Network Operating System (NOS)

Microsoft Windows Server 2008 R2

CONTENTS

Part 1: System Requirements Part 2: Setup and Installation Part 3: Roles (adding Roles such as Active Directory, DNS, DHCP) Part 4: Account Management (Users and groups) Part 5: Sharing and Permissions Part 6: Resources

As part of the learning process the instructor had the class utilize both a virtual environment with VMware Work Station and real world equipment in the form of switches, hubs and general PC equipment to run Windows Server 2008 R2 as a small closed network and also as part of a Trust between domains as well as roaming profiles. Personally experimenting briefly with connecting a Linux (Ubuntu) based machine as well as an older Apple Mac G4.

Compiled by Darren Boudreau – NSCC Burridge - December 2012

Note: Various internet sources were used to compile this document as a useful means to hopefully painlessly setup and run a basic Windows Server 2008 R2 setup and networked installation and also as a means to show what had been taught in class.

Part 1. a. System Requirements

Processor

- Minimum: 1 GHz (x86 processor) or 1.4 GHz (x64 processor)
- Recommended: 2 GHz or faster

Note: An Intel Itanium 2 processor is required for Windows Server 2008 for Itanium-Based Systems.

Memory

- Minimum: 512 MB RAM
- Recommended: 2 GB RAM or greater
- Maximum (32-bit systems): 4 GB (Standard) or 64 GB (Enterprise and Datacenter)

• Maximum (64-bit systems): 32 GB (Standard) or 1 TB (Enterprise and Datacenter) or 2 TB (Itanium-Based Systems)

Available Disk Space

• Minimum: 10 GB

· Recommended: 40 GB or greater

Note: Computers with more than 16 GB of RAM will require more disk space for paging, hibernation, and dump files.

Drive

DVD-ROM drive

Display and Peripherals

- Super VGA (800 x 600) or higher-resolution monitor
- Keyboard
- Microsoft Mouse or compatible pointing device

Part 1. b. Lab Test System

OS: Windows Server 2008 R2 Enterprise Service Pack 1 Type: Generic PC Mother Board: MSI K9AGM2 (MS-7327 (v1.x) Processor: AMD Athlon 64 3500+ 2.19GHz RAM: 4 GB GPU: NVIDIA GeForce 8500 GT HDD: 80 SATA and 160 SATA

Part 2. Setup and Installation

A Basic Install

After booting up from your install disk, you will arrive at a language and preferences screen. Once you have chosen those options, you get to the Operating System Selection page. Depending on your license and the purpose of your server, there are a variety of options to choose from. For our purpose today, we are going to choose the *Enterprise (Full Installation)* version.



We get to read the standard End User License Agreement.

	_
MICROSOFT SOFTWARE LICENSE TERMS	4
MICROSOFT WINDOWS SERVER 2008 R2 ENTERPRISE	
These license terms are an agreement between Microsoft Corporation (or based on where you live, one of its affiliates) and you. Please read them. They apply to the software named above, which includes the media on which you received it, if any. The terms also apply to any Microsoft	
· updates,	
• supplements,	
Internet-based services, and	
support services	-
☑ I accept the license terms	
	Next N

Since we're doing a base install and not an upgrade, so we choose the *Custom (advanced)* option.

Upgrade to a newer version of Windows and keep your files, settings, and programs. The option to upgrade is only available when an existing version of Windows is running. We recommend backing up your files before you proceed.	- 11	norade
Custom (advanced) Install a new copy of Windows. This option does not keep your files, settings, and programs. The option to make changes to disks and partitions is available when you start your computer using the installation disc. We recommend backing up your files before you proceed.		ograde to a newer version of Windows and keep your files, settings, and programs, te option to upgrade is only available when an existing version of Windows is nning. We recommend backing up your files before you proceed.
	A State of the sta	ustom (advanced) stall a new copy of Windows. This option does not keep your files, settings, and ograms. The option to make changes to disks and partitions is available when you art your computer using the installation disc. We recommend backing up your files fore you proceed.
lp me decide	<u>H</u> elp me decide	

We've got a blank 24 GB disk, so we're just going to install it there. If you want to create a partition out of the available drive space or reformat a drive, then choose Drive options (advanced).

and the second	(recopore) type
€ Eefresh € Load Driver	Drive options (advanced)

Windows will take a little while with your install, and reboot a few times.



Once the install is finished, we're prompted to change our password before logging in.



Windows requires that you have a strong password, seven characters long with at least three of the four following: uppercase letter, lowercase letter, numeral, or symbol. You'll want to make sure you write it down somewhere for now, because if you forget it later, the entire install will have to be re-done.



The Initial Configuration Tasks window pops up as soon as you logon. You could also type in *Oobe.exe* in the Command Prompt to arrive here.



One of the first things we want to correct is the time, so choose *Set time zone*. Make sure that you set the time zone first, because the date and time will shift after.



Next we want to choose *Configure Networking*. The first server installed in a network needs to be a Domain Controller, and since they require a static IP, we are going to need to set one up now. Double-click on *Local Area Connection*, and once the information box pops up, click on *Properties*.

Tinitial Co	onfiguration Tasks	Ketwork Connections	-0×
	Local Area Connection Status	00 😰 • Netw • Networ •	Searc
	General	Organize 🕶 »	• 🗊 0
4	Connection IPv4 Connectivity: Internet IPv6 Connectivity: No Internet access Media State: Enabled Duration: 00:57:34 Speed: 1.0 Gbps Details Activity Sent — Received Bytes: 47,123 6,810	Local Area Connection Network Intel(R) PRO/1000 MT Network Conn	
(Close		-
-	Ro Addates Datas M	~	<u>*</u>
1	Le not show this window at logon	Qos	e
Start	🕹 🖉 🎇 👔 📪	* [*] ()	12:23 AM 11/15/2009

Click on *Internet Protocol Version 4* in the Networking box, then click *Properties*. Change the radial button to *Use the following IP address:* and then enter the settings for your specific server and network IP addresses. When you're finished, click *OK* to save those settings.

