



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)

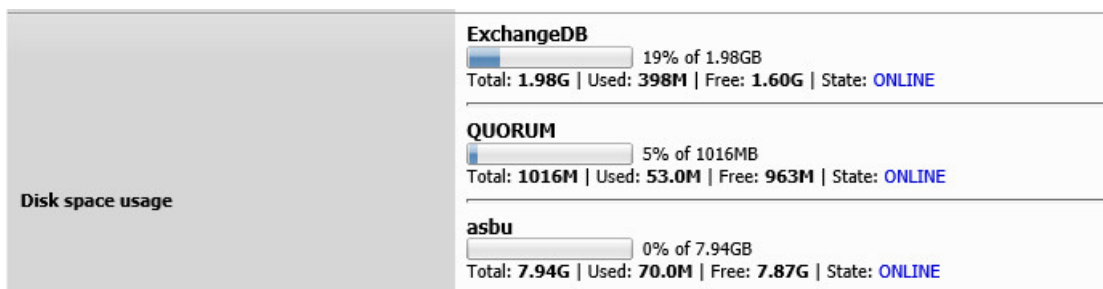
| Network | Type |
|-------------|---------------------|
| VM Network | Standard port group |
| INT-NETWORK | Standard port group |
| HeartBeat | Standard port group |

```
File View VM
[Icons]
Console Menu
-----
1) Configure Network Interfaces
2) Configure Network IP Address
3) Reset WebGUI Password
4) Reset to Factory Defaults
5) Ping Host
6) Shell
7) Reboot Server
8) Shutdown Server

Enter a number: 6
nas4free: ~ # df -h
Filesystem      Size      Used      Avail Capacity  Mounted on
/dev/xmd0       119M       34M       85M      29%          /
devfs           1.0k       1.0k       0B      100%        /dev
/dev/xmd1       719M      246M      472M      34%        /usr/local
/dev/da0s1a     743M      148M      594M      20%        /cf
procfs          4.0k       4.0k       0B      100%        /proc
ExchangeDB      2G        397M      1.6G      20%        /mnt/ExchangeDB
QUORUM          983M       52M      931M       5%        /mnt/QUORUM
asbu            7.8G       69M       7.8G       1%        /mnt/asbu
/dev/xmd2       123M       788k      113M       1%        /var
tmpfs           64M        32k       64M       0%        /var/tmp
nas4free: ~ #
```

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”.

Disks | Management

| Disk | Size | Description | Device model | Serial number | Standby time | File system | Status |
|------|------|-------------|--------------|---------------|--------------|-------------|--------|
|------|------|-------------|--------------|---------------|--------------|-------------|--------|

[Rescan disks](#)

2 - Click the



this will load up the Disk Add Page.

System Network Disks Services Access Status Diagnostics Advanced Help

Disks | Management | Disk | Add

Management S.M.A.R.T. iSCSI Initiator

Disk:

Description:

Transfer mode:

Hard disk standby time:

Advanced Power Management:

Acoustic level:

S.M.A.R.T.: Activate S.M.A.R.T. monitoring for this device.

S.M.A.R.T. extra options:

Preformatted file system:

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.

Disks | Management

Management S.M.A.R.T. iSCSI Initiator

The configuration has been changed.
You must apply the changes in order for them to take effect.

| Disk | Size | Description | Serial number | Standby time | File system | Status |
|------|-----------|-------------------------------|---------------|--------------|------------------------|--------------|
| ad4 | 1907730MB | WDC WD20EARS-00MVWB0/50.0AB50 | WD-WMAZ | Always on | Unknown or unformatted | Initializing |

8 - Click the “**APPLY CHANGES**” Button.

System Network **Disks** Services Access Status Diagnostics Advanced Help

Disks | Management

Management S.M.A.R.T. iSCSI Initiator

| Disk | Size | Description | Serial number | Standby time | File system | Status |
|------|-----------|---------------|---------------|--------------|------------------------|--------|
| ad4 | 1907730MB | WDC WD20EARS- | WD-WMAZA | Always on | Unknown or unformatted | ONLINE |
| ad6 | 1907730MB | WDC WD20EARS- | WD-WMAZA | Always on | Unknown or unformatted | ONLINE |
| ad8 | 1907730MB | WDC WD20EARS- | WD-WMAZA | Always on | Unknown or unformatted | ONLINE |
| ad10 | 1907730MB | WDC WD20EARS- | WD-WMAZA | Always on | Unknown or unformatted | ONLINE |

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**”.

Disks | Format

Disk Must choose one ▼

File system ▼

Don't Erase MBR Don't erase the MBR (useful for some RAID controller cards)

Format disk

Warning:
 UFS is the NATIVE file format for FreeBSD (the underlying OS of NAS4Free). Attempting to use other file formats such as FAT, FAT32, EXT2, EXT3, or NTFS can result in unpredictable results, file corruption, and loss of data!

- 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.

System
Network
Disks
Services
Access
Status
Diagnostics
Advanced
Help

Disks | Management

Management
S.H.A.R.T.
iSCSI Initiator

| Disk | Size | Description | Serial number | Standby time | File system | Status |
|------|-----------|--------------|---------------|--------------|-------------------------|--------|
| ad4 | 1907730MB | WDC WD20EARS | WD-WMAZA | Always on | ZFS storage pool device | ONLINE |
| ad6 | 1907730MB | WDC WD20EARS | WD-WMAZA | Always on | ZFS storage pool device | ONLINE |
| ad8 | 1907730MB | WDC WD20EARS | WD-WMAZA | Always on | ZFS storage pool device | ONLINE |
| ad10 | 1907730MB | WDC WD20EARS | WD-WMAZA | Always on | ZFS storage pool device | ONLINE |

Rescan disks

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.

Disks | ZFS | Pools | Virtual device

| | | | | |
|----------------|-------------------|-------------|-------------|----------------|
| Pools | Datasets | Volumes | Snapshots | Configuration |
| Virtual device | Management | Tools | Information | I/O statistics |
| Name | Type | Description | | |

+

3 - Click the



Disks | ZFS | Pools | Virtual device | Add

| | | |
|----------------|-------------------|----------------------|
| Pools | Datasets | Configuration |
| Virtual device | Management | Tools |
| Information | I/O statistics | |

| | |
|------------------------|---|
| Name | <input type="text" value="VD01"/> |
| Type | Single-parity RAID-5 <input type="button" value="v"/> |
| Devices | <div style="border: 1px solid orange; padding: 5px;"> <p>ad4 (1907730MB, WDC WD20EARS-00MVWB0/50.0AB50)</p> <p>ad6 (1907730MB, WDC WD20EARS-00MVWB0/50.0AB50)</p> <p>ad8 (1907730MB, WDC WD20EARS-00MVWB0/50.0AB50)</p> <p>ad10 (1907730MB, WDC WD20EARS-00MVWB0/50.0AB50)</p> </div> |
| Advanced Format | <input type="checkbox"/> Enable Advanced Format (4KB sector) |
| Description | <input type="text" value="Virtual Device 1"/> You may enter a description here for your reference. |

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.



