

Table of Contents

Fester's Very Basic One User/One Dataset Experimental Starter Share	1
<i>Share Scenario</i>	1
<i>Share Creation and Configuration</i>	1
User Creation	1
Dataset Creation	5
Share Creation	10
CIFS/SMB Configuration	14
Windows Client Configuration	18
Enable CIFS/SMB Service	27
Mapping the share to a drive letter	27
Share Permissions	32
NTFS Permissions	33

Fester's Very Basic One User/One Dataset Experimental Starter Share

Fester is still learning about shares and in particular share permissions.

As Fester learns more I will try to pass on what I have learned by adding to this section and creating additional guides for more “real world” share scenarios (if time permits).

This particular share will not be much use to most people, but it will get you going.

Don't forget the official FreeNAS guide has lots of information on shares. But for now, this will be a very basic share on a FreeNAS system and is designed to get you started so you can experiment with shares.

Share Scenario

This share is designed for one user who wants to access the same share from different client machines.

The client machines will mostly be running Windows (or Mac OS X).

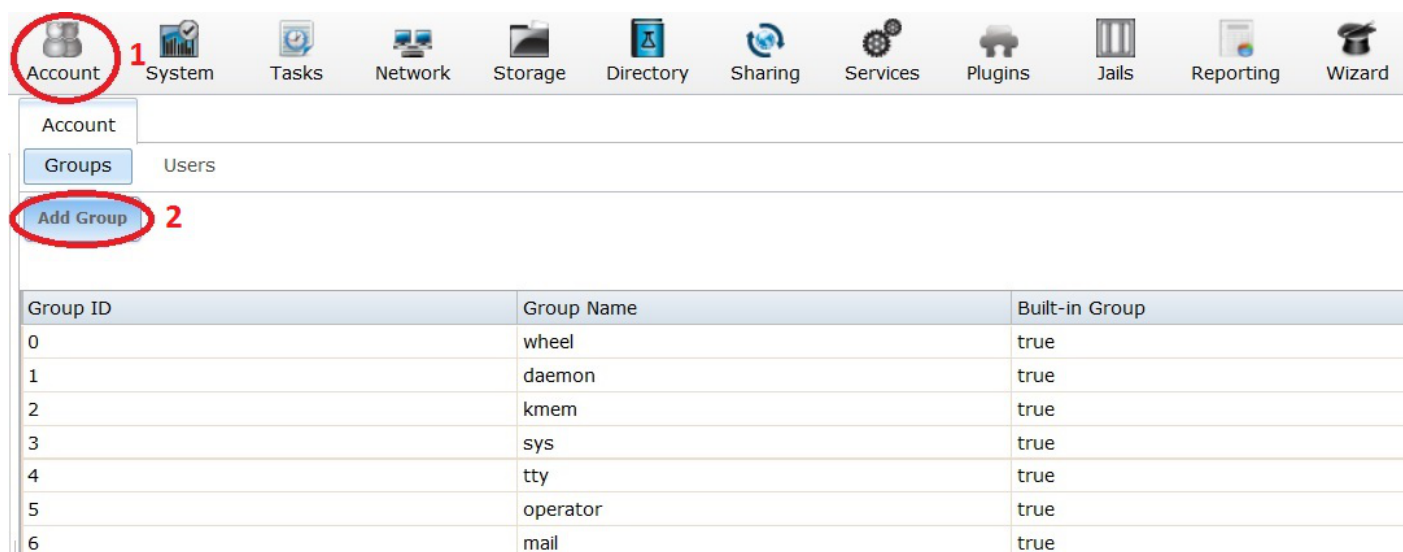
It will utilise one dataset and show you how to share it.

It is designed to get you started with shares so that you can experiment.

Share Creation and Configuration

User Creation

Go to the “Accounts” page (1) and click the “Add Group” button (2).



Group ID	Group Name	Built-in Group
0	wheel	true
1	daemon	true
2	kmem	true
3	sys	true
4	tty	true
5	operator	true
6	mail	true

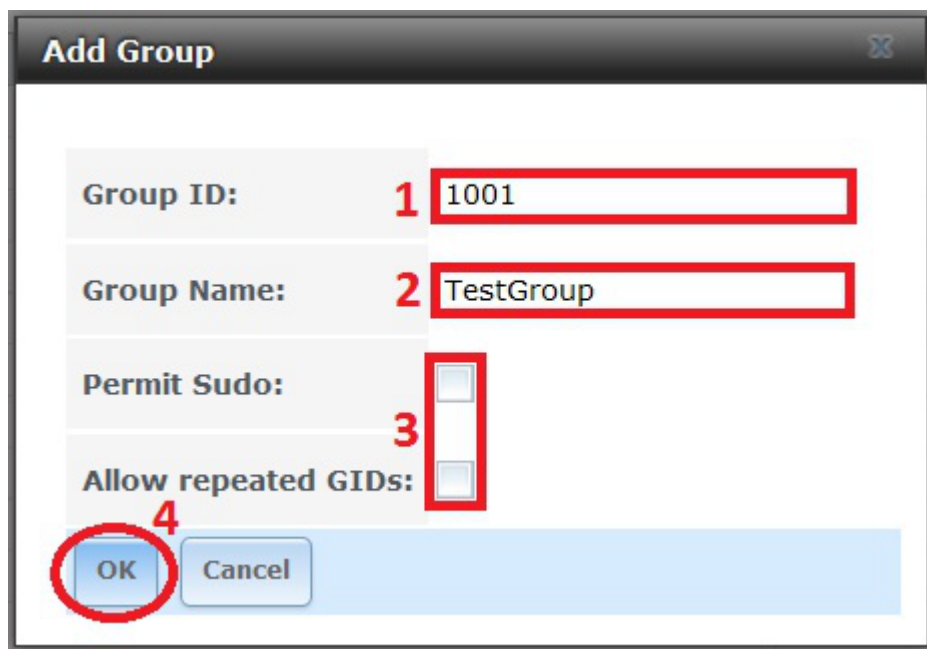
A new smaller window will pop up. Here we can create a new Group.

Leave the "Group ID:" at its default value of **1001** (1).

Now type in a name for the new group in the "Group Name:" text box (2) (because this is a starter share from which you can experiment, Fester used **TestGroup**).

Do not tick the "Permit Sudo:" or "Allow repeated GIDs:" tick boxes (3).

Now click the "OK" button (4).



Add Group

Group ID: 1 1001

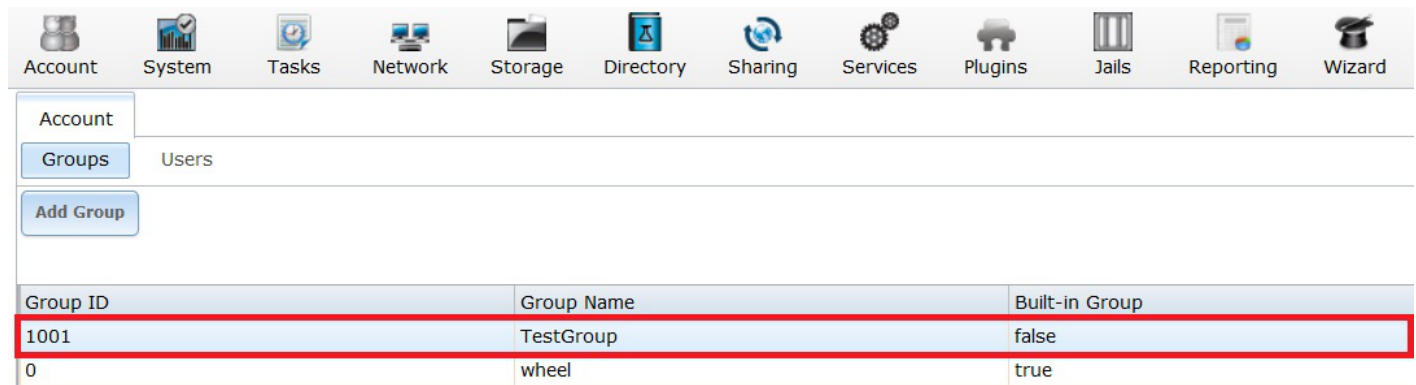
Group Name: 2 TestGroup

Permit Sudo: 3 ☐

Allow repeated GIDs: ☐

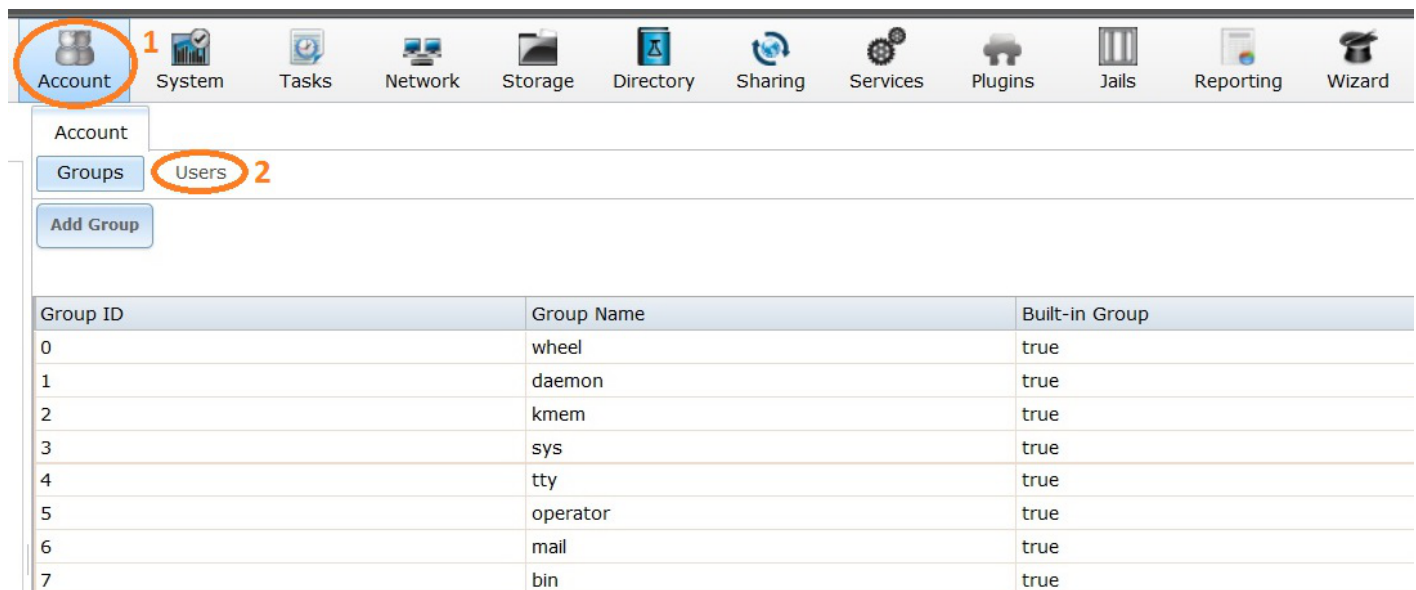
4 OK Cancel

If all goes well an entry should appear in the Account → Groups page. You should see something like this.



Group ID	Group Name	Built-in Group
1001	TestGroup	false
0	wheel	true

Now go to the “Accounts” page (1) and click the “Users” button (2).



Group ID	Group Name	Built-in Group
0	wheel	true
1	daemon	true
2	kmem	true
3	sys	true
4	tty	true
5	operator	true
6	mail	true
7	bin	true

A new window will pop up. Here we can create a new User.

Leave the “User ID:” at its default value of **1001** (1).

Now type in a name for the new user in the “Username:” text box (2) (because this is a starter share from which you can experiment, Fester used **TestUser**).

Untick the “Create a new primary group for the user:” tick box (3).

The “Primary Group:” drop down selection box (4) should now become active. The group we created earlier (i.e. TestGroup) should be available for selection.

Leave the “Create Home Directory In:” text box at the default **/nonexistent** (5).

Leave “Shell:” at its default setting (6).

Type in a name for the new user (7) (Fester chose **Test User**).

Create a password in the “Password:” text box and confirm it by retyping it in the “Password Confirmation:” text box (8) (because this is a starter share to experiment with Fester just used **test**).

Make sure you use a stronger and less predictable password when you create your real/final share(s).

Now scroll down.

The screenshot shows a web form titled "Add User". It contains several input fields and checkboxes. Red boxes with numbers 1 through 8 are overlaid on the form to highlight specific fields:

- 1: User ID: 1001
- 2: Username: TestUser
- 3: Create a new primary group for the user: ☐
- 4: Primary Group: TestGroup
- 5: Create Home Directory In: /nonexistent
- 6: Shell: csh
- 7: Full Name: Test User
- 8: Password: (masked with dots)

Other visible fields include "E-mail:", "Password confirmation:", "Disable password login:", and "Lock user:". A "Browse" button is next to the "Create Home Directory In:" field. An information icon is next to the "Password confirmation:" field.

Do not tick the "Disable password login:" you will lock yourself out of the share.

Leave the "Lock user:" and "Permit Sudo:" at their default settings of unticked (9).

Fester will be accessing this account from a windows machine so I tick the "Microsoft Account:" tick box (10).

