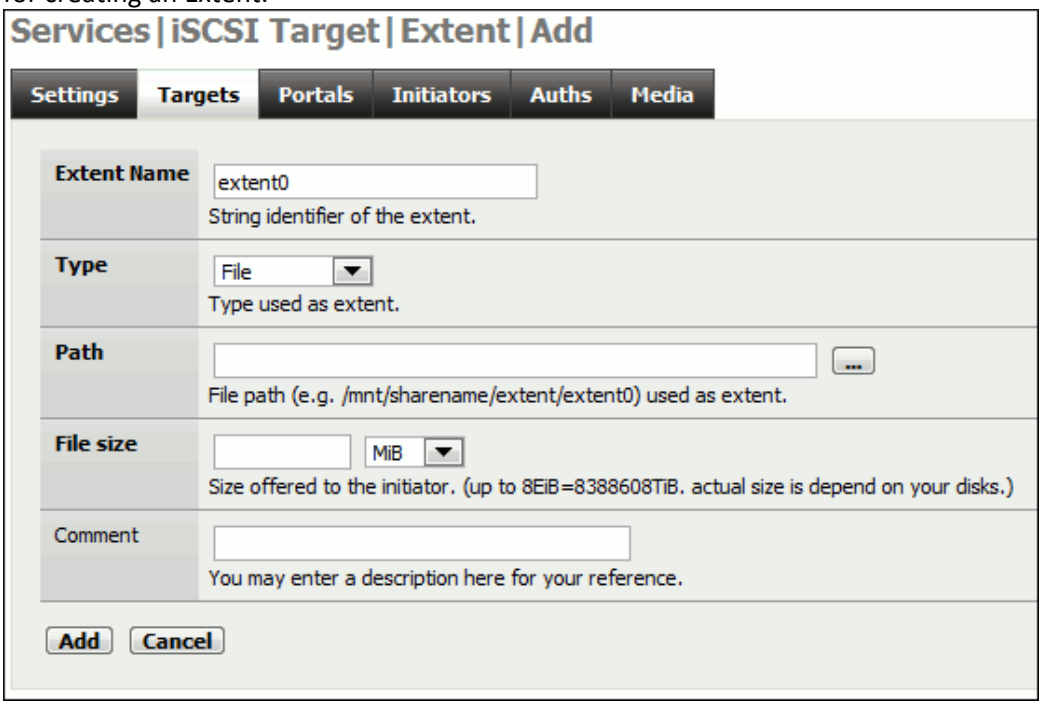
To create an iSCSI Target you must create an Extent first.

1 - Go to the "**Targets**" Tab.



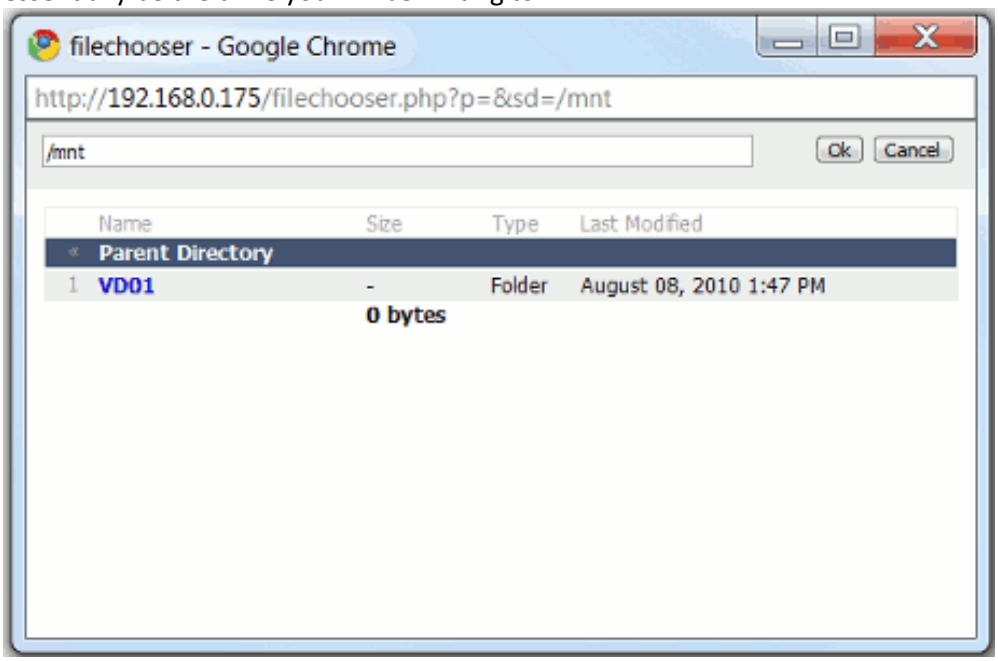
2 - Click the

for creating an Extent.

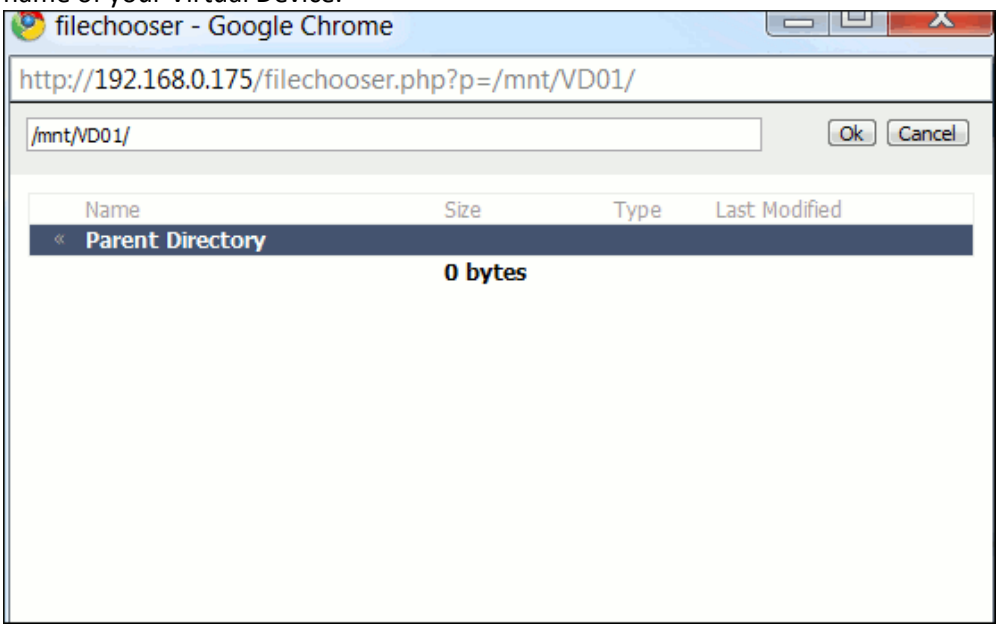


3 - Give the Extent a name I left mine as “extent0”.
4 - In 0.7.2 of NAS4Free with ZFS the “**TYPE**”, “**ZFS Volume**” option in the Drop-down Menu did not work for me! SO KEEP IT AS “File”.
5 - Click on the

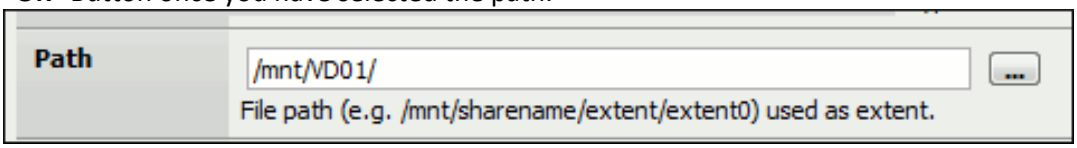
Button at the end of the Path text box. This will bring up a simple file system browser. Since we cannot use the ZFS volume, we have to point to the correct directory and create a file which will essentially be the drive you will be writing to.



