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Last
update:
2017/06/24 16:20 fester:additional_configbackup https://www.familybrown.org/dokuwiki/doku.php?id=fester:additional_configbackup&rev=1498321213

Backing Up The FreeNAS Configuration File Nightly Using A Cron Job

This is entirely optional.

It is recommended that you have email notifications setup on the FreeNAS server before embarking on this subsection.

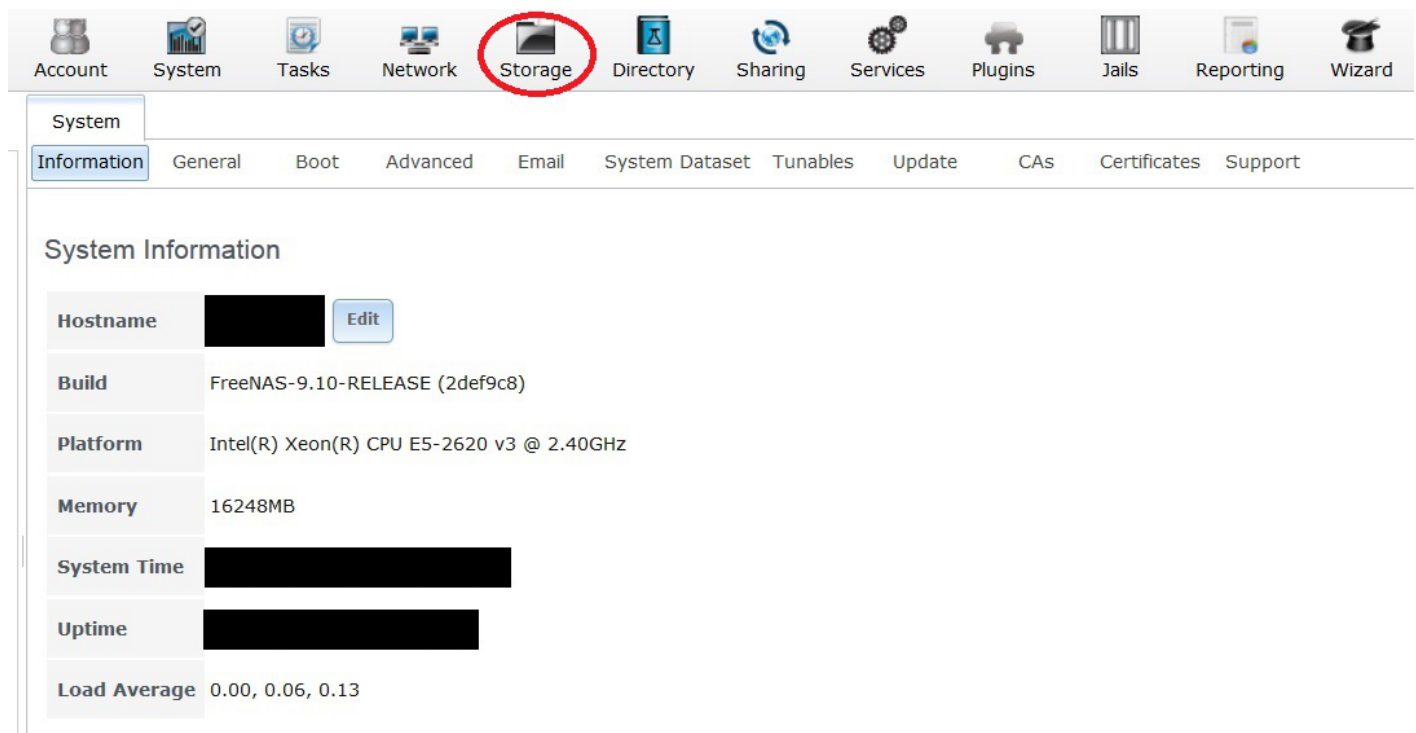
This is a guide for creating a Cron job to back-up the FreeNAS configuration file each night.

This file can be used for recovery purposes should your FreeNAS server encounter a problem of some sort (bloody ferrets!), so this is well worth doing.

Creating the Dataset

The first thing to do is to create a dataset within which we can store the nightly backup of the FreeNAS configuration file. This will keep things neat and tidy.

Go to the “Storage” page.



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 one that creates a dataset (2).

Storage

Volumes Periodic Snapshot Tasks Replication Tasks Scrubs Snapshots VMware-Snapshot

Volume Manager Import Disk Import Volume View Disks

Name	Used	Available
▲ Tank1	1.9 GiB (0%)	29.0 TiB
▲ Tank1	1.4 GiB (0%)	20.0 TiB
Media	33.4 MiB (0%)	20.0 TiB
TestShare	33.4 MiB (0%)	20.0 TiB
▲ jails	1013.3 MiB (0%)	20.0 TiB
jails/.warden-template-pluginjail	605.6 MiB (0%)	20.0 TiB
jails/plexmediaserver_1	407.4 MiB (0%)	20.0 TiB

2 Create Dataset

Icons: [Key] [Laptop] [Calendar] [Wrench] [Wrench and Gear] [Wrench and Gear]

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 backup dataset, Fester used **NightlyBackup**).
- 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

Compression level: 2

Share type: 3

Case Sensitivity:

Enable atime: 4

- ☒ Inherit (on)
- ☐ On
- ☐ Off

ZFS Deduplication: 5

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

6

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

Storage

VolumesPeriodic Snapshot TasksReplication TasksScrubsSnapshotsVMware-Snapshot

Volume ManagerImport DiskImport VolumeView Disks

Name	Used	Available
▲ Tank1	1.9 GiB (0%)	29.0 TiB
▲ Tank1	1.4 GiB (0%)	20.0 TiB
Media	33.4 MiB (0%)	20.0 TiB
NightlyBackup	204.8 KiB (0%)	20.0 TiB
TestShare	33.4 MiB (0%)	20.0 TiB
▲ jails	1013.3 MiB (0%)	20.0 TiB
jails/.warden-template-pluginjail	605.6 MiB (0%)	20.0 TiB
jails/plexmediaserver_1	407.5 MiB (0%)	20.0 TiB

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

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
▲ Tank1	1.9 GiB (0%)	29.0 TiB
▲ Tank1	1.4 GiB (0%)	20.0 TiB
Media	33.4 MiB (0%)	20.0 TiB
NightlyBackup	204.8 KiB (0%)	20.0 TiB
TestShare	33.4 MiB (0%)	20.0 TiB
▲ jails	1013.3 MiB (0%)	20.0 TiB
jails/.warden-template-pluginjail	605.6 MiB (0%)	20.0 TiB
jails/plexmediaserver_1	407.5 MiB (0%)	20.0 TiB

2

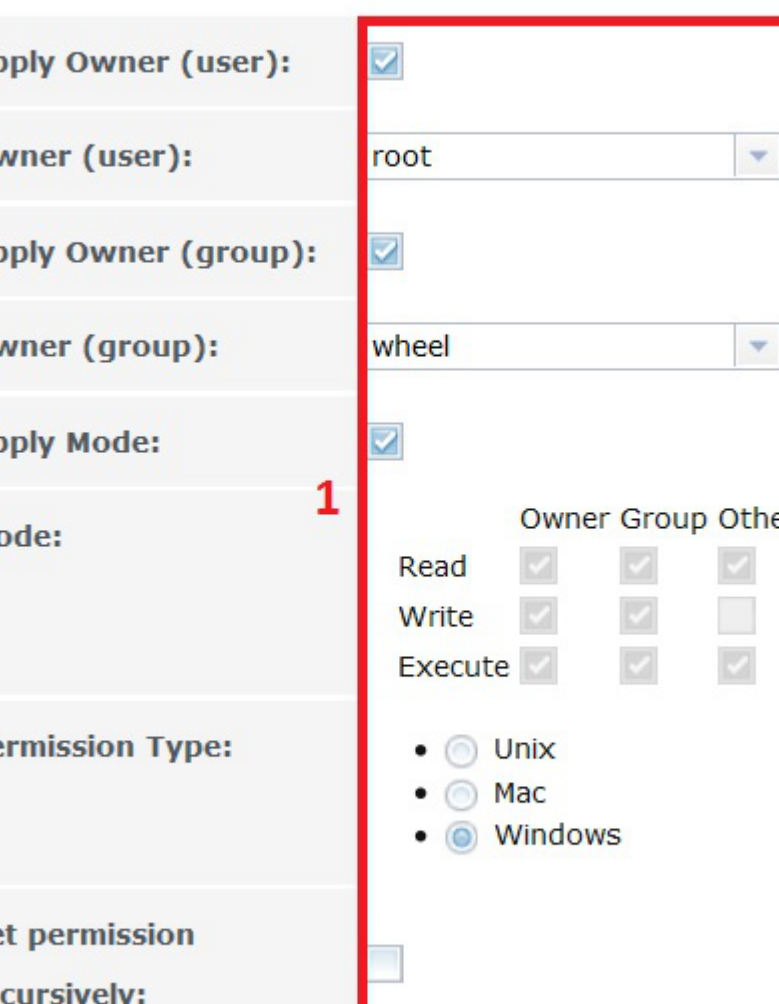
Change Permissions

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

I did not need to change any of the settings from their default value (1).

Now click the “Change” button (2).

Do not set the user and group to any of those you use for shares. This would be unwise. Only the **root** user and **wheel** group should be allowed to access this particular share.



