



Pro/VM

Backup on QNAP

**Mindtime
Backup**

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**ISO 27001
CERTIFIED**

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Introduction

Mindtime backup is not responsible for any data loss or the device no longer functioning due to modification of the device. This manual was written for people with some knowledge of how Linux and NAS devices work and how to modify the latter. In case that you do not know how these devices work or are uncertain about something please contact a professional for following this manual.

This manual was made and tested on a "QNAP TS-559 Pro" with 5x WDC 3TB Red disks in a RAID6 config. This specific model has an Intel x86 architecture (an Atom CPU), in case you own a simpler model like the "QNAP TS-219P" this manual won't work for you as this has an ARM (Marvell) CPU.

1. Preparation

In this manual the assumption is made that the initial configuration like hard disk montage and network configuration are already done.

In case these are not done yet you need to complete these before continuing in this manual.

1.1 Windows

For the PC the program Putty is required to create a SSH connection to the NAS. Putty can be found as a [single executable](#) or as a [installation](#). (<http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>).

1.2 QNAP

Two steps are required to prepare the NAS for the customization that is necessary for this manual.

IPKG

Login on the web interface of the QNAP device and go to "Applications" The select "QPKG Plugins" at the top right select "Get QPKG" and a popup is opened. At the bottom of the list there is a package named "Optware IPKG (Itsy Package Management System)". Click this link an select the Intel x86 zip file for download, the popup can now be closed. After downloading the zip en extracting it proceed to the "Installation" tab and select the recently extracted qpkg file for installation.



After the installation is finished click the Optware icon , In case it hasn't been activated yet this can be done here.

SSH

In the QNAP web interface go to "Network Services" and select "Telnet / SSH" Select the "Allow SSH connections". Click "Apply".

The minimal requirements have now been installed and activated to be able to edit the NAS configuration and install the OBM software.

1.3 Backup account

Go to www.mindtimebackup.com and create a [Pro](#) or [VM](#) Backup Demo or request a account from your partner. The PC software version doesn't have a Linux client which is required for a NAS device.

2. Adjust QNAP configuration

2.1 Pre

In this manual the assumption is made that the hard disks are configured in RAID6 and that the software will be installed in: `/share/MD0_DATA/.qpkg/obm`

The location might differ depending on the configuration you selected, more details about this can be found in [the unofficial manual](#) under the chapter "How HDDs are Referenced" created by [Don](#) (QNAP owner)

It might be the case that you don't have a MD0_DATA folder under the `/share` folder, in that case all references to the MD0_DATA folder in this manual should be changed to match your configuration. Remember to select a location outside the RAM drive because during a reboot the RAM drive is reset to factory settings.

We are now ready to connect to the NAS device using Putty, Type the internal IP of the NAS device and click connect. The default root account is replaced by the admin account so you need to logon using admin / *[your password]*

Selecting text in Putty equals copy (**Ctrl + C**) and right clicking somewhere pastes the clipboard content at the location of the cursor (**Ctrl + V**)

The grey blocks are commands that can be copy-pasted when your configuration matches the one in this manual. Copy this 1 line at a time and click Enter after each line.

2.2 Installing IPKG packages

The default shell that is provided by QNAP is limited in its functionality. In order to "improve" some of the functions as well as install some required functions the following IPKG packages need to be installed on the QNAP NAS.

```
ipkg update
ipkg install vim
ipkg install screen
ipkg install gcc
ipkg install openssl
ipkg install bash
ipkg install grep
ipkg install less
ipkg install lsof
ipkg install man
ipkg install coreutils
```

Vim is a text editor under Linux, It can be used via **vi [file]** or **vim [file]**

Screen starts a session environment that stays active even when the connection is interrupted. Before executing long command's it's wise to start Screen using **# screen**. You can reconnect using **# screen -R**.