6 - Earlier we created a device called VD01 which is presented here as a folder. Select VD01 or the name of your Virtual Device.

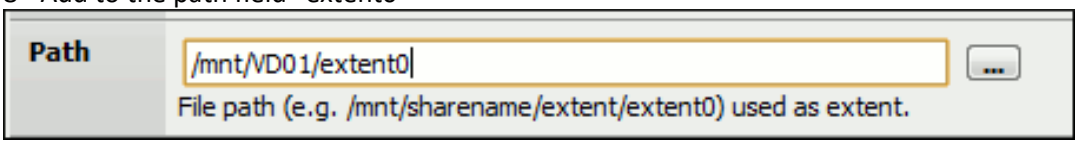


7 - This will change the path from /mnt/ to /mnt/VD01/ in the address bar at the top. Click the "**OK**" Button once you have selected the path.

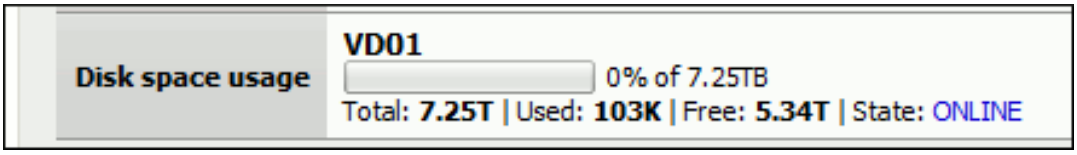


This will appear in the Target Add page.

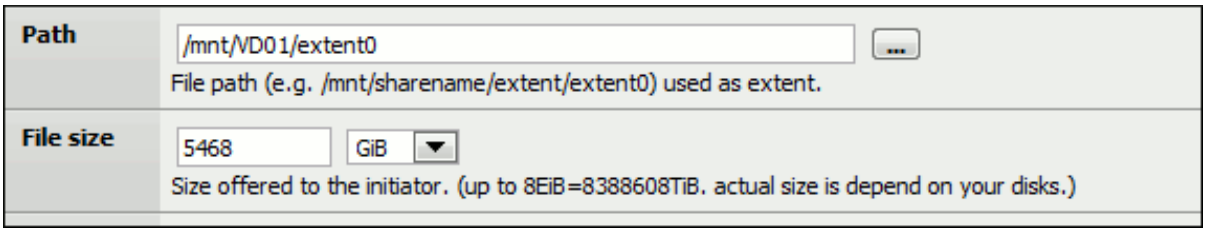
8 - Add to the path field "extent0"



9 - File Size:

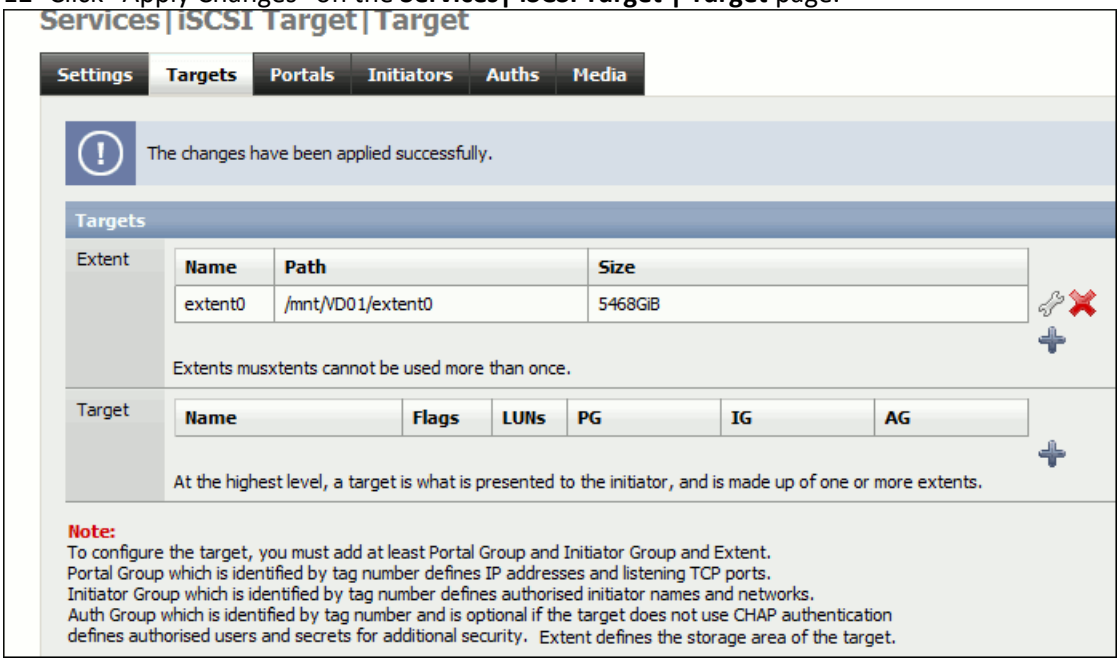


10- In "**File Size**" as it only accepts whole numbers and no Decimal points, enter the value as a whole number with the correct units attached.



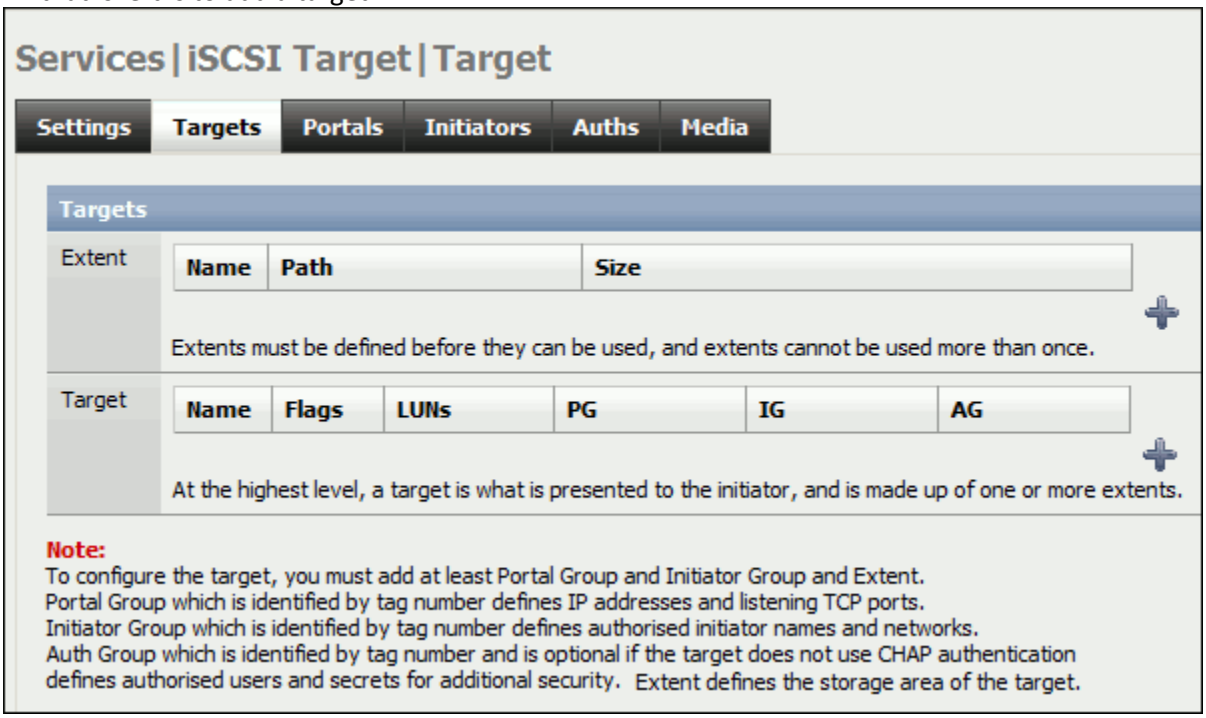
11- Add a comment, then click the "Save" Button