neral	Organize • »
Local Area Connection Properties	Internet Protocol Version 4 (TCP/IPv4) Properties
Networking	General
Connect using:	You can get IP settings assigned automatically if your network supports
Mintel(R) PRO/1000 MT Network Connection	this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Configur	C nine mathematical
This connection uses the following items:	Cotain an IP address automatically Use the following IP address:
Client for Microsoft Networks	IP address: 10 . 0 . 0 . 11
Budos Packet scheduler Bele and Printer Sharing for Microsoft Networks	Subnet mask: 255 . 255 . 255 . 0
Internet Protocol Version 6 (TCP/IPv6) Internet Protocol Version 4 (TCP/IPv4)	Default gateway: 10 . 0 . 0 . 1
Link-Layer Topology Discovery Mapper I/O Driver	C Obtain OVIC comme address a completely
M Link-Layer Topology Discovery Responder	Use the following DNS server addresses:
instal Uninstal Property	Preferred DNS server: 10 . 0 . 0 . 11
Description	Alternate DNS server:
Transmission Control Protocol/Internet Protocol. The defa wide area network protocol that provides communication across diverse interconnected networks.	Validate settings upon exit
OKC	OKCance
	12:37A
	Area Connection Status heral Image: Connect using: Image: Connect using: Connect using: Image: Connect using: Connect using for Microsoft Networks Image: Construct Protocol Version 6 (TCP/IPv4) Image: Connect Univer Topology Discovery Mapper I/O Driver Image: Control Protocol Version 4 (TCP/IPv4) Image: Control Protocol Image: Connunication across diverse interconnected networks. Image: Control Protocol Image: Connunication across diverse interconnected networks. Image: Conserver interconnected networks.

Finished!

1. Installing Active Directory Domain Services (AD-DS) with DNS

In Windows Server 2008, unlike previous server operating Systems, there is an additional step that needs to be taken before running DCPROMO to promote the server to Domain Controller and installing Active Directory on it. This step is the installation of Active Directory Domain Services (AD-DS) role on the server. In fact, the AD-DS role is what enables the server to act as a Domain Controller, but you will still need to run DCPROMO the regular way.

Server Manager/Initial Configuration Tasks

Roles can and should be added from Server Manager (but they can also be initiated from the Initial Configuration Tasks wizard that auto-opens the first time you log on to the server).

1. Open **Server Manager** by clicking the icon in the Quick Launch toolbar, or from the Administrative Tools folder.

2. Wait till it finishes loading, then click on **Roles > Add Roles** link.

Server Manager		
File Action View Help		
🗢 🔿 📶 🔟		
Server Manager (WIN2008-DC1)	Roles	
Roles Features Configuration Storage	View the health of the roles installe	d on your server and add or remove roles and features.
	Roles Summary	Roles Summary Help
	Roles: 0 of 17 installed	Add Roles
	Cast Refresh: 9/20/2008 7:30:35 PM Confi;	pre refresh

3. In the Before you begin window, click Next.



4. In the Select Server Roles window, click to select **Active Directory Domain Services**, and then click **Next.**



5. In the Active Directory Domain Services window read the provided information if you want to, and then click **Next.**

Add Roles Wizard	×
Active Directory	Domain Services
Before You Begin Server Roles Active Directory Domain Services Confirmation Progress Results	 Introduction to Active Directory Domain Services Active Directory Domain Services (AD DS) stores information about users, computers, and other devices on the network. AD DS helps administrators securely manage this information and facilitates resource sharing and calaboration between users. AD DS is also required for directory-enabled applications such as Microsoft Exchange Server and for other Windows Server technologies such as Group Policy. Things to Note To help ensure that users can still log on to the network in the case of a server outage, install a minimum of two domain controllers for a domain. AD DS requires a DNS server to be installed on the network. If you do not have a DNS server installed, you will be prompted to install the DNS Server role on this server. After you install the AD DS role, use the Active Directory Domain Services Installation Wizard (dopromo.exe) to make the server a fully functional domain controller. Installing AD DS will also install the DP'S Namespaces, DP'S Replication, and Pile Replication services which are required by Directory Service. Additional Information Overview of AD DS Control Service Control Service
	< Previous Next >

6. In the Confirm Installation Selections, read the provided information if you want to, and then click Next.

Add Roles Wizard		×
Confirm Installat	ion Selections	
Before You Begin Server Roles Active Directory Domain Services Confirmation Progress Results	To install the following roles, role services, or features, dick Install. Informational messages below This server might need to be restarted after the installation completes. Active Directory Domain Services After you install the AD DS role, use the Active Directory Domain Services Installation Wizard (depromo.exe) to make the server a fully functional domain controller. 	-
	Print, e-mail, or save this information	
	< Previous Next > Install Cancel	

7. Wait till the process completes.

Add Roles Wizard	
Installation Prog	ress
Before You Begin	The following roles, role services, or features are being installed:
Server Roles	Active Directory Domain Services
Active Directory Domain Services	
Confirmation	
Progress Results	
Reading	
	Verifing installation
	6
	c Previous Lievt > Instal Cancel

8. When it ends, click **Close**.

Add Roles Wizard		×
Installation Resu	lts	
Before You Begin Server Roles Active Directory Domain Services Confirmation Progress Results	The following roles, role services, or features were installed successfully: Informational message below Active Directory Domain Services	
	Print, e-mail, or save the installation report	
	<previous next.=""> Cancel</previous>	

9. Going back to Server Manager, click on the **Active Directory Domain Services link**, and note that there's no information linked to it, because the DCPROMO command has not been run yet.

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🤎 📶 🔟		
Server Manager (WIN2008-DC1)	Roles	
Active Directory Domain Se Peatures Diagnostics Mic Configuration Storage	View the health of the roles installed on yo	our server and add or remove roles and features.
	Roles Summary	Roles Summary Help
	Roles: 1 of 17 installed	Add Roles
	Active Directory Domain Services (^h)	Remove Roles
	Active Directory Domain Services	AD DS Help
	Stores directory data and manages communication b processes, authentication, and directory searches.	etween users and domains, including user logon
	Role Status	Go to Active Directory Domain Services
	Messages: 1	
	Last Refresh: 9/20/2008 7:34:21 PM Configure ref	fresh

10. Now you can click on the DCPROMO link, or read on.

To run DCPROMO, enter the command in the **Run** command, or click on the DCPROMO link from **Server Manager > Roles > Active Directory Domain Services**.

	CPU: 1 at 233
	IP address: 192.168.101.
🖅 Run	
	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	dcpromo
	This task will be created with administrative privileges.
	OK Cancel Browse
灯 Start	🔒 📰 🔤 🖾 🖾

2. Depending upon the question if AD-DS was previously installed or not, the Active Directory Domain Services Installation Wizard will appear immediately or after a short while. Click **Next**.

