## 2012 R2 Clustering

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#### Overview

## Setting up FreeNas

To set up FreeNas first you need to download the latest iso from FreeNas's official site (<u>http://www.freenas.org/download/</u>), in our case it was version 11.1. Next you need to upload it to a datastore with in your ESXI.

🔂 Datastore browser					
🛉 Upload 📑 Download	🙀 Delete 🔒 Move 👔	Copy  🎦 Create directory 📔	C Refresh		
ISCSI MgmtDatastore_18 Student18-1Datast Student18-2Datast	<ul> <li>.sdd.sf</li> <li>.t10.ATASan</li> <li>DC1</li> <li>DC2_1</li> <li>Freenas</li> <li>HostOne</li> <li>ISO</li> <li>Server_01</li> <li>unders_CORE</li> <li>Visio-Share</li> </ul>	CentOS-7-x86_64 en_windows_7_pr en_windows_8.1 en_windows_serv FreeNAS-11.1-U2.iso VMware-VCSA-all-6	FreeNAS-11.1-U2.iso 602.06 MB Thursday, February 22,	III	
[Student18-1Datastore]	SO/FreeNAS-11.1-U2.iso				
					Close

Now create a VM and use the FreeNas ISO you just uploaded to the datastore. Make sure you have at least 8GB's for the actual Freenas ISO to go on, and 3 other 10GB Hard disks to make a RaidZ. Add at least 2 network adapters as well.

Artual Hardware VM Options				
🔜 Add hard disk 🗾 Add netw	ork adapter 🛛 😑 A	dd other device		
🕨 🗖 CPU <u>A</u>	2 🔻	0		
🕨 🏧 Memory 🛕	8192	MB		
🕨 🔚 Hard disk 1 🛕	16	GB 🔻		0
🕨 🔜 Hard disk 2 🛕	10	GB 🔹		0
🕨 🚐 Hard disk 3 <u>٨</u>	10	GB 🔻		0
🕨 🔜 Hard disk 4 🛕	10	GB 🔻		0
🕨 🊱 SCSI Controller 0	LSI Logic	Parallel	•	0
SATA Controller 0				0
🚭 USB controller 1	USB 2.0		*	0
Network Adapter 1	External2		▼ 🗹 Connect	0
• 🛤 Network Adapter 2	Internal-N	etwork	▼ 🗹 Connect	0
🕨 🎫 Network Adapter 3	1 - VM WA	N 18 - CONNECT VMs HERE	▼ 🗹 Connect	0
SD/DVD Drive 1	Datastore	ISO file	▼ 🗹 Connect	0
🕨 🛄 Video Card	Specify cu	stom settings	¥	

## **Configuring FreeNas**

Now once we have booted up the FreeNas VM it's time to configure FreeNas.

Once you get to the installer click enter on "FreeNas" to get the options menu

Now you are in the console setup hover over Install/Upgrade and click Ok.



If FreeNas prompts you saying you have less than recommended amount of RAM, either click **yes** to continue at your own risk, or **no** then start over and add at least 4GB of RAM.

Now you can choose which drive you wish to install just FreeNas on by hitting **space** on the drive and then **ok**.



The next prompt will ask for a root password type it in twice to confirm, and make sure you remember it!

The next prompt will ask if you want to use UEFI or BIOS we chose BIOS and clicked **enter**.

Now it's installing FreeNas on your specified drive, this will take a few moments.

At the end of the installation you will need to reboot, click **Ok** to reboot.

The FreeNAS installation Please reboot and remove	
	<mark>&lt; OK &gt;</mark>

Once it has rebooted it will give you a link to the website using a DHCP address from one your NIC's. Enter the URL into a browser to be connected to the FreeNas interface.

You may try the following URLs to access the web user interface: http://192.168.2.73

Login using username **root** and the root password you made earlier.

Set up the initial the first page of the initial wizard to the right timezone and language then exit out.