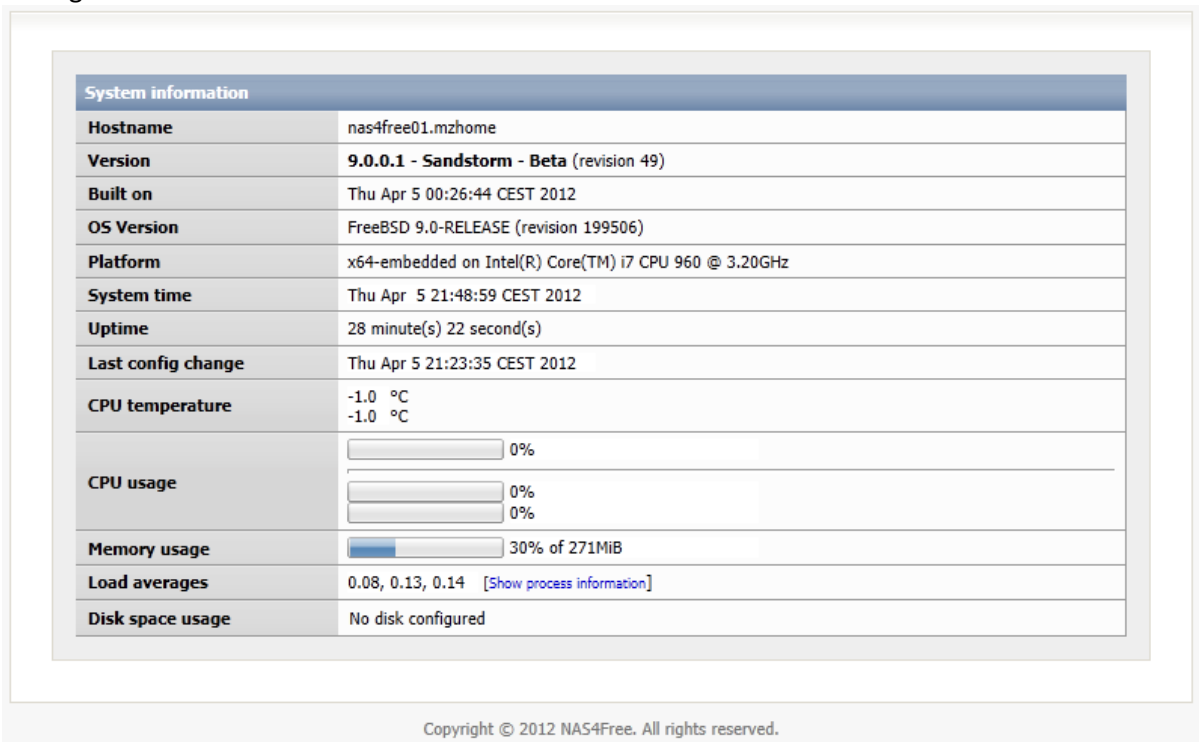
7 - I didn't select Advanced Format.

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.



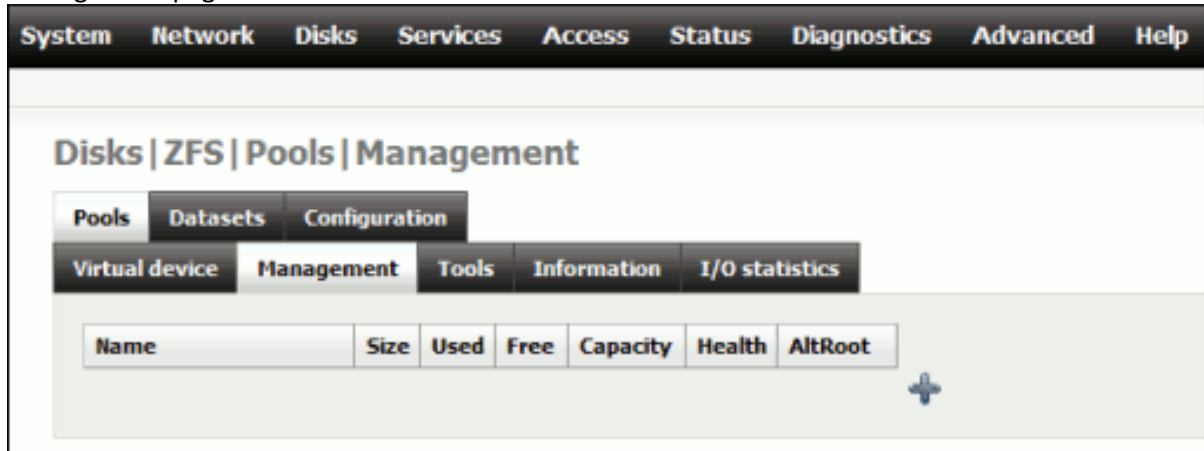
Now the drives have been added to NAS4Free they still have to be made available for NAS4Free to manage.



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.

Disks | ZFS | Pools | Management

Pools | Datasets | Configuration

Virtual device | **Management** | Tools | Information | I/O statistics

The configuration has been changed. You must apply the changes in order for them to take effect.

Apply changes

| Name | Size | Used | Free | Capacity | Health | AltRoot |
|------|---------|---------|---------|----------|---------|---------|
| VD01 | Unknown | Unknown | Unknown | Unknown | Unknown | Unknown |

Everything is listed as UNKNOWN. DO NOT WORRY. YOU MUST APPLY THE CHANGES!
7 - Click the “APPLY CHANGES” Button!

Disks | ZFS | Pools | Management

Pools | Datasets | Configuration

Virtual device | **Management** | Tools | Information | I/O statistics

The changes have been applied successfully.

| Name | Size | Used | Free | Capacity | Health | AltRoot |
|------|-------|------|-------|----------|--------|---------|
| VD01 | 7.25T | 103K | 5.34T | 0% | ONLINE | - |

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.

Disk space usage

VD01

0% of 7.25TB

Total: **7.25T** | Used: **103K** | Free: **5.34T** | State: **ONLINE**

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”.