Active Directory Domain Services Installation Wizard		
	Welcome to the Active Directory Domain Services Installation Wizard	
	This wizard helps you install Active Directory Domain Services (AD DS) on this server, making the server an Active Directory domain controller. To continue, click Next.	
	Use advanced mode installation	
	Learn more about the additional options that are available in <u>advanced mode installation</u> .	
	More about Active Directory Domain Services	
	< Black Next > Cancel	

Note: The Advanced features of DCPROMO will be discussed in a future article.

3. In the Operating System Compatibility window, read the provided information and click Next.

Active Directory Domain Services Installation Wizard	×
Operating System Compatibility Improved security settings in Windows Server 2008 affect older versions of Windows	
 Windows Server 2008 domain controllers have a new more secure default for the security setting named "Allow cryptography algorithms compatible with Windows NT 4.0." This setting prevents Microsoft Windows and non-Microsoft SMB "clients" from using weaker NT 4.0 style cryptography algorithms when establishing security channessions against Windows Server 2008 domain controllers. As a result of this new default, operations or applications that require a security channel serviced by Windows Server 2008 domain controllers might fail. Platforms impacted by this change include Windows NT 4.0, as well as non-Microsof SMB "clients" and network-attached storage (NAS) devices that do not support stronger cryptography algorithms. Some operations on clients running versions of Windows earlier than Vista with Service Pack 1 are also impacted, including domain join operations performed by the Active Directory Migration Tool or Windows Deployment Services. For more information about this setting, see Knowledge Base article 942564 (http://go.microsoft.com/fwlink/?LinkId=104751). 	n hel ft
Cark Next > Car	

4. In the Choosing Deployment Configuration window, click on **"Create a new domain in a new forest"** and click **Next**.

Active Directory Domain Services Installation Wizard	×
Choose a Deployment Configuration You can create a domain controller for an existing forest or for a new forest.	
C Existing forest	
Add a domain controller to an existing domain	
C Create a new domain in an existing forest This server will become the first domain controller in the new domain.	
Create a new domain in a new forest	
More about possible deployment configurations	
< Back Next >	Cancel

Note: It's possible that the Administrator password was not set; a dialog box may pop up after pressing next, in which case you will need to go to the Computer Management Console to set the administrator password.

- 1. Start \rightarrow Administrative Tools \rightarrow Computer Management
- 2. Locate and click on Local Users and Groups
- 3. Find and right click on Administrator. Select Set Password and then type in a password.
- 4. You should now be able to proceed with the DNS installation.

Keep in mind that you are more than likely logged in as 'a' user administrator account and not the actual Administrator account that's referred to in the dialog. These are two separate things and shouldn't be confused. The local users and groups will move to **Active Directory Users and Computers** once DNS has completed installing and will no longer be found in Computer Management.

5. Enter an appropriate name for the new domain. Make sure you pick the right domain name, as renaming domains is a task you will not wish to perform on a daily basis. Click **Next**.

a Active Directory Domain Services Installation Wizard	×
Name the Forest Root Domain The first domain in the forest is the forest root domain. Its name is also the name of the forest.	
Type the fully qualified domain name (FQDN) of the new forest root domain.	
FQDN of the forest root domain:	_
petrilab.local	
< Back Next > Car	ncel

Note: Do NOT use single label domain names such as "mydomain" or similar. You MUST pick a full domain name such as "mydomain.local" or "mydomain.com" and so on.

The wizard will perform checks to see if the domain name is not already in use on the local network.

Active Directory Domain Services Installation Wizard	X	
Name the Forest Root Domain The first domain in the forest is the forest root domain. Its name is also the name of the forest.		
Type the fully qualified domain name (FQDN) of the new forest root domain.		
FQDN of the forest root domain:		
petrilab.local	_	
Example: corp Checking whether the new forest name is already in use		
< Back Next Ca	ancel	

6. Pick the right forest function level. Windows 2000 mode is the default, and it allows the addition of Windows 2000, Windows Server 2003 and Windows Server 2008 Domain Controllers to the forest you're creating.

active Directory Domain Services Installation Wizard	×
Set Forest Functional Level Select the forest functional level.	Į.
Forest functional level:	
Windows 2000	•
Windows 2000 Windows Server 2003 Windows Server 2008 The windows 2000 forest functionanever provides all Active Directory Domain Services features that are available in Windows 2000 Server. If you have domain controllers running later versions of Windows Server, some advanced features will not be available on those domain controllers while this forest is at the Windows 2000 functional level.	
More about <u>domain and forest functional levels</u>	Cancel
< Back Next >	Cancel

7. Pick the right domain function level. Windows 2000 Native mode is the default, and it allows the addition of Windows 2000, Windows Server 2003 and Windows Server 2008 Domain Controllers to the domain you're creating.

Domain Functional Level Select the domain functional level. Domain functional level: Windows 2000 Native Windows 2000 Native Windows Server 2003 Windows Server 2008 The rollowing reactires are available at the volundows 2000 Native domain functional level: • universal groups • group nesting • SID history If you have domain controllers running later versions of Windows Server, some advanced features will not be available on those domain controllers while the		tory Domain Serv	vices Installation \	Wizard		
Domain functional level: Windows 2000 Native Windows 2000 Native Windows Server 2003 Windows Server 2008 The ronowing reactires are available at the windows 2000 tvative domain functional level: - universal groups - group nesting - group nesting - SID history If you have domain controllers running later versions of Windows Server, some advanced features will not be available on those domain controllers while the	t Domain	Functional Level	evel			11111
Domain functional level: Windows 2000 Native Windows 2000 Native Windows Server 2003 Windows Server 2008 The following reactires are available at the windows 2000 tvative domain functional level: - universal groups - group nesting - group type conversion - SID history If you have domain controllers running later versions of Windows Server, some advanced features will not be available on those domain controllers while the	Select the	o domain randaonan				1
Windows 2000 Native Windows 2000 Native Windows Server 2003 Windows Server 2008 The rollowing reactives are available at the windows 2000 Native domain functional at level: - universal groups - group nesting - SID history If you have domain controllers running later versions of Windows Server, some advanced features will not be available on those domain controllers while the	Domain fu	unctional level:				
Windows 2000 Native Windows Server 2003 Windows Server 2008 The rollowing reactires are available at the windows 2000 Native domain functional A level: - universal groups - group nesting - group type conversion - SID history If you have domain controllers running later versions of Windows Server, some advanced features will not be available on those domain controllers while the	Windows	s 2000 Native				-
Windows Server 2003 Windows Server 2008 The following reactives are available at the windows 2000 trative domain functional level: - universal groups - group nesting - group type conversion - SID history If you have domain controllers running later versions of Windows Server, some advanced features will not be available on those domain controllers while the	Windows	s 2000 Native		<u>\</u>		
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- SID history If you have domain controllers running later versions of Windows Server, some advanced features will not be available on those domain controllers while the	-	group nesting group type conversi	on			
If you have domain controllers running later versions of Windows Server, some advanced features will not be available on those domain controllers while the	-	SID history				
advanced features will not be available on those domain controllers while the	If you hav	ve domain controllers	running later version	s of Windows Se	rver, some	
	advanced	d features will not be	available on those do	omain controllers	while the	-
More about domain and forest functional levels	More abou	ut <u>domain and forest</u>	functional levels			
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More about domain and forest functional levels	More abou	ut <u>domain and forest</u>	functional levels			
More about <u>domain and forest functional levels</u>	More abou	ut <u>domain and forest</u>	functional levels			