Language:	English 💌
Console Keyboard Map:	*
Timezone:	America/Los_Angeles

Now it's time to set up storage and ISCSI.

## **FreeNas Storage**

Making a Raidz:

Make sure you have 3 hard drives, of the same size, for a parity drive.

For this example, we made 3 drives of 10 gigabytes each, resulting in a 16GB parity drive.

Browse to the FreeNas site, login, and browse to the Volume manager option. Double click on that, and follow the screenshots.



Give the volume a name, drag the scroll ball at the bottom to 3 to specify you are using 3 disks, which is a ZFS RAIDz volume. Make sure the drop down box is set to RaidZ then Hit "**Add Volume**".

Volume Name	- 1					
zVol-T	10					
Volume to extend						
Encryption						
Available disks						
Available uisks						
1 10 7 00 /	C I S S S S S S S S S S S S S S S S S S					
+ 1 - 10.7 GB (no more	drives)					
+ 1 - 10.7 GB (no more	e drives)					
+ 1 - 10.7 GB (no more Volume layout (Estimated	capacity: 16.00 G					
	capacity: 16.00 G	3	4 S 6	7 8 9	10 11 12 13 14 1	5
- Volume layout (Estimated	capacity: 16.00 G		4 5 6	7 8 9	10 11 12 13 14 1	5
Volume layout (Estimated	capacity: 16.00 G	3	4 5 6	7 8 9	10 11 12 13 14 1	5
Volume layout (Estimated RaidZ 3x1x10.7 GB Capacity: 16.00 GiB	capacity: 16.00 G	3	4 5 6	7 8 9	10 11 12 13 14 1	<b>C</b> 1
Volume layout (Estimated RaidZ 3x1x10.7 GB	capacity: 16.00 G	3	4 5 6	7 8 9	10 11 12 13 14 1	5

The volume will then be created.

Volume Manager	8

Now that the main volume manager is set up go to the volume you just created and click it then at the bottom click add zVol.



Give the new zvol a name, a comment relative to its job, and a size. Leave the rest default and click "**Add zvol**".

reate zvol	
Create zvol on Cluster	
zvol name:	This value is require
Comments:	
Size for this zvol:	<b>(</b>
Force size:	
Sync:	Inherit (standard)
Compression level:	Inherit (lz4)
ZFS Deduplication:	Enabling dedup can drastically reduce performance ar affect the ability to access data. Compression usually offers similar space savings with much lower performance impact and overhead.
	Inherit (off)
Sparse volume:	
Add zvol Cancel A	dvanced Mode

Now you're ready to start building your iSCSI infrastructure.

## ISCSI

Setting up ISCSI:

First go to services and make sure iSCSI is on, by default it is off, if so turn it on by clicking "**Start Now**".

Storage Director	y Shar		<b>Services</b>	<b>F</b> Plugins	Jails
ervices					
AFP	) Stopped	٩	Start Now	📄 🔲 Start o	n boot
Domain Controller	) Stopped	ع	Start Now	📃 📃 Start o	n boot
Dynamic DNS	) Stopped	æ	Start Now	📃 🔲 Start o	n boot
FTP	) Stopped	2	Start Now	📃 📃 Start o	n boot
iscsi	Running	æ	Stop Now	🔽 Start o	n boot
LLDP	) Stopped	ع	Start Now	📃 🔲 Start o	n boot
Netdata	) Stopped	4	Start Now	📃 🔲 Start o	n boot
NFS	) Stopped	ع	Start Now	📃 📃 Start o	n boot
Rsync	) Stopped	æ	Start Now	📃 🔲 Start o	n boot
53	) Stopped	٩	Start Now	📃 🔲 Start o	n boot
S.M.A.R.T.	) Stopped	æ	Start Now	🛛 🔽 Start o	n boot
SMB	Running	2	Stop Now	🔽 Start o	n boot
SNMP	) Stopped	æ	Start Now	📃 🔲 Start o	n boot
SSH	) Stopped	2	Start Now	📃 🔲 Start o	n boot
ТЕТР	) Stopped	4	Start Now	📃 🔲 Start o	n boot
UPS	) Stopped	٩	Start Now	📃 🔲 Start o	n boot
WebDAV	) Stopped	4	Start Now	📃 🔲 Start o	n boot

Then to get to iSCSI go to Sharing > Block (iScsi) > Target Global Configuration.