Change permission

Change permission on /mnt/Tank1/NightlyBackup to:

Apply Owner (user): ☒

Owner (user): root

Apply Owner (group): ☒

Owner (group): wheel

Apply Mode: ☒

Mode: 755

Permission Type:

- ☒ Unix
- ☐ Mac
- ☐ Windows

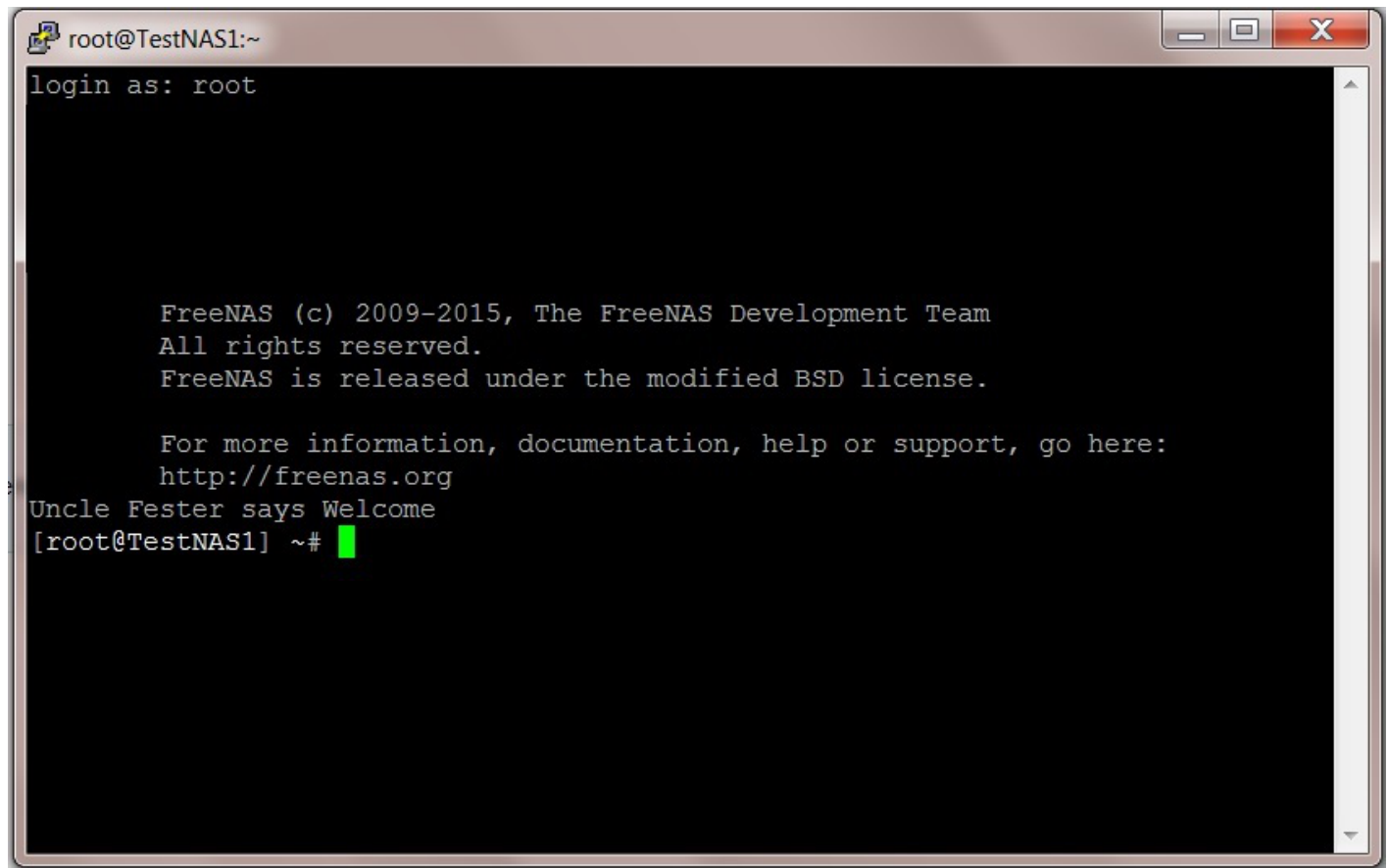
Set permission recursively: ☒

Change **Cancel**

Creating the Script

We now need to create a file in the volume directory (in Fester's case this is Tank1).

Open up an SSH session in PuTTY and log in as the root user. You should see a screen something like this.

A terminal window titled 'root@TestNAS1:~' with standard window controls. The text inside shows a login prompt 'login as: root', followed by FreeNAS copyright and license information, a URL for more information, and a personalized welcome message from 'Uncle Fester'. The prompt '[root@TestNAS1] ~#' is followed by a green cursor.

```
root@TestNAS1:~
login as: root

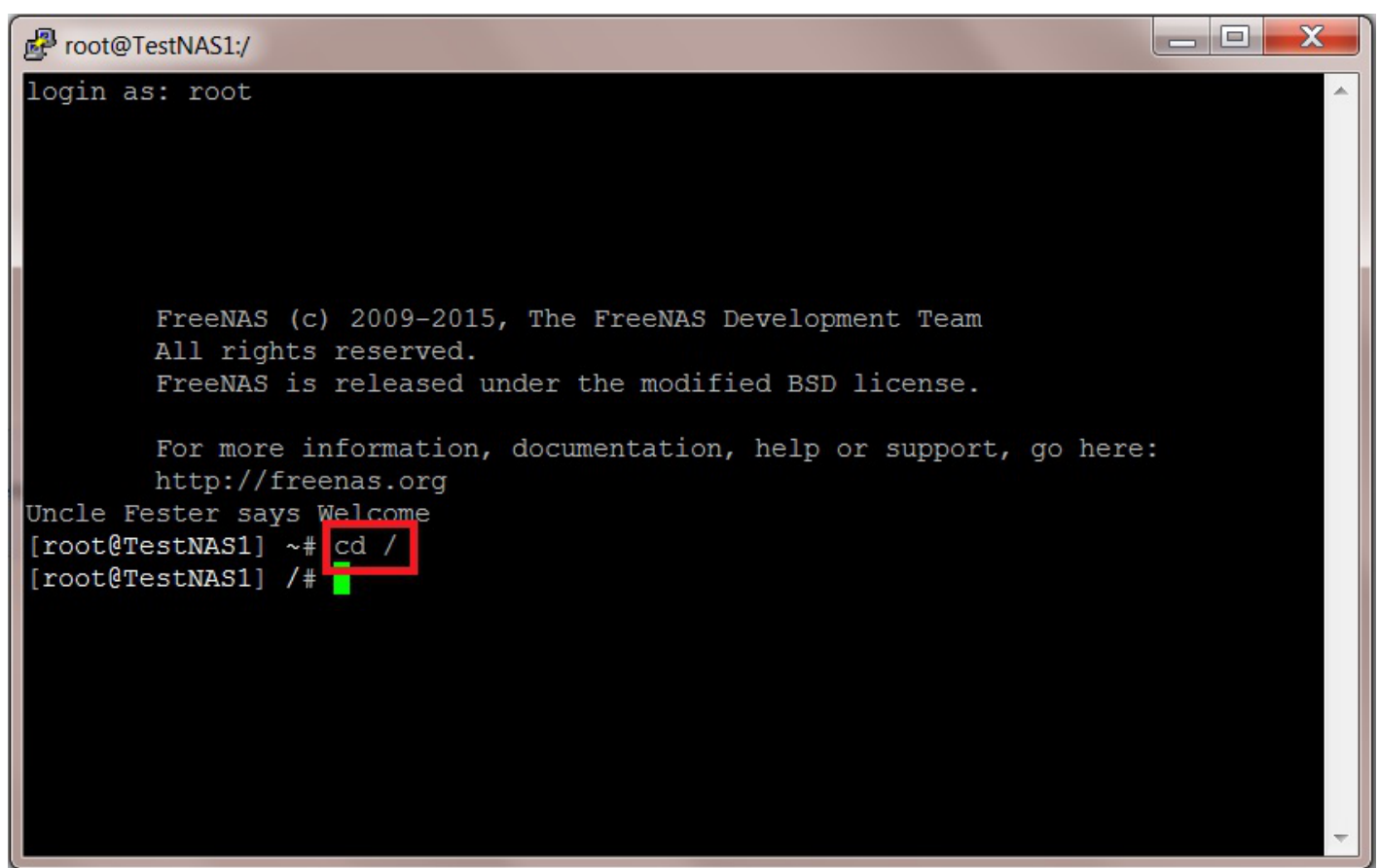
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For more information, documentation, help or support, go here:
http://freenas.org
Uncle Fester says Welcome
[root@TestNAS1] ~#
```

We now need to navigate to the volume directory by typing in the following command into the command prompt. Don't forget to hit the "Return/Enter" key to execute the command.

```
cd /
```

You should now see a screen something like this.