Note: If you select "Windows Server 2008" for the forest function level, you will Not be prompted to pick a domain function level.

8. The wizard will perform checks to see if DNS is properly configured on the local network. In this case, no DNS server has been configured, therefore, the wizard will offer to automatically install DNS on this server.

Active Directory Domain Services Installation Wizard Set Domain Functional Level Select the domain functional level.	×
Domain functional level:	
Details: The following level: • univ • gro • gro <	
< Back Next Cancel	

Note: The first DCs must also be a Global Catalog. Also, the first DCs in a forest cannot be a Read Only Domain controller.

9. It's most likely that you'll get a warning telling you that the server has one or more dynamic IP Addresses. Running **IPCONFIG /all** will show that this is not the case, because as you can clearly see, I have given the server a static IP Address. So, where did this come from? The answer is IPv6. I did not manually configure the IPv6 Address, hence the warning. In a network where IPv6 is not used, you can safely ignore this warning.

🐻 Sta	tic IP assignment
	This computer has dynamically assigned IP address(es)
	This computer has at least one physical network adapter that does not have static IP address(es) assigned to its IP Properties. You should assign static IP address(es) to all physical network adapters for reliable Domain Name System (DNS) operation, for both IPv4 and IPv6 when available. See <u>Help</u> for more information. Do you want to continue without assigning static IP address(es)?
	Yes, the computer will use a dynamically assigned IP address (not recommended).
	No, I will assign static IP addresses to all physical network adapters.



10. You'll probably get a warning about DNS delegation. Since no DNS has been configured yet, you can ignore the message and click **Yes**.

active	Directory Domain Services Installation Wizard	\times
<u>^</u>	A delegation for this DNS server cannot be created because the authoritative parent zone cannot be found or it does not run Windows DNS server. If you are integrating with an existing DNS infrastructure, you should manually create a delegation to this DNS server in the parent zone to ensure reliable name resolution from outside the domain petrilab.local. Otherwise, no action is required. Do you want to continue?	
	Yes No	

11. Next, change the paths for the AD database, log files and SYSVOL folder. For large deployments, carefully plan your DC configuration to get the maximum performance. When satisfied, click **Next**.

Active Directory Domain Services Installation Wizard	×
Location for Database, Log Files, and SYSVOL Specify the folders that will contain the Active Directory domain control database, log files, and SYSVOL.	er
For better performance and recoverability, store the database and log fi volumes.	les on separate
Database folder:	
C:\Windows\NTDS	Browse
Log files folder:	
C:\Windows\NTDS	Browse
SYSVOL folder:	
C:\Windows\SYSVOL	Browse
More about <u>placing Active Directory Domain Services files</u>	
< Back Next :	Cancel

12. Enter the password for the Active Directory Recovery Mode. This password must be kept confidential, and because it stays constant while regular domain user passwords expire (based upon the password policy configured for the domain, the default is 42 days), it does not. This password should be complex and at least 7 characters long. I strongly suggest that you do NOT use the regular administrator's password, and that you write it down and securely store it. Click **Next**.

Active Directory Domain Services Installation Wizard
Directory Services Restore Mode Administrator Password
The Directory Services Restore Mode Administrator account is different from the domain Administrator account.
Assign a password for the Administrator account that will be used when this domain controller is started in Directory Services Restore Mode. We recommend that you choose a strong password.
Password:
Confirm password:
More about <u>Directory Services Restore Mode password</u>
< Back Next > Cancel

13. In the Summary window review your selections, and if required, save them to an unattend answer file. When satisfied, click **Next**.

nmary			
Review your selections:			
Configure this server as the first Active	Directory domain contro	oller in a new forest	
The new domain name is petrilab.local	This is also the name o	f the new forest.	
The NetBIOS name of the domain is P	ETRILAB		
Forest Functional Level: Windows 200	D		
Domain Functional Level: Windows 20	00 Native		
Site: Default-First-Site-Name			
Additional Ontions:			
national options.			•
To change an option, click Back. To b	egin the operation, click	(Next.	
These settings can be exported to an a	nswer file for use with	Export setting	ıs
other unattended operations. More about <u>using an answer file</u>			
	(Pade	Next S. N.	Canad
	< Back		Cancel

14. The wizard will begin creating the Active Directory domain, and when finished, you will need to press **Finish** and reboot your computer.

Active Directory Domain Ser	vices Installation Wizard	
The wizard is configuring Active from a few minutes to several hou that you selected.	Directory Domain Services. This process can take urs, depending on your environment and the options	
Waiting for DNS installation to fin	ish	
Reboot on completion	Cancel	
Active Directory Domain	Services Installation Wizard	×
	Completing the Active Directory boran Active Directory Domain Services is now installed on this computer for the domain petrilab local. This Active Directory domain controller is assigned to the ste Default-First-Site-Name. You can manage sites with the Active Directory Sites and Services administrative tool. Image: The Active Directory Compares and Services administrative tool. Image: The Active Directory Sites and Services administrative tool. Image: The Active Directory Sites and Services administrative tool. Image: The Active Directory Sites and Services administrative tool. Image: The Active Directory Sites and Services administrative tool. Image: The Active Directory Sites and Services administrative tool. Image: The Active Directory Sites and Services administrative tool. Image: The Active Directory Sites and Services administrative tool. Image: The Active Directory Sites and Services administrative tool. Image: The Active Directory Sites and Services administrative tool. Image: The Active Directory Sites and Services administrative tool. Image: The Active Directory Sites and Services administrative tool. Image: The Active Directory Sites and Services administrative tool. Image: The Active Directory Sites and Services administrative tool. Image: The Active Directory Sites administrative tool. Image: The Active Directory Sites administrative tool.	
	< Back Finish Cancel	

	Active Directory Domain Services Installation Wizard You must restart your computer before the changes made by the Active Directory Domain Services Installation wizard take effect	
NT ve	Restart Now Do not Restart Now	vice l
	doress: 192.166.101.1 Machine domain: workgr	oup

Note: You can automate the rebooting process by checking the Reboot on Completion checkbox.