Now click the "OK" button (11).

The screenshot shows a user configuration dialog box with the following fields and annotations:

- E-mail:** Text input field.
- Password:** Password input field with masked characters (dots).
- Password confirmation:** Password input field with masked characters (dots) and an information icon (i).
- Disable password login:** Checkable field with an information icon (i). A red box highlights this field, and the number **9** is next to it.
- Lock user:** Checkable field.
- Permit Sudo:** Checkable field.
- Microsoft Account:** Checkable field. A red box highlights this field, and the number **10** is next to it.
- SSH Public Key:** Text input field.
- Auxiliary groups:** Group selection interface with two lists:
 - Available:** TestGroup, _dhcp, _pflogd, audit, authpf, avahi.
 - Selected:** Empty list.
- Buttons:** OK, Cancel, and Advanced Mode. The **OK** button is circled in red, and the number **11** is next to it.

Dataset Creation

Now we need to create the dataset.

Go to the "Storage" page.

The screenshot shows the FreeNAS web interface. At the top, there is a navigation bar with icons for Account, System, Tasks, Network, Storage (highlighted with a red circle), Directory, Sharing, Services, Plugins, Jails, Reporting, and Wizard. Below this, there is a sub-navigation bar with tabs for System, Information (selected), General, Boot, Advanced, Email, System Dataset, Tunables, Update, CAs, Certificates, and Support. The main content area displays the 'System Information' page, which includes a table of system details:

Hostname	[REDACTED]	Edit
Build	FreeNAS-9.10-RELEASE (2def9c8)	
Platform	Intel(R) Xeon(R) CPU E5-2620 v3 @ 2.40GHz	
Memory	16248MB	
System Time	[REDACTED]	
Uptime	[REDACTED]	
Load Average	0.00, 0.06, 0.13	

Select "Tank1" or whatever you called the volume (1) by clicking on it (it should turn blue when selected).

A series of buttons should appear on the bottom of the screen.

From these buttons click on the one that creates a dataset (2).

The screenshot shows a web interface for storage management. At the top, there are tabs: 'Storage' (selected), 'Volumes', 'Periodic Snapshot Tasks', 'Replication Tasks', 'Scrubs', 'Snapshots', and 'VMware-Snapshot'. Below these are buttons: 'Volume Manager', 'Import Disk', 'Import Volume', and 'View Disks'. A table lists storage volumes:

Name	Used	Available
▲ Tank1	443.0 MiB (0%)	29.0 TiB
▲ Tank1	312.0 MiB (0%)	20.0 TiB
jails	204.8 KiB (0%)	20.0 TiB

At the bottom, there is a toolbar with icons. A red circle highlights the 'Create Dataset' icon (a grid with a plus sign), and a red number '2' points to it with a callout box labeled 'Create Dataset'.

A new smaller window will pop up for creating the dataset.

In the "Dataset Name:" text box (1) give the share a name (because this is a starter share from which you can experiment, Fester used **TestShare**).

Leave the "Compression level:" drop down selection box (2) set to lz4.

Set the "Share type:" to whatever suits the type of clients on your network (Fester has mainly Windows machines so I set this to **Windows**).

Leave the "Case Sensitivity:" drop down selection box and "Enable atime:" at their default settings as shown (4).

“ZFS Deduplication:” should be set to **off** in the drop down selection box (5) unless you understand this and you have plenty of memory.

Now click the “Add Dataset” button (6).

Create Dataset

Create ZFS dataset in Tank1

Dataset Name: 1 TestShare

Compression level: 2 Inherit (lz4)

Share type: 3 Windows

Case Sensitivity: Sensitive

Enable atime: 4

- ☒ Inherit (on)
- ☐ On
- ☐ Off

ZFS Deduplication: 5 Inherit (off)

Enabling dedup may have drastic performance implications, as well as impact your ability to access your data. Consider using compression instead.

6 Add Dataset Cancel Advanced Mode

The dataset will now be created and you should see something like this.

Storage			
Volumes	Periodic Snapshot Tasks	Replication Tasks	Scrubs Snapshots VMware-Snapshot
Volume Manager	Import Disk	Import Volume	View Disks
Name	Used	Available	Compression
▲ Tank1	443.7 MiB (0%)	29.0 TiB	-
▲ Tank1	312.3 MiB (0%)	20.0 TiB	lz4
TestShare	204.8 KiB (0%)	20.0 TiB	inherit (lz4)
jails	204.8 KiB (0%)	20.0 TiB	inherit (lz4)

Remain on this screen and select the newly created dataset (1) if it is not selected already (in Fester’s case this was TestShare).

Now click on the change permissions button (2).

Storage

Volumes Periodic Snapshot Tasks Replication Tasks Scrubs Snapshots VMware-Snapshot

Volume Manager Import Disk Import Volume View Disks

Name	Used	Available	Compression
▲ Tank1	443.7 MiB (0%)	29.0 TiB	-
▲ Tank1 1	312.3 MiB (0%)	20.0 TiB	lz4
TestShare	204.8 KiB (0%)	20.0 TiB	inherit (lz4)
jails	204.8 KiB (0%)	20.0 TiB	inherit (lz4)

2

Change Permissions

Icons: Key, Laptop, Server, Wrench, Gear, Monitor

A new window will pop up for changing the permissions of the new dataset.

Leave the “Apply Owner (user):” tick box (1) at its default setting (with a tick).

In the “Owner (user):” drop down selection box (2) select the new user you created a moment ago (in Fester’s case this was TestUser).

Leave the “Apply Owner (group):” tick box (3) at its default setting (with a tick).

In the “Owner (group):” drop down selection box (4) select the new group you created a moment ago (in Fester’s case this was TestGroup).

Leave the “Apply Mode:” tick box (5) at its default setting (with a tick).

If you have chosen “Windows” as the Permission Type then the “Mode:” tick boxes (6) will be greyed out so you can not alter them. FreeNAS will prevent you from making alterations here and is correct to do so. This is because if you did you could break the share.

Set the “Permission Type:” radio button (7) to match the clients on your network (Fester has mostly Windows machines so I set this to **Windows**).

Put a tick in the “Set permission recursively:” tick box (8).

Now click the “Change” button (9).

Change permission

Change permission on /mnt/Tank1/TestShare to:

Apply Owner (user): 1 ☒

Owner (user): 2 TestUser

Apply Owner (group): ☒ 3

Owner (group): 4 TestGroup

Apply Mode: 5 ☒

Mode: 6

	Owner	Group	Other
Read	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Write	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Execute	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Permission Type: 7

- ☐ Unix
- ☐ Mac
- ☒ Windows

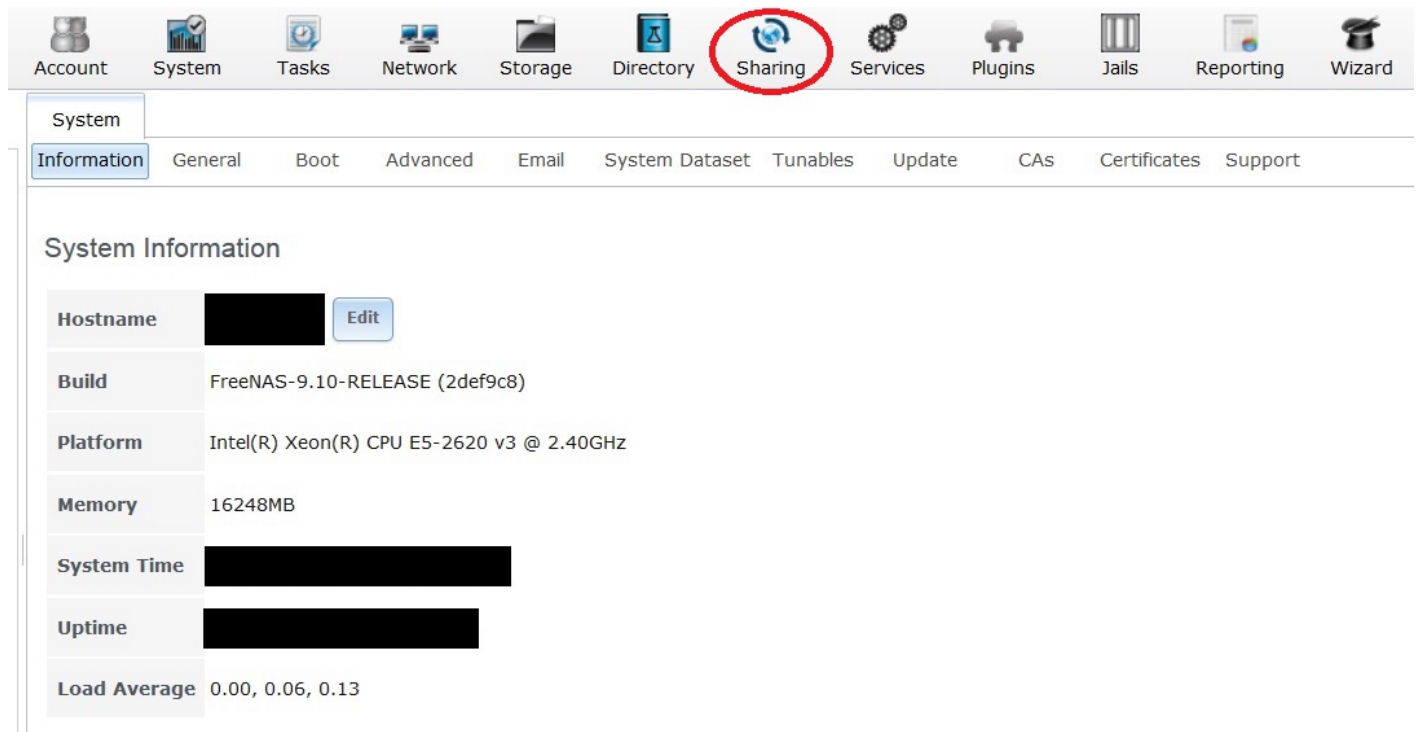
Set permission recursively: 8 ☒

9

Share Creation

Now we need to create a CIFS share. On a network that utilises predominately Windows clients this is a good choice.

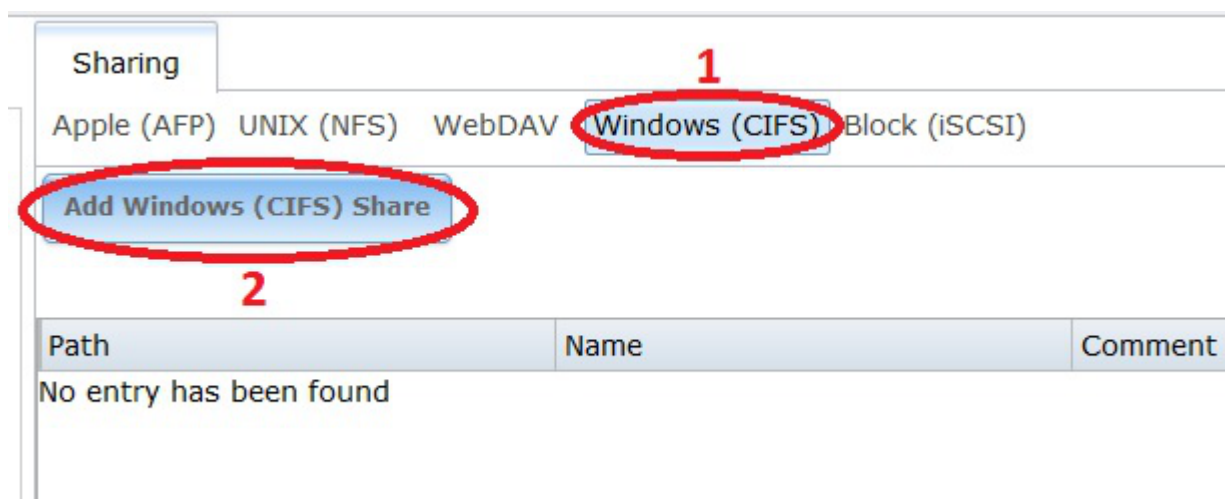
Go to the “Sharing” page.



The screenshot shows the FreeNAS web interface. The top navigation bar includes icons for Account, System, Tasks, Network, Storage, Directory, Sharing (circled in red), Services, Plugins, Jails, Reporting, and Wizard. Below this, the 'System' tab is selected, and the 'Information' sub-tab is active. The 'System Information' section displays various system details:

Hostname	[REDACTED]	Edit
Build	FreeNAS-9.10-RELEASE (2def9c8)	
Platform	Intel(R) Xeon(R) CPU E5-2620 v3 @ 2.40GHz	
Memory	16248MB	
System Time	[REDACTED]	
Uptime	[REDACTED]	
Load Average	0.00, 0.06, 0.13	

Now click the “Windows (CIFS)” button (1) and then click the “Add Windows (CIFS) Share” button (2).



The screenshot shows the 'Sharing' section of the FreeNAS web interface. The 'Sharing' tab is selected. Below the tab, there are buttons for Apple (AFP), UNIX (NFS), WebDAV, Windows (CIFS) (circled in red and labeled 1), and Block (iSCSI). Below these buttons, the 'Add Windows (CIFS) Share' button is circled in red and labeled 2. Below the buttons, there is a table with columns for Path, Name, and Comment. The table is currently empty, with the text 'No entry has been found' displayed below it.

