

## NAS Central

My Store on eBay: <http://stores.ebay.com/id=552495074> (or <http://stores.ebay.com/NAS-Central> )

## HOW TO FLASH/PREPARE NEW HDD FOR BUFFALO NAS

Before you can flash firmware into new HDD of Buffalo, you must have it in EM Mode

### Booting into EM?

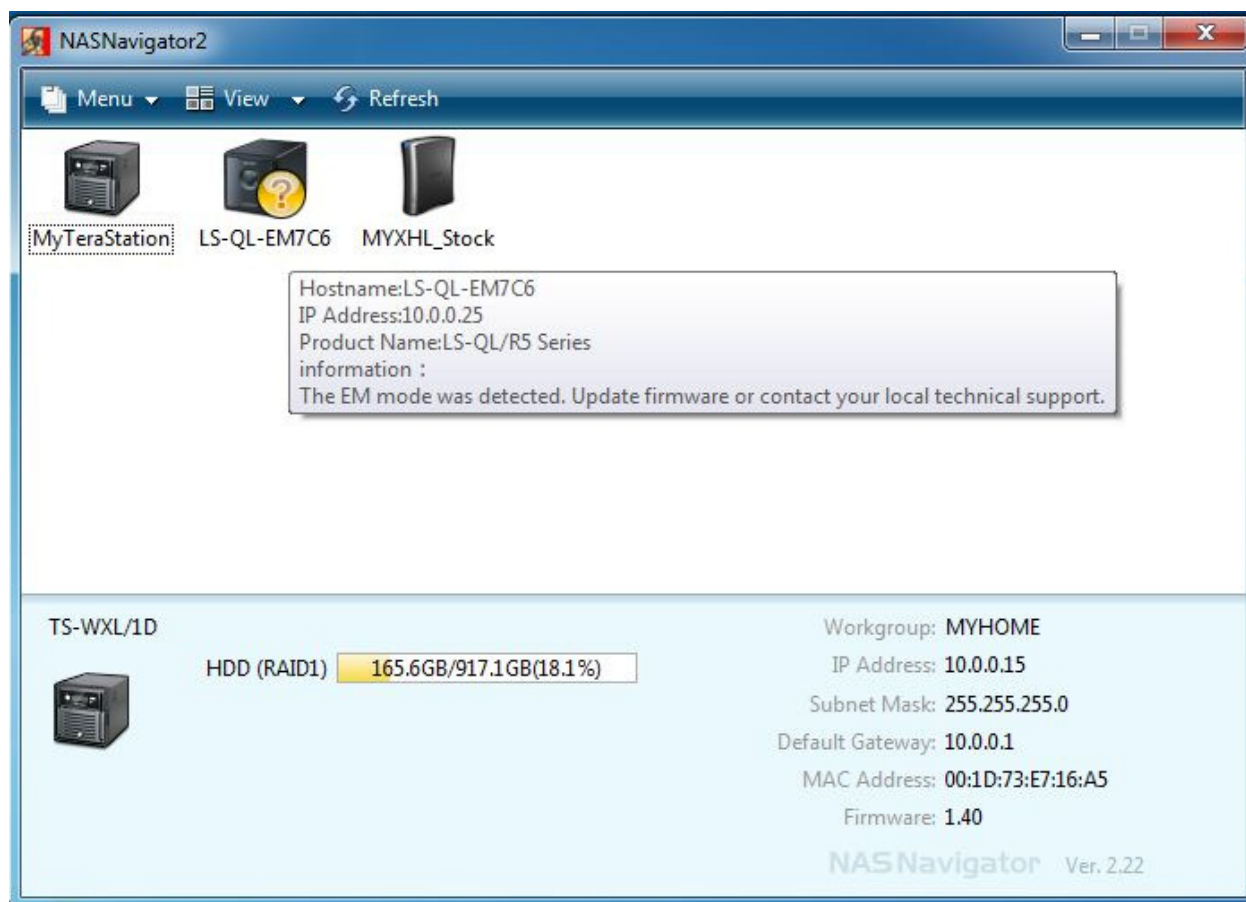
"What is EM and why is it not documented in the user manual?" EM is known both as Engineering Mode and Emergency Mode. The simplest answer that I can give is to help recover the NAS device to its original function. The reason it's not documented is because if you're unsure of what you're doing you can, in fact damage your NAS to the point of non-functionality.

In lieu of this being said I will note now: Engineering Mode is for NAS firmware recovery purposes and is not to be utilized to let your NAS limp to its death. You may attempt booting into EM for data recovery purposes but it is not guaranteed to allow you to access your data if corrupt firmware is involved or not.