Services | iSCSI Target

Settings **Targets** Portals Initiators Auths Media

iSCSI Target Enable

| | |
|------------------------------|---|
| Base Name | <input type="text" value="iqn.2007-09.jp.ne.peach.istgt"/> <small>The base name (e.g. iqn.2007-09.jp.ne.peach.istgt) will append the target name that is not starting with 'iqn.'.</small> |
| Discovery Auth Method | <input type="text" value="Auto"/> <small>The method can be accepted in discovery session. Auto means both none and authentication.</small> |
| Discovery Auth Group | <input type="text" value="None"/> <small>The initiator can discover the targets with correct user and secret in specific Auth Group.</small> |

Advanced settings

| | |
|---------------------------------|---|
| I/O Timeout | <input type="text" value="30"/> <small>I/O timeout in seconds (30 by default).</small> |
| NOPIN Interval | <input type="text" value="20"/> <small>NOPIN sending interval in seconds (20 by default).</small> |
| Max. sessions | <input type="text" value="16"/> <small>Maximum number of sessions holding at same time (16 by default).</small> |
| Max. connections | <input type="text" value="4"/> <small>Maximum number of connections in each session (4 by default).</small> |
| Max. pre-send R2T | <input type="text" value="32"/> <small>Maximum number of pre-send R2T in each connection (32 by default). The actual number is limited to QueueDepth of the target.</small> |
| FirstBurstLength | <input type="text" value="262144"/> <small>iSCSI initial parameter (262144 by default).</small> |
| MaxBurstLength | <input type="text" value="1048576"/> <small>iSCSI initial parameter (1048576 by default).</small> |
| MaxRecvDataSegmentLength | <input type="text" value="262144"/> <small>iSCSI initial parameter (262144 by default).</small> |
| MaxOutstandingR2T | <input type="text" value="16"/> <small>iSCSI initial parameter (16 by default).</small> |
| DefaultTime2Wait | <input type="text" value="2"/> <small>iSCSI initial parameter (2 by default).</small> |
| DefaultTime2Retain | <input type="text" value="60"/> <small>iSCSI initial parameter (60 by default).</small> |

iSCSI Target Logical Unit Controller Enable

Note:
You must have a minimum of 384MB of RAM for using 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.

Services | iSCSI Target | Portal Group

Settings Targets **Portals** Initiators Auths Media

Portal Groups

| Portal Group | Tag | Portals |
|--------------|-----|---------|
| | | |

A Portal Group contains IP addresses and listening TCP ports to connect the target from the initiator.

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.

Services | iSCSI Target | Portal Group | Add

Settings Targets **Portals** Initiators Auths Media

Tag number
Numeric identifier of the group.

Portals

The portal takes the form of 'address:port', for example '192.168.1.1:3260' for IPv4, '[2001:db8:1:1::1]:3260' for IPv6, the port 3260 is standard iSCSI port number.
For any IPs (wildcard address), use '0.0.0.0:3260' and/or '[:]:3260'.
Do not mix wildcard and other IPs at same address family.

Comment

You may enter a description here for your reference.



3 - Click the "ADD" Button.

Services | iSCSI Target | Portal Group

Settings Targets Portals Initiators Auths Media

The configuration has been changed.
You must apply the changes in order for them to take effect.

Apply changes

Portal Groups

| Portal Group | Tag | Portals |
|--------------|-----|--------------|
| | 1 | 0.0.0.0:3260 |

A Portal Group contains IP addresses and listening TCP ports to connect the target from the initiator.

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.

Services | iSCSI Target | Initiator Group

Settings Targets Portals Initiators Auths Media

Initiator Groups

| Initiator Group | Tag | Initiators | Networks |
|-----------------|-----|------------|----------|
|-----------------|-----|------------|----------|

A Initiator Group contains authorised initiator names and networks to access the target.

2 - Click the



Services | iSCSI Target | Initiator Group | Add

Settings Targets Portals **Initiators** Auths Media

Tag number
 Numeric identifier of the group.

Initiators
 Initiator authorised to access to the iSCSI target. It takes a name or 'ALL' for any initiators.

Authorised network
 Network authorised to access to the iSCSI target. It takes IP or CIDR addresses or 'ALL' for any IPs.

Comment
 You may enter a description here for your reference.

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

Services | iSCSI Target | Initiator Group

Settings Targets Portals **Initiators** Auths Media

The configuration has been changed.
 You must apply the changes in order for them to take effect.

Initiator Groups

| Initiator Group | Tag | Initiators | Networks |
|-----------------|-----|------------|----------|
| | 1 | ALL | ALL |

A Initiator Group contains authorised initiator names and networks to access the target.

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.

The screenshot shows the 'Targets' tab in the iSCSI Target configuration interface. It features a navigation bar with tabs for Settings, Targets, Portals, Initiators, Auths, and Media. The 'Targets' section contains two tables. The first table, 'Extent', has columns for Name, Path, and Size, with a plus sign icon to its right. Below it is a note: 'Extents must be defined before they can be used, and extents cannot be used more than once.' The second table, 'Target', has columns for Name, Flags, LUNs, PG, IG, and AG, also with a plus sign icon to its right. Below it is a note: 'At the highest level, a target is what is presented to the initiator, and is made up of one or more extents.' A 'Note' section follows, explaining that to configure a target, at least a Portal Group, Initiator Group, and Extent must be added. It defines each: Portal Group (IP addresses and ports), Initiator Group (names and networks), Auth Group (users and secrets), and Extent (storage area).

2 - Click the



for creating an Extent.

The screenshot shows the 'Extent Add' form in the iSCSI Target configuration interface. It features the same navigation bar as the previous screenshot. The form has several fields: 'Extent Name' (text input with 'extent0' and a description 'String identifier of the extent.'), 'Type' (dropdown menu with 'File' selected and a description 'Type used as extent.'), 'Path' (text input with a browse button and a description 'File path (e.g. /mnt/sharename/extent/extent0) used as extent.'), 'File size' (text input with a unit dropdown set to 'MiB' and a description 'Size offered to the initiator. (up to 8EiB=8388608TiB. actual size is depend on your disks.)'), and 'Comment' (text input with a description 'You may enter a description here for your reference.'). At the bottom are 'Add' and 'Cancel' buttons.