Leave it as is and go to the tab beside it "**Portals**" to configure your main listener. At the top left of the page click "**Add Portal**". In the Add portal wizard give it a comment relative to what it's doing (ie. "main listener") select the IP you want the main listener to use from the drop down box of IP's, leave everything else to their defaults. Then click **Ok** to confirm.

Comment:	1	A
Discovery Aut	Method: None	
Discovery Aut	n Group: None 💌	
Portal IP		
IP Address		
Port:	3260	
Add extra Porta	al IP	

Next go to the "Initiators" tab.

At the top left of the page click "Add Initiator".

To find the Identifier we must first log into our vCenter and go to **Hosts & Clusters** > **ESXI18** > **Manage** > **Storage Adapters** click on the iSCSI one and copy its identifier (the iqn.12345).

➡ bdoopData ▶ ♥ Jordan-Tyler-Cluster	44	Storage Adapters			
esxi03.itas.ca	Storage Adapters	+ 🔂 💵 🔯 📭 -			Q Filter
	Storage Devices	Adapter	Туре	Status	Identifier
► C iSCSI	Host Cache Configuration	🚱 vmhba35	Block SCSI	Unknown	
Mgmt_18	Protocol Endpoints	√mhba34     √	Block SCSI	Unknown	
▶ 🤿 Student18-1		🚱 vmhba36	Block SCSI	Unknown	
▶ 🧑 Student18-2		iSCSI Software Adapter			
▶ <u>∎</u> bdoopSecondary		🚱 vmhba39	ISCSI	Online	iqn.1998-01.com.vmware:esxi18-1b
		4	::		▼ ↓
		Adapter Details	3		

Now back in FreeNas inside the **Add Initiator** wizard paste in the iqn identifier for the **Initiator** and for the **Authorized network** make it the ESXI towers IP or leave it as All and give it a comment. Then click **Ok** to confirm.

Initiators:	ign.1998-01.com.vmware:esxi18-1b39a604
Authorized network:	10.104.142.18/24
Comment:	esxi18

Skip over the **Authorized Access** tab and go to the **Targets** tab. At the top left of the page click "**Add Target**".

Give use the iqn target from earlier as the name, give it an alias under **portal group ID** chose the main listener we created earlier in the drop down box. For the **Initiator Group ID** use the initiator created earlier and click **Ok**.

Target Name:	iqn.1991-05.com.mic	rosoft:: 🧃
Target Alias:	Quorum	i
iSCSI Group		
Portal Grou	ıp ID:	1 (Freenas)
Initiator Gr	oup ID:	2 (Quorum)
Auth Metho	d:	None
Authentica	tion Group number:	None
Delete:		
Add extra iSCS	I Group	

Next go to the **Extents** tab. At the top left of the page click "**Add Extent**"

Give the Extent a name, Under the **Device** drop down box choose which device you want to store this Extent in. Give it a comment and leave the rest default. Then click **Ok** to confirm.

Extent Name:	Cluster	i
Extent Type:	Device 💌	
Device:	Cluster/Cluster (10.0 GiB) 🔻	
Serial:	005056aa0a2101	ì
Logical Block Size:	512 -	
Disable Physical Block Size Reporting:		
Available Space Threshold (%):		ì
Comment:	Clusterex	Ì
Enable TPC:		
Xen initiator compat mode:		
LUN RPM:	ssd 🔽 🛈	
Read-only:		
OK Cancel Delete		

#### Next go to the **Associated Targets** tab. At the top left of the page click "**Add Target/Extent**"

Choose from the **Target** drop down box which target you want to use, give it an ID, and choose which Extent you want to link it with. Then click **Ok**.