### How can I tell if my NAS is in EM?

The most surefire way to tell if your NAS is in EM mode is by looking at the NAS Navigator. Since the NAS Navigator is a universal program which allows it to see multiple products (i.e. you don't need a different NAS Navigator program to see a LinkStation Pro Duo and a TeraStation Pro II) you don't need to download a separate application for each NAS.

An alternate method (for those units equipped) is to look at the front LCD readout (commonly on the TeraStation series) and see if the unit has an IP address. More to the point within the NAS Navigator program next to the hostname of the NAS you should see "-EM". Sometimes when you attempt to put a NAS into EM the NAS Navigator will not show "-EM". This is acceptable if your goal is to attempt to update the firmware or access the files of the NAS as it is being seen on the network.



### What do you need to begin?

1. TFTP Recovery Package \*
2. Recovery Firmware \*
3. Latest Firmware (if any) \*
4. A PC with Microsoft Windows installed (Windows XP / Vista or 7)
5. 4 clean HDDs (no partition at all) – you can use Windows to clean the HDD before putting it into NAS.

**Attention: ALL OF YOUR DATA ON HDD WILL BE ERASED DURING THESE STEPS, PLEASE BACKUP BEFORE PROCEEDING.**

**It requires 4 HDDs during these steps; you can use the NAS with 1 HDD later when we successfully rebuilt the NAS. If you have HDDs < 4, you will experience “FORMATTING FAILURE” error all the time (these HDDs don’t need to be in the same size).**

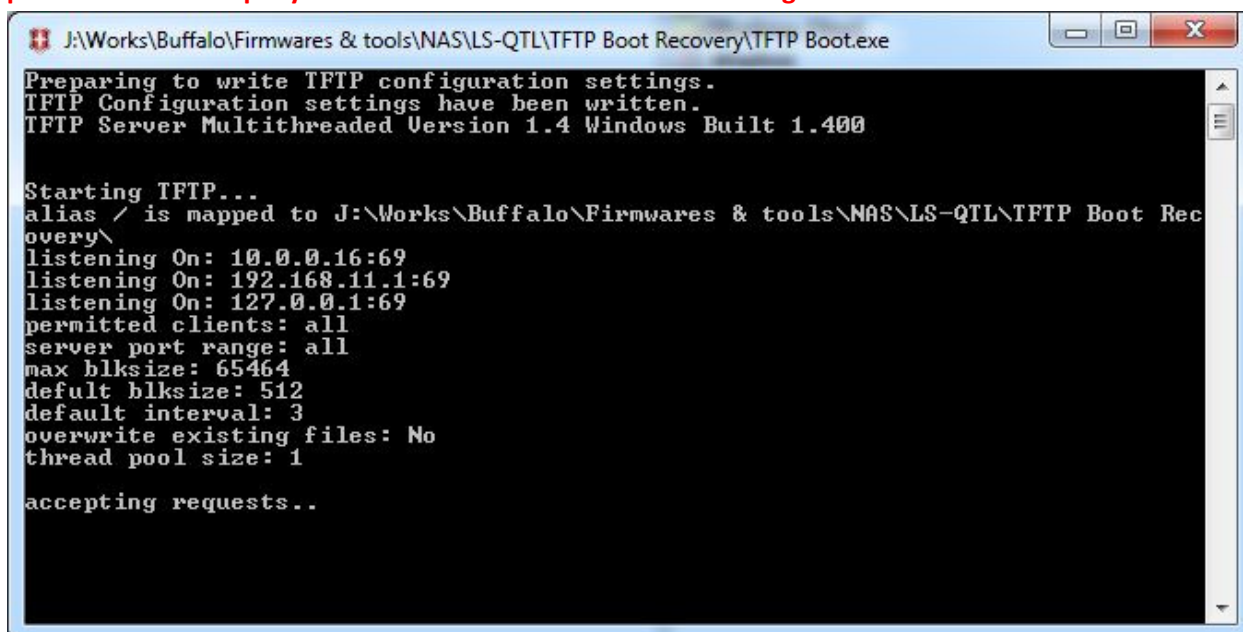
6. A DHCP-enable router (you can use your current router; there’s no need any special setup in router for this process).

\* please contact if you didn’t receive any supporting email that contains these packages, we prepared everything for you so you don’t need to download from anywhere.