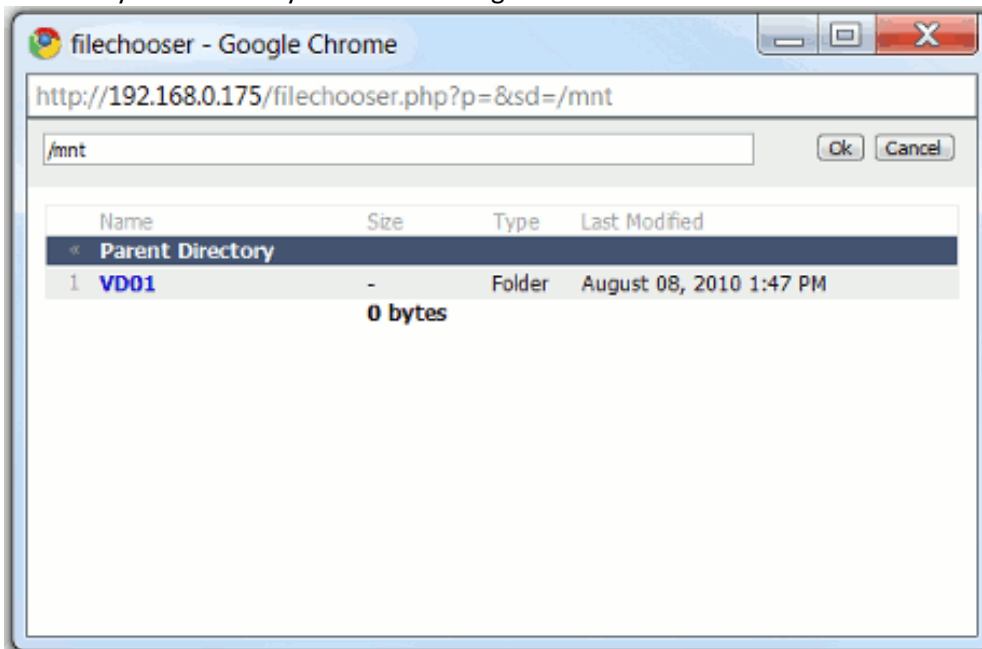
3 - Give the Extent a name I left mine as "extent0".

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".

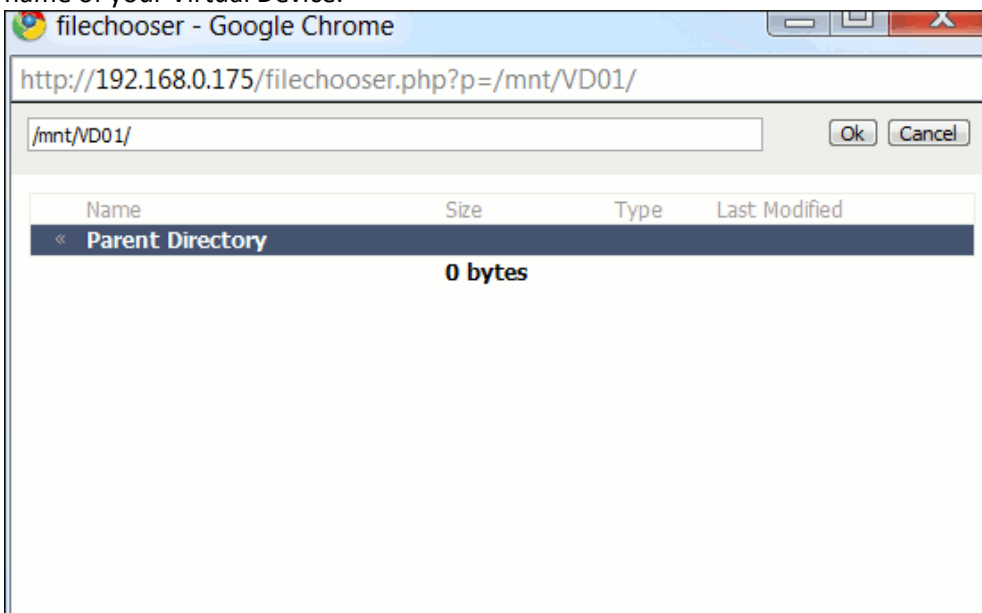
5 - Click on the



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.

Path ...
File path (e.g. /mnt/sharename/extent/extent0) used as extent.

This will appear in the Target Add page.

8 - Add to the path field "extent0"

Path ...
File path (e.g. /mnt/sharename/extent/extent0) used as extent.

9 - File Size:

Disk space usage **VD01**

Total: **7.25T** | Used: **103K** | Free: **5.34T** | State: **ONLINE**

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.

Path ...
File path (e.g. /mnt/sharename/extent/extent0) used as extent.

File size ▼
Size offered to the initiator. (up to 8EiB=8388608TiB. actual size is depend on your disks.)

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

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

Services | iSCSI Target | Target

Settings **Targets** **Portals** **Initiators** **Auths** **Media**

The changes have been applied successfully.

Targets

| Extent | Name | Path | Size | |
|--------|---------|-------------------|--------|--|
| | extent0 | /mnt/VD01/extent0 | 5468GB | |

Extents must not be used more than once.

| Target | Name | Flags | LUNS | PG | IG | AG | |
|--------|------|-------|------|----|----|----|--|
| | | | | | | | |

At the highest level, a target is what is presented to the initiator, and is made up of one or more extents.

Note:
To configure the target, you must add at least Portal Group and Initiator Group and Extent.
Portal Group which is identified by tag number defines IP addresses and listening TCP ports.
Initiator Group which is identified by tag number defines authorised initiator names and networks.
Auth Group which is identified by tag number and is optional if the target does not use CHAP authentication defines authorised users and secrets for additional security. Extent defines the storage area of the target.

Adding a Target

All that is left is to add a target.

Services | iSCSI Target | Target

Settings Targets Portals Initiators Auths Media

Targets

| Extent | Name | Path | Size |
|---|------|------|------|
| Extents must be defined before they can be used, and extents cannot be used more than once. | | | |

+

| Target | Name | Flags | LUNs | PG | IG | AG |
|--|------|-------|------|----|----|----|
| At the highest level, a target is what is presented to the initiator, and is made up of one or more extents. | | | | | | |

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Note:
To configure the target, you must add at least Portal Group and Initiator Group and Extent.
Portal Group which is identified by tag number defines IP addresses and listening TCP ports.
Initiator Group which is identified by tag number defines authorised initiator names and networks.
Auth Group which is identified by tag number and is optional if the target does not use CHAP authentication defines authorised users and secrets for additional security. Extent defines the storage area of the target.

1. Click the



to add a target.



Services | iSCSI Target | Target | Add

Settings Targets Portals Initiators Auths Media

iSCSI Target

| | |
|-----------------|--|
| Target Name | <input type="text" value="disk0"/> <small>Base Name will be appended automatically when starting without 'iqn.'</small> |
| Target Alias | <input type="text"/> <small>Optional user-friendly string of the target.</small> |
| Type | <input type="text" value="Disk"/> <small>Logical Unit Type mapped to LUN.</small> |
| Flags | <input type="text" value="Read/Write (rw)"/> |
| Portal Group | <input type="text" value="Tag1"/> <small>The initiator can connect to the portals in specific Portal Group.</small> |
| Initiator Group | <input type="text" value="Tag1"/> <small>The initiator can access to the target via the portals by authorised initiator names and networks in specific Initiator Group.</small> |
| Comment | <input type="text"/> <small>You may enter a description here for your reference.</small> |

LUN0

| | |
|---------|---|
| Storage | <input type="text" value="extent0 (/mnt/VD01/extent0)"/> <small>The storage area mapped to LUN0.</small> |
|---------|---|