12- Click "Apply Changes" on the **Services| iSCSI Target | Target** page.



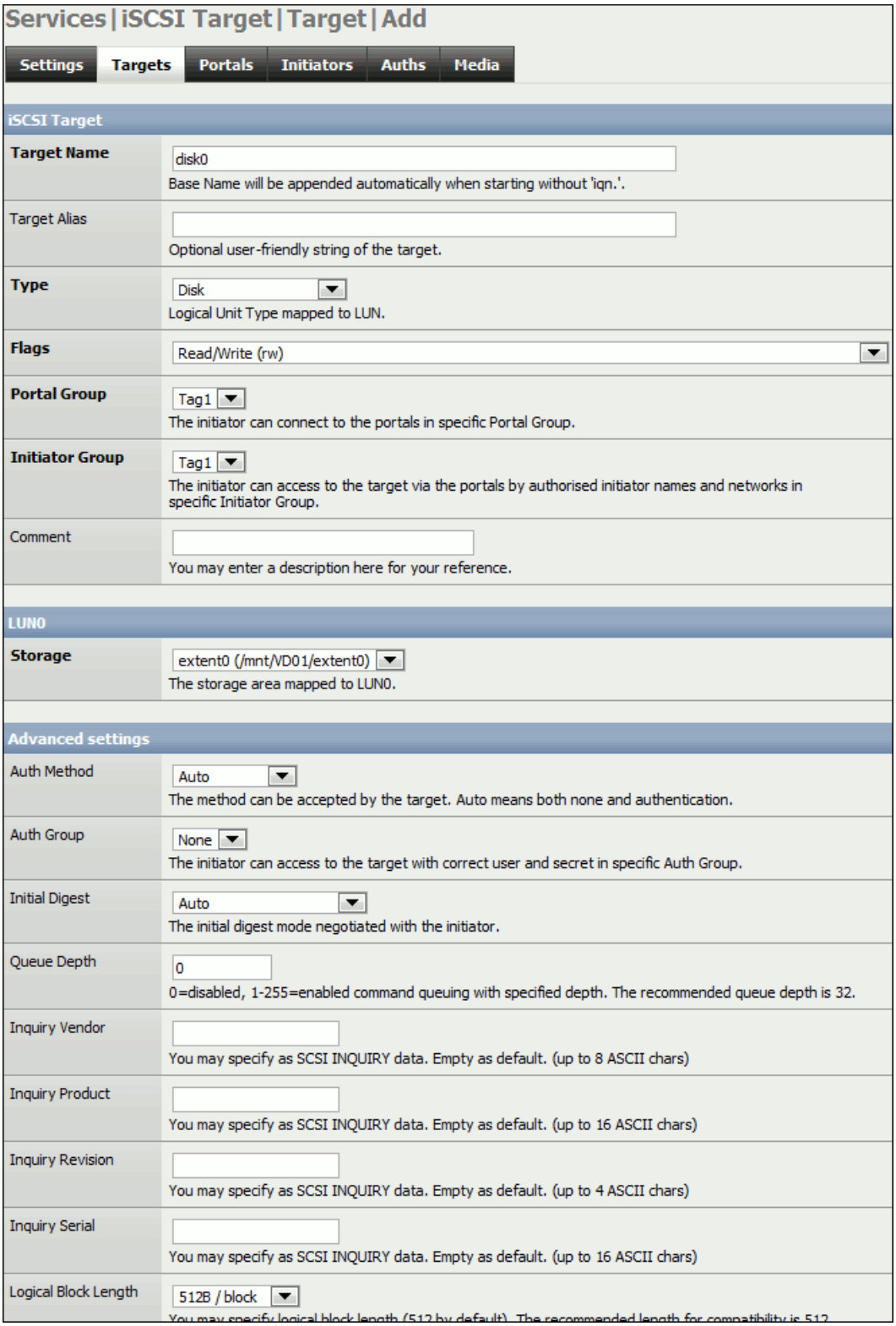
Adding a Target

All that is left is to add a target.