Your server now acts as a Domain Controller. Make sure you properly back it up. You can test functionality by using AD management tools such as Active Directory Users and Computers, examine the Event Logs, services and folders and shares that have been created.

2. Installing Dynamic Host Configuration Protocol (DHCP)

To get started, fire up the Server Manager, right click on roles, and then select add roles.

File Action New New Image: Server Memoger (DCI) New Image: Server Memoger (DCI) Refresh Image: Server Memoger	Server Hanager			
Image: Second Market	File Action View Help			
Server Manager (DC1) Roles Remove Roles Were the health of the roles installed on your server and add or remove roles and features. Reference Roles Roles Summary Reference Roles Roles Summary Reference Roles Roles Summary Roles Summary Roles Summary Help Roles Stores of 100 Server Roles Roles Stores directory Domain Services Roles Abover Role Status Role Status Messages: 1 System Services: Brunng, 15 Informational in the last 24 hours Best Practices Analyzer: To start a Best Practices Analyzer son, go to the Best Practices Analyzer Role Services: 1 Installed References Role Services: 1 Installed References Nois homegage and dci Sam the Role Role Services: 1 Installed References Nois homegages and dci Sam testaled	🗢 🔿 🙇 📅 🔒			
Reference Roles Summary Reference Roles Summary Reference Roles Summary Reference Roles Summary Roles Summary Roles Summary Help Roles Summary Active Directory Domain Services DIG Service Roles Services Roles Status Co to Active Directory Domain Roles Status Co to Active Directory Domain Reservices Co to Active Directory Domain Roles Status Co to Active Directory Domain Reservices Co to Active Directory Domain Roles Status Co to Active Directory Domain Reservices Reservices Reservices Reservices Reservices Reservices Reservices Refervices Role Services Status Refervices Status Refervices Status Refervices Status Refervices Refervices Refervices Status Refervices Refervices Refervices Status Refervices Refervices Refervices Status Refervices Refervices Refervices Status Refervices Status Refervices <	Server Manager (DC1) Ro	les .		
Referenti Help Roless Summary Roless Summary Help Roless Summary Roless Summary Help Remove Roles Roless Summary Help Role Status Roles Status Roles Status Resoges: 1 Stytem Services 8 Rumma, 2 Stopped Events: 1 warning, 11 Informational in the last 24 hours Best Practices Analyzer to Status Resoges: 1 installed Revice: Role Service: 1 installed Revice Role Service: 1 installed Revice Role Service: 1 installed Revice Role Helprock Information Service: Not installed	Roles Add Roles Remove Roles Wew	Vew the health of the roles installed on y	our server and add or remove roles and features.	
Heb Roles: 3 of 17 instaled Active Directory Domain Services DitS Server File Services Active Directory Domain Services DitS Server File Services Active Directory Domain Services AD D5 Help Add Roles: A dive Directory Domain Services Active Directory Domain Services AD D5 Help Stores directory data and manages communication between users and domains, including user logon processes, authentication, and directory searches. Role Status Messages: 1 System Services: 8 Running, 2 Stopped Events: 1 warning, 11 informational in the last 24 hours Beet Practices Analyzer: To start a Best Practices Analyzer scan, go to the Best Practices Analyzer Messages: 1 System Services: 1 installed Events: 1 warning, 12 informational in the last 24 hours Best Practices Analyzer: To start a Best Practices Analyzer scan, go to the Best Practices Analyzer Messages: 1 warning, 10 informational in the last 24 hours Best Practices Analyzer: To start a Best Practices Analyzer Messages: 1 warning, 10 informational in the last 24 hours Best Practices Analyzer: 10 warning, 10 warni	Refresh	Roles Summary		Roles Summery Help
Active Directory Domain Services Active Directory Domain Services Stores directory data and manages communication between users and domains, including user logon processes, authentication, and directory searches. Role Status Messages: 1 System Services: 8 Running, 2 Stopped Events: 1 waves, 2 Stopped Events: 2 Note:	Help	Roles: 3 of 17 installed Active Directory Domain Services Diris Server File Services		Add Roles
Stores directory data and manages communication between users and domains, including user logon processes, authentication, and directory searches.		Active Directory Domain Services		AD DS Help
Role Status Image: Control of the status Messages: 1 System Services: 8 Rumma, 2 Stopped System Services: 8 Rumma, 2 Stopped Events: 1 warming, 11 informational in the last 24 hours Best Practices Analyzer Events: 1 warming, 11 informational in the last 24 hours Best Practices Analyzer To state A Best Practices Analyzer Image: Control of the state of		Stores directory data and manages communication I	between users and domains, including user logon processes	s, authentication, and directory searches.
Messages: 1 System Services: 8 Running, 2 Stopped		Role Status		Go to Active Directory Domain Services
Role Services: 1 installed Add Role Services Remove Role Services Add Role Services A		Messages: 1 System Services: 8 Running, 2 Stopped Events: 1 warning, 11 informational in the Best Practices Analyzer: To start a Best Pr tile on this role's homepage and dick Scan t	last 24 hours actions Analyzer scan, go to the Best Practices Analyzer this Role	
Role Service Status Active Directory Domain Controller Installed Identity Management for UNIX Installed Server for Network Information Services Not installed Password Synchronization Not installed		Role Services: 1 installed		Add Role Services
Active Directory Domain Controller Installed Identity Management for UNIX Not installed Server for Network Information Services Not installed Password Synchronization Not installed		Role Service	Status	Remove Role Services
		Active Directory Domain Controller Identity Management for UNIX Server for Network Information Services Password Synchronization	Installed Not installed Not installed Not installed	
C Last Refresh: Today at 7:55 PM Configure refresh	0	Last Refresh: Today at 7:55 PM Configure refresh		

You will be prompted with the normal "Before You Begin" screen, and after clicking Next you'll be able to choose DHCP Server.