Target:	iqn.1991-05.com.microsc	٣
LUN ID:	2	
Extent:	QuorumExtent	*
ок с	ancel Delete	

#### Setting up iSCSI Initiator within a server:

Now we can get out of FreeNas and go to a created server within your ESXI. Login to a windows 2012 r2 server and go to iSCSI Initiator (windows + s "iSCSI Initiator").

		ISCSI In	itiator Properties	;	
argets	Discovery	Favorite Targets	Volumes and Devices	RADIUS	Configuration
To disc		on to a target usir arget and then dick	g a basic connection, t Quick Connect.	ype the IP	address or
Target				Qu	uick Connect
Discove	ered targets				
					<u>R</u> efresh
Name				Status	
click Co	onnect.		elect a target and then		Connect
click Co	onnect.	nnect a target, sel			Co <u>n</u> nect Disconnect
click Co To con then cl For tar	onnect. Inpletely disco lick Disconnec get propertie	nnect a target, sel ct.			-

Under "**Target:**" type in the main listeners ip "10.104.142.124" and click **Quick Connect** you should then see the iqn Initiator name, click **Connect**.

Inside the **Connect to Target** pop up window click **Ok**.

Co	nnect To Target	1	X
Target name:			
ign. 1991-05.com.microsoft:ser	ver01.bdoop.local		
Add this connection to the list This will make the system aut connection every time this co	omatically attempt to	restore th	ne
Enable multi-path			
Advanced		ОК	Cancel

Repeat these Steps for the Second server as well!

## Clustering

Start by installing Failover clustering in server managers roles & features.

Go to failover cluster manager. As we need to create one, click the Create Cluster option...

8.		Failover (	lluster Manager			_ 0	×
File Action View Help							
🧇 🏟 🕅 🖬 🖬						~~~	
Hailover Cluster Manager	Failover Cluster Manager				^	Actions	
	Create failover clusters, va	lidate hardware for potential failover clusters, and p	erform configuration changes to your	failover clusters.		Failover Cluster Manager Validate Configuration Create Cluster	•
	∧ Overview					Create Cluster	
	A failover cluster is a set of indep connected by physical cables and	endent computers that work together to increase the d by software. If one of the nodes fails, another node	e availability of server roles. The clus e begins to provide services. This pro	tered servers (called nodes) are icess is known as failover.		View	•
					- 11	Refresh	
	▲ Clusters					Properties	
	Name	Role Status	Node Status	Event Status		🕜 Help	
		No items :	bund.		=		
	<ul> <li>Management</li> </ul>						
	To begin to use failover clustering cluster. Managing a cluster can in W Validate Configuration Create Cluster Create Cluster	g, first validate your hardware configuration, and th clude copying roles to it from a cluster running Win	in create a cluster. After these steps dows Server 2012 R2. Windows Serv	are complete, you can manage the ver 2012, or Windows Server 2008 R2.			
	More Information				1		
	Eailover cluster topics on the     Eailover cluster communities of     Microsoft support page on the	on the Web					
						1	

Name your cluster, and connect it to the domain network. Hit next, confirm, and wait it out.



C:\Users\tdw\AppData\Local\Temp\tmpC01 P + C Create Cluster ×	<u> </u>
Configuring Cluster Service on node Server01.bdoop.local.	^
Validating installation of the Network FT Driver on node Server02.bdoop.local.	
Validating installation of the Cluster Disk Driver on node Server02.bdoop.local.	
Configuring Cluster Service on node Server02.bdoop.local.	
Waiting for notification that Cluster service on node Server01.bdoop.local has started.	
Forming cluster 'ClusterR2'.	
Adding cluster common properties to ClusterR2.	
Creating resource types on cluster ClusterR2.	
Creating resource group 'Cluster Group'.	
Creating IP Address resource 'Cluster IP Address'.	
Creating Network Name resource 'ClusterR2'.	
Searching the domain for computer object 'ClusterR2'.	
Bind to domain controller \\DC1.bdoop.local.	
Check whether the computer object ClusterR2 for node exists in the domain. Domain controller \\DC1.bdoop.ld	ocal.
Computer object for node exists in the domain.	
Verifying computer object 'ClusterR2' in the domain.	~
(eb	

### Here's a Summary of what you configured in the form of report

Once you have made the cluster check to see if the disks are online.