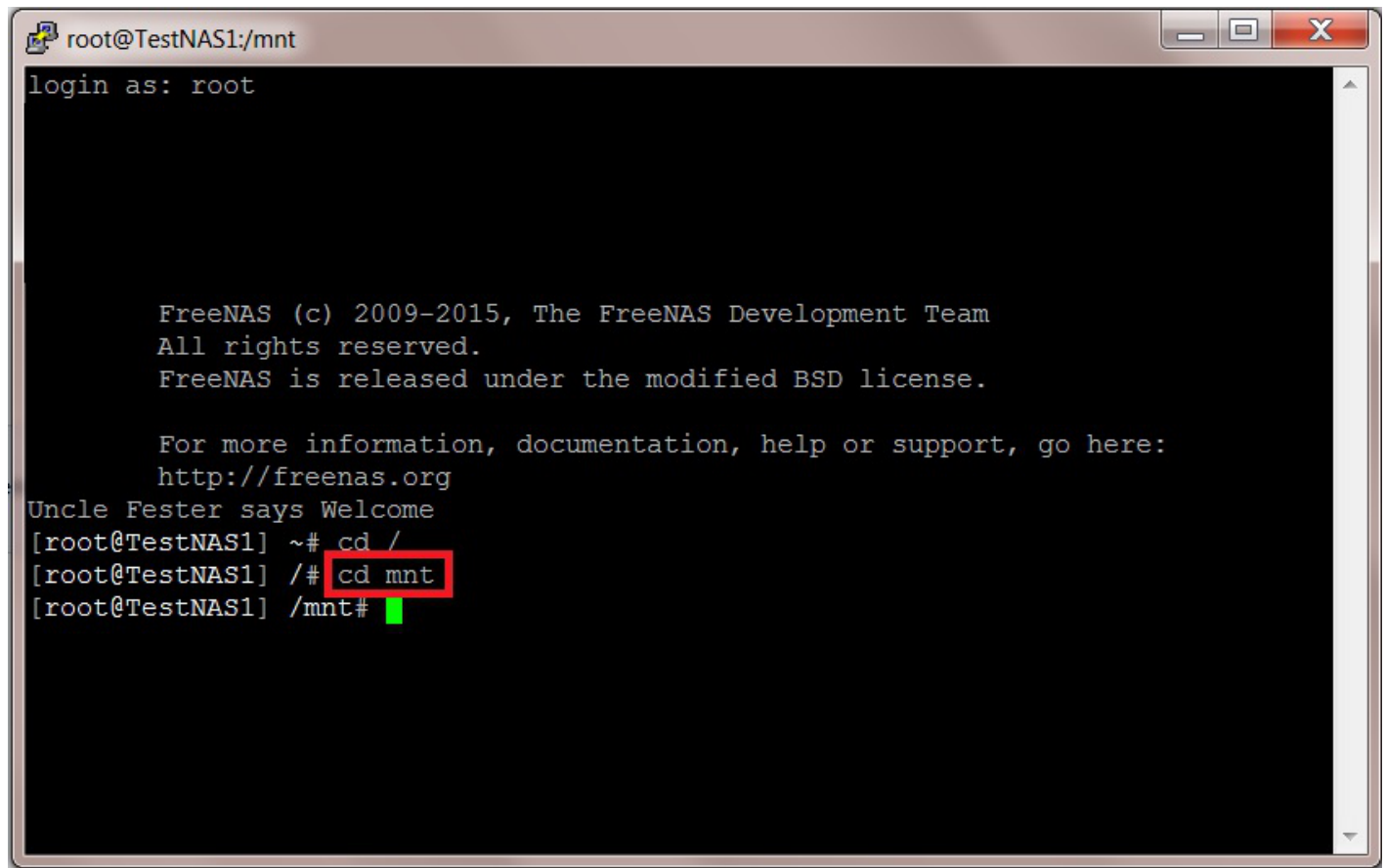


```
root@TestNAS1:/  
login as: root  
  
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For more information, documentation, help or support, go here:  
http://freenas.org  
Uncle Fester says Welcome  
[root@TestNAS1] ~# cd /  
[root@TestNAS1] /#
```

Now type into the command prompt the following command.

```
cd mnt
```

You should see a screen something like this.

A terminal window titled 'root@TestNAS1:/mnt' with standard window controls. The terminal shows a login sequence where the user is prompted 'login as: root' and enters 'root'. It then displays FreeNAS copyright information (© 2009-2015, The FreeNAS Development Team) and a welcome message from 'Uncle Fester'. The user then enters 'cd /' and 'cd mnt', with the second command highlighted by a red box. The prompt changes from '[root@TestNAS1] ~#' to '[root@TestNAS1] /mnt#' after the second command.

```
root@TestNAS1:/mnt
login as: root

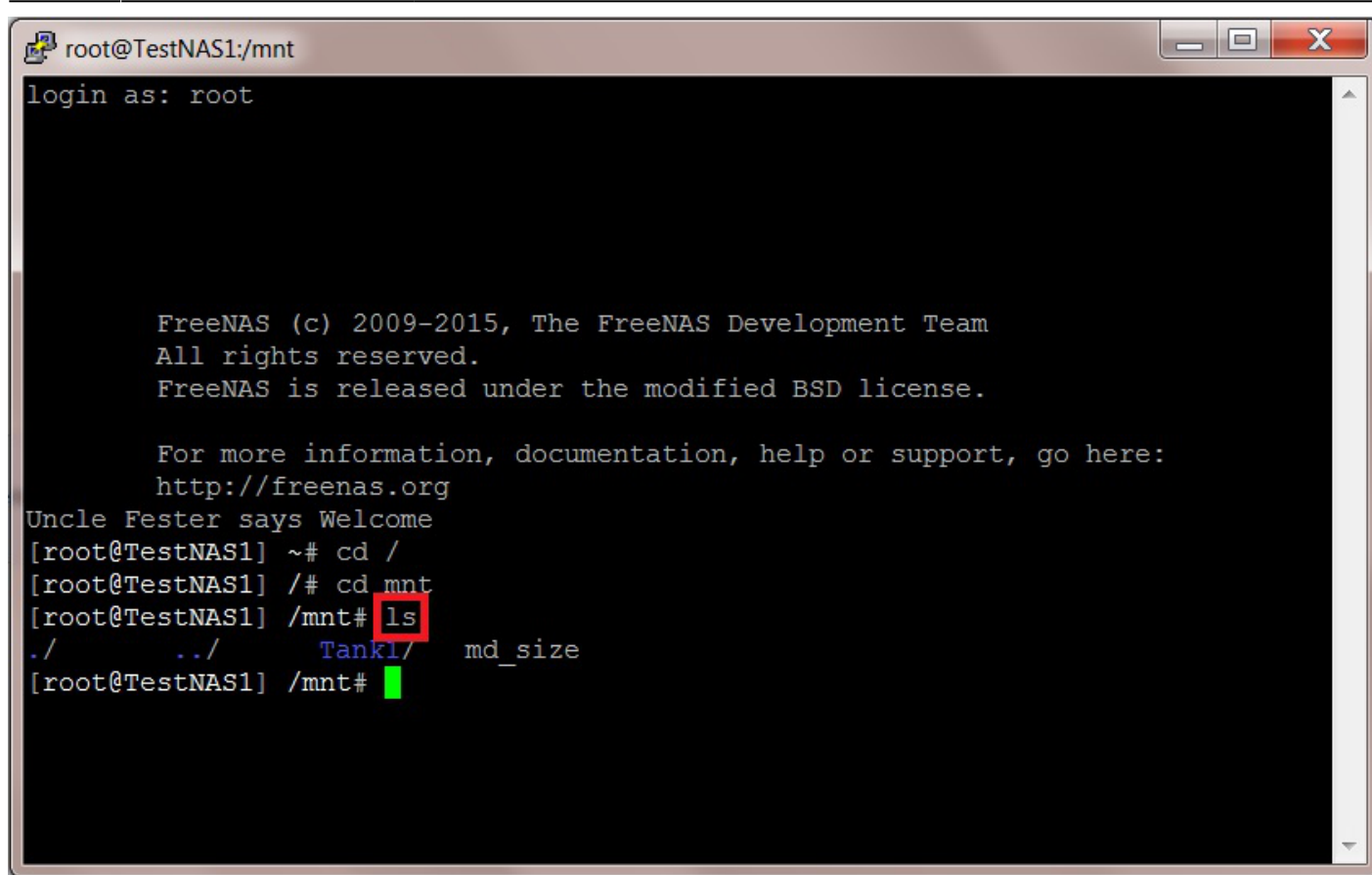
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Uncle Fester says Welcome
[root@TestNAS1] ~# cd /
[root@TestNAS1] /# cd mnt
[root@TestNAS1] /mnt#
```

Now type in the following command at the command prompt to see your volume's name.

`ls`

You should see a screen that looks something like this.



```
root@TestNAS1:/mnt
login as: root

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http://freenas.org
Uncle Fester says Welcome
[root@TestNAS1] ~# cd /
[root@TestNAS1] /# cd /mnt
[root@TestNAS1] /mnt# ls
./      ../      Tank1/   md_size
[root@TestNAS1] /mnt#
```

The name of the volume will be revealed at this point (in Fester's case it is the blue text "Tank1").