Before You Begin Server Roles DHCP Server Network Connection Bindings IPv4 DNS Settings IPv4 WINS Settings DHCP Scopes DHCPv6 Stateless Mode IPv6 DNS Settings DHCP Server Authorization Confirmation Progress Results	Select one or more roles to install on this server. Roles: Active Directory Certificate Services (Installed) Active Directory Poderation Services (Installed) Active Directory Lightweight Directory Services Active Directory Rights Management Services DNS Server (Installed) Fax Server DNS Server (Installed) Fax Server File Services (Installed) File Services (Installed) File Services (Installed) File Services (Installed) Hyper-V Hyper-V Hyber-V Hyber-V Hyberver (IIS) Hyberver (IIS) Hydows Deployment Services Hydows Server Update Services	Description: <u>Dynamic Host Configuration Protocol</u> (<u>DHCP) Server</u> enables you to centrally configure, manage, and provide temporary IP addresses and related information for client computers.
	More about server roles	

Next you'll want to select the network connection to bind the DHCP protocol to.

Add Roles Wizard		×
Select Network C	Connection Bindings	
Before You Begin Server Roles DHCP Server Network Connection Bindings	One or more network connections having a static IP address were detected. Each network connection can be used to service DHCP clients on a separate subnet. Select the network connections that this DHCP server will use for servicing clients.	
IPv4 DNS Settings IPv4 WINS Settings DHCP Scopes DHCPv6 Stateless Mode IPv6 DNS Settings DHCP Server Authorization Confirmation Progress Results	IP Address Type ↓ 10.10.10.5 IPv4	
	Details Name: Local Area Connection Network Adapter: Local Area Connection Physical Address: 00-0C-29-CB-5A-80 Previous Next > Install Cancel]

Put in the IP address of your DNS Server, which in this case is the same machine–but be careful not to put the loopback address (127.0.0.1) as this will be the address your clients will go to for name resolution.

Add Roles Wizard	×
Specify IPv4 DNS	S Server Settings
Before You Begin Server Roles DHCP Server Network Connection Bindings IPv4 DNS Settings DHCP Scopes DHCPv6 Stateless Mode IPv6 DNS Settings DHCP Server Authorization Confirmation Progress Results	When clients obtain an IP address from the DHCP server, they can be given DHCP options such as the IP addresses of DNS servers and the parent domain name. The settings you provide here will be applied to clients using IPv4. Specify the name of the parent domain that clients will use for name resolution. This domain will be used for all scopes you create on this DHCP server. Parent domain: howtogeek.intl Specify the IP addresses of the DNS servers that clients will use for name resolution. These DNS servers will be used for all scopes you create on this DHCP server. Preferred DNS server IPv4 address: 10:10:10.5 Validate Alternate DNS server IPv4 address: Validate More about DNS server settings Validate Validate

Click next again to skip the WINS setup, this will bring you to creating a DHCP Scope, where you can click the Add button.

Add Roles Wizard		×
Add or Edit DHCP	Scopes	
Before You Begin Server Roles	A scope is the range of possible IP addresses for a network. The DHCP server cannot distribute IP addresses to clients until a scope is created. Scopes:	
Network Connection Rindians	Name IP address range Add	
TRud DNS Settings	Edit	
TDud WINS Settings	Delete	
DHCP Stopes		
DHCPv6 Stateless Mode		
IPv6 DNS Settings		
DHCP Server Authorization		
Confirmation		
Progress		
Results	Properties	
	Add or select a scope to view its properties.	
	More about adding scopes	
	< Previous Next > Instal Cancel]

Now you need to:

Give your scope a name

Enter the first address that you want available to clients to use

Enter the last address that you want available to clients to use

Enter the subnet mask (usually 255.255.255.0)

Enter the IP address of your default gateway (usually your router IP at .1)

Configuration settings for DHCP Server Scope name: How-To Geek Scope Starting IP address: 10.10.10.10 Endine ID address: 10.10.254	-
Starting IP address: 10.10.10.10	
Starting IP address: 10.10.10	- 1
Ending TD address 10 10 10 254	_
Ending IP address: 10.10.234	_
Subnet type: Wired (lease duration will be 8 days)	-
Activate this scope	
Configuration settings that propagate to DHCP dient	
Subnet mask: 255.255.255.0	
Default gateway (optional): 10 10 10 1	_

Once you have clicked on OK, you can click next 4 times to get to the confirmation screen where you can finally click install.

Before You Begin Server Roles	To install the following roles, role serv	ices, or features, click Install.	
Network Connection Bindings IPv4 DNS Settings	 This server might need to be re DHCP Server 	estarted after the installation completes.	-
IPv4 WINS Settings DHCP Scopes DHCPv6 Stateless Mode IPv6 DNS Settings DHCP Server Authorization Confirmation Progress Results	Network Connection Bindings : IPv4 DNS Settings DNS Parent Domain : DNS Servers : WINS Servers : Scopes Name : Default Gateway : Subnet Mask : IP Address Range : Subnet Type : Activate Scope : DHCPv6 Stateless Mode : IPv6 DNS Settings DNS Parent Domain :	10. 10. 10.5 (IPv4) howtogeek.intl 10. 10. 10. 5 None How-To Geek Scope 10. 10. 10. 1 255. 255. 255.0 10. 10. 10. 10 - 10. 10. 10. 254 Wired (lease duration will be 8 days) Yes Enabled howtogeek.intl	
	DNS Servers : Print, e-mail, or save this information	::1, fec0:0:0:ffff::1	-

Once the installation is complete your DHCP will be functioning, and you can start managing your DHCP server right away.



Part 3. Account Management

a. How To Create a New User Account in Active Directory

1. To start let's go ahead and open up Server Manager



2. Next we will open up the **Roles** section, next to **Active Directory Users and Computers** section and finally the **Active Directory Users and Computers**. You should now see your domain name.

Server Manager					_ 0 ×
File Action View Help					
🗇 🔿 📶 🙆 🔂 🚺					
Server Manager (NY-DC1-2K8)	Active Direct	ory Users and Co	nputers [NY-DC1-2K8.glo	bomantics	Actions
Roles Active Directory Domain Se	Name	Type	Description		Active Directory Users and C +
Active Directory Users	globomantic	s.com Domain			More Actions
E Bill globomantics.com					
Computers					
 Domain Control ForeignSecurity 					
🗈 🧾 Sales	1				
E Active Directory Sites a					
DHCP Server					
E gi Features					
Diagnostics Conformation					
E Storage					
196.0.90					
1 1					
	1				1
Start h	Server Hanage				@ 80.

3. We are going to click on our **Users** section where we are going to create a new User Account. To do so, right-click on the blank section, point to **New** and select **User**.