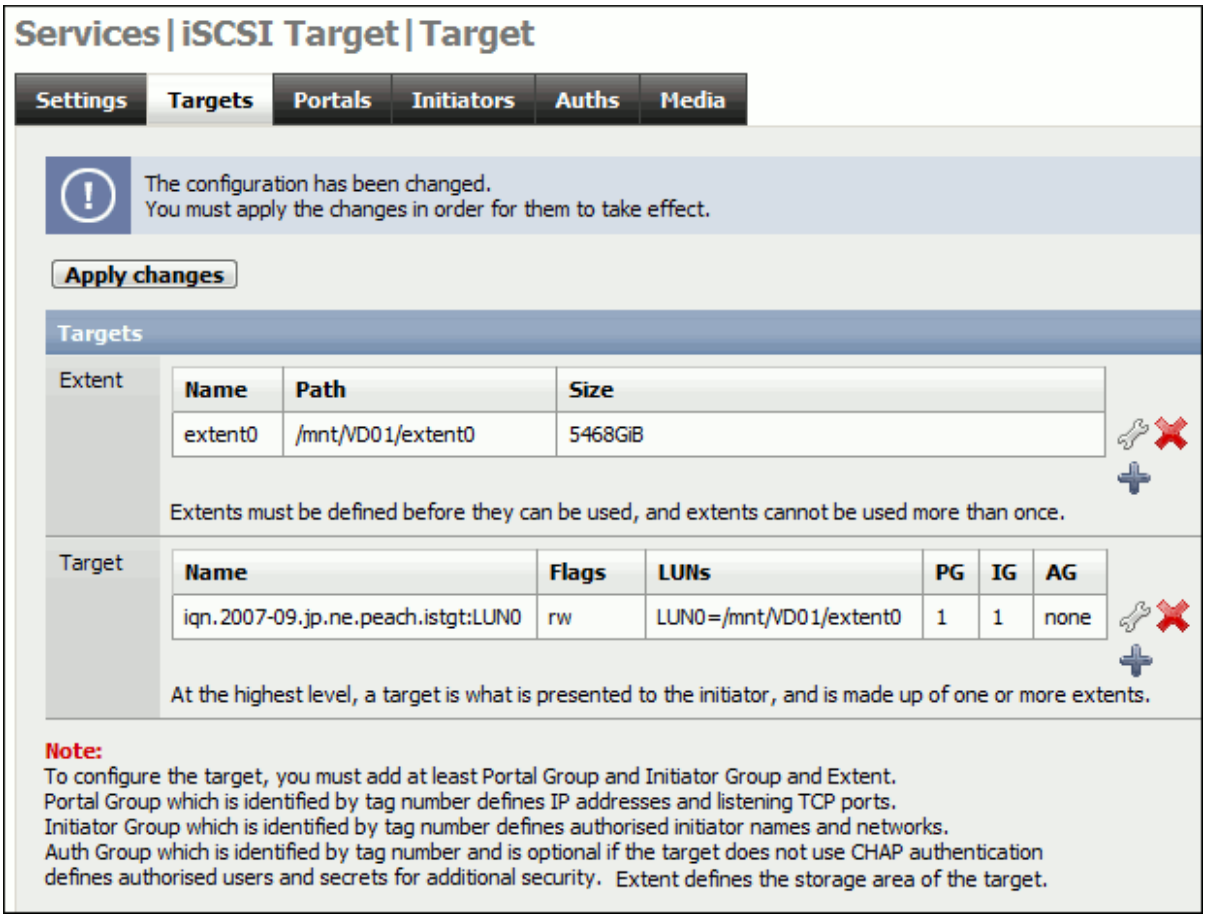


1. Click the

to add a target.



2. Give it a Target Name if you want to, I called mime LUN0 or you can leave it as disk0.
3. Leave all settings at their defaults and click the "**ADD**" Button at the bottom.

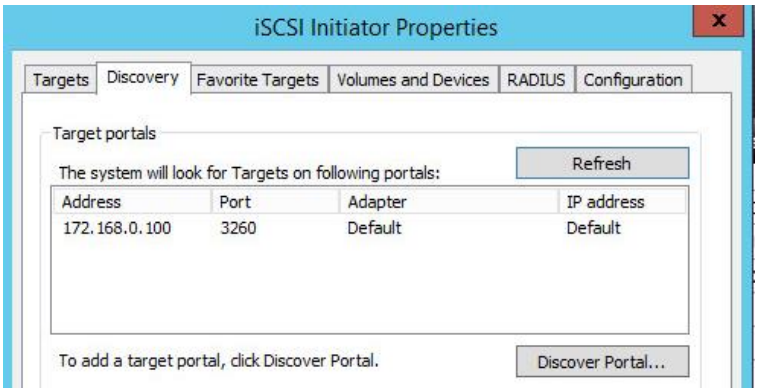


4. Click the "**Apply Changes**" Button

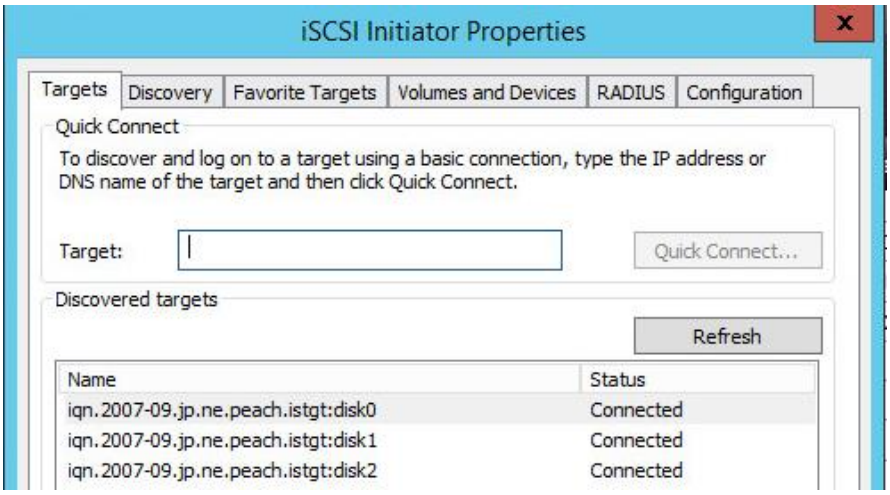
Configuring iSCSI from Windows to Map the Disks

After this is setup, we need to configure iSCSI Initiator to present the Disks to both nodes of the cluster

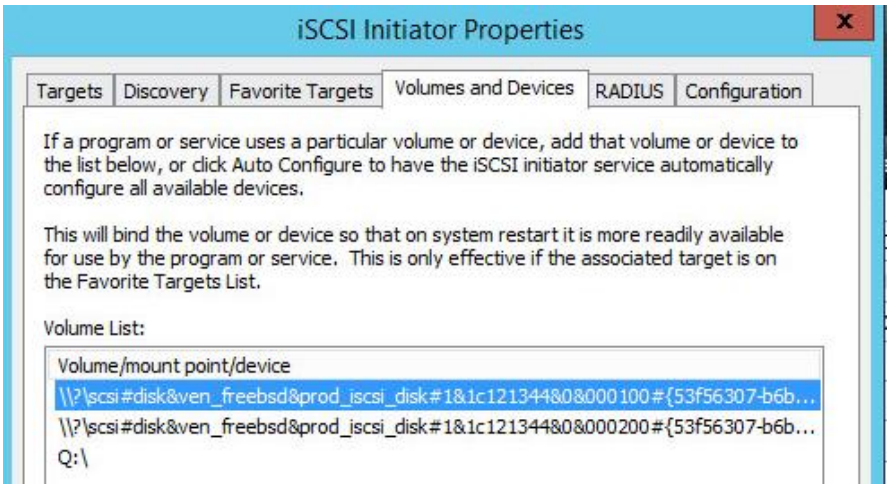
First enter the IP under Discovery Tab



Second Step is to Configure Targets

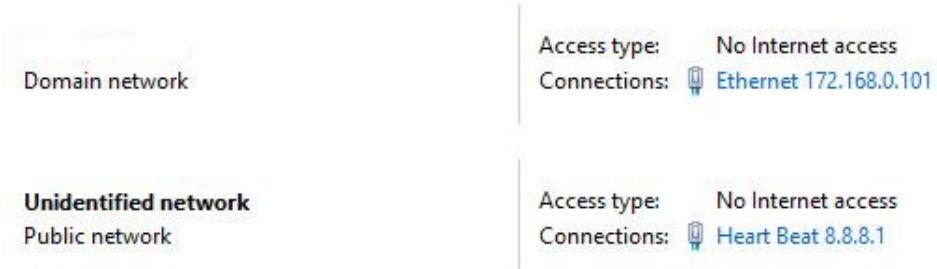


After Targets -> we can click the Volumes and Devices which should show like this



Setting up the Network Configuration for Each Node

- Both Nodes having Two Network Adapters configured
- Each having 1 Public and 1 private IP



Install the Failover Clustering Feature on Both Nodes

Once done, run the Cluster configuration to configure the default cluster

Create a Role for Arcserve

Prepare MSCS Cluster Resources on Windows Server 2012 Systems

On Windows Server 2012 systems, use the Failover Cluster Management utility to prepare MSCS cluster resources.
Note: On Windows Server 2012 systems, the utility is named Failover Cluster Manager. The steps that follow describe how to prepare cluster resources on Windows Server 2012 systems.