A new smaller window will pop up.

In the “Path:” section click the “Browse” button.

Add Windows (CIFS) Share

Path:


Browse

Use as home share:


☐

Name:

Apply Default Permissions:

☒ 

Allow Guest Access:

☐ 

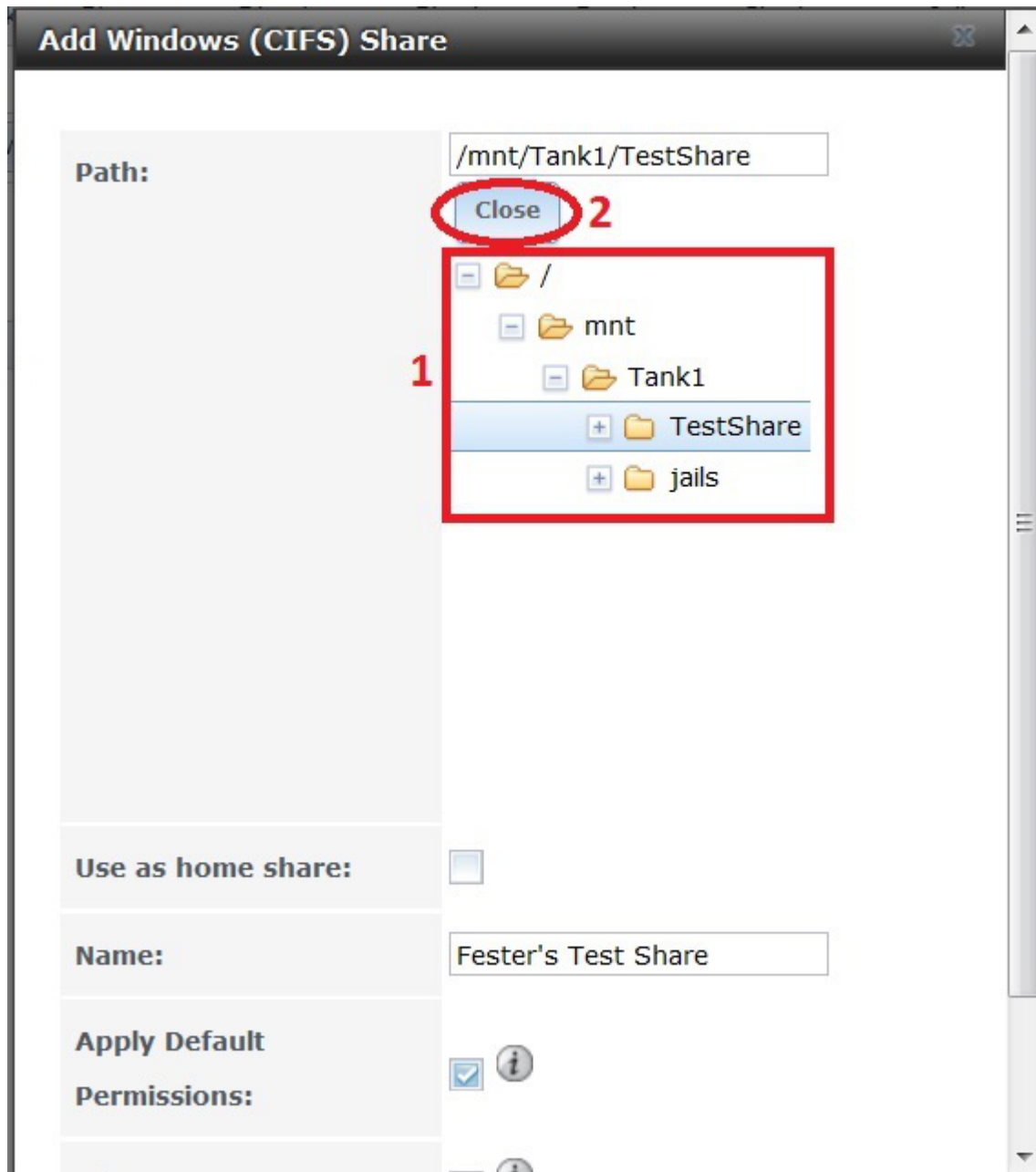
OK

Cancel

Advanced Mode

The window should now expand a little and allow you to navigate to the newly created dataset (1).

When you have it selected click the "Close" button (2).



The “Path:” text box (1) should now display the chosen dataset.

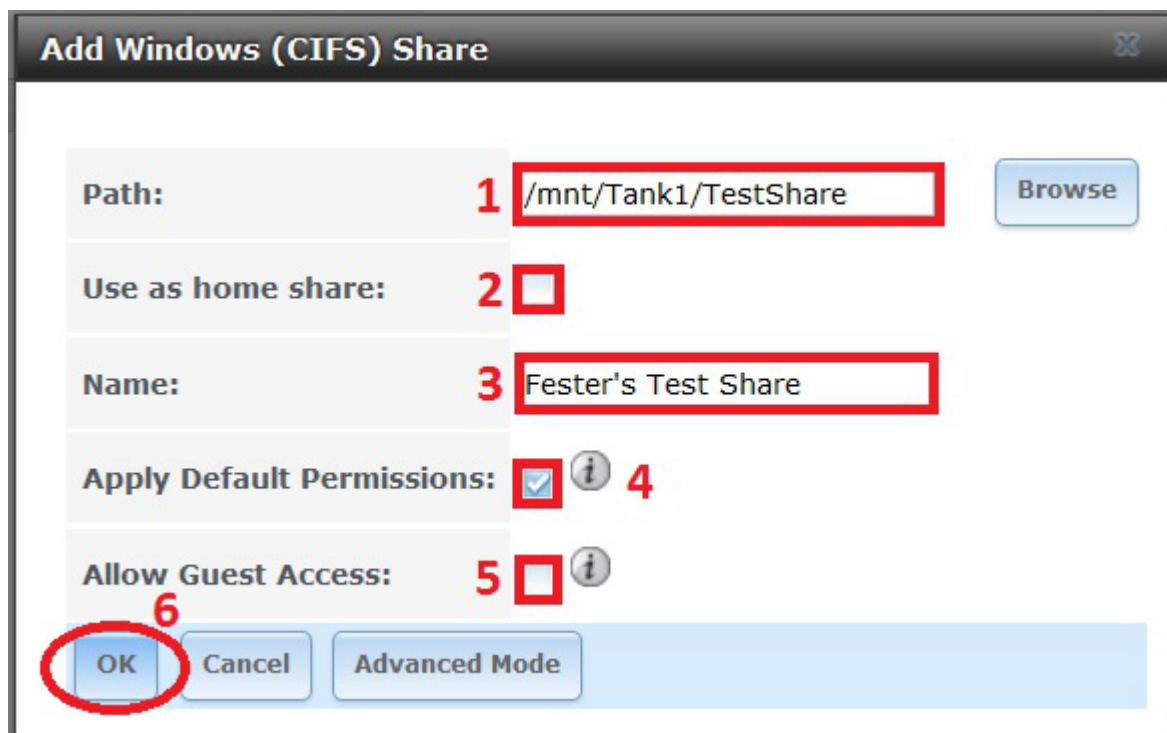
Do not tick the “Use as home share:” tick box (2) at the moment.

Give the share a name in the “Name:” text box (3).

Put a tick in the “Apply Default Permissions:” tick box (4) if a tick is not present.

Do not tick the “Allow Guest Access:” tick box (5).

Now click the “OK” button (6).



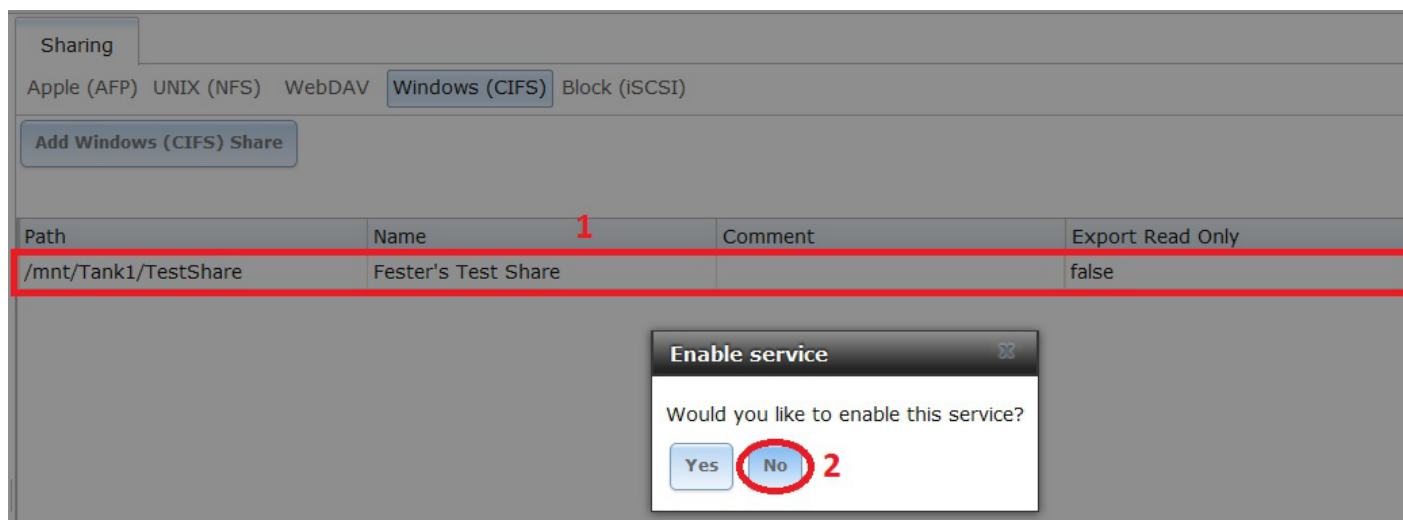
The dialog box titled "Add Windows (CIFS) Share" contains the following fields and controls:

- Path:** A text field containing "/mnt/Tank1/TestShare" with a red box around it and a red number 1 to its left. A "Browse" button is to its right.
- Use as home share:** A checkbox that is unchecked, with a red box around it and a red number 2 to its left.
- Name:** A text field containing "Fester's Test Share" with a red box around it and a red number 3 to its left.
- Apply Default Permissions:** A checked checkbox with an information icon to its right, with a red number 4 to its right.
- Allow Guest Access:** An unchecked checkbox with an information icon to its right, with a red number 5 to its right.
- Buttons:** At the bottom, there are three buttons: "OK" (circled in red with a red number 6 to its top-left), "Cancel", and "Advanced Mode".

If all goes well you will see the newly created CIFS share entry (1).

You will now be asked if you wish to enable the CIFS share service.

Click the "No" button (2).



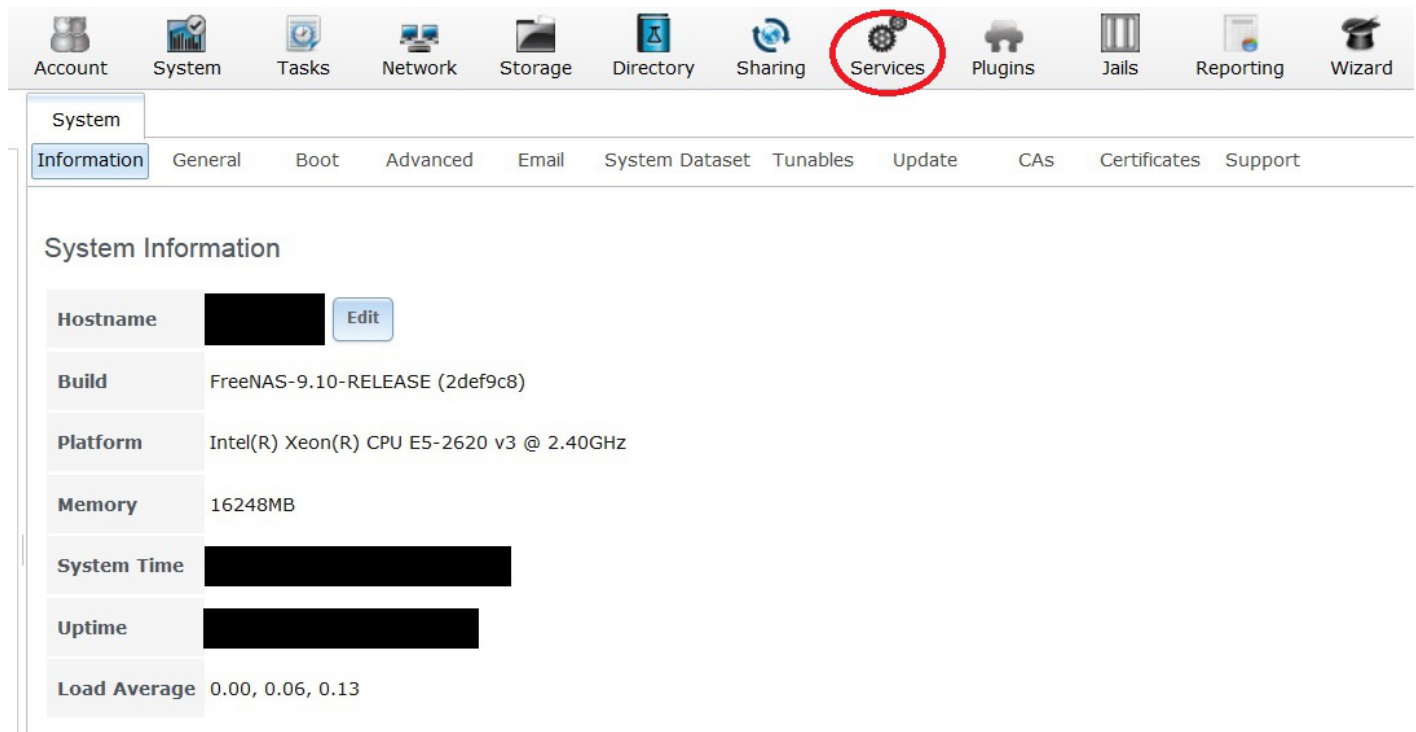
The "Sharing" configuration page shows the "Windows (CIFS)" tab selected. Below the tabs is a table of shares:

Path	Name	Comment	Export Read Only
/mnt/Tank1/TestShare	Fester's Test Share		false

The table is highlighted with a red box, and a red number 1 is placed above the "Name" column. Below the table, an "Add Windows (CIFS) Share" button is visible. An "Enable service" dialog box is open in the foreground, asking "Would you like to enable this service?". It has "Yes" and "No" buttons, with the "No" button circled in red and a red number 2 to its right.