## How to put Buffalo Linkstation Quad into EM Mode for Firmware Update

7. Change your PC's IP to **192.168.11.1** / Subnet mask: **255.255.255.0** / leave the Gateway blank (If you don't know how to change, please take a look at this: <http://www.wikihow.com/Change-your-IP-Address-%28Windows%29>)
8. Put your HDDs into Linkstation Quad (**please leave them un-partitioned for faster firmware update, you can use diskpart on Windows to clean all partitions**).
9. Make sure that your NAS is OFF
10. Connect NAS directly to PC via your wired network card (cross-over cable is not necessary).
- 11. Turn off Windows Firewall & other Antivirus Programs**
12. Run the file TFTP Boot.exe included, **you should see TFTP report listening on 192.168.11.1:69 and accepting requests** (in Vista, TFTP can initialize only for up & running Ethernet NICs, try to plug cable to a running device so the NIC is running at the moment TFTP booting). **Do not proceed to next step if you don't see that TFTP Server is listening on 192.168.11.1:69**



```
J:\Works\Buffalo\Firmwares & tools\NAS\LS-QTL\TFTP Boot Recovery\TFTP Boot.exe

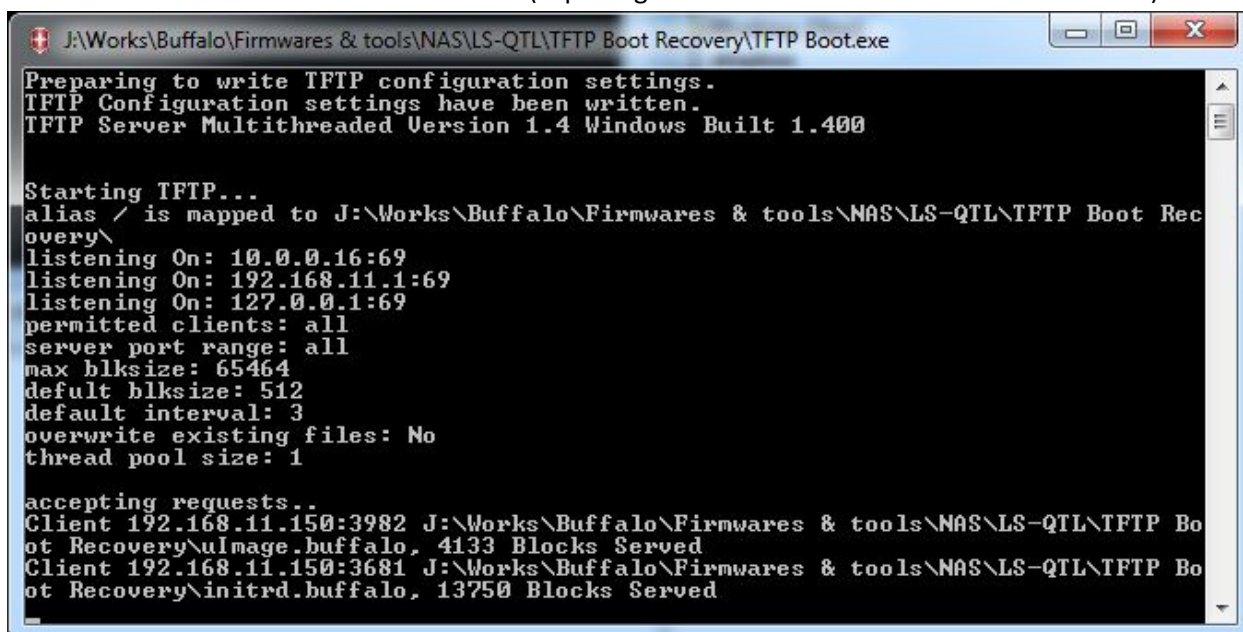
Preparing to write TFTP configuration settings.
TFTP Configuration settings have been written.
TFTP Server Multithreaded Version 1.4 Windows Built 1.400

Starting TFTP...
alias / is mapped to J:\Works\Buffalo\Firmwares & tools\NAS\LS-QTL\TFTP Boot Rec
covery\
listening On: 10.0.0.16:69
listening On: 192.168.11.1:69
listening On: 127.0.0.1:69
permitted clients: all
server port range: all
max blksize: 65464
default blksize: 512
default interval: 3
overwrite existing files: No
thread pool size: 1

accepting requests..
```

13. **Turn ON the NAS**, you should see the POWER LED is flashing rapidly then the RED LED will flash with the error (E06 – Kernel not found).
14. Press the Function Button, you will see the the RED LED turn off and unit flash green again.