				-	
E Roles	Users 20 objects	[Fster Activated]			3
Active Directory Doman Se Active Directory Users Active Directory Users Geogrammatics.com Geogrammatics.com	Administrator Administrator Administrator Cert Publishers Denied RODC DHCP Administ DHCP Administ DHCP Users DisLodati Domain Ca Domain	User Security Group Security Group Security Group Security Group Security Group Security Group d W Tasks fresh port List W ange Icons perties p	Bult-in account for admini Members in this group can Members of this group can Members of this group can Members who have view DNS Administrators Group DNS clients who are permi Designated administrators Computer Contact Group InetOrgPerson MSMQ Queue Alas Printer User Shared Polder S Members of this group are Designated administrators	More Actions	,

4. In this window you need to type in the user's first name, middle initial and last name. Next you will need to create a user's logon name.

In our example we are going to create a user account for Billy Miles and his logon name will be bmiles. When done, click on the **Next** button.

	1111			
Creat	e in: globomani	tics.com/Users	-	
First name:	Billy		Initiale: M	_
				_
Last name:	Miles			
Full name:	Billy M. Mile	8		
User logon name	-			
User logon name bmiles		@globomantic	s.com	-
User logon name bmiles User logon name	(pre-Windows 20	@globomantic	s.com	•
User logon name bmiles User logon name GLOBOMANTIC	(pre-Windows 20	@globomantic 1000): bmiles	s.com	-
User logon namé Ibmiles User logon name GLOBOMANTIC	(pre-Windows 20	@globomantic 1000): bmiles	:s.com	
User logon namé bmiles User logon name GLOBOMANTIC	(pre-Windows 20	@globomantic)000): bmiles	ss.com	Cancel

5. In the next window you will need to create a password for your new user and select appropriate options.

In our example we are going to have the user change his password at his next logon. You can also prevent a user from changing his password, set the password so that it will never expire or completely disable the account.

When you are done making your selections, click the **Next** button.

ew Object - User		×
Create in:	globomantics.com/Users	
Password:	•••••	
<u>C</u> onfirm password:	•••••	
User <u>m</u> ust change pa	assword at next logon	
User cannot change	password	
Account is disabled	165	
	< <u>B</u> ack <u>N</u> ext > Cano	el

6. And finally, click on the **Finish** button to complete the creation of new User Account.

v Object - User			
Create in: globo	omantics.com/Users		
When you click Finish, the fo	llowing object will be create	:d:	
Full name: Billy M. Miles		Ţ	
User logon name: bmiles@gl	obomantics.com		
The user must change the pa	assword at next logon.		
			Ψ.
	< <u>B</u> ack	Finish	Cancel

b. How To Create a New User Group Account and add Users to the group in Active Directory

Active Directory Users and Computers

Adding a new user group

- 1. Go to Start \rightarrow Administrative Tools \rightarrow Active Directory Users and Computers
- 2. Expand a domain name in the left column
- 3. Highlight Users and select New \rightarrow Group
- 4. Type in a Group Name and leave the Group Scope on Global and Group Type on Security.
- 5. Click OK and a new Group has been added to the right hand column list.

🔿 🎓 😹 📋 🗶 🖻 🐧 😓 🔽 🚍 🎗 5		
	8. 1 7 2 8.	
Active Directory Users and Computers [ServerDarren.darren.ca] Saved Queries darren.ca Computers Domain Controllers Computers Computers Computers Delegate Control Find New Computer Contact Group InetOrgPerson msImaging-PSPs MSMQ Queue Alias Printer User Help Shared Folder	Name Administrator Allowed RODC Password Replication Group Cert Publishers Darren Denied RODC Password Replication Group Domain Guests Domain Controllers Domain Guests Domain Users Enterprise Read-only Domain Controllers Guest RAS and IAS Servers Read-only Domain Controllers Schema Admins	Type User Security Group - Domain Loc Security Group - Domain Loc User Security Group - Domain Loc Security Group - Domain Loc Security Group - Domain Loc Security Group - Global Security Group - Cholal Security Group - Universal Security Group - Clobal Security Group - Domain Loc Security Group - Domain Loc Security Group - Universal

Active Directory Users and Computers

Adding user(s) to a group

Note: There are a few ways one could go about doing this, pick one that's the easiest and least painful to do.

- 1. Go to Start → Administrative Tools → Active Directory Users and Computers
- 2. Expand a domain name in the left column
- 3. Mouse click on Users in the left column to show Users and Groups in the right column
- 4. Refer to the methods provided below to continue.

Method 1:

1. Hold Control key + click and select individual users that you're going to add to a group and right click **Add to Group**. Type in the group name and click Check Names then click OK.

Method 2:

1. Double click the group name or right click and select Properties

2. Click on the **Member Of** tab and click on Add to start adding the users to this group. Click Check Names to verify the names that have been added and then click OK.

Method 3:

1. Select individual user names and double click or right click and select Properties.

- 2. Locate and click on the **Member Of** tab for that individual user.
- 3. Click on the Add button to add the group or groups for that individual user account. Ok.

Enabling File Sharing

File sharing in Windows Server 2008 R2 is managed from the *Network and Sharing Center*, accessed by selecting *Start -> Network* and clicking on the *Network and Sharing Center* button in the toolbar. Once invoked, the Network and Sharing Center will list the current file sharing configuration and options as illustrated in the following figure:



To enable public file sharing, click on the down arrow next to the *Public folder sharing* in the section entitled *Sharing and discovery*. This will provide the following list of public folder sharing options:

• **Turn on sharing so anyone with network access can open files** - Allows network users to open, but not delete, modify or create files in the server's public folder.

- **Turn on sharing so anyone with network access can open, change and create files** Allows network users to open, modify, delete and create files in the public folder.
- **Turn off sharing (people logged on to this computer can still access this folder)** Allow public folder access only to those users locally logged on to the server. Network users are denied access.

Similarly, *standard file sharing* can be configured by click the down arrow next to *File sharing*. When unfolded, this panel provides the option to either enable or disable standard file sharing on this server. When enabled, a dialog will appear providing the option to make the shared folders available only to the private network on which the system resides, or to make sharing available to public networks. The choice here depends on the requirements of the organization but for security purposes it is typically best to limit sharing to the private network unless external access is required.

The *Network and Sharing Center* also allows password access to shared folders to be configured. When the arrow next to *Password protected sharing* is selected the options to enable or disable password protection sharing are provided. When enabled on workgroup servers, only users with user accounts and passwords on the server will be able to access shared files and folders.