CIFS/SMB Configuration

Now go to the "Services" page.



Click on the little spanner next to the “CIFS” service (1).

A new window will pop up.

The NetBIOS name will already be present in the “NetBIOS Name:” text box (2).

In the “Workgroup” text box (3) type in the name of the workgroup you want to use on the client machines (Fester used **T ESTWORKGROUP** because it is an experimental starter share). If you don’t know your Workgroup then skip to the relevant section on how to do this.

Type in a good name for the CIFS share in the “Description:” text box (4).

Do not alter the default values of the “DOS charset:”, the “Unix charset:” and the “Log level:” (5).

Leave the “Use syslog only:” (6) at its default (no tick).

Make sure the “Local Master:” tick box (7) is ticked.

Leave “Domain logons:” (8) unticked.

Leave “Time Server for Domain:” (9) ticked.

Leave “Guest account:” (10) at **nobody**.

The screenshot shows the 'CIFS Settings' window. On the left, a sidebar lists services: AFP, CIFS, Domain Controller, Dynamic DNS, FTP, iSCSI, LLDP, NFS, Rsync, S.M.A.R.T., SNMP, SSH, TFTP, UPS, and WebDAV. Each service has a status toggle (ON/OFF) and a key icon. The CIFS service is highlighted with a red circle and a red number 1. The main panel shows the CIFS Settings form with the following fields and checkboxes:

- NetBIOS name: 2 TestNAS1
- Workgroup: 3 TESTWORKGROUP
- Description: 4 Fester's Server Share
- DOS charset: CP437
- UNIX charset: 5 UTF-8
- Log level: Minimum
- Use syslog only: 6 ☐
- Local Master: 7 ☒
- Domain logons: 8 ☐
- Time Server for Domain: 9 ☒
- Guest account: 10 nobody

Do not put anything in the "File mask:" and "Directory mask:" text boxes (11) unless you really understand UNIX permissions (Fester can't help you here).

Do not tick the "Allow Empty Password:" tick box (12) as this weakens the security of the share.

Leave the "Unix Extensions:" and "Zeroconf share discovery:" tick boxes (13) as they are.

Untick the "Hostnames lookups:" tick box (14) otherwise you will keep getting a name mismatch error.

Set the "Server maximum protocol:" (15) to SMB2.

Leave the "Allow execute always:" tick box (16) in its default setting (with a tick).

The screenshot shows a Samba configuration window with the following settings highlighted:

- File mask:** (11) - A text input field.
- Directory mask:** (11) - A text input field.
- Allow Empty Password:** (12) - A checkbox that is unchecked.
- Auxiliary parameters:** - A large text area.
- Unix Extensions:** (13) - A checkbox that is checked.
- Zeroconf share discovery:** (13) - A checkbox that is checked.
- Hostnames lookups:** (14) - A checkbox that is unchecked.
- Server minimum protocol:** - A dropdown menu showing "-----".
- Server maximum protocol:** (15) - A dropdown menu showing "SMB2".
- Allow execute always:** (16) - A checkbox that is checked.

Fester has no idea what the "Obey pam restrictions:" setting (17) actually does. I just leave it ticked, but I have no idea how it should be set.

Don't tick any of the IP address text boxes (18) in the "Bind IP Addresses:" section.

The "Idmap Range Low:" and "Idmap Range High:" settings (19) Fester does not touch as I don't know what they do.

Now click on the "OK" button (20).

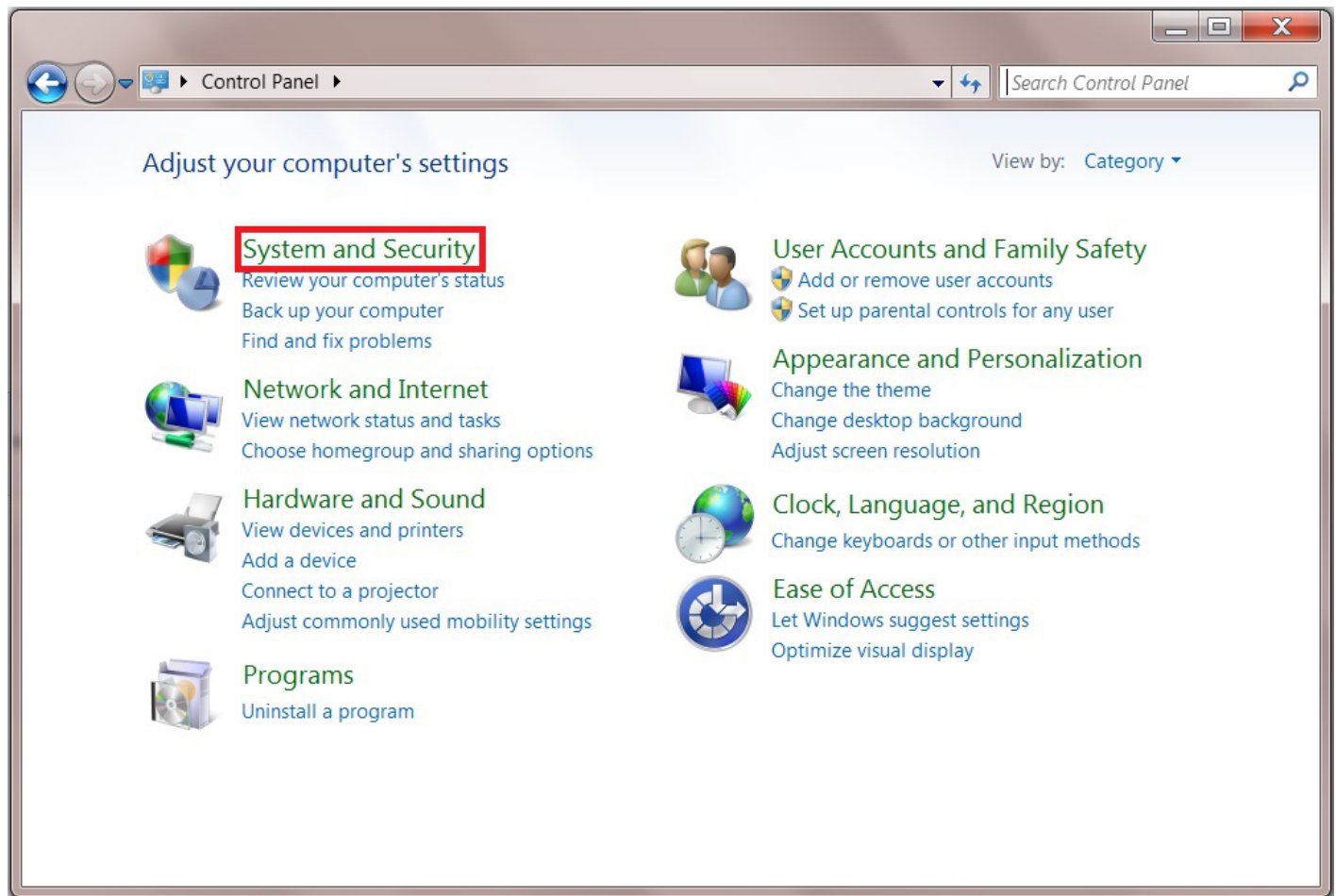
The screenshot shows the Samba configuration window with the following settings and annotations:

- discovery:** ☒ (Annotation: 17)
- Hostnames lookups:** ☐ (Annotation: 18)
- Server minimum protocol:** [-----] (Annotation: 18)
- Server maximum protocol:** SMB2 (Annotation: 18)
- Allow execute always:** ☒ (Annotation: 17)
- Obey pam restrictions:** ☒ (Annotation: 17)
- Bind IP Addresses:**
 - ☐ 192.168.0.5
 - ☐ 192.168.0.6
 - ☐ 192.168.0.7
 - ☐ 192.168.0.8 (Annotation: 18)
- Idmap Range Low:** 90,000,001 (Annotation: 19)
- Idmap Range High:** 100,000,000 (Annotation: 20)
- Buttons:** OK (Annotation: 20), Cancel

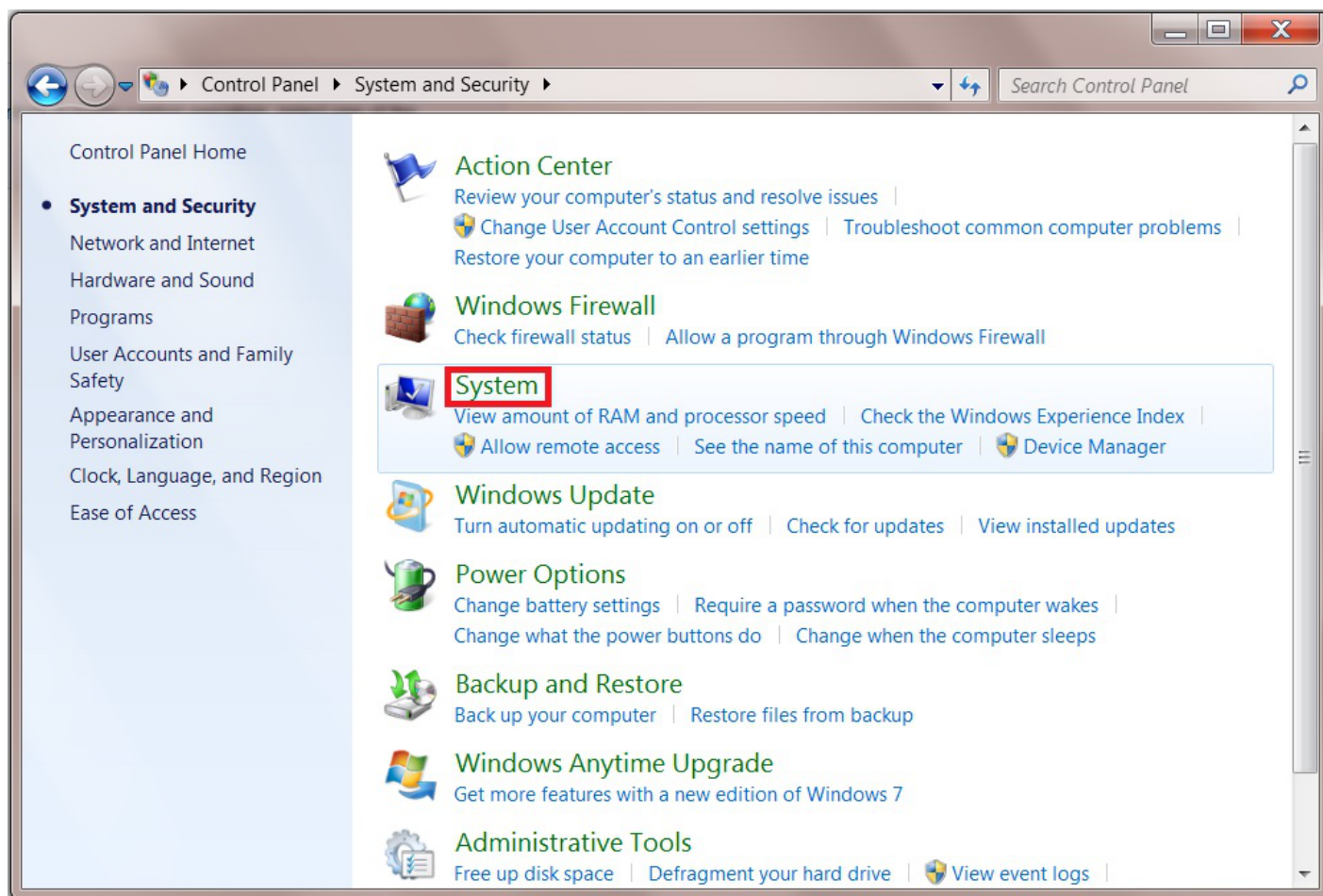
Do not turn on the CIFS share service yet. We first need to check if the Workgroup on the Windows client is set correctly.