15. You see this on TFTP Boot after a while (2 packages are served to NAS at 192.168.11.150)

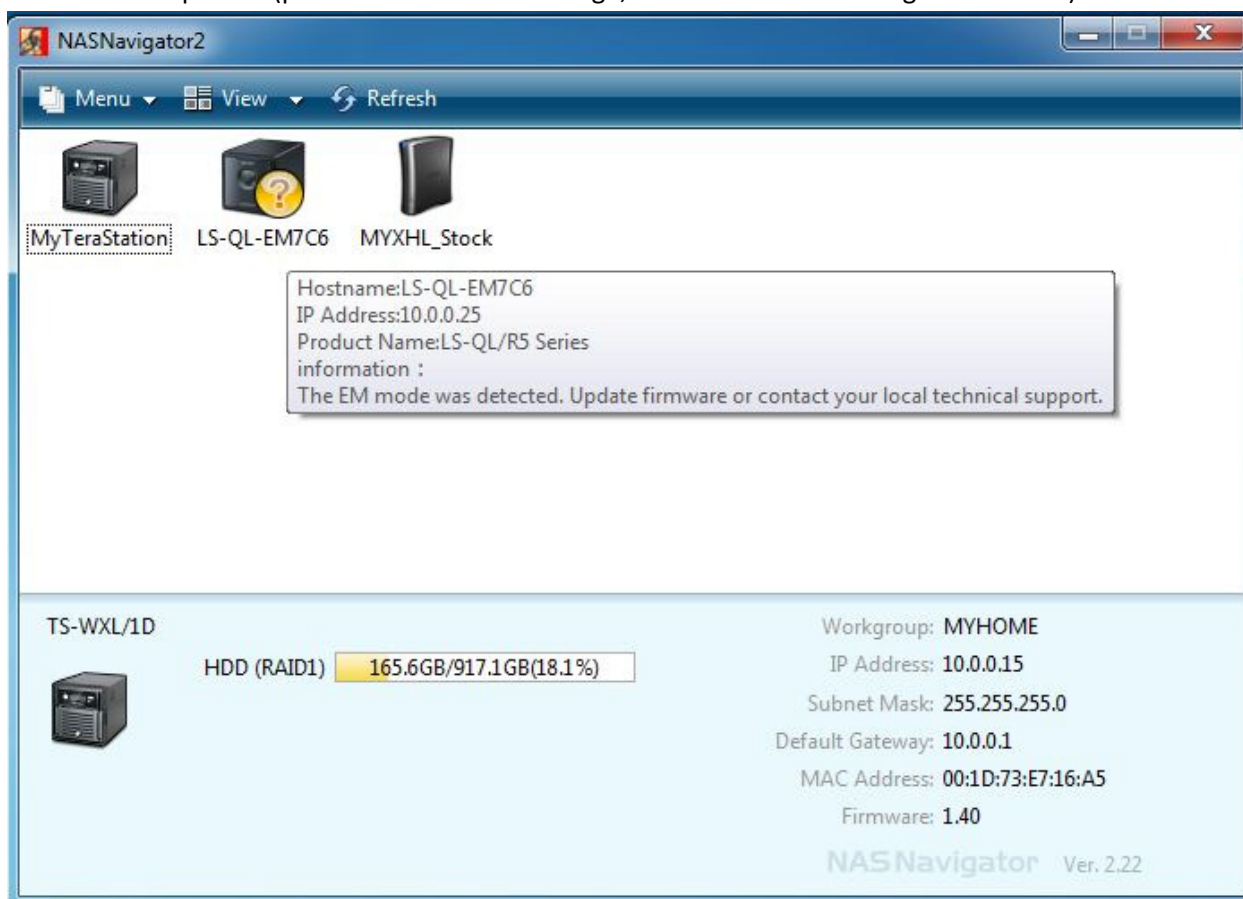


```
J:\Works\Buffalo\Firmwares & tools\NAS\LS-QL\TFTP Boot Recovery\TFTP Boot.exe
Preparing to write TFTP configuration settings.
TFTP Configuration settings have been written.
TFTP Server Multithreaded Version 1.4 Windows Built 1.400

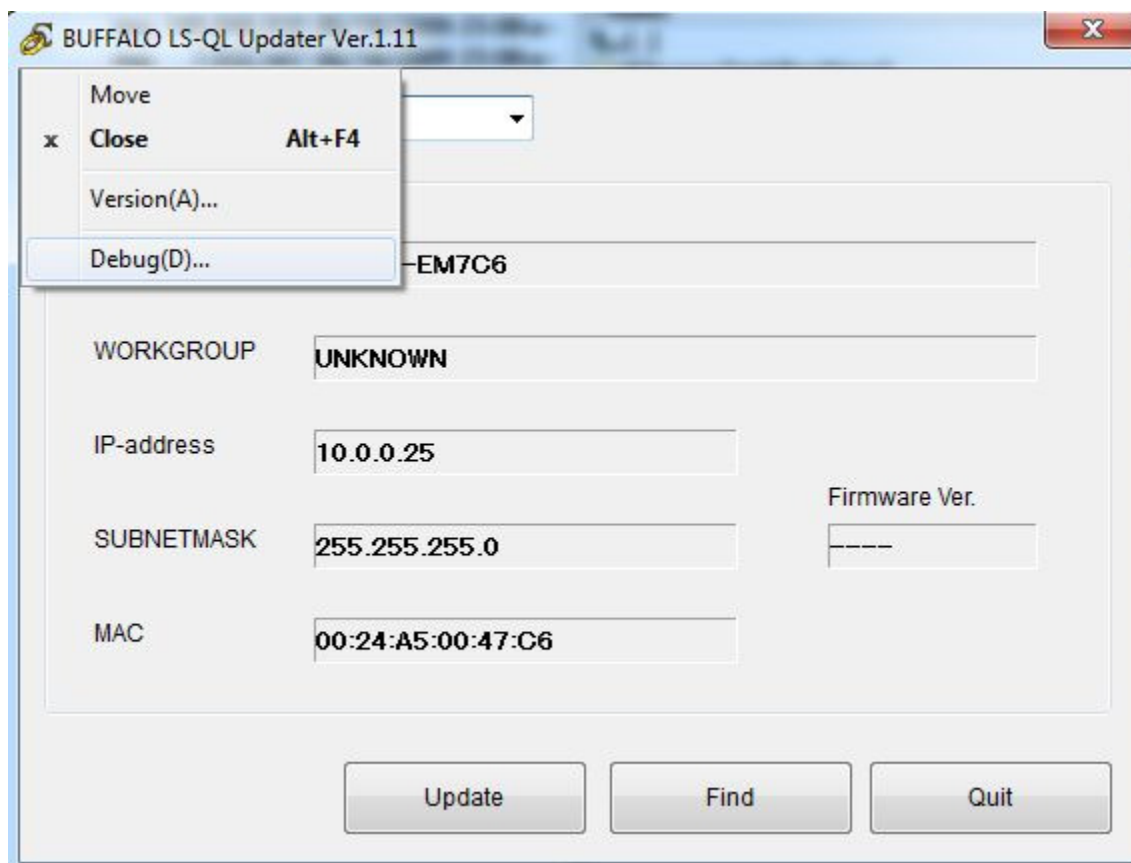
Starting TFTP...
alias / is mapped to J:\Works\Buffalo\Firmwares & tools\NAS\LS-QL\TFTP Boot Recovery\
listening On: 10.0.0.16:69
listening On: 192.168.11.1:69
listening On: 127.0.0.1:69
permitted clients: all
server port range: all
max blksize: 65464
default blksize: 512
default interval: 3
overwrite existing files: No
thread pool size: 1

accepting requests..
Client 192.168.11.150:3982 J:\Works\Buffalo\Firmwares & tools\NAS\LS-QL\TFTP Boot Recovery\ulImage.buffalo, 4133 Blocks Served
Client 192.168.11.150:3681 J:\Works\Buffalo\Firmwares & tools\NAS\LS-QL\TFTP Boot Recovery\initrd.buffalo, 13750 Blocks Served
```