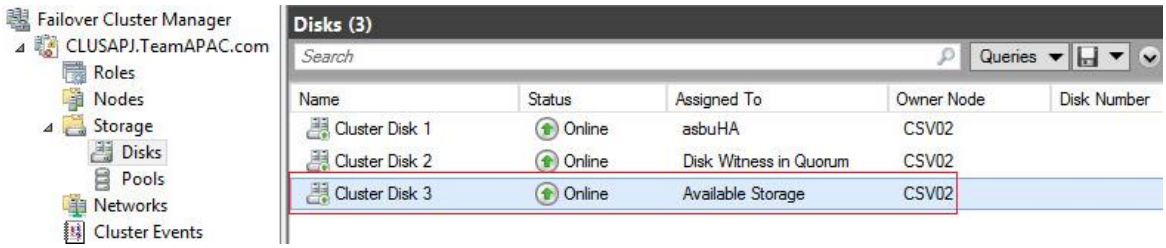
- From the Windows Start menu, open Failover Cluster Management.
- The High Availability Wizard, Before You Begin dialog opens.
- Review the content on the Before You Begin dialog and click Next.
- The Failover Cluster Management window opens.
- From the directory tree, right-click Services and applications and click Configure a server or application on the pop-up menu.
- The Select Service or Application dialog opens.
- In the list of services and applications, click Other Server, and then click Next.
- The Client Access Point dialog opens.
- Complete the required fields on the Client Access Point dialog. Verify that you provide the following information:
    - Name of the service
    - Public and private IP address for the location of the service

- Click Next.
  The Select Storage dialog opens.
  Specify the volume that you want to assign to the service or application.
- Click Next, and then click Finish.
- The cluster resource is prepared.
- Start Installing arcserve after the resources are created

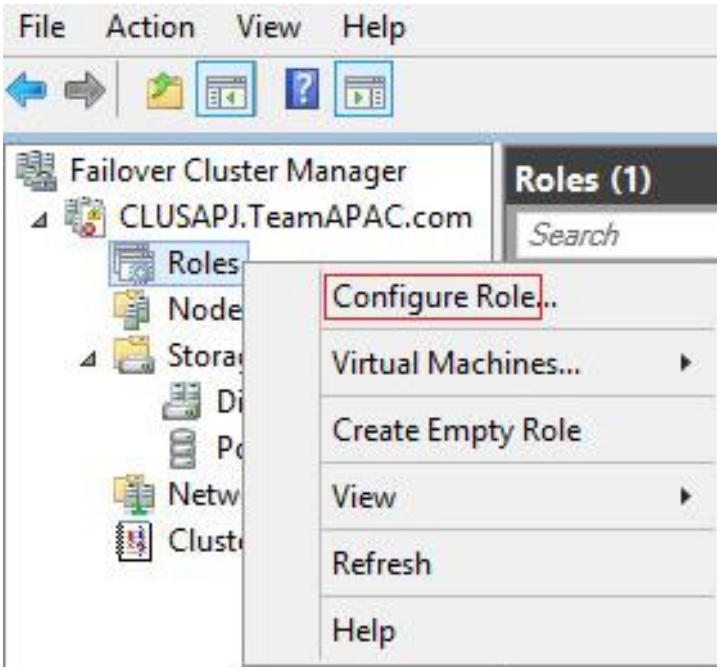
Configuring Arcserve Role

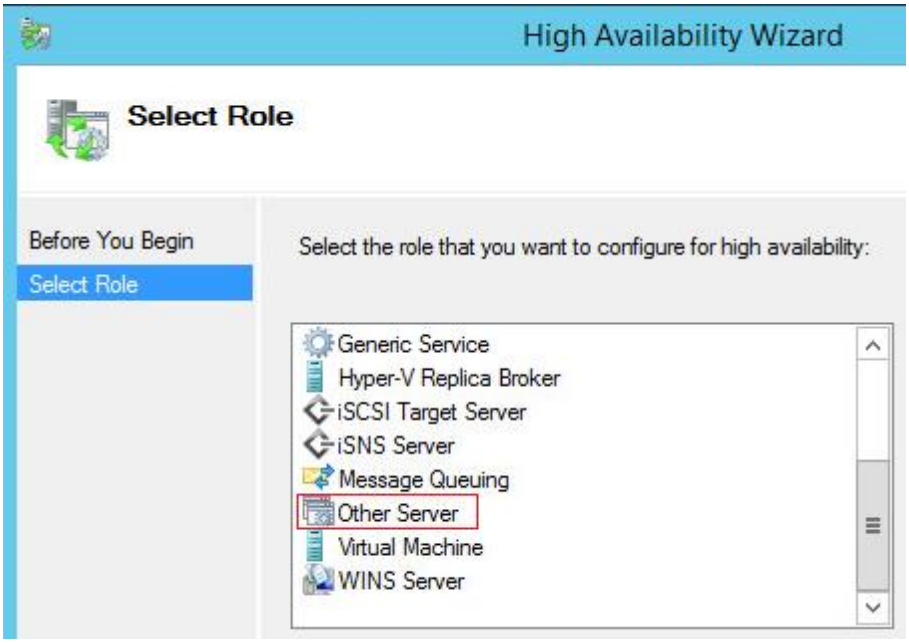
- Ensure that there is available storage to start the cluster configuration for arcserve
- Setup the Roles before installing Arcserve. Assign the Available storage to the Role first