Windows Client Configuration

Click on the "Start" button and go into the "Control Panel" in Windows and select "System and Security" (this was on a Windows 7 machine).



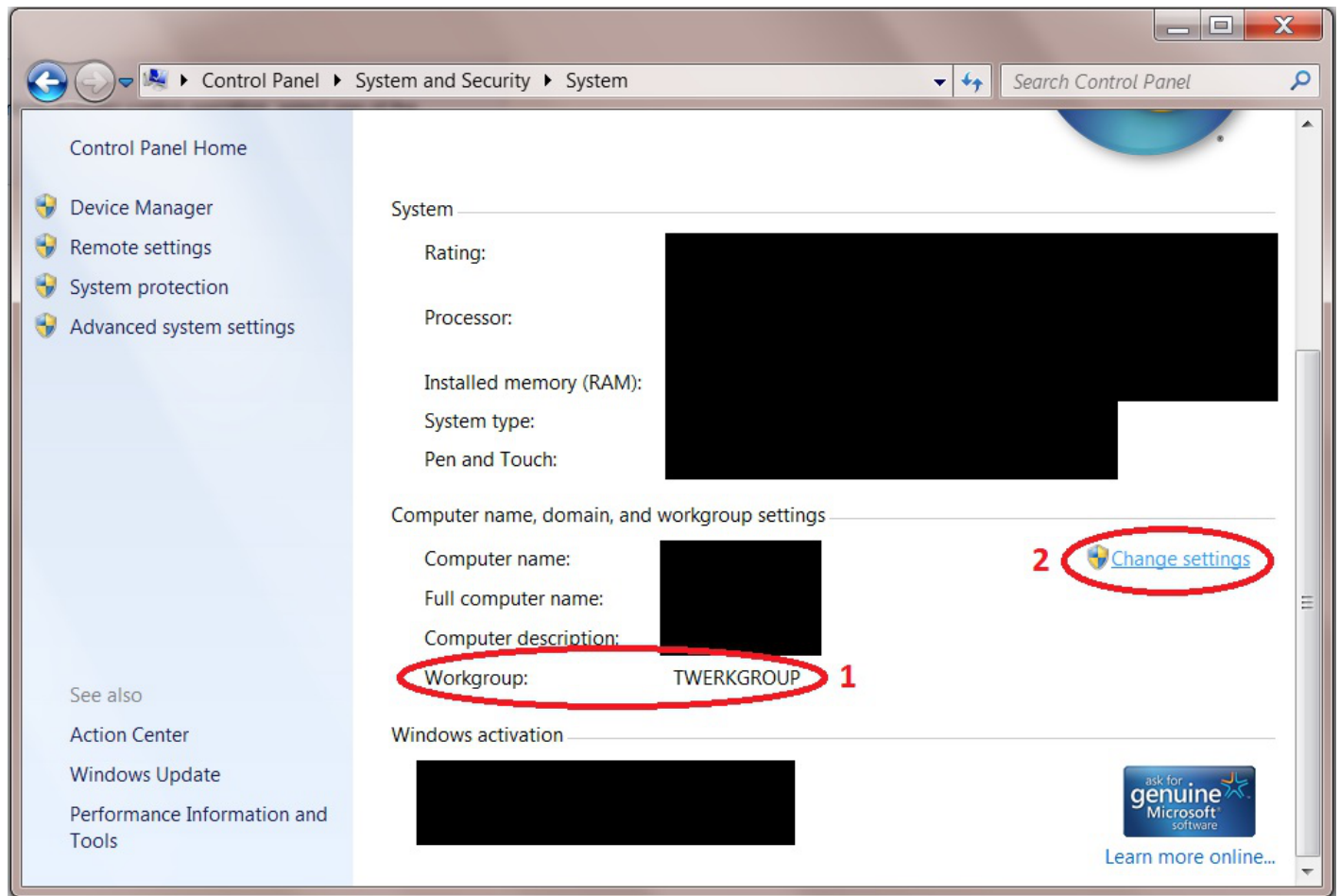
Now click on "System".



In the “System” page we can see the Workgroup is set to **TWERKGROUP** (1). This must be changed to match the Workgroup name you created in the CIFS settings a moment ago (in Fester’s case this was TESTWORKGROUP).

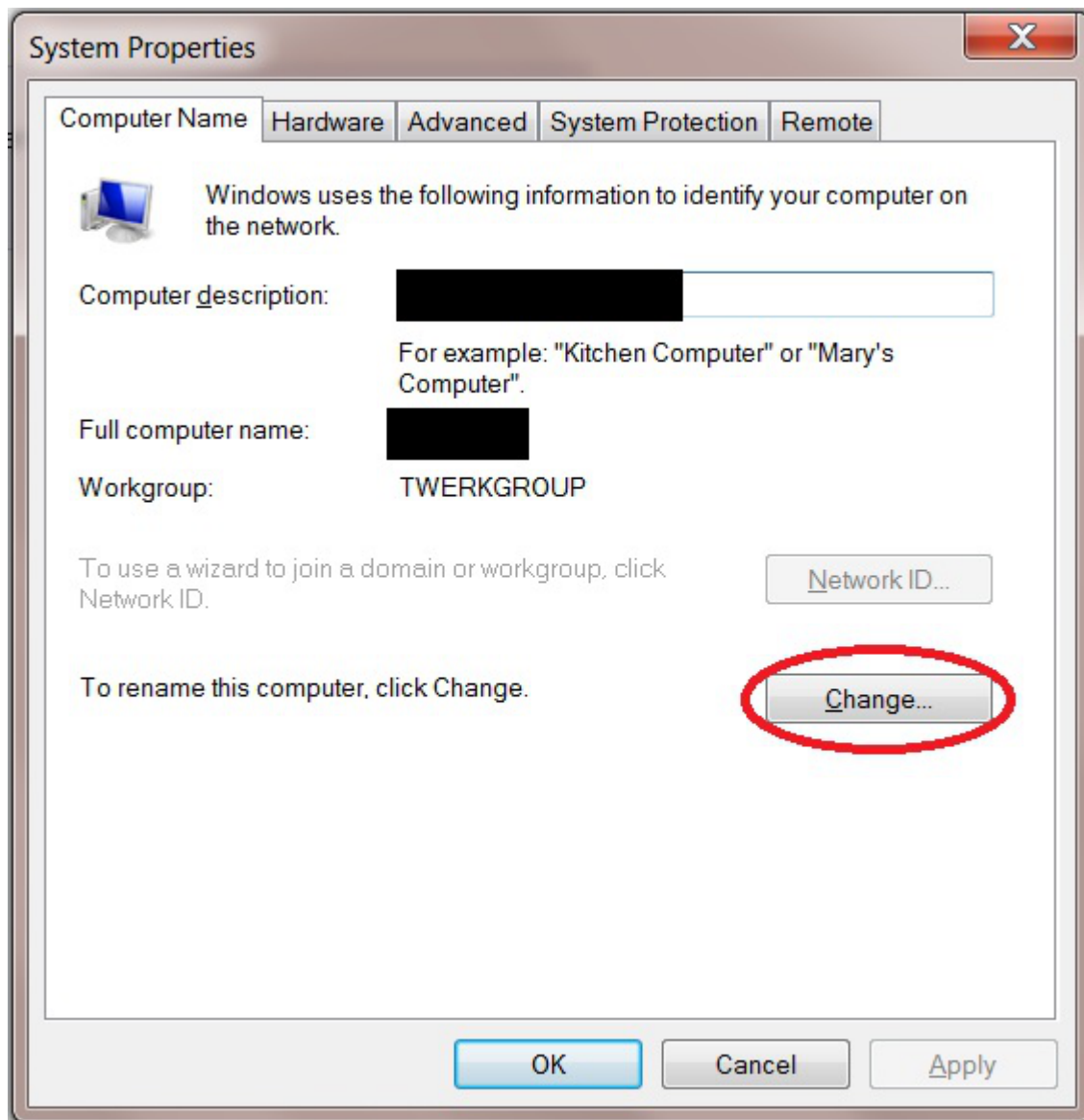
Click on “Change settings” blue text (2) to access the screen where we can change the Workgroup name.

You will probably be asked for the administrator’s password at this point.



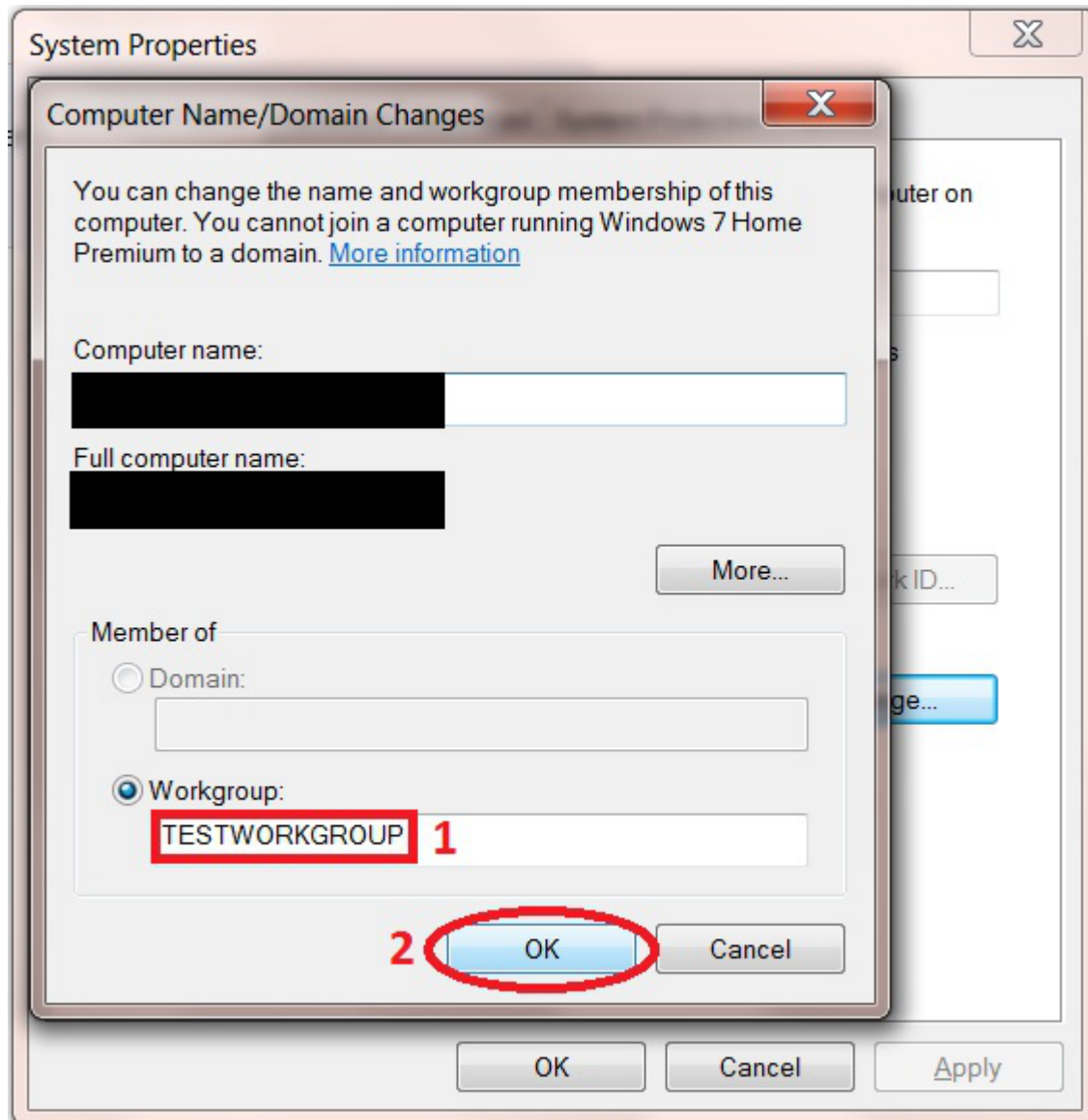
A smaller window will now pop up.

Click on the "Change" button.