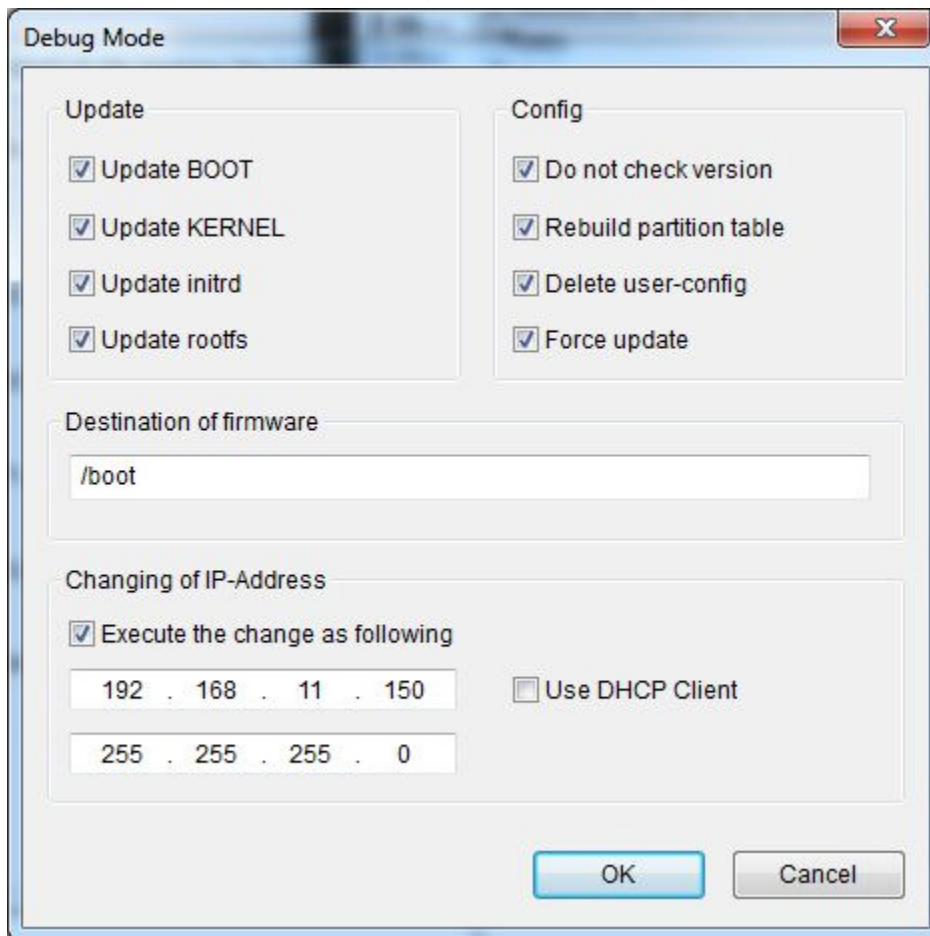
16. Wait for a while, run NASNavi.exe (or NASNavigator), wait until you see the NAS with EM Mode like the below picture (please click No for IP change, we don't need to change the IP here).