Before assigning the role make sure the disk shows up as available storage

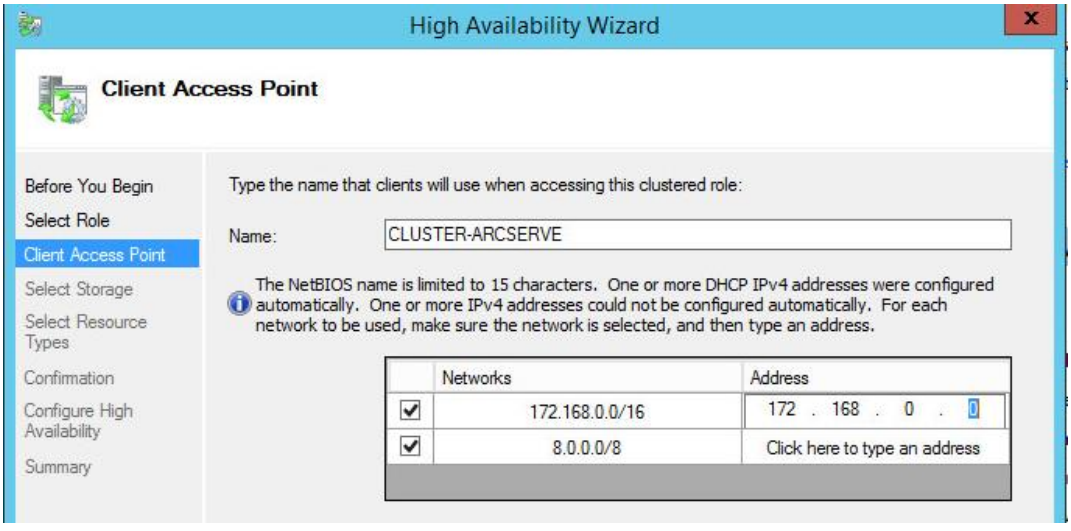


Assign Roles

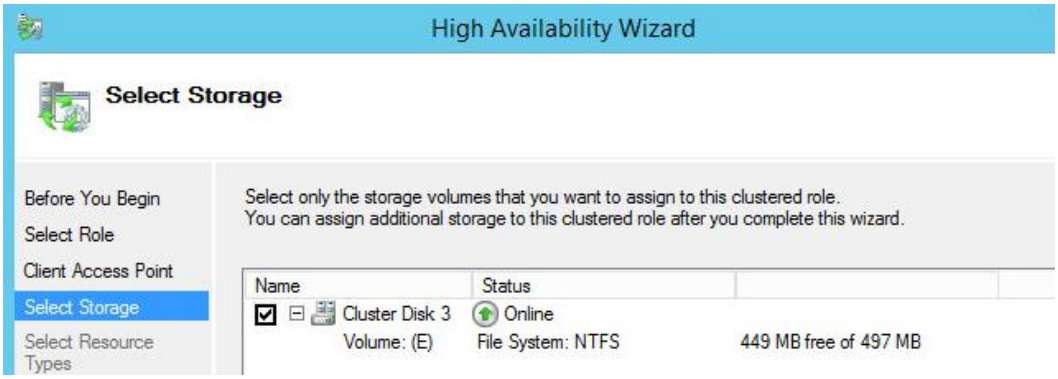




Configure Network IP's



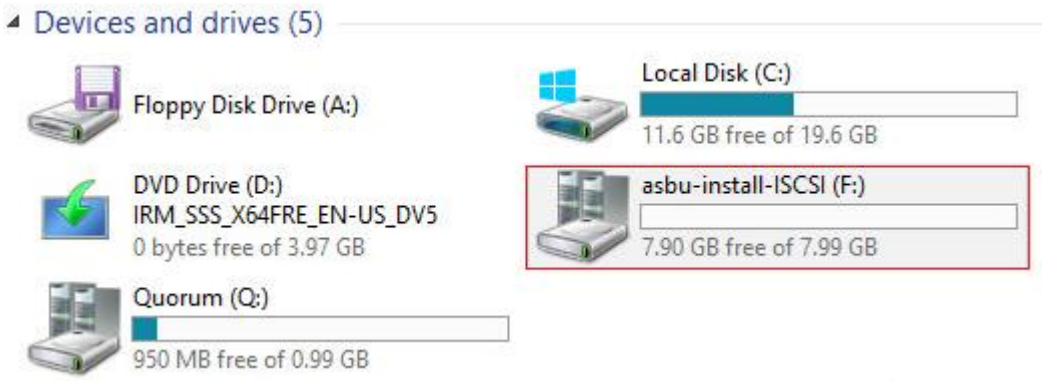
Picks up the available storage automatically if there is only 1, if there are multiple available storage, you can

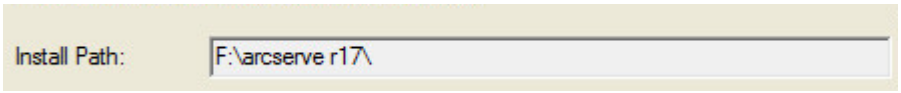


Confirmation Screen

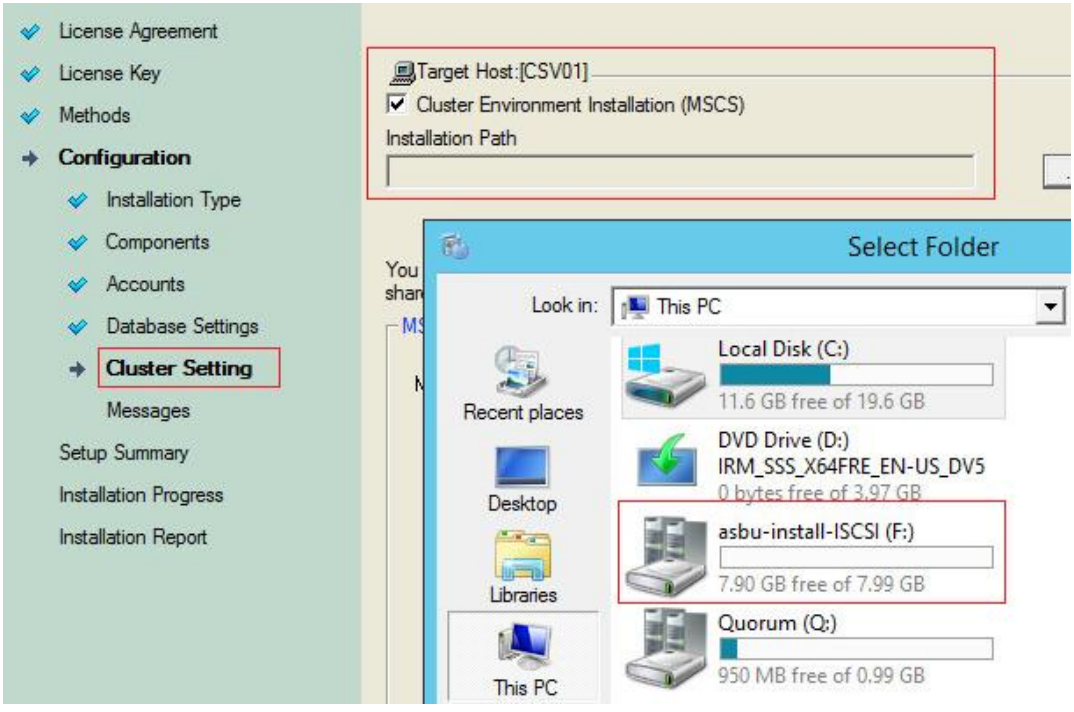
After the role configurations are configured proceed to installation of arcserve on the shared disk