Advanced settings

| | |
|----------------------|---|
| Auth Method | <input type="text" value="Auto"/> <small>The method can be accepted by the target. Auto means both none and authentication.</small> |
| Auth Group | <input type="text" value="None"/> <small>The initiator can access to the target with correct user and secret in specific Auth Group.</small> |
| Initial Digest | <input type="text" value="Auto"/> <small>The initial digest mode negotiated with the initiator.</small> |
| Queue Depth | <input type="text" value="0"/> <small>0=disabled, 1-255=enabled command queuing with specified depth. The recommended queue depth is 32.</small> |
| Inquiry Vendor | <input type="text"/> <small>You may specify as SCSI INQUIRY data. Empty as default. (up to 8 ASCII chars)</small> |
| Inquiry Product | <input type="text"/> <small>You may specify as SCSI INQUIRY data. Empty as default. (up to 16 ASCII chars)</small> |
| Inquiry Revision | <input type="text"/> <small>You may specify as SCSI INQUIRY data. Empty as default. (up to 4 ASCII chars)</small> |
| Inquiry Serial | <input type="text"/> <small>You may specify as SCSI INQUIRY data. Empty as default. (up to 16 ASCII chars)</small> |
| Logical Block Length | <input type="text" value="512B / block"/> <small>You may specify logical block length (512 by default). The recommended length for compatibility is 512.</small> |

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.

Services | iSCSI Target | Target

Settings | Targets | Portals | Initiators | Auths | Media

The configuration has been changed. You must apply the changes in order for them to take effect.

Apply changes

Targets

| Extent | Name | Path | Size |
|--------|---------|-------------------|---------|
| | extent0 | /mnt/VD01/extent0 | 5468GIB |

Extents must be defined before they can be used, and extents cannot be used more than once.

| Target | Name | Flags | LUNs | PG | IG | AG |
|--------|------------------------------------|-------|------------------------|----|----|------|
| | iqn.2007-09.jp.ne.peach.istgt:LUN0 | rw | LUN0=/mnt/VD01/extent0 | 1 | 1 | none |

At the highest level, a target is what is presented to the initiator, and is made up of one or more extents.

Note:
 To configure the target, you must add at least Portal Group and Initiator Group and Extent. Portal Group which is identified by tag number defines IP addresses and listening TCP ports. Initiator Group which is identified by tag number defines authorised initiator names and networks. Auth Group which is identified by tag number and is optional if the target does not use CHAP authentication defines authorised users and secrets for additional security. Extent defines the storage area of the target.

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

iSCSI Initiator Properties

Targets | **Discovery** | Favorite Targets | Volumes and Devices | RADIUS | Configuration

Target portals

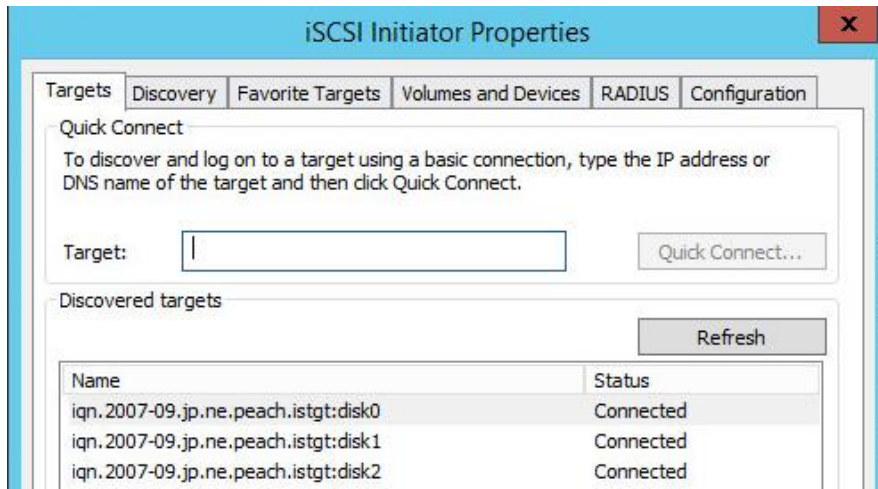
The system will look for Targets on following portals:

| Address | Port | Adapter | IP address |
|---------------|------|---------|------------|
| 172.168.0.100 | 3260 | Default | Default |

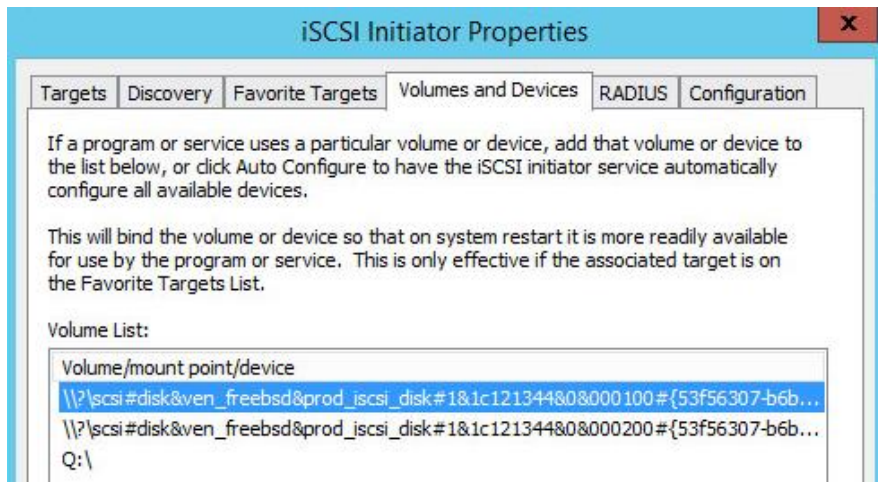
To add a target portal, click Discover Portal.

Discover Portal...

Second Step is to Configure Targets

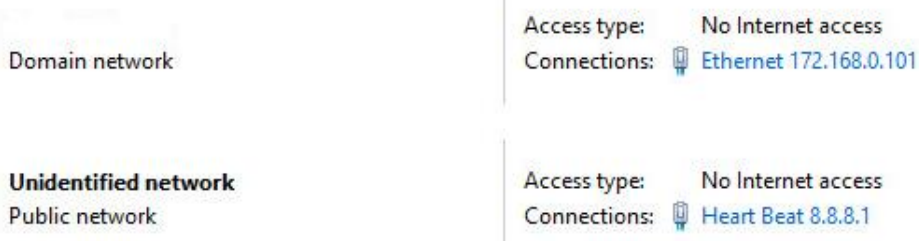


After Targets -> we can click the Volumes and Devices which should show like this