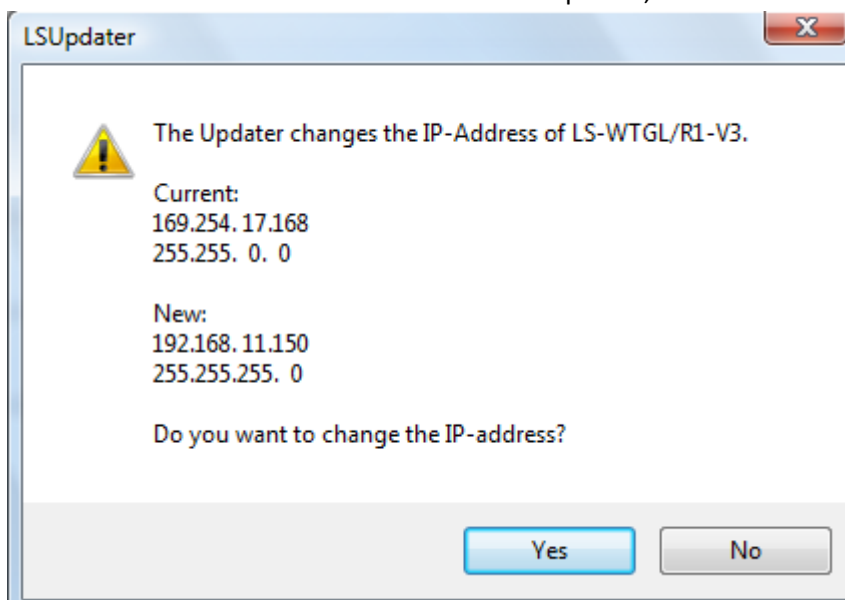
Then run LSUpdater.exe, select the Debug Menu in control menu of LSUpdater window



17. Check all options in config section, perform an IP address change to **192.168.11.150** as well as the subnet mask to **255.255.255.0** (same subnet with PC)