For example, here the install path is F Drive

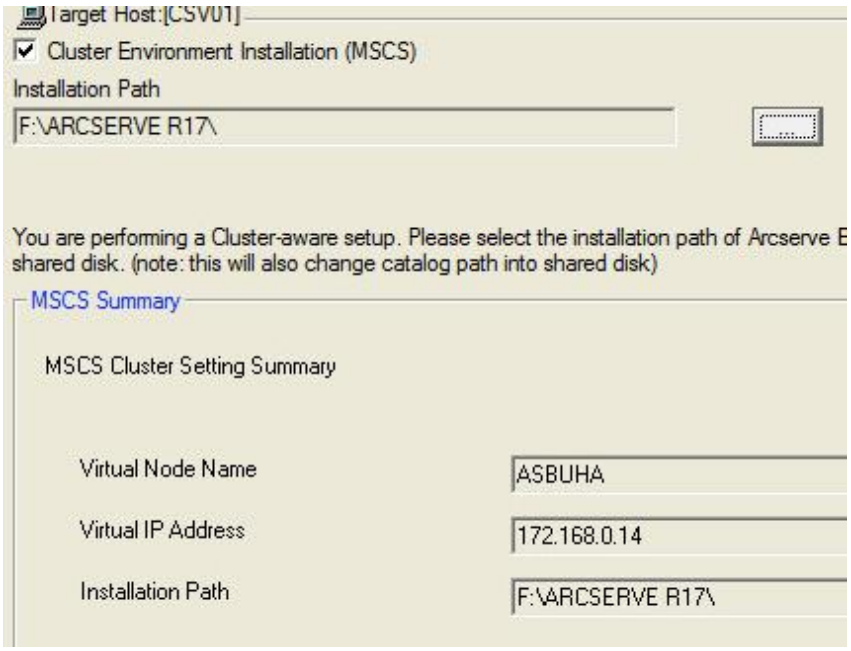




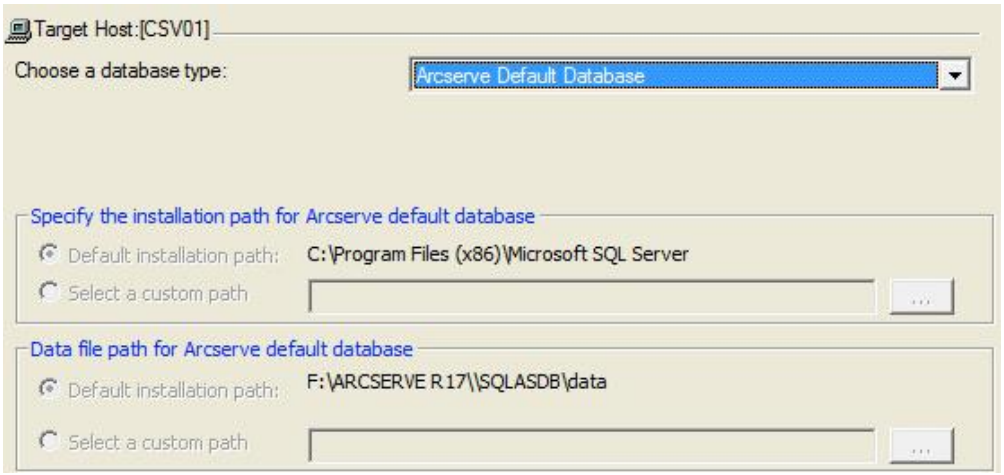
Next Screen should pick up the cluster installation path select the check box for MSCS Cluster Installation



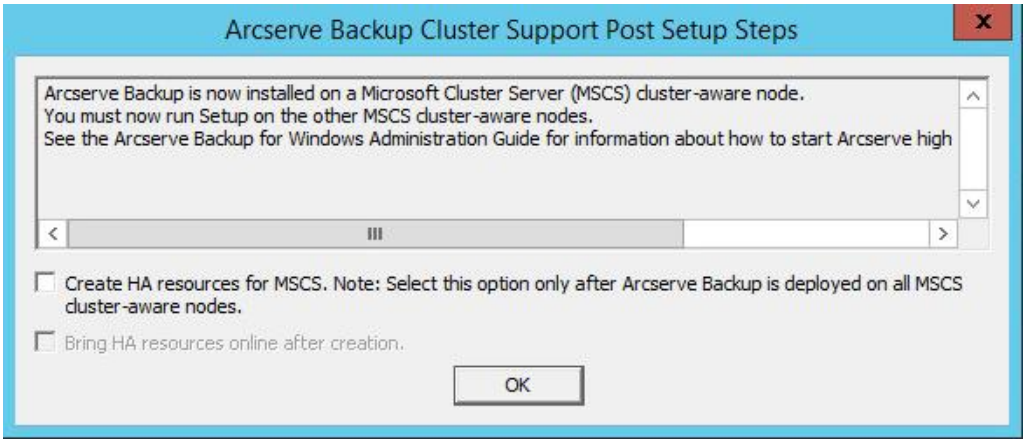
Select Stand Alone and proceed with installation



With SQL Express as the default database Catalog Database gets installed/configured on the same F drive (available storage)



After the installation is over, **DO NOT CLICK THE CHECK BOX**



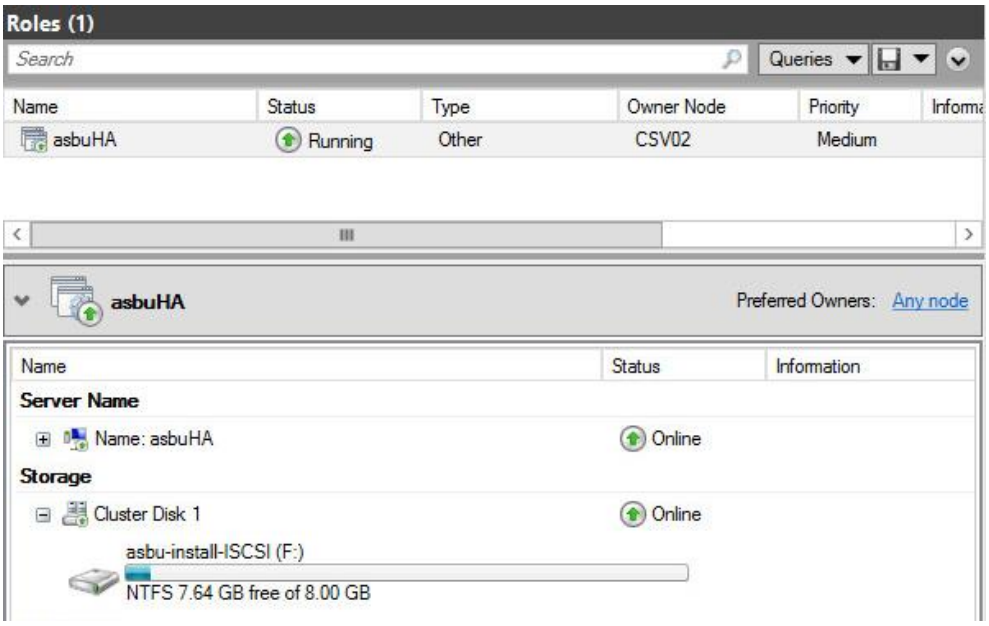
After Node 1 is completed, failover to the second node

