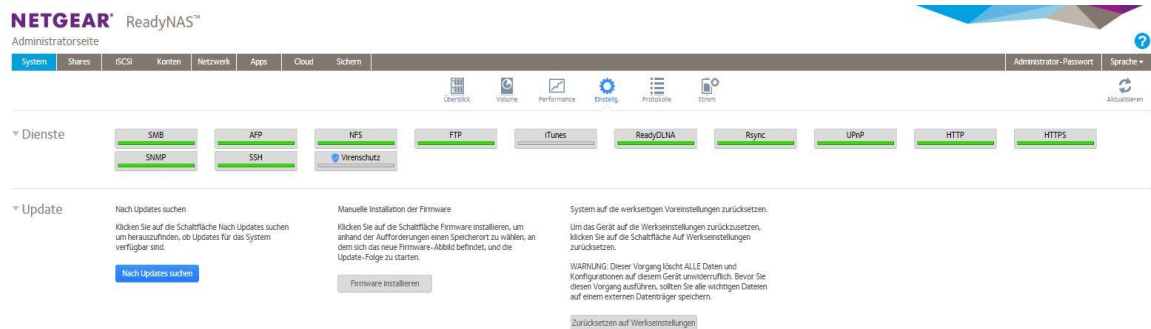


1. ===== SSH Access =====

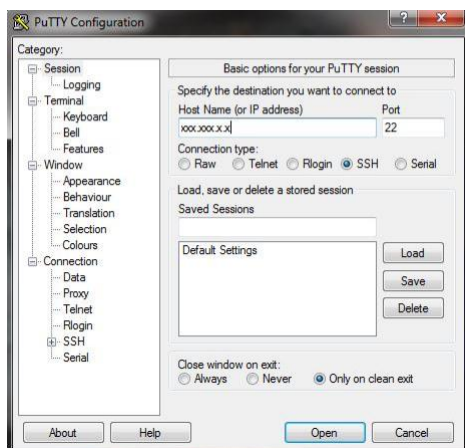
SSH Access is installed on ReadyNAS102 again via the Administration Page.



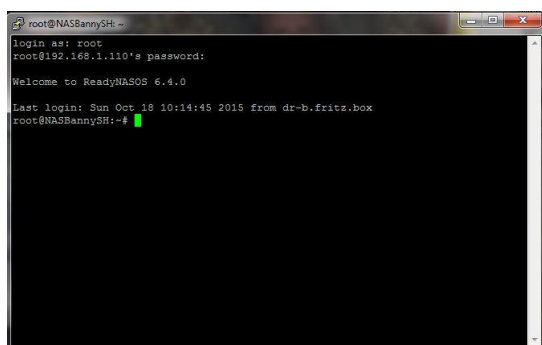
Follow: System -> Einstellg. and tick the SSH button.

After you have done that you can access the operation system via your favorite ssh and telnet client, e.g. PuTTY.

Access ReadyNAS as follows:



Following commands (for example in regard to the installation of Lava) can be put in the console window after log in:



2. ===== Installing JAVA =====

Check Hardware with

```
uname -a
```

Check Java Version with

```
java -version
```

On RedayNAS 102 you will most probably find: *bash: java: command not found*.

We'll need to get a java runtime environment installed on the ReadyNAS. We'll also need an ARM based java library in place.

```
apt-get install openjdk-7-jre
```

 (there is already openjdk-8 available)

(Acc. to <http://minimserver.com/ejre-installer.html> Oracle Java SE Embedded Java Runtime Environment (EJRE) isn't compatible with the current ReadyNAS series (models 102, 104, 312, 314, 316, 516 and 716).)

3. ===== Installing MySQL =====

OpenHAB supports several stores. However, MySQL is simple and a lot of people know SQL.

Installing it is done via ReadyNAS Adminsitration Page – Apps (**MySql Server**). To easily access the server via Web-Browser, **PHPmyAdmin**¹ must be also installed via the ReadyNAS Administration Page.

This will take a few minutes.

When it's done installing, you can connect to the MySql Server via

```
http://localhost:7082
```

Username is "root" password is left blank.