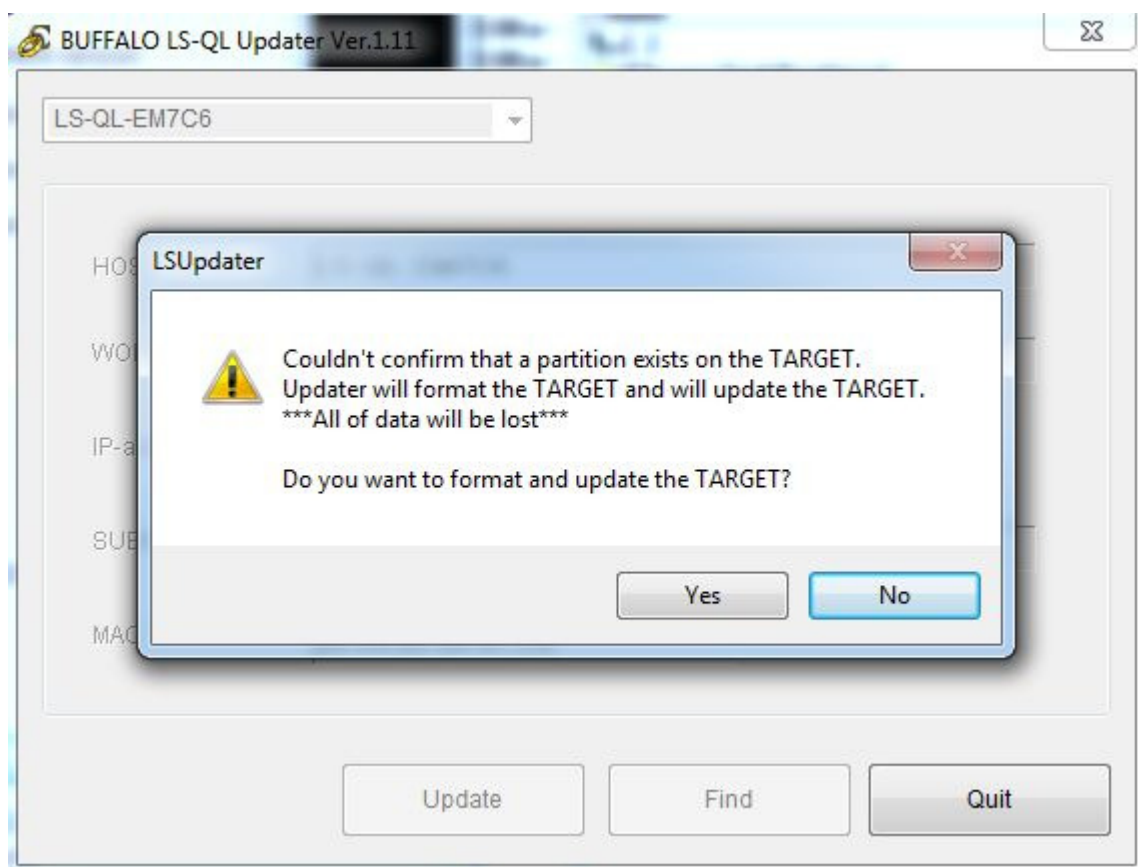


18. Press OK to return to main window of LSUpdater, click Yes to accept IP changes to NAS.



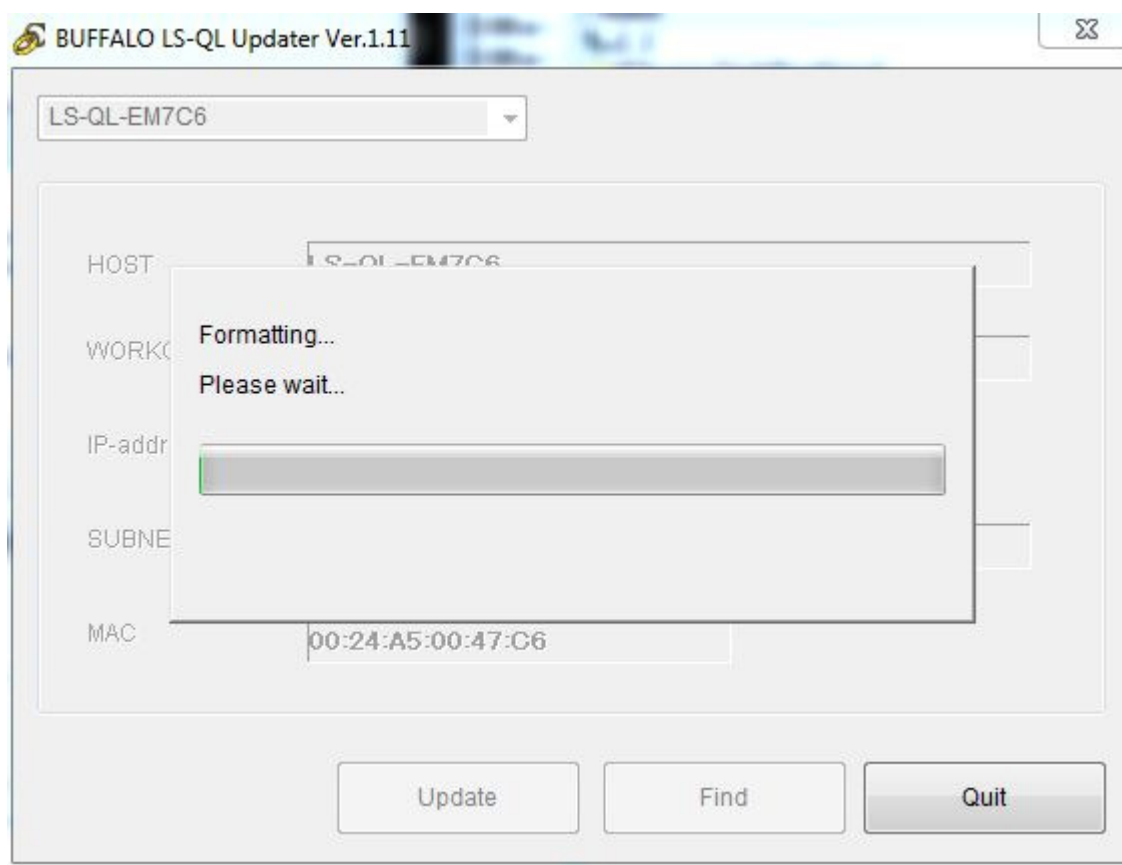
19. Click Update, LSUpdater should ask you about HDD formating confirmation, answer YES and sit back