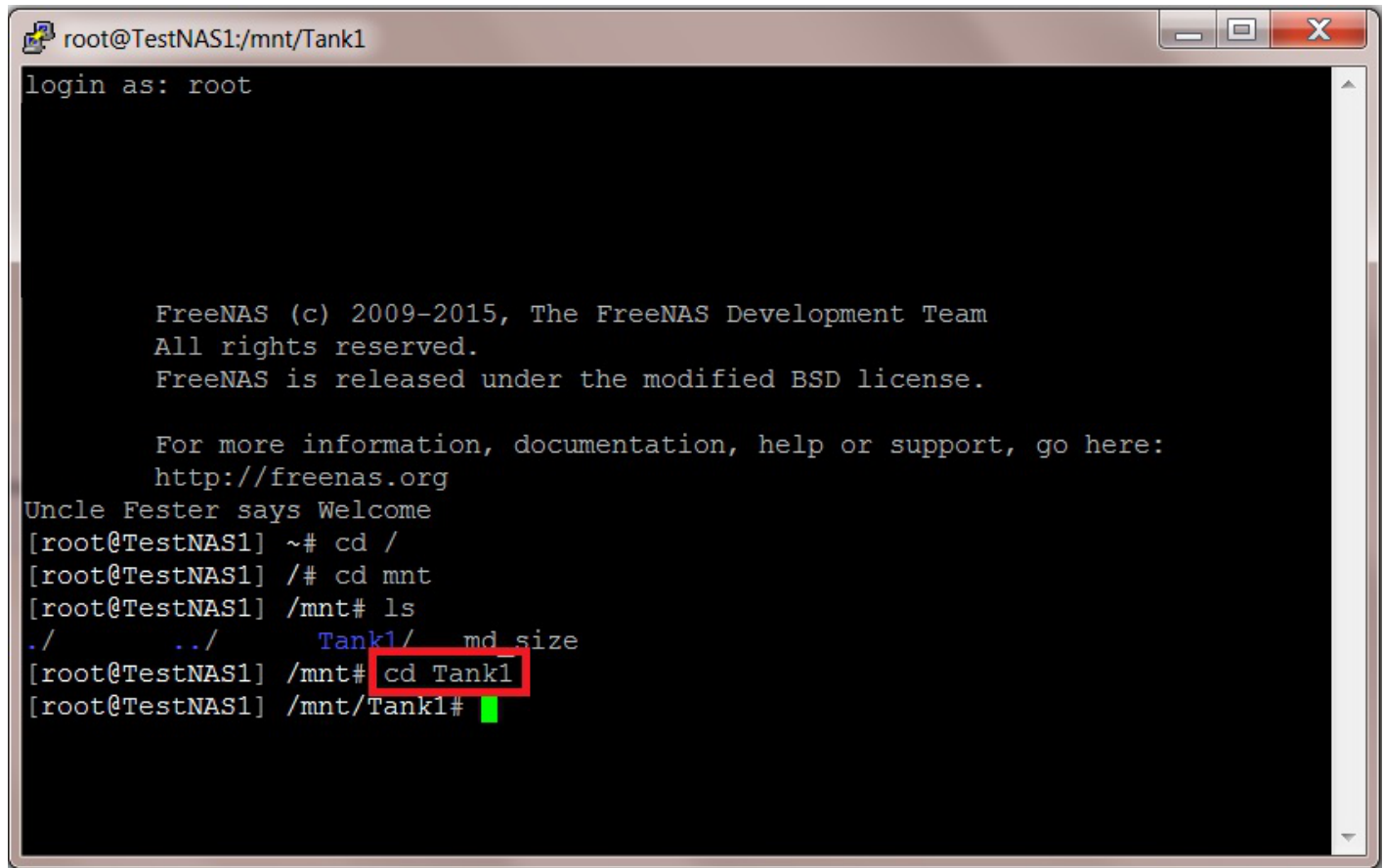
Now type into the command prompt the following command with your volume name. The volume name is case sensitive so make sure you observe this when typing in the command.

```
cd YourVolumeNameHere
```

In Fester's case the command would look like this:

```
cd Tank1
```

You should see a screen like this.

A screenshot of a terminal window titled 'root@TestNAS1:/mnt/Tank1'. The terminal shows the login process for 'root' and displays the FreeNAS copyright notice and license information. It then shows the user navigating from the root directory to the '/mnt' directory and finally to the 'Tank1' subdirectory. The command 'cd Tank1' is highlighted with a red box.

```
root@TestNAS1:/mnt/Tank1
login as: root

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http://freenas.org
Uncle Fester says Welcome
[root@TestNAS1] ~# cd /
[root@TestNAS1] /# cd mnt
[root@TestNAS1] /mnt# ls
./          ../          Tank1/      md          size
[root@TestNAS1] /mnt# cd Tank1
[root@TestNAS1] /mnt/Tank1#
```

We now need create an empty file in this directory. You can call this file anything you like but remember its name as you will need it later.

At the command prompt type the following command (1).

```
touch YourFileNameHere.sh
```

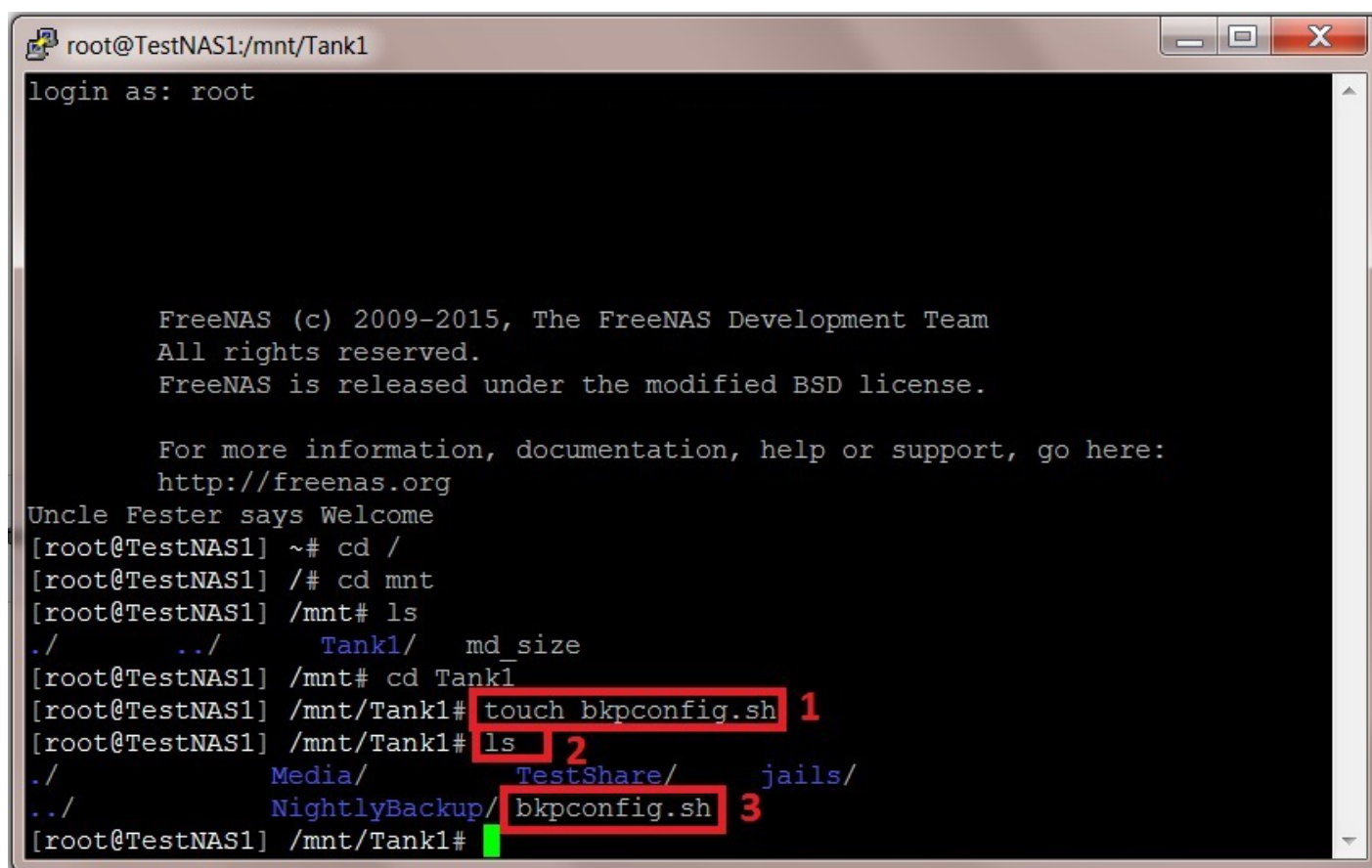
In Fester's case the command looked like this.

```
touch bkpconfig.sh
```

Now type in the following command to confirm the file was created (2).

```
ls
```

If all has gone well you should see the file listed in the SSH window (3).