Setting up the Network Configuration for Each Node

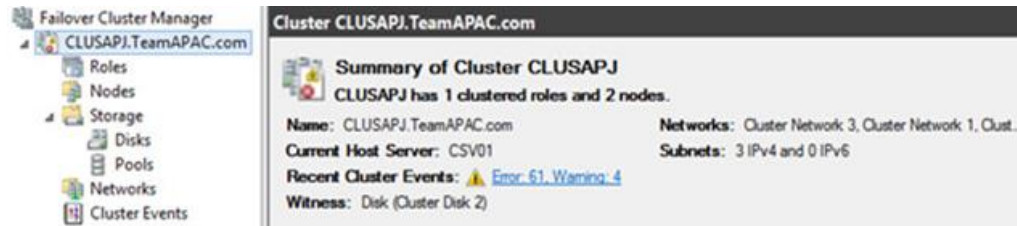
- Both Nodes having Two Network Adapters configured
- Each having 1 Public and 1 private IP





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

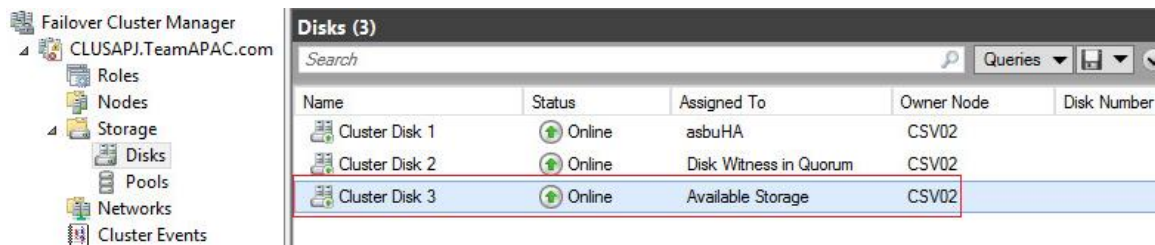


- Click Next.
The Select Storage dialog opens.
Specify the volume that you want to assign to the service or application.
- Click Next, and then click Finish.
- The cluster resource is prepared.
- Start Installing arcserve after the resources are created

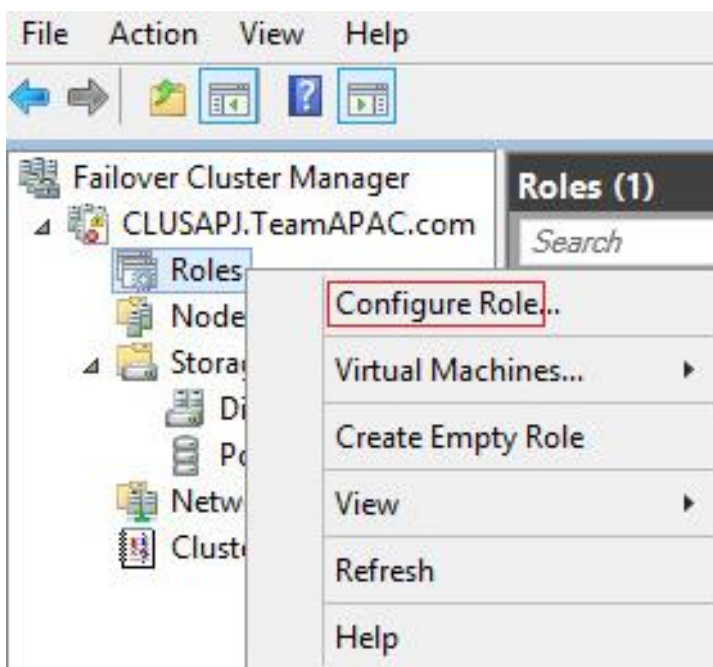
Configuring Arcserve Role

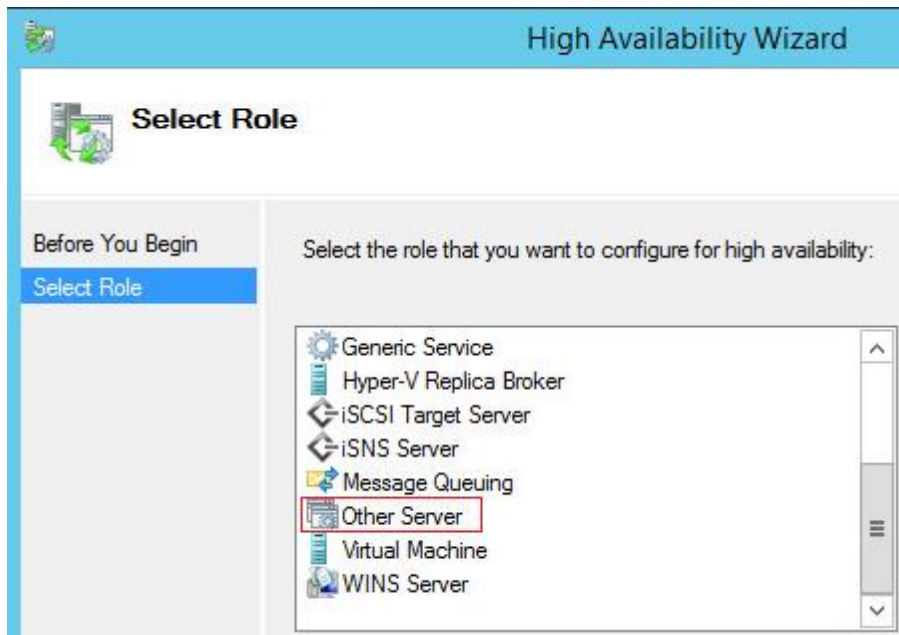
- Ensure that there is available storage to start the cluster configuration for arcserve
- Setup the Roles before installing Arcserve. Assign the Available storage to the Role first

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

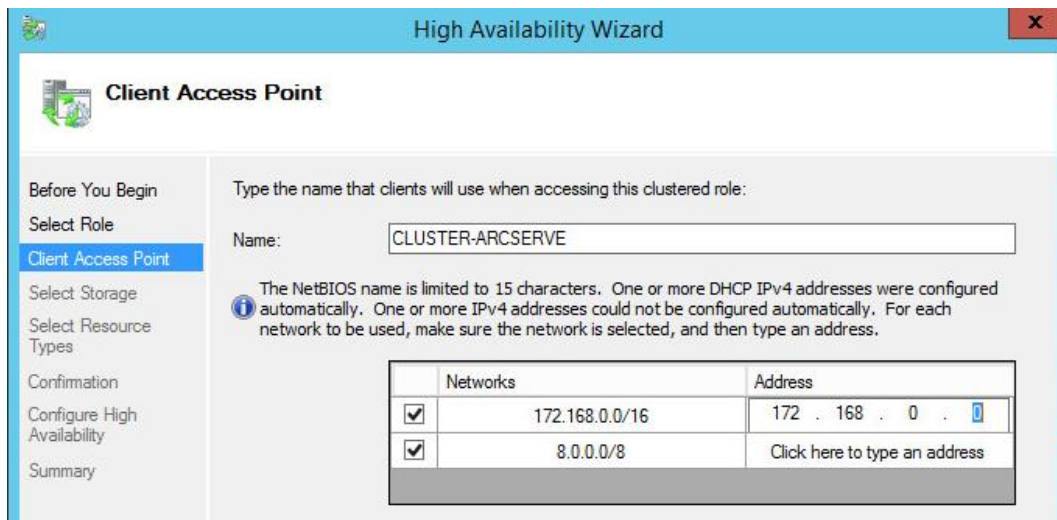


Assign Roles





Configure Network IP's



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

High Availability Wizard

Select Storage

Before You Begin
 Select Role
 Client Access Point
Select Storage
 Select Resource Types