Creating Shared Folders with Windows Explorer

Shared folders can be configured using Windows Explorer, simply by navigating to the folder to be shared, right clicking on the folder and selecting *Properties* from the menu. In the properties dialog, click on the *Sharing* tab to display and modify the current shared folder settings as illustrated in the following figure:

riyi older Prope	iues		ŝ
ieneral Shanng	Security Previo	ous Versions Custo	mize
Network File and	Folder Sharing		
MyFolde Not Sha	er ared		
Network Path:			
Not Shared			
Share			
-			
Advanced Sharin	g		
Set custom permi advanced sharing	issions, create mi g options.	ultiple shares, and se	t other
Advanced	Sharing		
Password Protect	ion		
People must have computer to acce	e a user account ess shared folders	and password for th s.	is
To change this s	etting, use the <u>N</u> e	etwork and Sharing (<u>Center</u> .
		4 F	

Within the sharing property panel, click on the *Share*... button to access the *File Sharing* dialog. Within this dialog, the users who may access this shared folder are specified. If file sharing has been restricted to users with local accounts and passwords, a list of users can be obtained by clicking on the down arrow. In this situation, select and add users, or select *Everyone* if access is to be made available to all users with local accounts:

Choose people to s	share with			
People must have a change this setting,	user account and pass use the <u>Network and S</u>	sword for this con <u>Sharing Center</u> .	nputer to access	files you have shared.
				▼ Add
Administrator				
Bill				Lever
Guest				
user1				
Everyone (All users	in this list)			
Create a new user	380 F			
Tell me shout differ	rent ways to share in W	lindows		

Once these settings are complete, click on the *Share* button to initiate the file sharing process. Once this initial phase of the share setup is complete a dialog will appear announcing this fact, listing the full Universal Naming Convention (UNC) path to the shared folder and providing the option to email users to notify them of this fact:



Having specified which users will have access to the folder the next step is to enable the sharing of the folder, specify *share permissions* and configure a *Share Name* by which the folder will be referenced and accessed. In addition caching of shared files can be configured. Caching allows users to maintain local copies of shared files so that they can be accessed *off-line* (for example when the server hosting the files is not available to the user's local system). With caching configured, local copies of shared files are stored on the user's local system so that they can be accessed without a connection to the server. When a connection is re-established, any changes made to the local copy of the file are synchronized with the original copy on the server.

To configure these settings, click on the *Advanced Sharing* button to display the following dialog:

Share name:	
MyFolder	
Add	Remove
imit the numb	er of simultaneous users to: 16777;-
-	
Comments:	
Comments:	
Comments:	

In this dialog, set the *Share this folder* option to enable the sharing of the folder. Once this has been selected the *Share name* field and associated button will activate enabling a share name to be entered. By default the name of the folder being shared will be displayed, although this may be changed to another name if desired. If the number of concurrent users accessing a shared folder is of concern, modify the number of simultaneous users accordingly. Enter optional comments about the share before clicking on *Caching* to configure the *off-line* file settings. This will invoke the *Offline Settings* dialog where a number of options are available including allowing each user to specify which files they would like to be able to access off-line, only having files that users actually access available off-line and disabling off-line sharing all together:

Offline Settings	×
You can choose whether and how the contents of the share will be available to users who are offline.	
Only the files and programs that users specify will be available offline.	
All files and programs that users open from the share will be automatically available offline.	
O Files or programs from the share will not be available offline.	
How do offline files work?	
OK Cance	

Understanding and Configuring Share Permissions

As outlined at the beginning of this chapter, Windows Server 2008 R2 provides two levels of permissions for shared files and folders, namely *share permissions* and *file and folder permissions*. Share permissions are applied when access is made via the network. When shared files and folders are accessed locally from the server on which they reside these permissions serve no purpose. File and folder permissions, on the other hand, take effect both when accessing files and folders both locally and over the network. In the case of network access to shared files and folders, the shared permissions are applied first, followed by any file and folder permissions. The key issue to note is that file and folder permissions provide a far greater level of control over access than the more general permissions options provided by share permissions. In this section, share permissions will be covered.

Share permissions are granted on a per user and per group basis. In addition to allowing a cap on the number of concurrent users accessing a share to be defined, share permissions also provide three permission options, each of which can be set to *Allow* or *Deny*:

- **Full Control** Grants the specified users permission to change file and folder permissions, execute, read, modify, create and delete files and sub-folders.
- **Change** Grants users permission to change file and folder attributes, read, modify, execute, create and delete files and sub folders.
- **Read** Grants users permission to read and execute files and view and access file lists and sub-folders.

Permissions are cumulative in that a user will inherit the permissions of all the groups of which he or she is a member. If a permission is *Denied*, however, it overrides any cases where that permission may have been granted. For example, if a user is a member of a group where full control is provided over a folder, and also a member of a second group where full control is specifically denied, the user will be denied full control regardless of the fact that it was granted in the first group. To configure share permissions, start Computer Management, connect to a remote server if not working on local shares, unfold System Tools and select *Shares* to list all currently shared folders. To configure share permissions for a folder, select it from the list, right click and select *Properties*. In the properties dialog select the *Share Permissions* tab as illustrated in the following figure:

eneral Share Permissions Sec	urity		
Group or user names:	an ruha		
Sveryone			
		Add	Remove
Permissions for Everyone		Allow	Deny
Full Control			
Change			
neau			(السل
Learn about access control and p	emissions		100/00

This screen displays the current share permissions and provides the ability to configure additional permission controls. To change the settings for a currently configured group or user select the user from the list, modify the permissions accordingly and click on *Apply* to commit the changes.

To add permissions for a specific user or group click the *Add* button and enter one or more users or groups into the text box (separating multiple entries with a semi-colon) and click on *Check Names* to verify the names are correct. Click on *OK* to return to the properties dialog where the added users and groups will appear in the list. Once again, select each name in turn and configure the desired share permissions. Finally, click *Apply* to commit the new permissions.

Part 6. Resources

- a. http://www.petri.co.il/how-to-install-windows-server-2008-step-by-step.htm
- b. http://www.howtogeek.com/50036/how-to-install-windows-server-2008-r2/
- c. http://www.petri.co.il/installing-active-directory-windows-server-2008.htm
- d. http://www.howtogeek.com/99723/how-to-set-up-dhcp-in-server-2008-r2/
- e. http://www.trainsignal.com/blog/windows-server-2008-active-directory-users
- f. http://www.techotopia.com/index.php/Configuring_Windows_Server_2008_File_Sharing