Name	Status	Assigned To	Owner Node	Disk Number
📇 Cluster Disk 1	( Online	Available Storage	Node4	
📇 Cluster Disk 2	( Online	Disk Witness in Quorum	Node4	

Now we can set up shared storage for our clients.

## **Shared Storage**

Now right click on Roles, and click add role, then choose File Server.



#### For the File Server Type keep as default "SMB" and click Next to continue.



## In the "Client access Point" tab give this shared storage a name and click Next to continue.

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	
🗹 🗄 📇 Cluster	Disk 1 💿 Online	

Make sure it's using your internal IP address when receiving a DHCP; otherwise there may be trouble later on (we had this as external at first and it took us a while to realize and fix it). Click **Next**.

Storage:	Cluster Disk 1	
Network Name:	Clustershare	0
OU:	CN=Computers,DC=rat,DC=local	
IP Address:	DHCP address on 10.104.142.0/24	
		~

Check the summary and click **Finish**.

Storage:Cluster Disk 1Network Name:ClustershareOU:CN=Computers,DC=rat,DC=localIP Address:DHCP address on 10.104.142.0/24	
OU: CN=Computers,DC=rat,DC=local	
IP Address: DHCP address on 10.104.142.0/24	
	~
To view the report created by the wizard, click View Report. View Rep To close this wizard, click Finish.	port

Now under **Roles** right click your share and **Click** Add File Share.

Search				_
Name		Status	Туре	
Clust Share		Start Role Stop Role		ve
	1	Add File Share		]
		Move	•	
	٩	Change Startup Priority	•	
	<b>1</b>	Information Details Show Critical Events		
	ය ල	Add Storage Add Resource	•	-
		More Actions	•	
	×	Remove		
	6	Properties		

Under shares right click **properties** It should initialize the file server if you have everything configured correctly. After this is finished a **SMB** file share wizard should pop up. Select the option **SMB Share - Quick** and hit **Next**.

Select Profile Share Location	File share profile:	Description: This basic profile represents the fastest way to create an
Share Name Other Settings Permissions Confirmation Results	SMB Share - Advanced SMB Share - Applications NFS Share - Quick NFS Share - Advanced	<ul> <li>SMB file share, typically used to share files with Windows-based computers.</li> <li>Suitable for general file sharing</li> <li>Advanced options can be configured later by using the Properties dialog</li> </ul>

Select the location of the share by clicking on it and hit Next.

Select Profile	Server:			
Share Location	Server Name	Status	Cluster Role	Owner Node
Share Name	clustshare	Online	File Server	
Other Settings				
Confirmation				
	Share location: Select by volume: Volume	Free Course	Capacity File Sy	
	B:	9.90 GB	10.0 GB NTFS	stem

Give the new share a name and it will automatically create the path, then hit Next.