2.3 Creating the startup script

We are now going to create a startup script that will be executed during boot in order to make the previous changes permanent so that they are not lost at reboot because they were made in the RAM drive.

```
vi /share/MD0_DATA/.qpkg/autorun/autorun.sh
```

The above command creates a new file called autorun.sh. After Vim is opened press the letter "i" to switch to input mode. Copy the text below and right click in the Putty window to paste the text in the newly created file.

```
PATH=/opt/bin:/opt/sbin:$PATH

rm /bin/vi
ln -s /share/MD0_DATA/.qpkg/Optware/bin/vim /bin/vi
rm /bin/vim
ln -s /share/MD0_DATA/.qpkg/Optware/bin/vim /bin/vim
ln -s /share/MD0_DATA/.qpkg/Optware/bin/screen /bin/screen
ln -s /share/MD0_DATA/.qpkg/Optware/bin/ipkg /bin/ipkg
ln -s /share/MD0_DATA/.qpkg/Optware/bin/gcc /bin/gcc
ln -s /share/MD0_DATA/.qpkg/Optware/bin/openssl /bin/openssl
ln -s /share/MD0_DATA/.qpkg/Optware/bin/bash /bin/bash
rm /bin/ash
ln -s /share/MD0_DATA/.qpkg/Optware/bin/bash /bin/ash
rm /bin/grep
ln -s /share/MD0_DATA/.qpkg/Optware/bin/grep /bin/grep
ln -s /share/MD0_DATA/.qpkg/Optware/bin/less /bin/less
ln -s /share/MD0_DATA/.qpkg/Optware/sbin/lsof /bin/lsof
ln -s /share/MD0_DATA/.qpkg/Optware/bin/man /bin/man
ln -s /mnt/ext/opt/mysql/bin/mysqladmin /bin/mysqladmin
ln -s /mnt/ext/opt/mysql/bin/mysqldump /bin/mysqldump

ln -s /share/MD0_DATA/.qpkg/Optware/bin/coreutils-nohup /bin/nohup
cp -f /share/MD0_DATA/.qpkg/obm/scripts/obmscheduler /etc/init.d/.
cp -f /share/MD0_DATA/.qpkg/obm/scripts/obmaua /etc/init.d/.
sh "/etc/init.d/obmscheduler" start &
sh "/etc/init.d/obmaua" start &
```

After the text is pasted press ESC and then ":" (shift ;) to open the Vim prompt. At the prompt type **wq** (Write Quit)

Now all we have to do is make the script executable.

```
chmod 777 /share/MD0_DATA/.qpkg/autorun/autorun.sh
```



2.4 Applying the startup script

In order to make the QNAP NAS load our autorun.sh during boot we first need to load the current configuration. This configuration depends on the NAS model you have, more information about this can be found at the QNAP wiki:

http://wiki.qnap.com/wiki/Running_Your_Own_Application_at_Startup

QPKG methode

A dummy QPKG file will be created to execute during the boot of the NAS device. This method is supported since the 3.8.2 firmware. In case you're using an older firmware the above wiki has an how to. Open the QPKG configuration file to create the dummy package:

```
vi /etc/config/qpkg.conf
```

Add the following information to the end of the file:

```
[autorun]
Name = autorun
Version = 0.1
Author = Mindtime
Date = 2013-11-01
Shell = /share/MD0_DATA/.qpkg/autorun/autorun.sh
Install_Path = /share/MD0_DATA/.qpkg/autorun
QPKG_File = autorun.qpkg
Enable = TRUE
```

The **Shell** variable included in the configuration will make sure that the script is executed during boot.



3. OBM installation and configuration

First create the desired backupset(s) using the web interface of the backupserver, this can be found at www.mindtimebackup.com > login > Backup Server (client). It isn't necessary the fully configure the sets at this point yet but a clear name helps identify the sets during configuration.

3.1 Preparation

First the required folders are created and the software is downloaded.

```
mkdir /share/MD0_DATA/.qpkg/obm
mkdir /share/MD0_DATA/.qpkg/obm/scripts
cd /share/MD0_DATA/.qpkg/obm
wget -O obm-nix.tar.gz https://www.mindtimebackup.com/downloads/Pro-backup-win.exe
tar -zxf obm-nix.tar.gz
ln -s jre32 jvm
```

The software is now downloaded and extracted to /share/MD0_DATA/.qpkg/obm
 Since the 6 series software there is a check to see if the current user has enough credentials to install the software, but this check can't handle the internal NAS admin account so we need to disable this.

```
vi /share/MD0_DATA/.qpkg/obm/util/bin/privilege.sh
```

Go to the end of the file and change the following line

```
return $B_EXIT_CODE
```

To

```
return 0
```

3.2 Installation

Now we can start with the actual installation, during installation you might see an error message about the RC_PATCH, this can be ignored.

```
cd bin
./install.sh
cp /etc/init.d/obmaua /share/MD0_DATA/.qpkg/obm/scripts/
cp /etc/init.d/obmscheduler /share/MD0_DATA/.qpkg/obm/scripts/
```

The installation is now completed and the startup scripts are secured in the install dir.