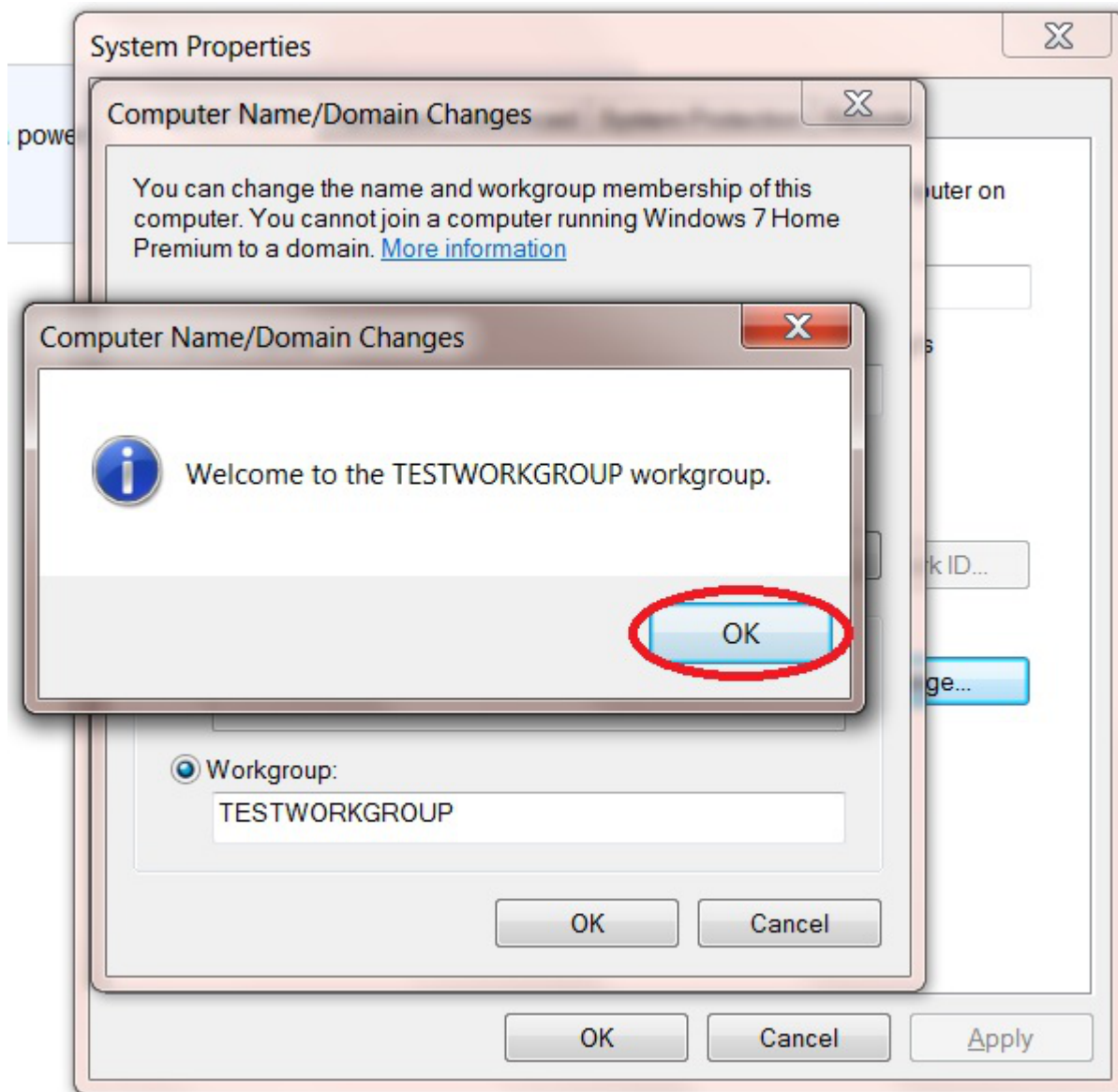
Another window will now pop up.

Change the text in the Workgroup text box (1) to the one you created in the CIFS settings page (in Fester's case this was **TESTWORKGROUP**) and click the "OK" button (2).



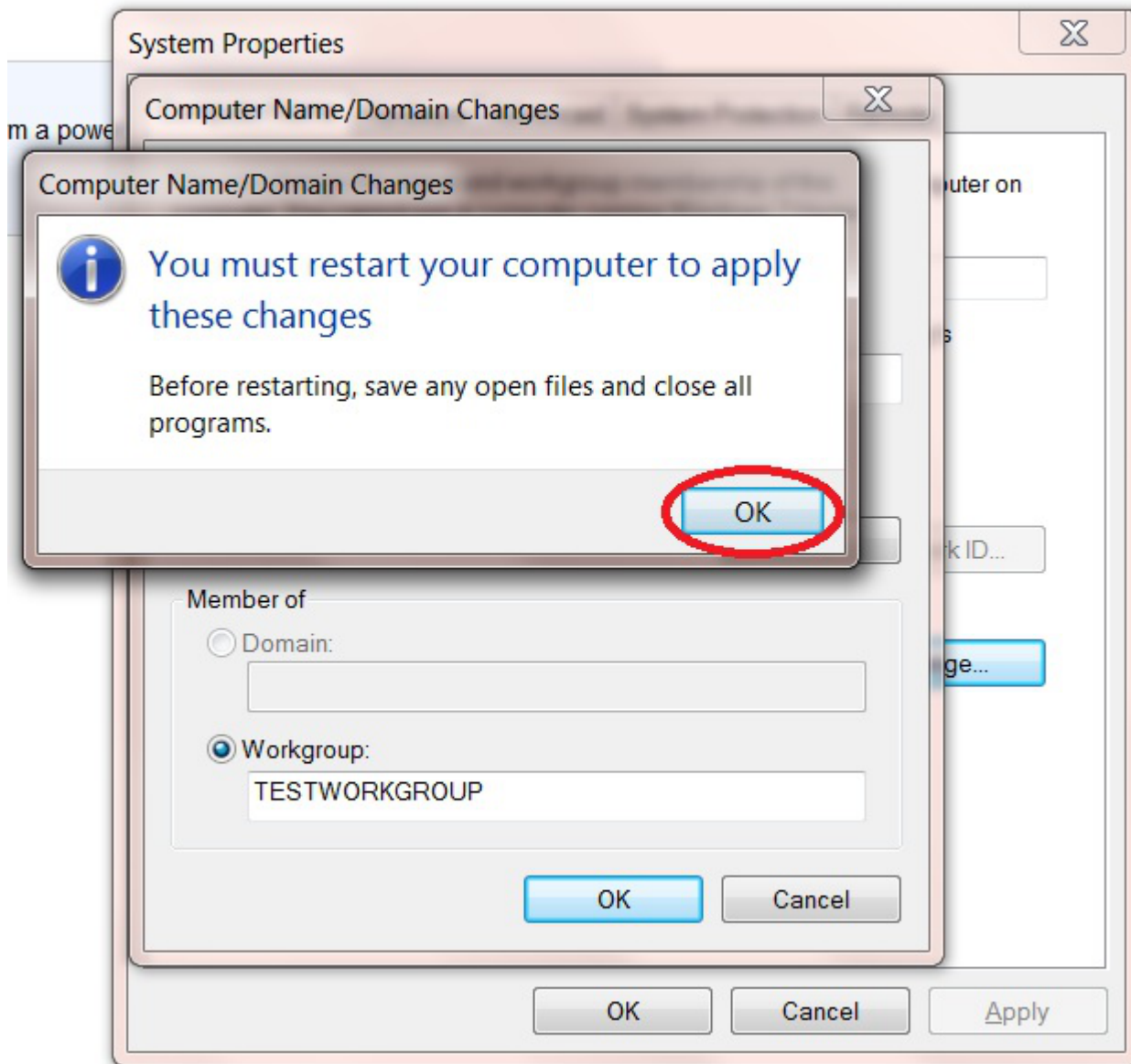
Yet another window will pop up showing the Workgroup has now been changed.

Click the “OK” button.



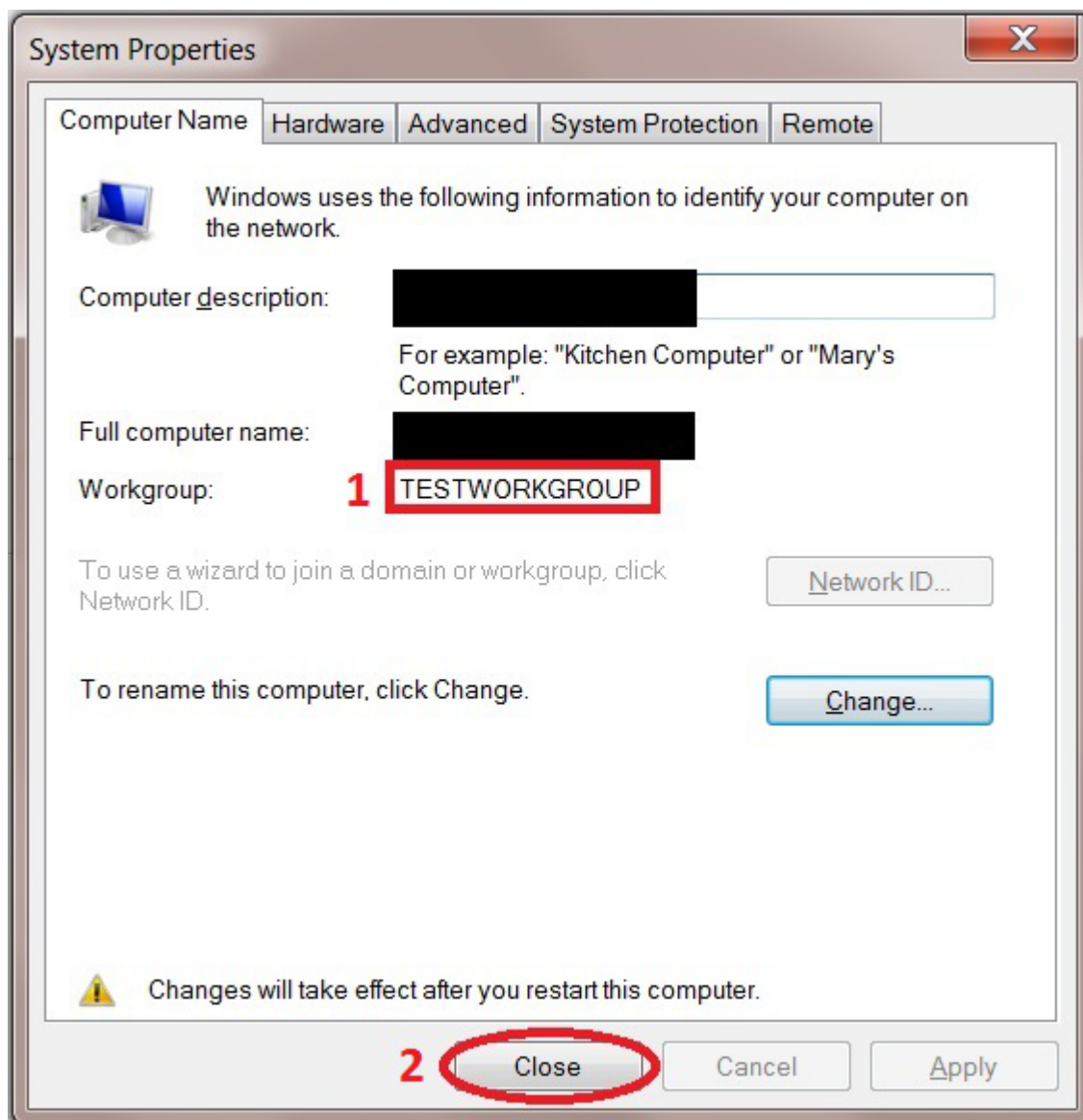
A message window will now appear telling you the changes will be implemented when the computer is restarted.

Click the "OK" button.



As can be seen from the next screen shot the Workgroup has been changed to "TESTWORKGROUP" (1).

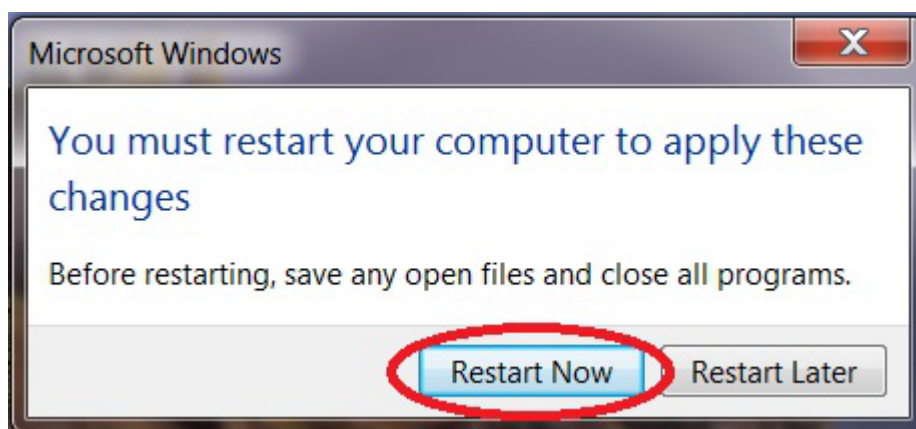
Click the "Close" button (2).



The system will now ask to be restarted. This must be done before going any further.

Close any open windows, save and close any open programs, etc.

Now click on the "Restart Now" button.