A terminal window titled 'root@TestNAS1:/mnt/Tank1' with standard window controls. The terminal shows the login process as 'root'. It displays the FreeNAS copyright notice (© 2009-2015) and license information (modified BSD). A welcome message from 'Uncle Fester' is shown. The user navigates through the directory structure: from the root prompt, they enter 'cd /', then 'cd mnt', and finally 'ls' in the '/mnt' directory. The output of 'ls' shows directories like 'Tank1', 'Media', 'TestShare', and 'jails'. The user then enters 'cd Tank1' and 'ls' in the '/mnt/Tank1' directory. The output of 'ls' shows 'bkpconfig.sh'. Three red boxes with numbers 1, 2, and 3 highlight the commands 'touch bkpconfig.sh', 'ls', and 'bkpconfig.sh' respectively.

```
root@TestNAS1:/mnt/Tank1
login as: root

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For more information, documentation, help or support, go here:
http://freenas.org

Uncle Fester says Welcome
[root@TestNAS1] ~# cd /
[root@TestNAS1] /# cd mnt
[root@TestNAS1] /mnt# ls
./          ../          Tank1/      md_size
[root@TestNAS1] /mnt# cd Tank1
[root@TestNAS1] /mnt/Tank1# touch bkpconfig.sh 1
[root@TestNAS1] /mnt/Tank1# ls 2
./          Media/       TestShare/  jails/
../         NightlyBackup/ bkpconfig.sh 3
[root@TestNAS1] /mnt/Tank1#
```

We now need to edit the file. At the command prompt type in the following command.

```
edit YourFileNameHere.sh
```

In Fester's case this command would look like this.

```
edit bkpconfig.sh
```

If all goes well you should see a screen like this.

```

root@TestNAS1:/mnt/Tank1
^[ (escape) menu  ^y search prompt  ^k delete line    ^p prev li       ^g prev page
^o ascii code     ^x search         ^l undelete line  ^n next li       ^v next page
^u end of file    ^a begin of line  ^w delete word    ^b back 1 char   ^z next word
^t top of text    ^e end of line    ^r restore word   ^f forward char
^c command        ^d delete char    ^j undelete char  ESC-Enter: exit
====line 1 col 0 lines from top 1====
file "bkpconfig.sh", 1 lines

```

We now need to put in the text line that will run each evening when the Cron Job is activated.

Type into the edit window the following line of text (this is all one line).

```
cp /data/freenas-v1.db /mnt/YourVolumeNameHere/YourDatasetNameHere/`date
+%Y%m%d`.db
```

So in Fester's case this command would look like this.

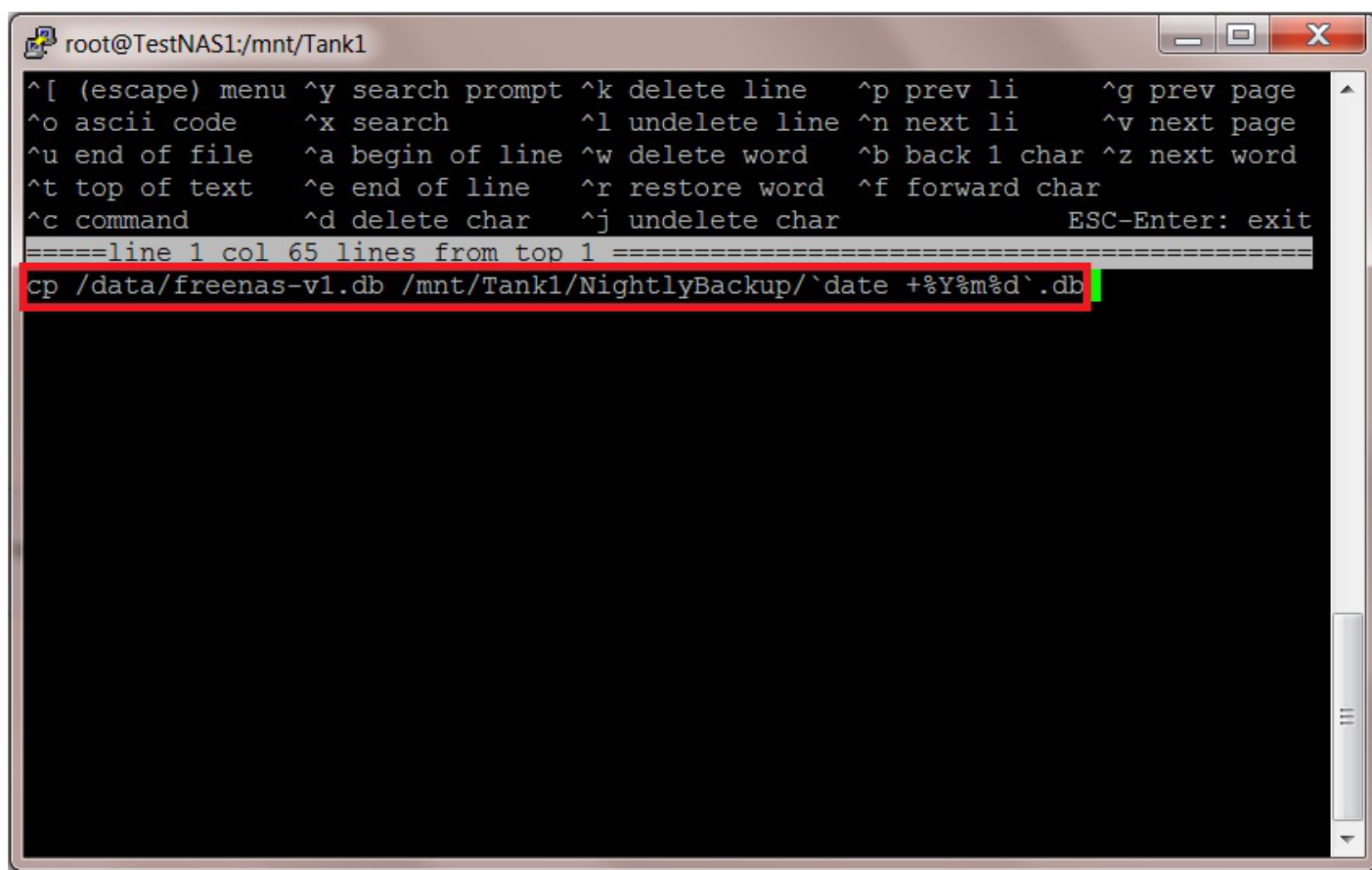
```
cp /data/freenas-v1.db /mnt/Tank1/NightlyBackup/`date +%Y%m%d`.db
```

If you want the FreeNAS version tagged on to the backup file names then use this command instead. This is all one one line; do not press the Enter key to insert a line break:

```
cp /data/freenas-v1.db /mnt/YourVolumeNameHere/YourDatasetNameHere
/.scripts/ConfigBackups/`date %Y%m%d`_`cat /etc/version | cut -d'-' -f2`_`cat
/etc/version | cut -d'-' -f4`.db
```

(Please note the “`” character is not an apostrophe. This character on my keyboard is found at the top left hand side under the “Esc” key. Your keyboard may be different.)

When you are done the edit screen should look something like this.

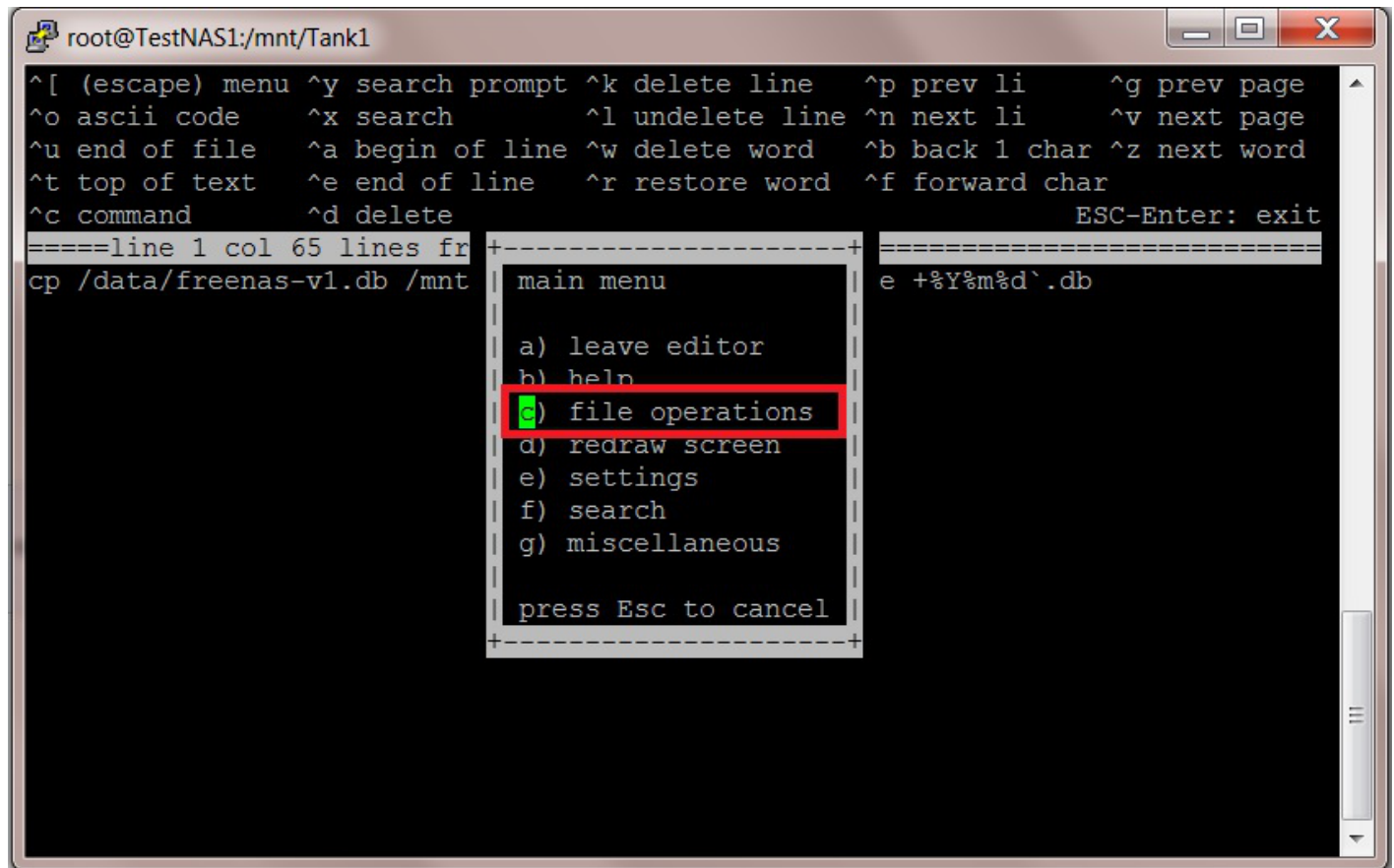


```
root@TestNAS1:/mnt/Tank1
^[(escape) menu ^y search prompt ^k delete line ^p prev li ^g prev page
^o ascii code ^x search ^l undelete line ^n next li ^v next page
^u end of file ^a begin of line ^w delete word ^b back 1 char ^z next word
^t top of text ^e end of line ^r restore word ^f forward char
^c command ^d delete char ^j undelete char ESC-Enter: exit
====line 1 col 65 lines from top 1 =====
cp /data/freenas-v1.db /mnt/Tank1/NightlyBackup/`date +%Y%m%d`.db
```