		New Share Wizard	>
Specify share r	ame		
speeny share r			
Select Profile	Share name:	Share	
Share Location	Share description:		
Share Name	share description:		
Other Settings			
Permissions			
Confirmation	Local path to share	e	
Results	B:\Shares\Share		
	If the folder doe	es not exist, the folder is created.	
	Remote path to sh	are:	
	\\clustshare\Share		
	0		
		< Previous Next >	Create Cancel
		S FIEVIOUS IVEXUS	Cieace

**Defaults** here are fine. Hit next.

	New Share Wizard
Configure shar	e settings
Select Profile Share Location Share Name	Enable access-based enumeration Access-based enumeration displays only the files and folders that a user has permissions to access. If a user does not have Read (or equivalent) permissions for a folder, Windows hides the folder from the user's view.
Other Settings Permissions Confirmation Results	<ul> <li>Enable continuous availability         Continuous availability features track file operations on a highly available file share so that clients can fail over to another node of the cluster without interruption.     </li> <li>Allow caching of share         Caching makes the contents of the share available to offline users. If the BranchCache for Network Files role service is installed, you can enable BranchCache on the share.         Enable BranchCache on the file share         BranchCache enables computers in a branch office to cache files downloaded from this share, and then allows the files to be securely available to other computers in the branch.         Encrypt data access         When enabled, remote file access to this share will be encrypted. This secures the data against unautrorized access while the data is transferred to and from the share. If this box is checked and grayed out, an administrator has turned on encryption for the entire server.     </li> </ul>
	< Previous Next > Create Cancel

Add any users you might want to allow for **special** permissions... Otherwise just move on. Hit **Next**.

Select Profile Share Location Share Name Other Settings	permission	ns, and, optionally, a central missions: Everyone <mark>Full</mark> Cont	access policy.	combination of folder permissions, share
Permissions	Туре	Principal	Access	Applies To
Confirmation Results	Allow Allow Allow Allow Allow Allow	BUILTIN\Users BUILTIN\Users CREATOR OWNER NT AUTHORITY\SYSTEM BUILTIN\Administrators BUILTIN\Administrators	Special Read & execute Full Control Full Control Full Control Full Control	This folder and subfolders This folder, subfolders, and files Subfolders and files only This folder, subfolders, and files This folder, subfolders, and files This folder only
	Custon	ize permissions		

Check over the settings you configured and make sure they look reasonable, then hit **Next**.

	New Share	Wizard –	
Confirm selecti Select Profile Share Location	Confirm that the following	are the correct settings, and then click Creat	e.
Share Name	SHARE LOCATION	clustshare	
Other Settings	Cluster role:	File Server	
Permissions	Local path:	B:\Shares\Share	
Confirmation	SHARE PROPERTIES		
Results	Share nome: Protocol: Access-based enumeration: Caching: BranchCache: Encrypt data: Continuous availability:	Share SMB Disabled Enabled Disabled Enabled	
		< Previous Next > Create	Cancel

#### Setting up heartbeat network

To start, we created a new switch, with a port group called "heartbeat", and added a NIC to both servers that we wanted to connect to it. Just make sure each server is using this NIC and they can ping each other.

```
PS C:\Users\jbrown> ping 10.10.1.64
Pinging 10.10.1.64 with 32 bytes of data:
Reply from 10.10.1.64: bytes=32 time<1ms TTL=128
Reply from 10.10.1.64: bytes=32 time<1ms TTL=128
Reply from 10.10.1.64: bytes=32 time<1ms TTL=128
Ping statistics for 10.10.1.64:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
PS C:\Users\jbrown> _
```

#### **GPO Drive Map**

For this part we will be configuring a GPO to set up a drive map of the shared file server we just created for a client computer, this way end users can connect to our cluster file share much easier.

#### **Configuration of GPO**

In server manager click on **Tools** at the top right choose and open **Group Policy Management**.

Once open right click an OU click Create a GPO in this domain, and Link it here...

Give the GPO a Name and click **Ok**.

	New GPO	×
Name:		
New Group Policy Object	ct	
Source Starter GPO:		
(none)		

Go to User Configuration > Preferences > Windows Settings and right click on Drive Maps and click New Mapped Drive.



Our shared folder was located at \\CLUSTSHARE\B\$, SO we made the share here, we called it clustersharing. So in the Drive Map properties make sure you specify the correct location of the shared folder, then hit the check box for **Recconect** give it a **Label** and a **Drive letter**, hit **Ok** to submit your configurations.