Select only the storage volumes that you want to assign to this clustered role.
 You can assign additional storage to this clustered role after you complete this wizard.

| Name | Status | |
|---|--------|-----------------------|
| <input checked="" type="checkbox"/> Cluster Disk 3 Volume: (E) File System: NTFS | Online | 449 MB free of 497 MB |

Confirmation Screen

High Availability Wizard

Confirmation

Before You Begin
 Select Role
 Client Access Point
 Select Storage
 Select Resource Types
Confirmation
 Configure High Availability

You are ready to configure high availability for a Other Server.

| | |
|----------------------|---------------------------------|
| Storage: | Cluster Disk 3 |
| Network Name: | CLUSTER-ARCSERVE |
| OU: | CN=Computers,DC=TeamAPAC,DC=com |
| IP Address: | DHCP address on 10.60.12.0/24 |
| IP Address: | 172.168.0.60 |
| IP Address: | 8.0.0.1 |

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

For example, here the install path is F Drive

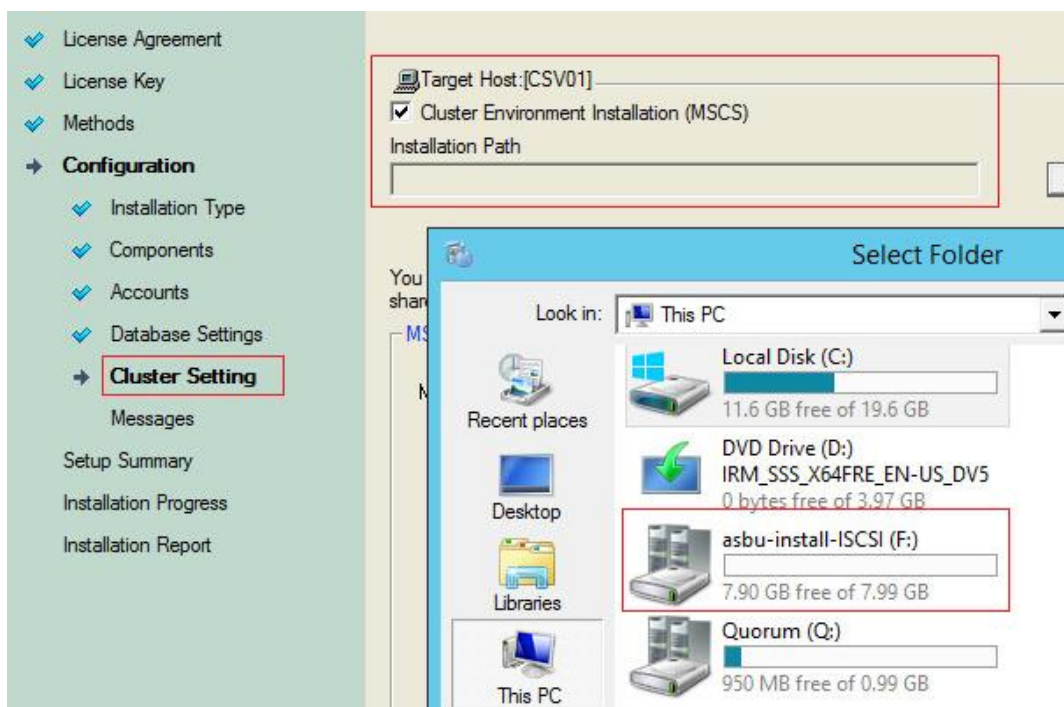
Devices and drives (5)

- Floppy Disk Drive (A:)
- DVD Drive (D:)
IRM_SSS_X64FRE_EN-US_DV5
0 bytes free of 3.97 GB
- Quorum (Q:)
950 MB free of 0.99 GB
- Local Disk (C:)
11.6 GB free of 19.6 GB
- asbu-install-ISCSI (F:)**
7.90 GB free of 7.99 GB



Install Path:

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



Select Stand Alone and proceed with installation



Target Host:[CSV01]

Cluster Environment Installation (MSCS)

Installation Path
F:\ARCSERVE R17\

You are performing a Cluster-aware setup. Please select the installation path of Arcserve E shared disk. (note: this will also change catalog path into shared disk)

MSCS Summary

MSCS Cluster Setting Summary

| | |
|--------------------|------------------|
| Virtual Node Name | ASBUHA |
| Virtual IP Address | 172.168.0.14 |
| Installation Path | F:\ARCSERVE R17\ |

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

Target Host:[CSV01]