Now hit the “Esc” key.

You should be presented with a series of options at this point.

Press the “c” key or navigate to the c option using the “↑↓” keys and press the “Return/Enter” key.



```
root@TestNAS1:/mnt/Tank1

^[ (escape) menu  ^y search prompt  ^k delete line    ^p prev li       ^g prev page
^o ascii code     ^x search         ^l undelete line  ^n next li       ^v next page
^u end of file    ^a begin of line  ^w delete word    ^b back 1 char   ^z next word
^t top of text    ^e end of line    ^r restore word   ^f forward char
^c command        ^d delete                                     ESC-Enter: exit

====line 1 col 65 lines fr
cp /data/freenas-v1.db /mnt

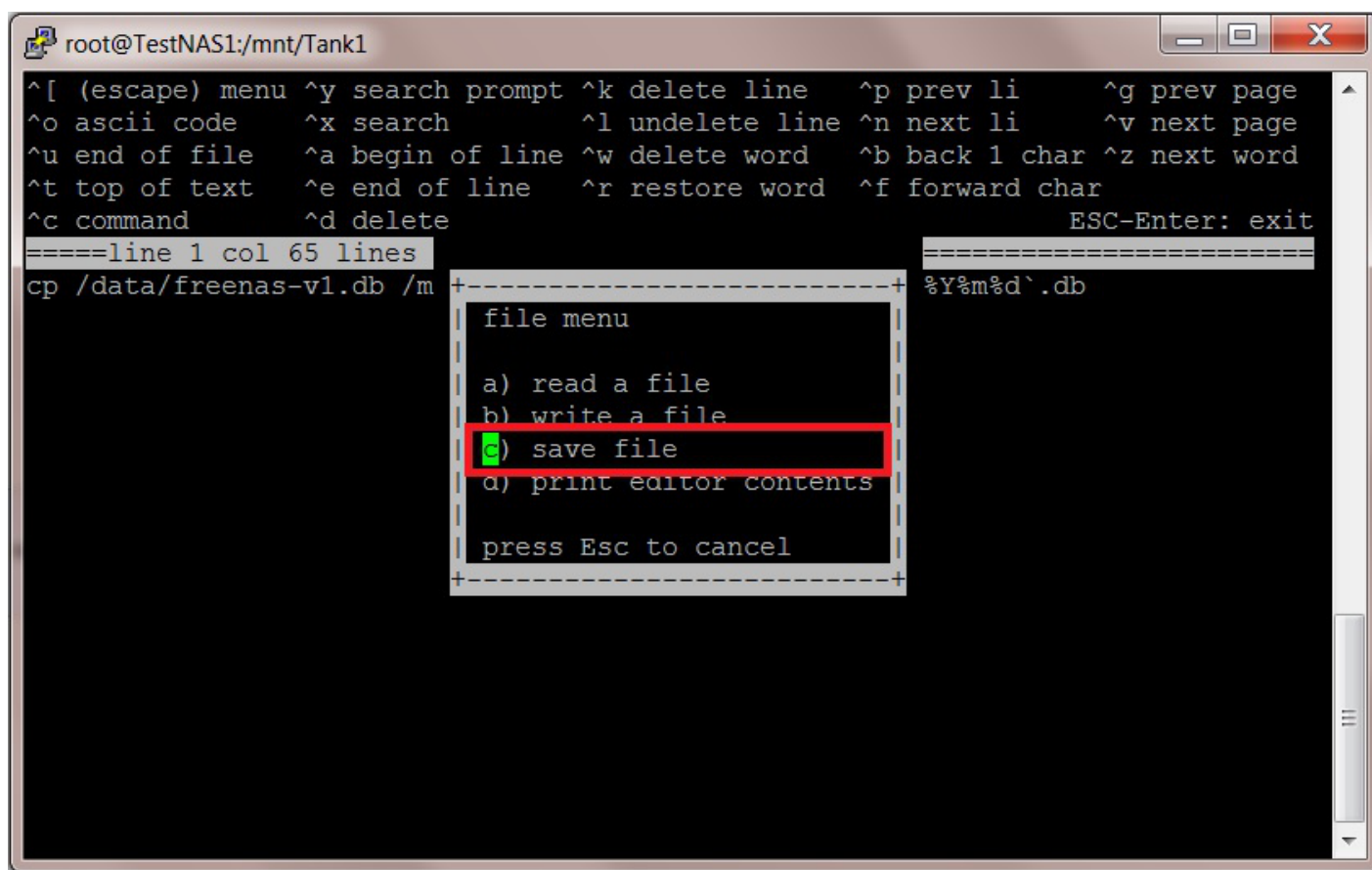
main menu

a) leave editor
b) help
c) file operations
d) redraw screen
e) settings
f) search
g) miscellaneous

press Esc to cancel

e +%Y%m%d`.db
```

Now press the “c” key again or navigate to the c option using the “↑↓” keys and press the “Return/Enter” key.