Failover Components

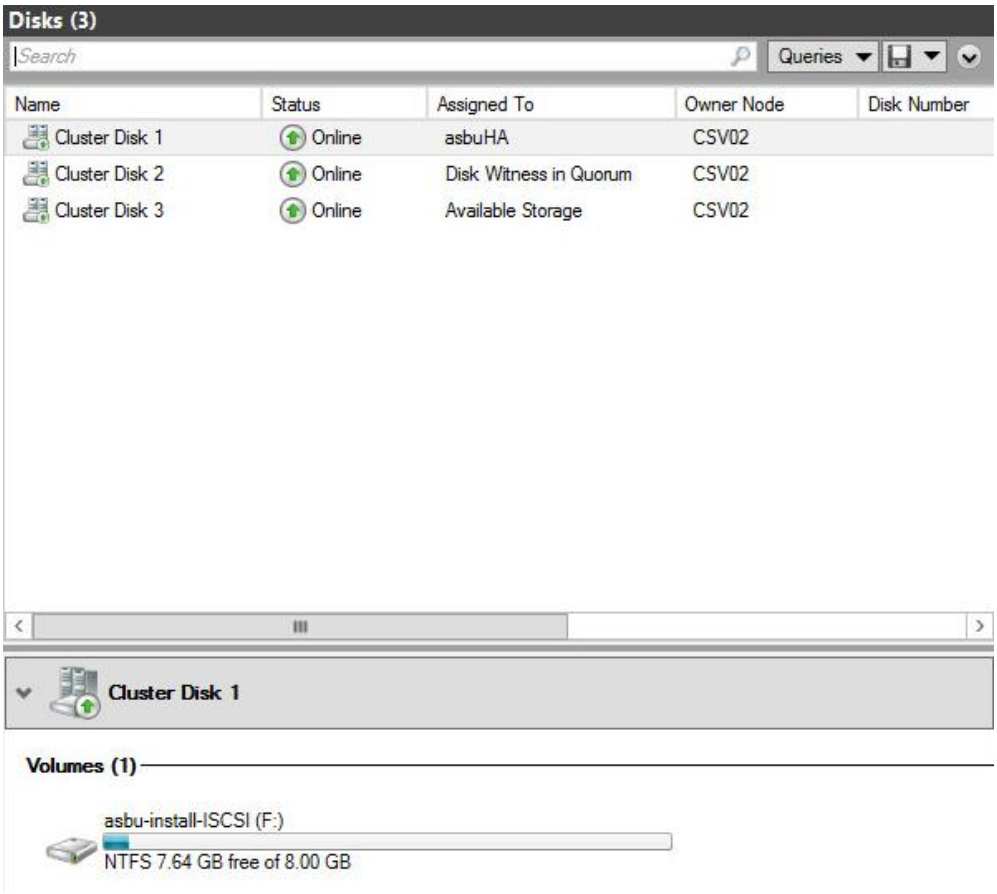
1. Available storage should failover
2. Arcserve Role
3. IP

Failover Cluster Manager on the second node should now have these resources online

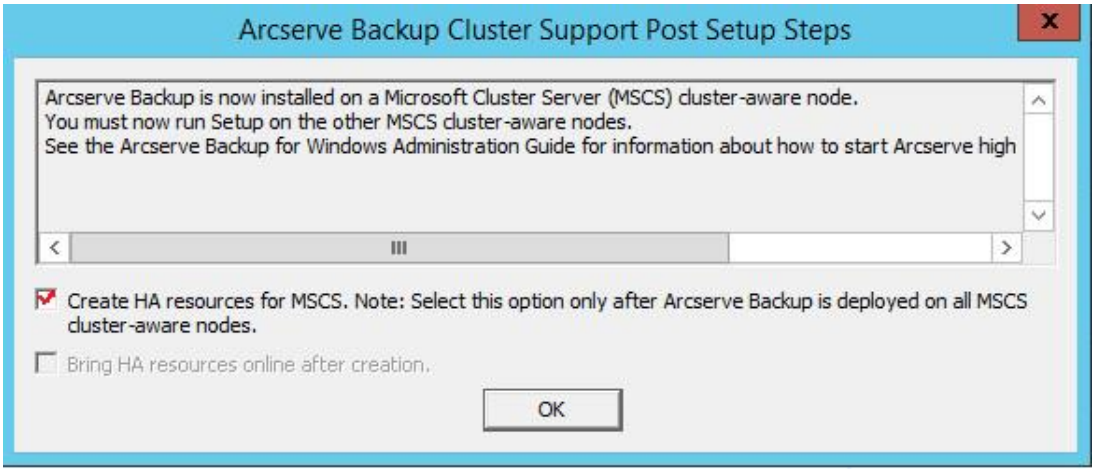
HA Resource (Roles)



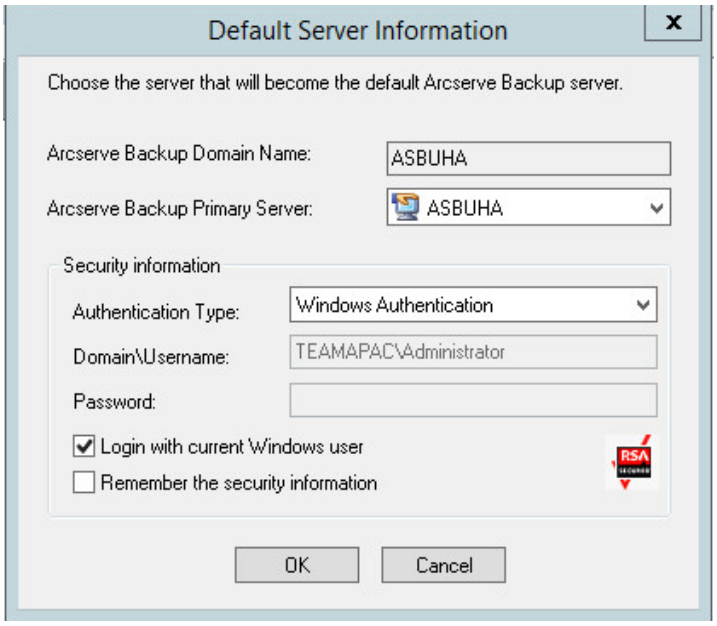
Available Storage



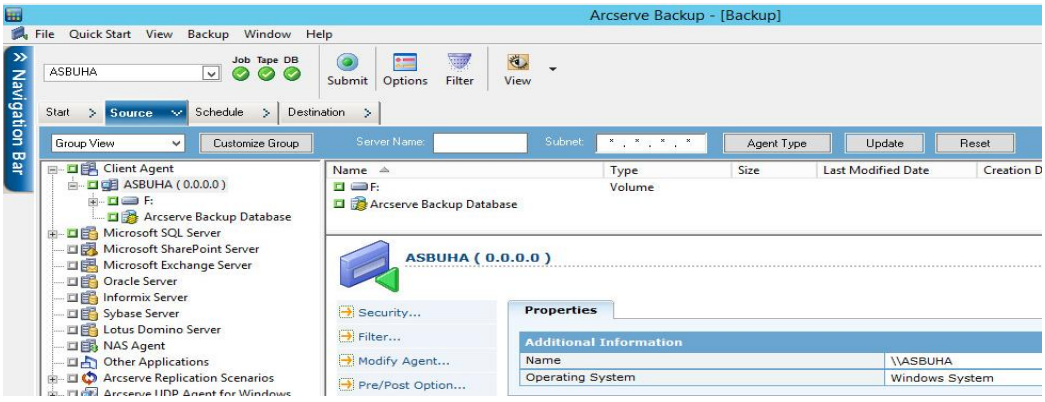
Start the install the same way as done on Node 1
After the installation is over select this check box



Launch the Manager after the install



You will the HA resource displaying the F drive to where Arcserve was installed



Failover to Node2

Open the Manager and check if all resources are online