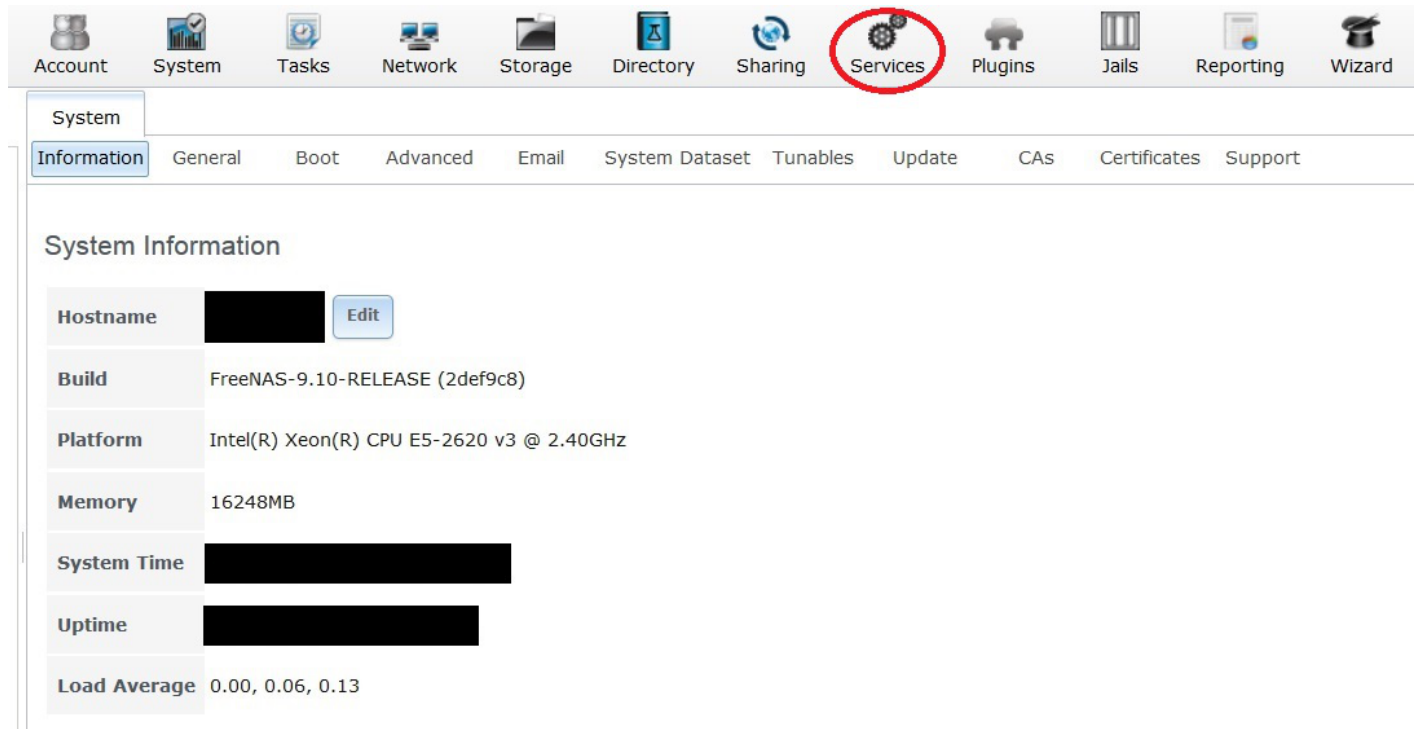


That's the Windows Workgroup configured.

The client computer will now reboot, when it does log back into the FreeNAS GUI.

Enable CIFS/SMB Service

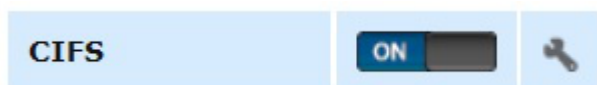
Now go to the "Services" page.



The screenshot shows the FreeNAS GUI with the 'Services' tab selected and circled in red. Below the main navigation bar, the 'System' section is expanded, showing 'Information' as the active sub-tab. The 'System Information' section displays the following details:

Field	Value	Action
Hostname	[Redacted]	Edit
Build	FreeNAS-9.10-RELEASE (2def9c8)	
Platform	Intel(R) Xeon(R) CPU E5-2620 v3 @ 2.40GHz	
Memory	16248MB	
System Time	[Redacted]	
Uptime	[Redacted]	
Load Average	0.00, 0.06, 0.13	

Turn on the CIFS share service.



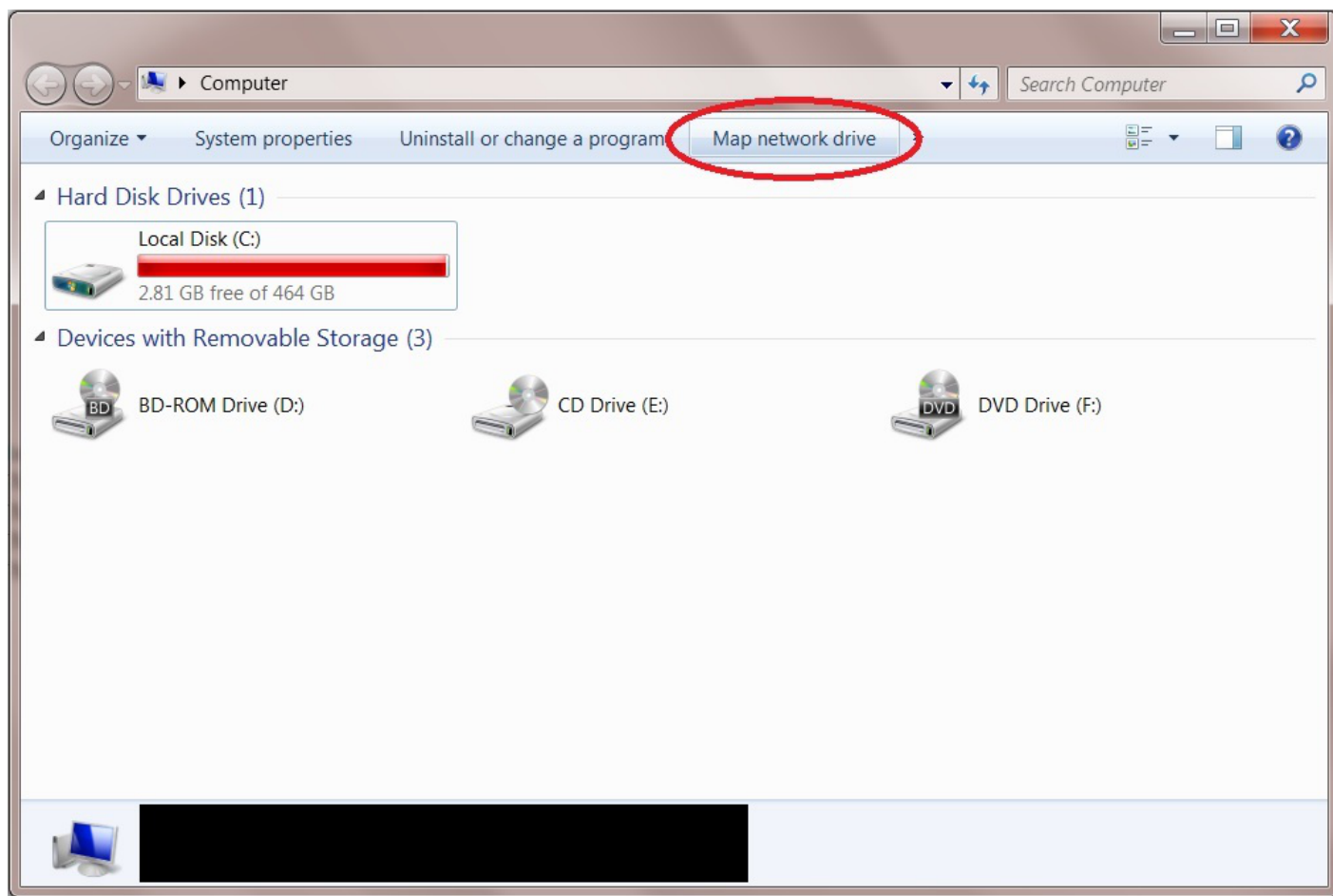
Give the server some time to get the share up and running, then it is time to map the network folder to a drive letter.

Mapping the share to a drive letter

On the Windows client click on the "Start" button and go into "Computer" (this was on a Windows 7 machine).

This should bring up a window that shows all the hard drives and any other devices connected to the Windows computer.

Click on the "Map Network Drive" button.



From the “Drive:” drop down selection box (1) chose the drive letter you wish to assign to the shared folder (Fester accepted the default **Z** letter).

Now click the “Browse...” button (2).

This will cause a window to pop up.

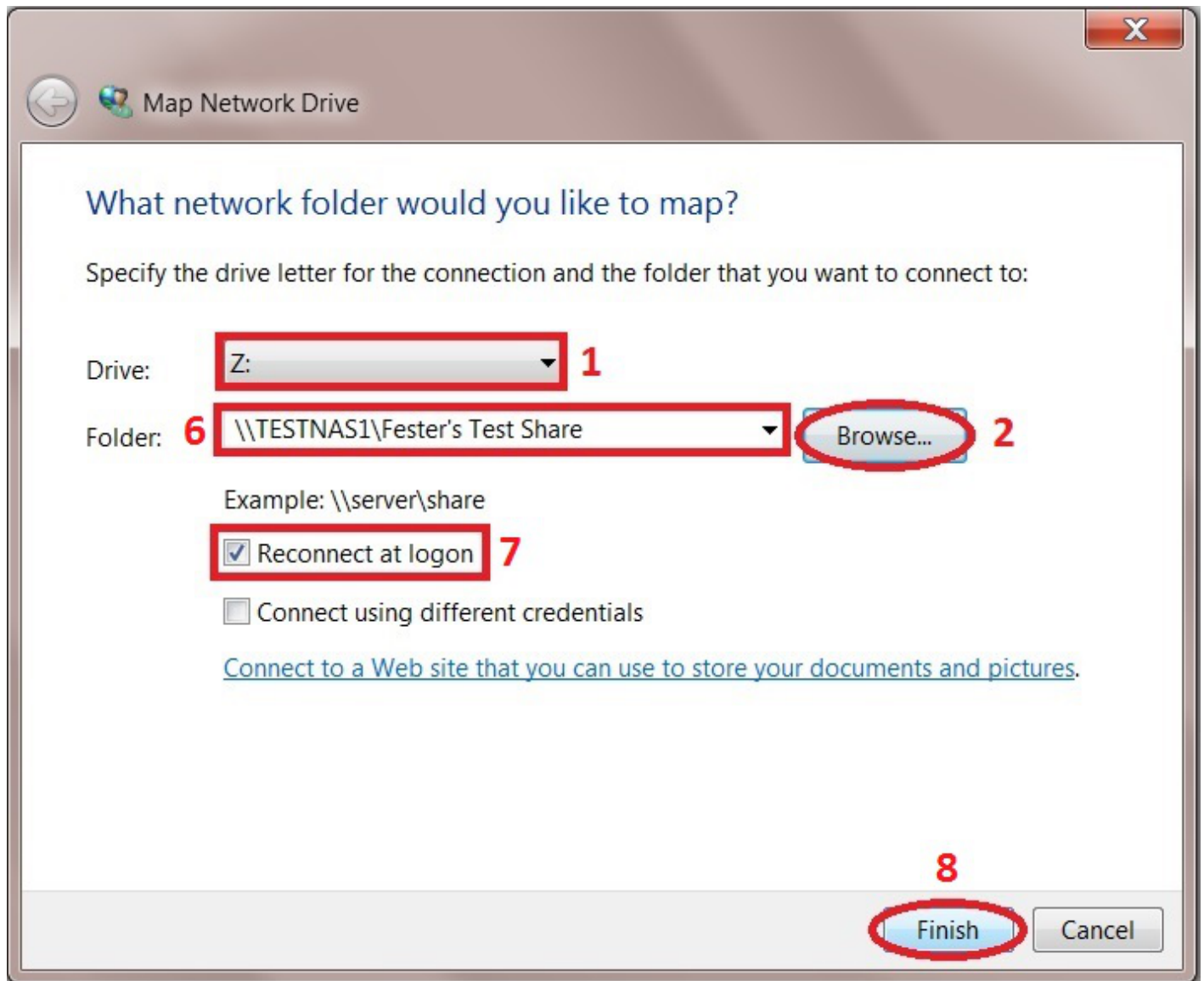
Navigate to the location of the shared folder by clicking on the server (in this case TestNAS1) (3) and then clicking on the shared folder itself (in this case Fester’s TestShare) (4).