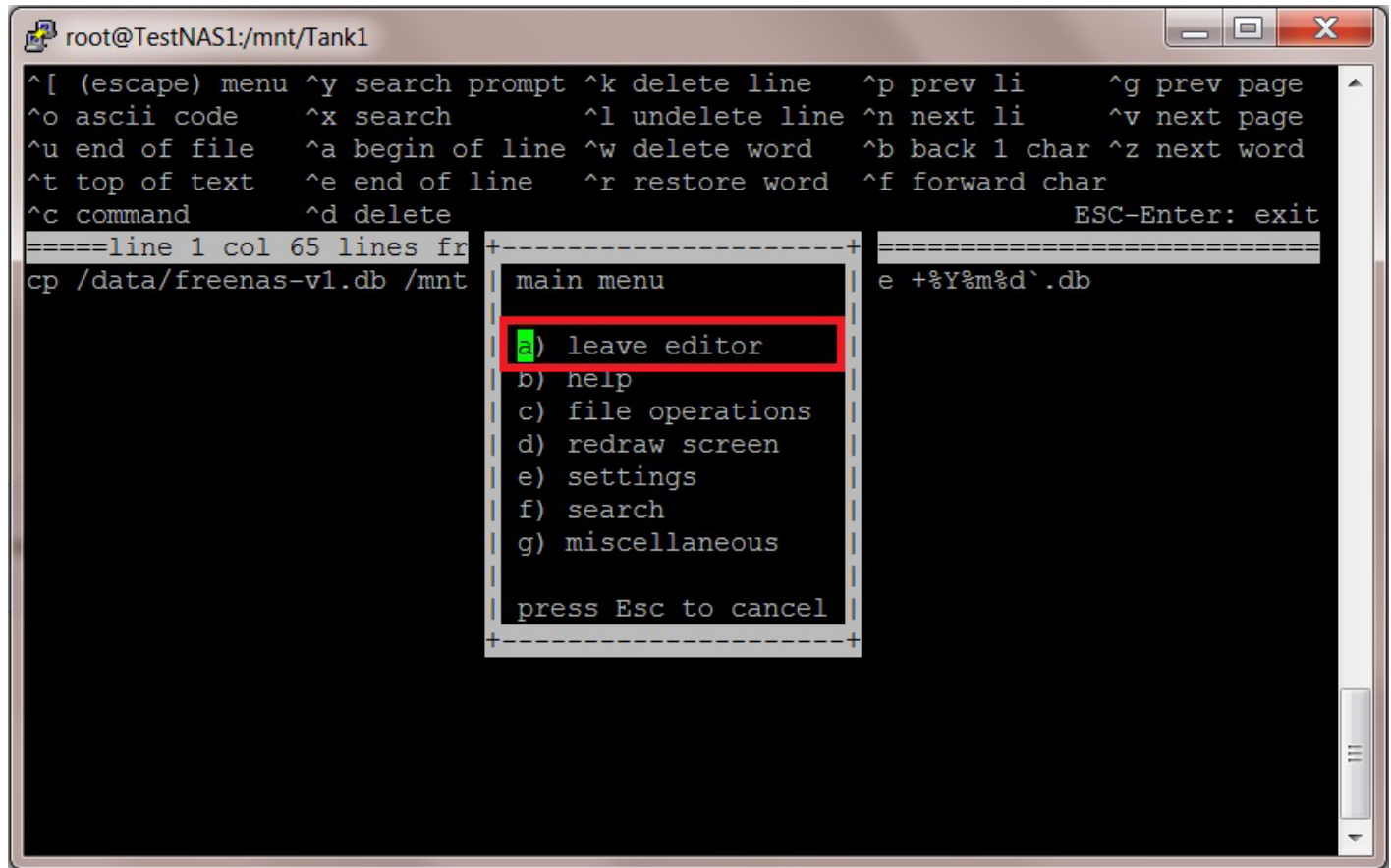


The screenshot shows a terminal window titled 'root@TestNAS1:/mnt/Tank1'. The terminal displays a file editor with a list of keyboard shortcuts at the top:
^[] (escape) menu ^y search prompt ^k delete line ^p prev li ^g prev page
^o ascii code ^x search ^l undelete line ^n next li ^v next page
^u end of file ^a begin of line ^w delete word ^b back 1 char ^z next word
^t top of text ^e end of line ^r restore word ^f forward char
^c command ^d delete
ESC-Enter: exit
Below the shortcuts, the editor shows '====line 1 col 65 lines' and the command 'cp /data/freenas-v1.db /m'. A file menu is overlaid on the terminal, listing:
file menu
a) read a file
b) write a file
c) save file (highlighted with a red box)
d) print editor contents
press Esc to cancel
To the right of the menu, the text '%Y%m%d`.db' is visible.

The text line in the editor will now be saved to the file.

Press the “Esc” key again.

Now press the “a” key or navigate to the a option and press the “Return/Enter” key.



```
root@TestNAS1:/mnt/Tank1
^[ (escape) menu ^y search prompt ^k delete line ^p prev li ^g prev page
^o ascii code ^x search ^l undelete line ^n next li ^v next page
^u end of file ^a begin of line ^w delete word ^b back 1 char ^z next word
^t top of text ^e end of line ^r restore word ^f forward char
^c command ^d delete ESC-Enter: exit
====line 1 col 65 lines fr
cp /data/freenas-v1.db /mnt

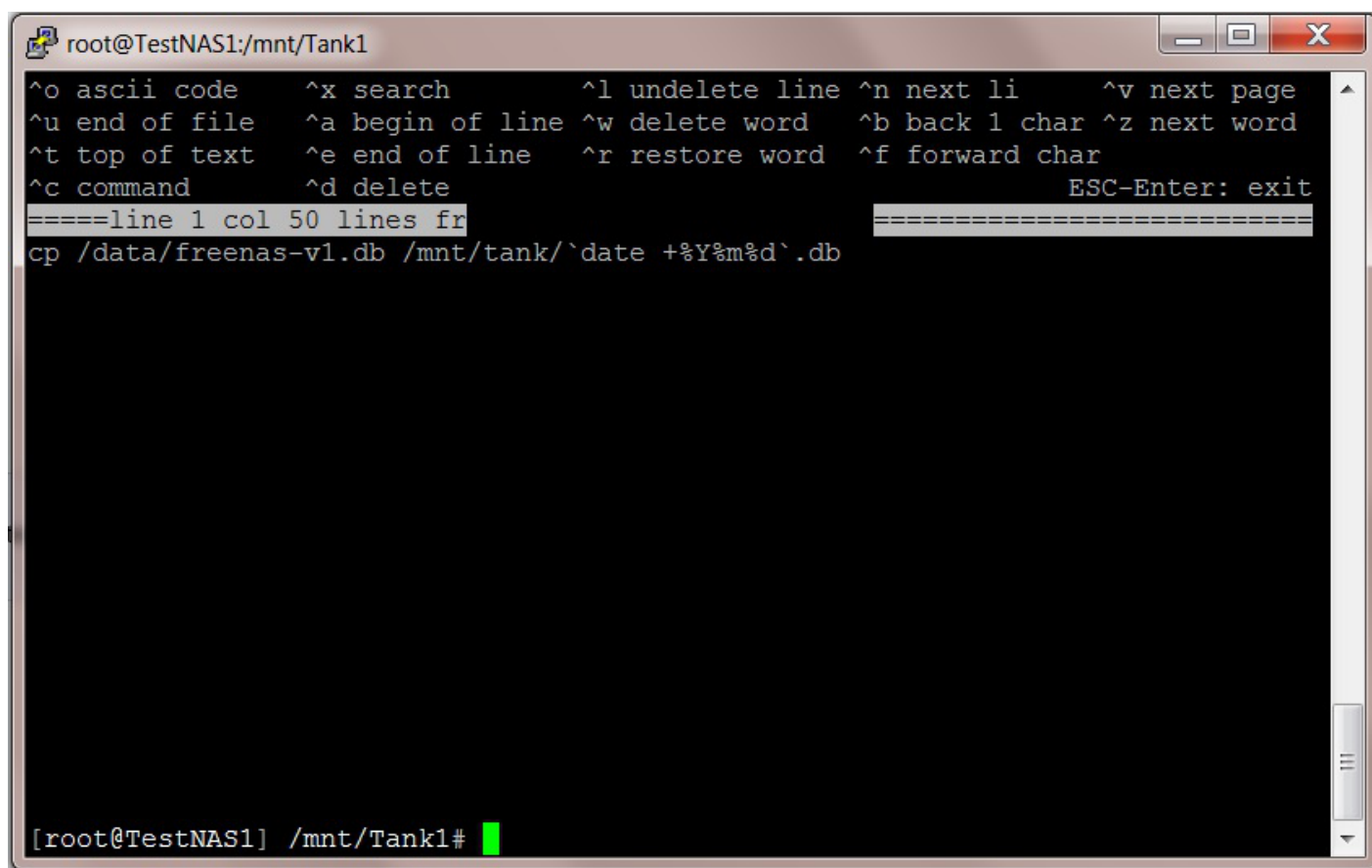
main menu
a) leave editor
b) help
c) file operations
d) redraw screen
e) settings
f) search
g) miscellaneous

press Esc to cancel

e +%Y%m%d`.db
```

This will take you out of the editor and return the command prompt.

You should see a screen something like this.



The screenshot shows a terminal window titled 'root@TestNAS1:/mnt/Tank1'. It displays a list of vim shortcuts: ^o ascii code, ^x search, ^l undelele line, ^n next li, ^v next page, ^u end of file, ^a begin of line, ^w delete word, ^b back 1 char, ^z next word, ^t top of text, ^e end of line, ^r restore word, ^f forward char, ^c command, ^d delete, and ESC-Enter: exit. Below this, a command is being typed: 'cp /data/freenas-v1.db /mnt/tank/`date +%Y%m%d`.db'. The terminal has a black background with white text and a green cursor at the end of the command line.

```
root@TestNAS1:/mnt/Tank1
^o ascii code      ^x search          ^l undelele line  ^n next li       ^v next page
^u end of file     ^a begin of line  ^w delete word   ^b back 1 char   ^z next word
^t top of text     ^e end of line    ^r restore word  ^f forward char
^c command         ^d delete
ESC-Enter: exit
=====line 1 col 50 lines fr=====
cp /data/freenas-v1.db /mnt/tank/`date +%Y%m%d`.db

[root@TestNAS1] /mnt/Tank1#
```

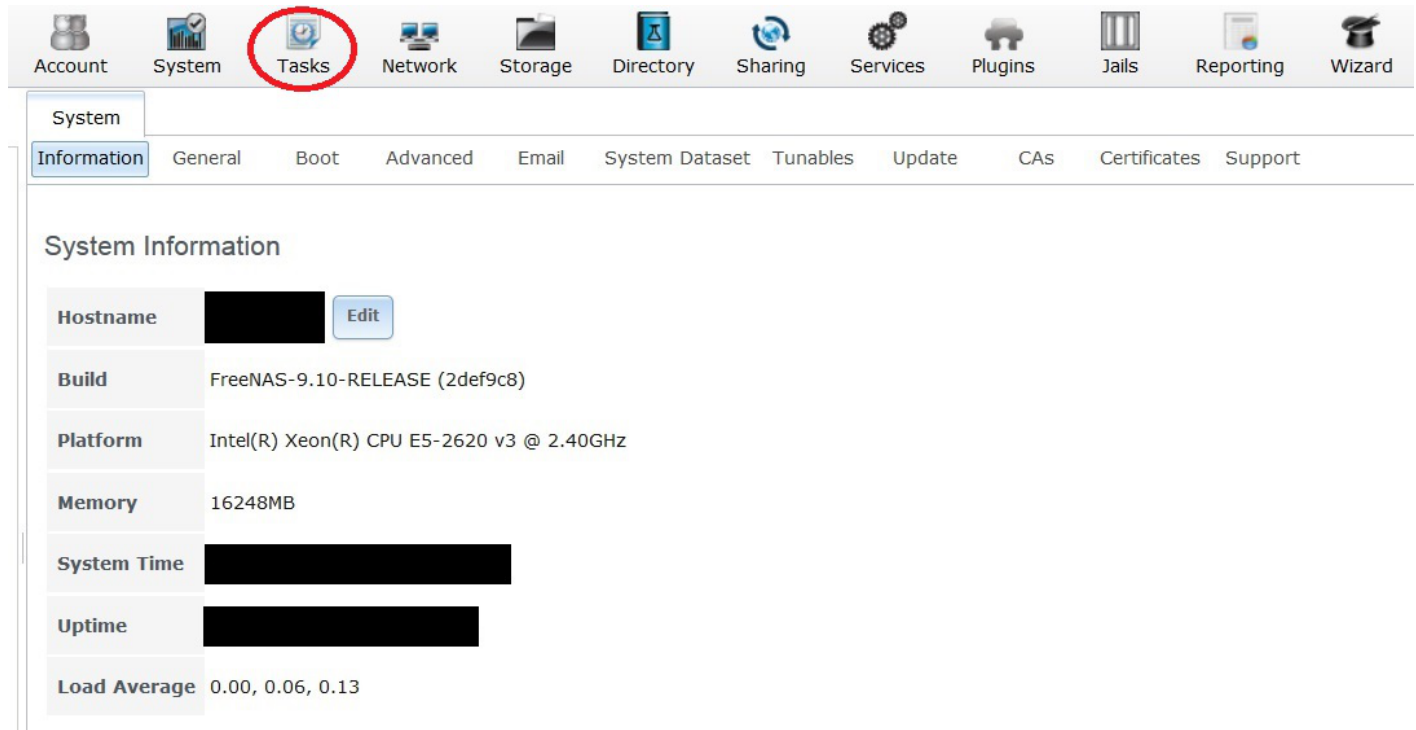
Now type the following command to leave the SSH console.