	Q: Properties	
eneral Common	1	
Action:	Replace	,
Location:	\\ClustShare.rat.local\Clustersharing	
Reconnect:	Label as: Sales Drive	
Drive Letter	vailable, starting at:   Use:	~
Drive Letter	railable, starting at:   Use:	
Drive Letter O Use first av Connect as (opt	railable, starting at:   Use:	- 
Drive Letter O Use first av Connect as (opt User name:	tional)	
Drive Letter O Use first av Connect as (opt User name: Password:	tional)	
Drive Letter O Use first av Connect as (opt User name: Password: Hide/Show this o	tional) Confirm password: Hide/Show all drives No change	<b>~</b>

Now login to the client corresponding to the GPO OU and if you configured everything right it should be there after a quick "**gpforce /update**" in the cmd and after another login it will show up in file explorer under **This PC > Network Locations**.



## **Redundant DHCP servers**

Don't forget to **un-authorize** your dhcp server!

<b>9</b>		DHCP	_	
File Action	View Help			
<				
DHCP	Manage Au	uthorized Servers	? X	
⊿ 📋 dc2.ra	Authorized DHCP servers:			-
D D IP	Name	IP Address	Authorize	is 🕨
			Unauthorize	
			Refresh	
			heiresh	
	To add a computer to the DHCP cons	ole, select the computer, and	then click OK.	
		OK	Close	
	< 111	>		
			0 0	

# Install the DHCP role on your nodes within Server Manager (Add Roles and Features )!

2	Add Roles and Features Wizard	×
Installation prog	TESS DESTINATION SERVER Node4.rat.local	
Before You Begin Installation Type Server Selection Server Roles	View installation progress Feature installation Installation started on Node4.rat.local	
Features DHCP Server Confirmation Results	DHCP Server Remote Server Administration Tools Role Administration Tools DHCP Server Tools	
	You can close this wizard without interrupting running tasks. View task progress or open this page again by clicking Notifications in the command bar, and then Task Details. Export configuration settings           < Previous	

Inside Failover Cluster,

Click **Roles**, after finished installing **DHCP** on both nodes.



#### Click DHCP Server, then next.

	Type	enner nede =	Thoney	Information
37		High Availabilit	y Wizard	
Select R	ole			
Before You Begin Gelect Role	Select the role that	t you want to configure for h	nigh availabili <mark>t</mark> y:	
lient Access Point	DFS Namesp		^	Description:
Configure High Availability	File Server	ansaction Coordinator (DTC cation	)	A DHCP server automatically provides client computers and other TCP/IP based network devices with valid IP addresses.
Summary	Generic Scrip Generic Servi Hyper-V Repli CisCSI Target	ce ca Broker	~	
			< Pre	evious Next > Cancel

Put it **ONLY** on the network you need it on, and give it an IP. Hit next.

朝		High A	vailability Wizard	
Client A	ccess Point			
Before You Begin	Type the name	that clients will use	e when accessing this clustered	l role:
Select Role	Name:	DHCPCluste	er	
Client Access Point Select Storage Confirmation				IPv4 addresses could not be configured network is selected, and then type an
Configure High Availability		Netv	vorks	Address
Summary			10.104.142.0/24	Click here to type an address
			10.10.1.0/24	10 . 10 . 1 . 253
			< Prev	rious Next > Cancel

Choose your **storage**, hit confirm, and watch your new **DHCP** server go. Also, make sure to authorize it as a **DHCP server!!!** 

Now our Cluster give IP's through DHCP on our internal network to clients.

## Summary

A cluster is a redundant pool of servers that can provide roles to a domain, provided by windows. A cluster can be setup and running quite quickly, provided you do not mess up the disks like we did. Having a cluster of servers on your domain will help keep your servers up and alive.

### References

- <u>https://www.youtube.com/watch?v=oWC7rZWb0as</u>
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