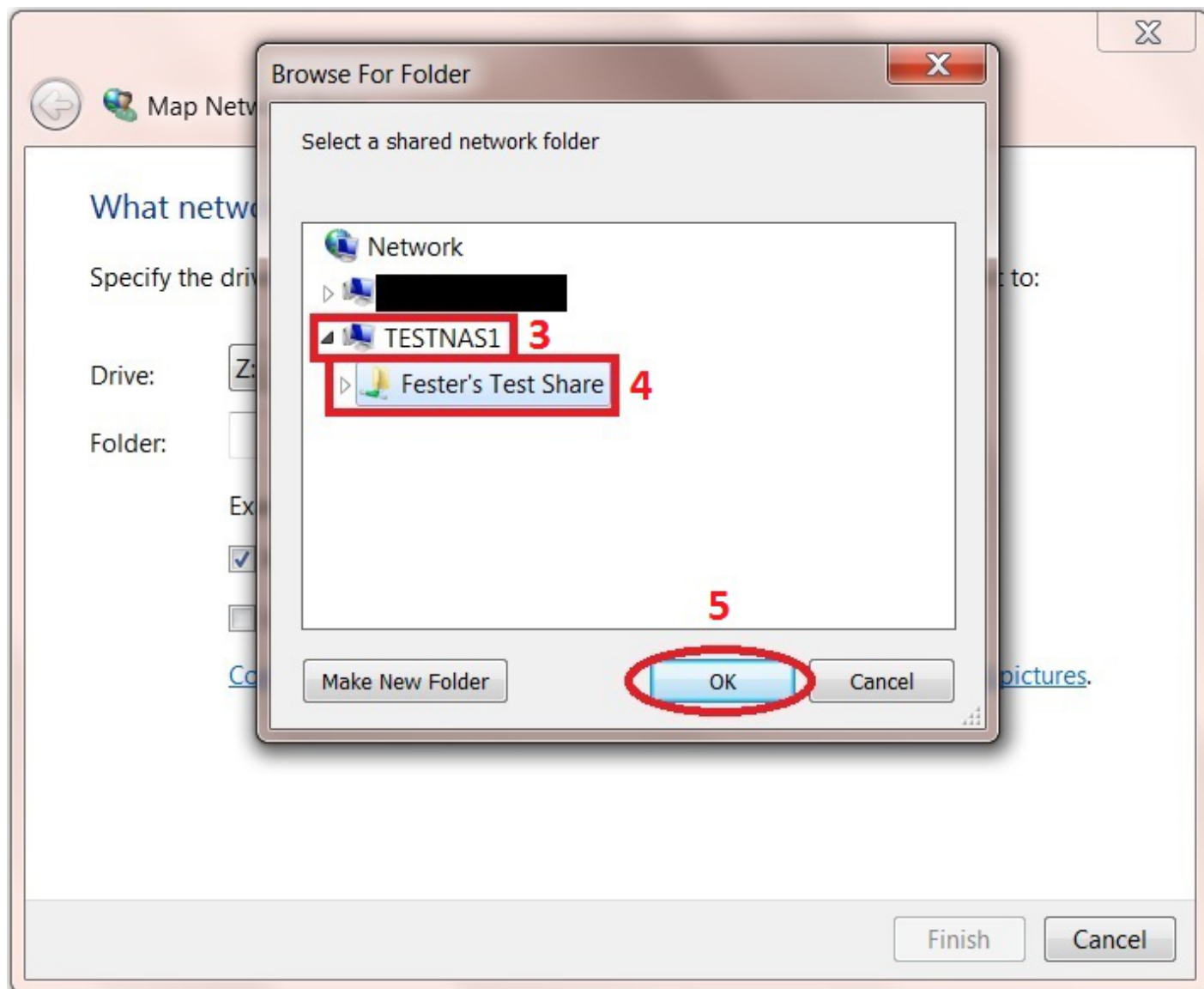
Now click the “OK” button (5).

The shared folder’s path name should appear in the “Folder:” text box (6).

Tick the “Reconnect at logon” Tick box (7).

Now click the “Finish” button (8).





At this point another window will pop up and ask you for the username and password for the share.

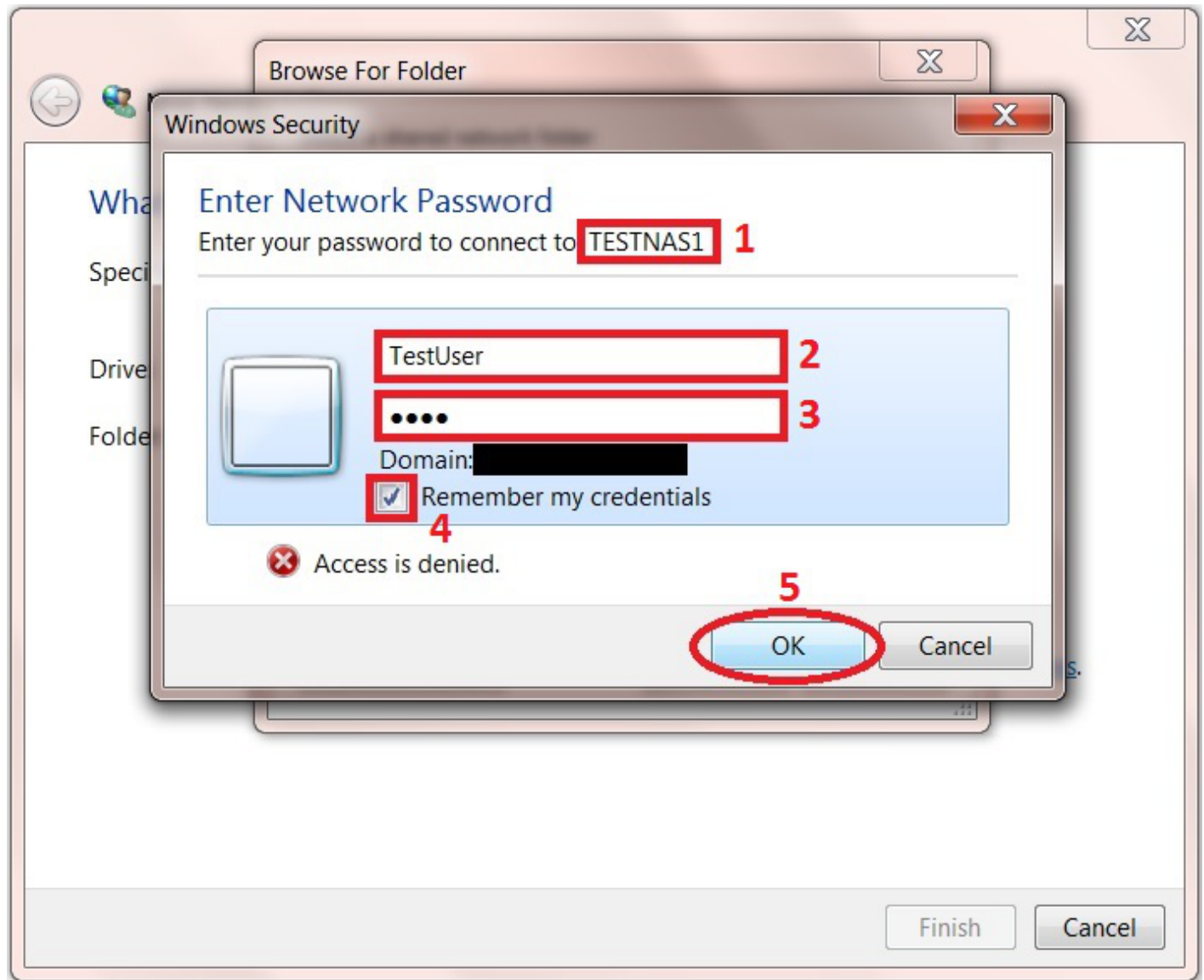
The name of the server is shown next to the text at the top of the window (1).

Type in your username in the first text box (2) (in Fester's case this was **TestUser**).

Now type in your password in the second text box (3) (in Fester's case this was **test**).

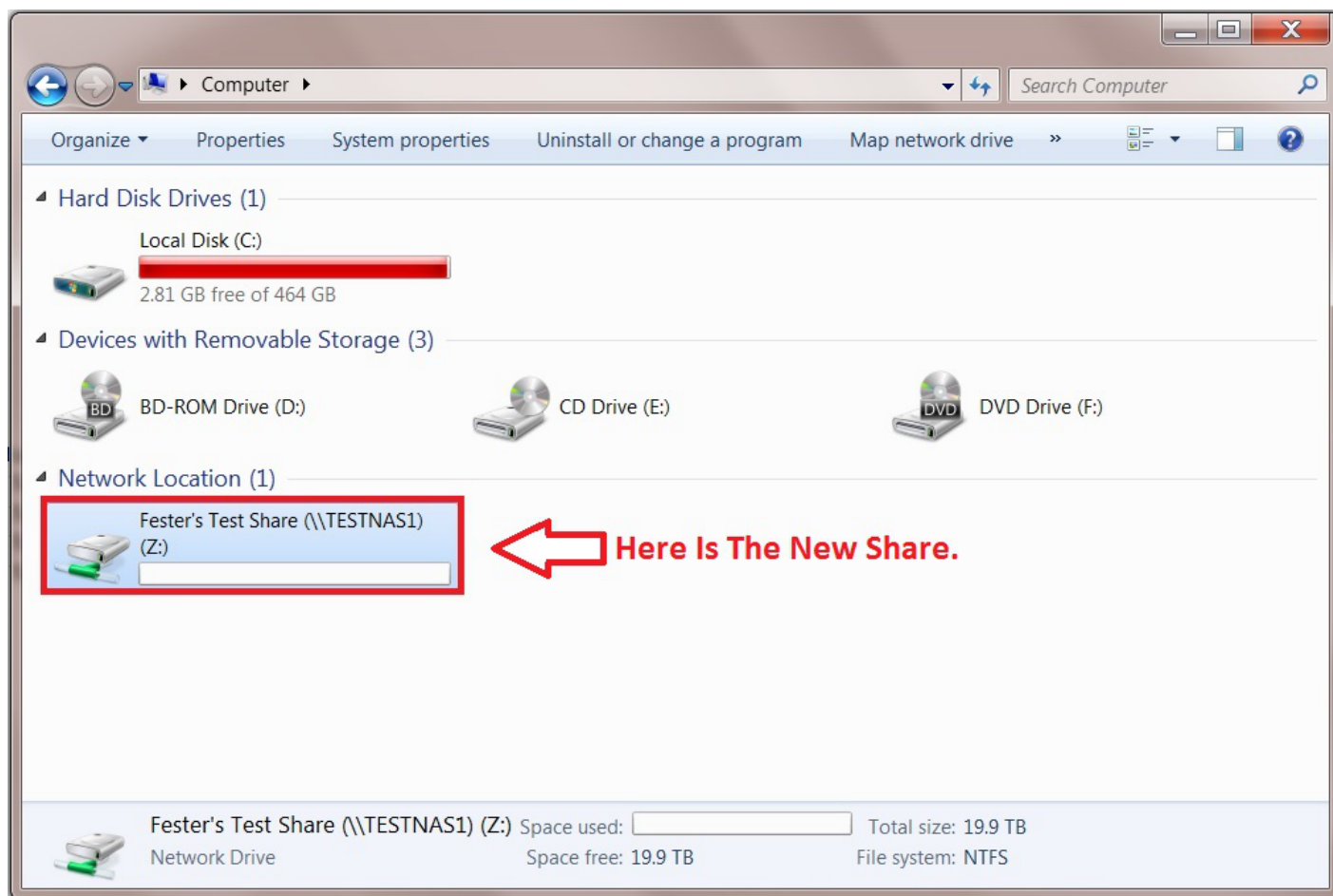
If you don't want to type in your username and password exact time you log into your client machine then tick the "Remember my credentials" tick box (4).

Now click the "OK" button (5).



If all has gone well you should find yourself in the shared folder. Here you can create other folders and save files. Test this to make sure there are no permissions problems.

The shared folder will now appear as another drive on your system and should look something like this.



That's the starter share done.

If you want to play with the permissions for this share then feel free. It is the only real way to learn about these things.

Remember the permissions for a share on Windows clients are in two parts.

Part one is the "Share" permissions and part two is "NTFS" permissions.

Share Permissions

"Share" permissions relate to the permissions of the actual shared folder on the server.

Be very careful changing these. The FreeNAS GUI will stop you making most catastrophic changes to the permissions that would otherwise break the share.

However, if you go behind the GUI to the command prompt you could really mess things up. Do not use the **chmod** command here or you will probably break the share. Use the **getfacl** and **setfacl** commands.

Another way you can alter the "Share" permissions is by using an application that runs on the client specifically for this purpose. I have not used any of these programs so I cannot comment on how useful or easy they are to use. However, you still need to be careful when using them because you are still

going behind the FreeNAS GUI here.

NTFS Permissions

“NTFS” permissions relate to the permissions you set for the shared folder on the client side through the Windows OS.

It is considered good practice (this is debateable) to leave the “Share” permissions as they are and lock down the share using NTFS permissions. This has the advantage of controlling the share regardless of how it is accessed (i.e. locally or via a network).

It is much easier for the beginner and those that are unfamiliar with Linux or FreeBSD to configure permissions in this way as the permissions are controlled by a series of tick boxes (not cryptic commands). As long as you understand what each of the settings mean you should be fine.

However, be careful as it is possible using the “Everyone” group to lock yourself out of the share (Fester did this and could not regain control of the share).

From:

<https://www.familybrown.org/dokuwiki/> - **danb35's Wiki**

Permanent link:

https://www.familybrown.org/dokuwiki/doku.php?id=fester112:shares_basic&rev=1497871138

Last update: **2017/06/19 11:18**