3.3 Configuration

The configuration has to be done First in order to create the software profile directory. You will be asked about the server address (e.g. backup05.mindtime.nl), connection type (HTTPS), username and password. After this you will be asked about the encryption key per backup, only the sets that run on this NAS need to be filled in correctly. Don't forget to answer yes when asked if the set should run on this machine.

! Write down the encryption key, because in case of loss we can't help with retrieving it !

```
./Configurator.sh
```

After the configuration is completed we can clean up the installation file.

```
rm -rf /share/MD0_DATA/.qpkg/obm/obm-nix.tar.gz
```

Reboot the NAS device using the QNAP web interface.

You can now use the backupserver web interface to configure what the backupsets should backup and when the backups should start. It takes about 5 to 10 minutes for the changes to be downloaded by the NAS device.

4. Restore

In case you want to restore something straight to the NAS device u can use the Restore.sh in de bin directory of the software.

We are now ready to connect to the NAS device using Putty, Type the internal IP of the NAS device and click connect. The default root account is replaced by the admin account so you need to logon using admin / *[your password]*

In this manual we assume you want to restore the BackupSet named Test. The restore will be executed in a screen because restoration might take a while.

```
screen
cd /share/MD0_DATA/.qpkg/obm/bin
cp Restore.sh RestoreTest.sh
vi RestoreTest.sh
```

The above command will create a copy of the Restore script so that it can be adjusted and opens it for input. After Vim is opened press the letter "i" to switch to input mode so that the parameters can be edited.

A minimum of 5 parameters must be changed before we can start the restore; Only edit the parameters between the "User Define Section" lines.

- **BACKUP_SET** u can use the sets name or ID, The ID is in the summary of every backup report.
- **RESTORE_TO** Where should the data base restored to.
- **RESTORE_FROM** This is the path on the backup server where the files we want to restore where at POINT_IN_TIME on the server.
- **POINT_IN_TIME** The exact time of the backupjob you want to restore to (Your partner can provide you with the correct code using the report function in the Partner Portal)
- **SETTING_HOME** Points to the profile home dir so the script can be linked to the account.

An example RestoreTest.sh. This would restore the directory Orders from the job 1-8-2015 at 02:06:15 to a temporarily folder.

```
##### Start - User Define Section #####
BACKUP_SET="Test"
RESTORE_TO="/share/MD0_DATA/Temp/Orders"
RESTORE_FROM="/share/MD0_DATA/Orders "
POINT_IN_TIME="2011-08-01-02-06-15"
RESTORE_PERMISSION="Y"
SKIP_INVALID_KEY="N"
SYNC_OPTION="N"
REPLACE_EXISTING_FILE="-all"
SETTING_HOME="/share/MD0_DATA/homes/admin/.obm"
FILTER=""
##### END: User Define Section #####
```

After u are done changed the parameters press ESC and then ":" (shift ;) to open the Vim prompt. At the prompt type **wq** (Write Quit)

Use the following command to start the restore process.

```
./RestoreTest.sh
```



5. Summary

- The software is installed under /share/MD0_DATA/.qpkg/obm
- The profile directory with the settings and logs: /share/MD0_DATA/homes/admin/.obm.
- The boot scripts have been altered to include our autorun.sh
- During a reboot everything under / is reset so the following items have been secured:
 - /etc/init.d/obmscheduler (Online Back-up scheduler service)
 - /etc/init.d/obmaua (Auto update agent)

6. Explanatory words

Word	Meaning
HTTPS	A secured internet connection
OBM	Online Backup Manager (Pro Backup Manager)
Backupset	A collection of settings for a backup selection
Backupjob	The task when a backupset is executed
Encryptionkey	Your unique code used to secure/encrypt your data
Backup server	A machine in a secured room
Firmware	Software running on hardware (e.g. the menu you see on a phone)
VI/VIM	A simple text editor for Linux
Restore	The restoration / recovery of data from the backup
NAS	Network Attached Storage. An "computer" harddisk which contains data with its own network connection allowing every machine in the network to access the data.
SSH	Secure Shell. An encrypted connection between your machine and the remote device allowing you the execute command on the remote machine.