With the following commands you add an "OpenHab" database, and then check again to make sure it was added.

¹ <https://www.phpmyadmin.net/> - phpMyAdmin is a free software tool written in PHP, intended to handle the administration of MySQL over the Web

phpMyAdmin

Benutzer hinzufügen

Anmelde-Informationen

Benutzername: Textfeld verwenden: OpenHab

Host: Lokal localhost

Passwort: Textfeld verwenden: *****

Wiederholen: *****

Passwort generieren: Generieren

Datenbank für Benutzer

☒ Erstelle eine Datenbank mit gleichem Namen und gewähre alle Rechte

☐ Gewähre alle Rechte auf Datenbanken die mit dem Benutzernamen beginnen (username_16)

Globale Rechte (Alle auswählen (Auswahl entfernen))

Hinweis: MySQL-Rechte werden auf Englisch angegeben

Daten	Struktur	Administration	Ressourcenbeschränkungen
<input checked="" type="checkbox"/> SELECT	<input checked="" type="checkbox"/> CREATE	<input checked="" type="checkbox"/> GRANT	<input type="text" value="0"/>
<input checked="" type="checkbox"/> INSERT	<input checked="" type="checkbox"/> ALTER	<input checked="" type="checkbox"/> SUPER	<input type="text" value="0"/>
<input checked="" type="checkbox"/> UPDATE	<input checked="" type="checkbox"/> INDEX	<input checked="" type="checkbox"/> PROCESS	<input type="text" value="0"/>
<input checked="" type="checkbox"/> DELETE	<input checked="" type="checkbox"/> DROP	<input checked="" type="checkbox"/> RELOAD	<input type="text" value="0"/>
<input checked="" type="checkbox"/> FILE	<input checked="" type="checkbox"/> CREATE TEMPORARY TABLES	<input checked="" type="checkbox"/> SHUTDOWN	<input type="text" value="0"/>
	<input checked="" type="checkbox"/> SHOW VIEW	<input checked="" type="checkbox"/> SHOW DATABASES	<input type="text" value="0"/>
	<input checked="" type="checkbox"/> CREATE ROUTINE	<input checked="" type="checkbox"/> LOCK TABLES	<input type="text" value="0"/>
	<input checked="" type="checkbox"/> ALTER ROUTINE	<input checked="" type="checkbox"/> REFERENCES	<input type="text" value="0"/>
	<input checked="" type="checkbox"/> EXECUTE	<input checked="" type="checkbox"/> REPLICATION CLIENT	<input type="text" value="0"/>
	<input checked="" type="checkbox"/> CREATE VIEW	<input checked="" type="checkbox"/> REPLICATION SLAVE	<input type="text" value="0"/>
	<input checked="" type="checkbox"/> EVENT	<input checked="" type="checkbox"/> CREATE USER	
	<input checked="" type="checkbox"/> TRIGGER		

Der Wert 0 (null) entfernt die Beschränkung

MAX QUERIES PER HOUR

MAX UPDATES PER HOUR

MAX CONNECTIONS PER HOUR

MAX USER_CONNECTIONS

Check that all access rights (global and locally) have been granted.

Check that database has been created:

phpMyAdmin

Datenbanken

Neue Datenbank anlegen

Kollation

Anlegen

Datenbank	
<input type="checkbox"/> information_schema	Rechte überprüfen
<input type="checkbox"/> mysql	Rechte überprüfen
<input type="checkbox"/> OpenHab	Rechte überprüfen
<input type="checkbox"/> performance_schema	Rechte überprüfen
Insgesamt: 4	

Alle auswählen

markierte: Löschen

Datenbankstatistiken aktivieren

To actively store data in MySQL, either OpenHab can be used via the MySQL binding or via a short php script (**Benutzername**, **Password** and **Datenbank** are as defined during the creation of the OpenHab database afore):