exit

Creating the Cron Job

Now go to the FreeNAS GUI and log in if needed.

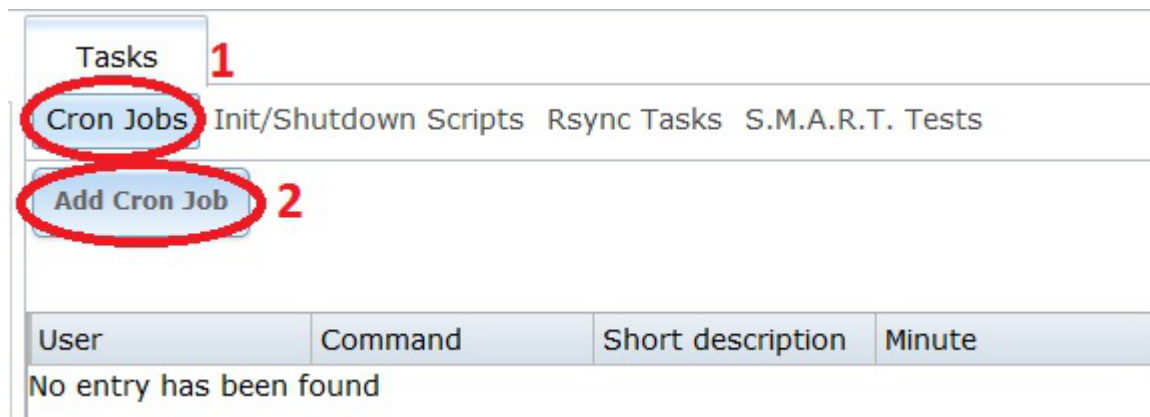
Go to the “Tasks” page.



The screenshot shows the FreeNAS web interface. At the top, there is a navigation bar with icons for Account, System, Tasks, Network, Storage, Directory, Sharing, Services, Plugins, Jails, Reporting, and Wizard. The 'Tasks' icon is circled in red. Below this, the 'System' tab is selected, and the 'Information' sub-tab is active. The 'System Information' section displays various system details: Hostname (redacted), Build (FreeNAS-9.10-RELEASE (2def9c8)), Platform (Intel(R) Xeon(R) CPU E5-2620 v3 @ 2.40GHz), Memory (16248MB), System Time (redacted), Uptime (redacted), and Load Average (0.00, 0.06, 0.13).

Click on the “Cron Jobs” button (1) if it is not selected already.

Now click on the “Add Cron Job” button (2).



The screenshot shows the 'Cron Jobs' page in the FreeNAS interface. The 'Tasks' tab is selected, and the 'Cron Jobs' sub-tab is active. The 'Add Cron Job' button is circled in red and labeled with a red '2'. Below the buttons, there is a table with the following columns: User, Command, Short description, and Minute. The table is currently empty, with the text 'No entry has been found' displayed below it.

A new window will pop up that should allow you to configure the Cron job.

In the “User:” drop down selection box (1) chose root as the user.

In the “Command:” text box (2) type in the following command.

```
sh /mnt/YourVolumeNameHere/bkpconfig.sh
```

So in Fester’s case this would look like this.

```
sh /mnt/Tank1/bkpconfig.sh
```

In the “Short description:” text box (3) give the Cron job a meaningful name.

Fester wants this Cron job to run every day, of every month at midnight (if you run this Cron job at midnight while repeating a special incantation that only certain SysAdmin's know it will give your FreeNAS system the ability emulate a Sinclair ZX Spectrum when there is a full moon!).

To run the Cron job every day at midnight set the "Each selected minute" setting of the "Minute:" section to 00 (4).

Set the "Each selected hour" of the "Hour:" section to 00 (5).

The screenshot shows a Cron job configuration interface. The 'User:' field is set to 'root'. The 'Command:' field contains 'sh /mnt/Tank1/bkpconfig.sh'. The 'Short description:' field contains 'Nightly backup of config file.' The 'Minute:' section has two tabs: 'Every N minute' and 'Each selected minute'. The 'Each selected minute' tab is active, and the '00' button is selected in the grid. The 'Hour:' section has two tabs: 'Every N hour' and 'Each selected hour'. The 'Each selected hour' tab is active, and the '00' button is selected in the grid.

Now scroll down.

In the "Every N day of month" setting of the "Day of month:" section set this to 1 (6).

Put a tick next to every month in the “Month:” section (7).

The screenshot shows the FreeNAS Cron Job configuration interface. The 'Day of month' section is set to 'Every N day of month' with a value of 1, highlighted by a red box and a red number 6. The 'Month' section is highlighted by a red box and a red number 7, showing a list of months from January to December, all of which are checked.

Now scroll down.

Put a tick next to every day in the “Day of week:” section (8).

Fester leaves the “Redirect Stdout:” and “Redirect Stderr:” at their default values as I don’t know what they do. The “Enabled:” tick box needs to be ticked (9).

Now click the “OK” button (10).

• ☒ May

• ☒ June

• ☒ July

• ☒ August

• ☒ September

• ☒ October

• ☒ November

• ☒ December

Day of week:

8

• ☒ Monday

• ☒ Tuesday

• ☒ Wednesday

• ☒ Thursday

• ☒ Friday

• ☒ Saturday

• ☒ Sunday

Redirect Stdout:

9

☒

☐

☒

Redirect Stderr:

10

☐

☒

Enabled:

☒

OK

Cancel

If all goes well you should see an entry for the newly created Cron job. It should look something like this.

Tasks							
Cron Jobs							
Init/Shutdown Scripts Rsync Tasks S.M.A.R.T. Tests							
Add Cron Job							
User	Command	Short description	Minute	Hour	Day of month	Month	Day of week
root	sh /mnt/Tank1/bkpconfig.sh	Nightly backup of config file.	00	00	Everyday	Every month	Everyday

Testing the Cron Job

We now need to test that the Cron job actually works.

Select the newly created Cron job by clicking on it (it will turn blue when selected) (1).

Now click the “Run Now” button (2).

If this worked then a file should have been created in the dataset you made for this (in Fester’s case this was the “NightlyBackup” data set). We now need to go and check the file was created.

Open up an SSH session in PuTTY and log in as the root user. You should see a screen something like this.

We now need to navigate to the dataset you created to hold the nightly backups by typing in the following command into the command prompt. Don’t forget to hit the “Return/Enter” key to execute the command.

```
cd /
```

You should now see a screen something like this.

Now type into the command prompt the following command.

```
cd mnt
```

You should see a screen something like this.

Now type in the following command at the command prompt to see your volume’s name.

```
ls
```

You should see a screen that looks something like this.

The name of the volume will be revealed at this point (in Fester’s case it is the blue text “Tank1”).

Now type into the command prompt the following command with your volume name. The volume name is case sensitive so make sure you observe this when typing in the command.

```
cd YourVolumeNameHere
```

In Fester’s case the command would look like this.

```
cd Tank1
```

You should see a screen like this.

Now type in the following command at the command prompt to see your dataset’s name.

```
ls
```

You should see a screen that looks something like this.

The name of the dataset will be revealed at this point (in Fester's case it is the blue text "NightlyBackup").

Now type into the command prompt the following command with your dataset name. The dataset name is case sensitive so make sure you observe this when typing in the command.

```
cd YourDatasetNameHere
```

In Fester's case the command would look like this.

```
cd NightlyBackup
```

You should see a screen like this.

Now type in the following command at the command prompt.

```
ls
```

You should see a screen showing a file with the date for its name starting with the year, then the month and then the day. If you get something that resembles the following then it has worked.

So the "20160517.db" file in the screen shot was created on the 17/05/2016.

That's the nightly backup of the FreeNAS configuration file done.

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