Choose a database type: Arcserve Default Database

Specify the installation path for Arcserve default database

Default installation path: C:\Program Files (x86)\Microsoft SQL Server

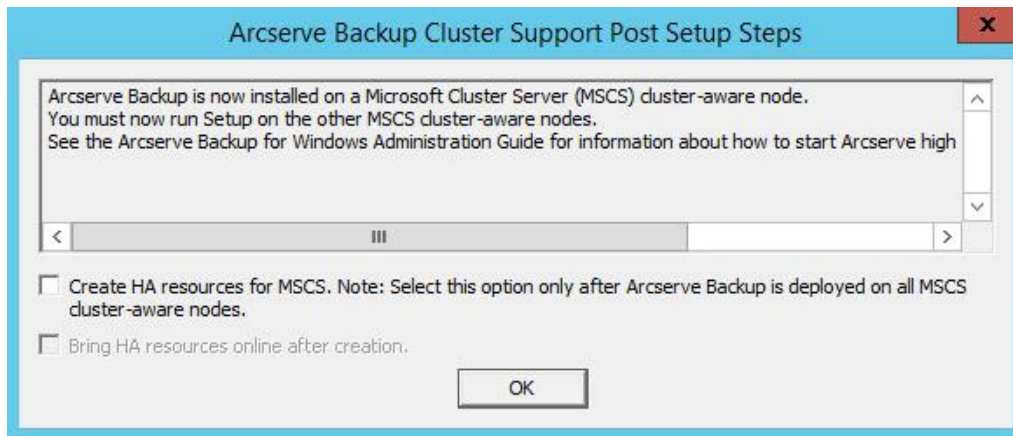
Select a custom path

Data file path for Arcserve default database

Default installation path: F:\ARCSERVE R.17\SQLASDB\data

Select a custom path

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



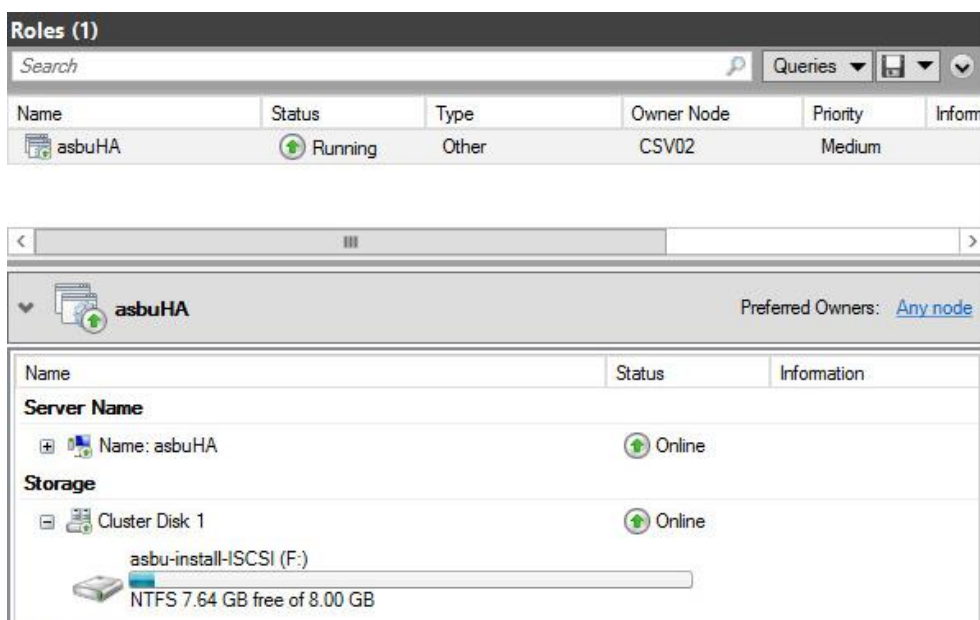
After Node 1 is completed, failover to the second node

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

Disks (3)

| Search Queries Save Refresh

| Name | Status | Assigned To | Owner Node | Disk Number |
|----------------|--------|------------------------|------------|-------------|
| Cluster Disk 1 | Online | asbuHA | CSV02 | |
| Cluster Disk 2 | Online | Disk Witness in Quorum | CSV02 | |
| Cluster Disk 3 | Online | Available Storage | CSV02 | |

< ||| >

Cluster Disk 1

Volumes (1)

asbu-install-iscsi (F:)

NTFS 7.64 GB free of 8.00 GB

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

Arcserve Backup Cluster Support Post Setup Steps ✕

Arcserve Backup is now installed on a Microsoft Cluster Server (MSCS) cluster-aware node.
You must now run Setup on the other MSCS cluster-aware nodes.
See the Arcserve Backup for Windows Administration Guide for information about how to start Arcserve high

< ||| >

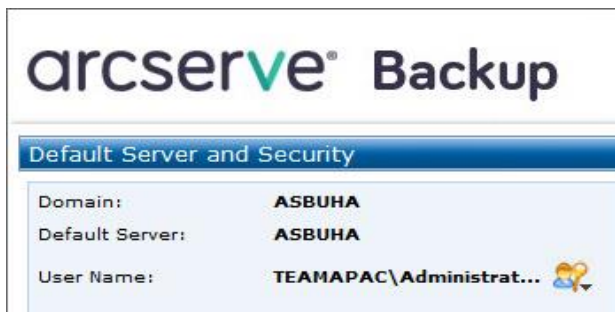
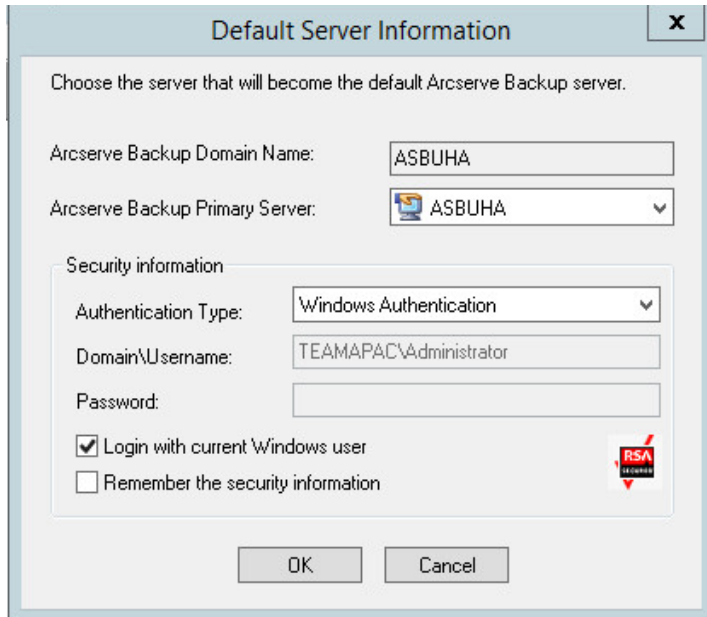
Create HA resources for MSCS. Note: Select this option only after Arcserve Backup is deployed on all MSCS cluster-aware nodes.

Bring HA resources online after creation.

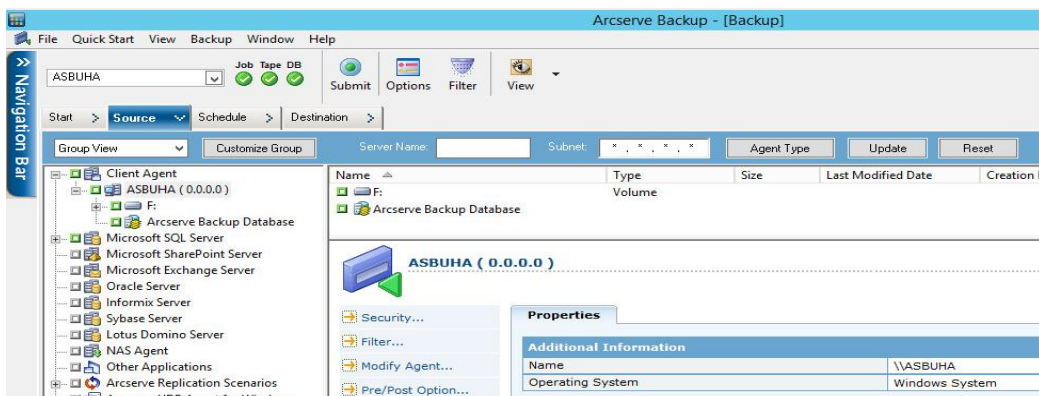
OK



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