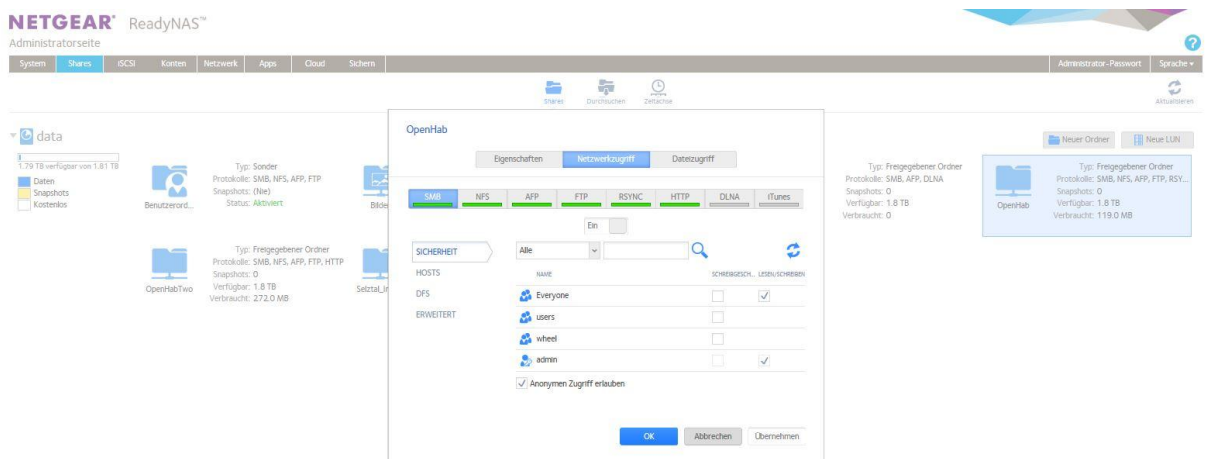
```
$db = mysqli_connect("localhost", "Benutzername", "Password", "Datenbank");
if(!$db)
{
    exit("Verbindungsfehler: ".mysqli_connect_error());
}

$E1 = date("Y.m.d H:i:s");;
$E2 = $Parameter2;
$E3 = $Parameter3;
$eintrag = "INSERT INTO Tabelle (Date, P2, P3) VALUES ('$E1', '$E2', '$E3')";
$eintragen = mysqli_query($db, $eintrag);
#or die("Anfrage fehlgeschlagen: " . mysqli_error());
```

Tabelle is a table created and defined during the storage of the data. Normally MySQL creates this table automatically during the execution of this php script.

4. ===== Installation of OpenHab =====

Create a share folder OpenHab via the Administration Page of the ReadyNAS.



Ensure that access is granted on all levels for the relevant users.

Download the *Runtime core*, *Addons* and evtl. the *Demo Setup* from <http://www.openhab.org/getting-started/downloads.html> and save them in the OpenHab folder.

Continue as explained in <http://www.openhab.org/getting-started/index.html>.

5. ===== Start, Kill and Autostart OpenHab =====

To include autostart for OpenHab execute "vi /etc/init.d/OpenHab.sh" and add the following lines:

```
#!/bin/sh
### BEGIN INIT INFO
# Provides:      starts openhab from home
# Required-Start: $network $remote_fs $syslog
# Required-Stop:  $network $remote_fs $syslog
# Default-Start:  2 3 4 5
# Default-Stop:   0 1 6
# Short-Description: Kurze Beschreibung
# Description:    Längere Beschreibung
### END INIT INFO
# Author:
```

```
# Aktionen
case "$1" in
    start)
        cd /data/OpenHab
        fuser -k -9 8080/tcp
        nohup ./start.sh
        ;;
    stop)
        fuser -k -9 8080/tcp
        ;;
    restart)
        echo "does not work"
        ;;
esac

exit 0
```

Make the file executable and include OpenHab.sh via

```
chmod +x /etc/init.d/OpenHab.sh
```

Include in rc.d files via

update-rc.d OpenHab.sh start 99 2 3 4 5 stop 01 0 1 6

Reboot the ReadyNAS via

reboot

and check if OpenHab has been started via connection by the web-UI

["http://xxx.xxx.x.x:8080/openhab.app?sitemap=DeineSitemap"](http://xxx.xxx.x.x:8080/openhab.app?sitemap=DeineSitemap).

6. ===== Build-Tools =====

Open