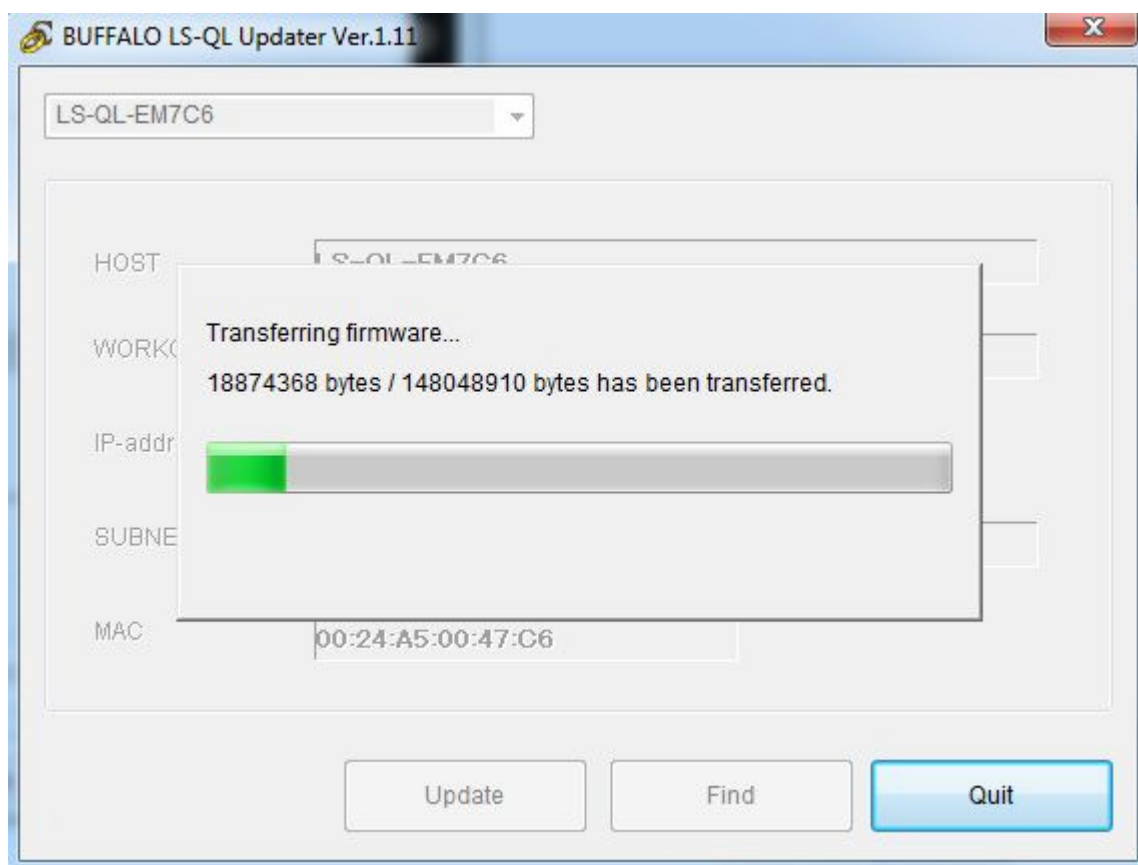


Then you will see the NAS format the HDD

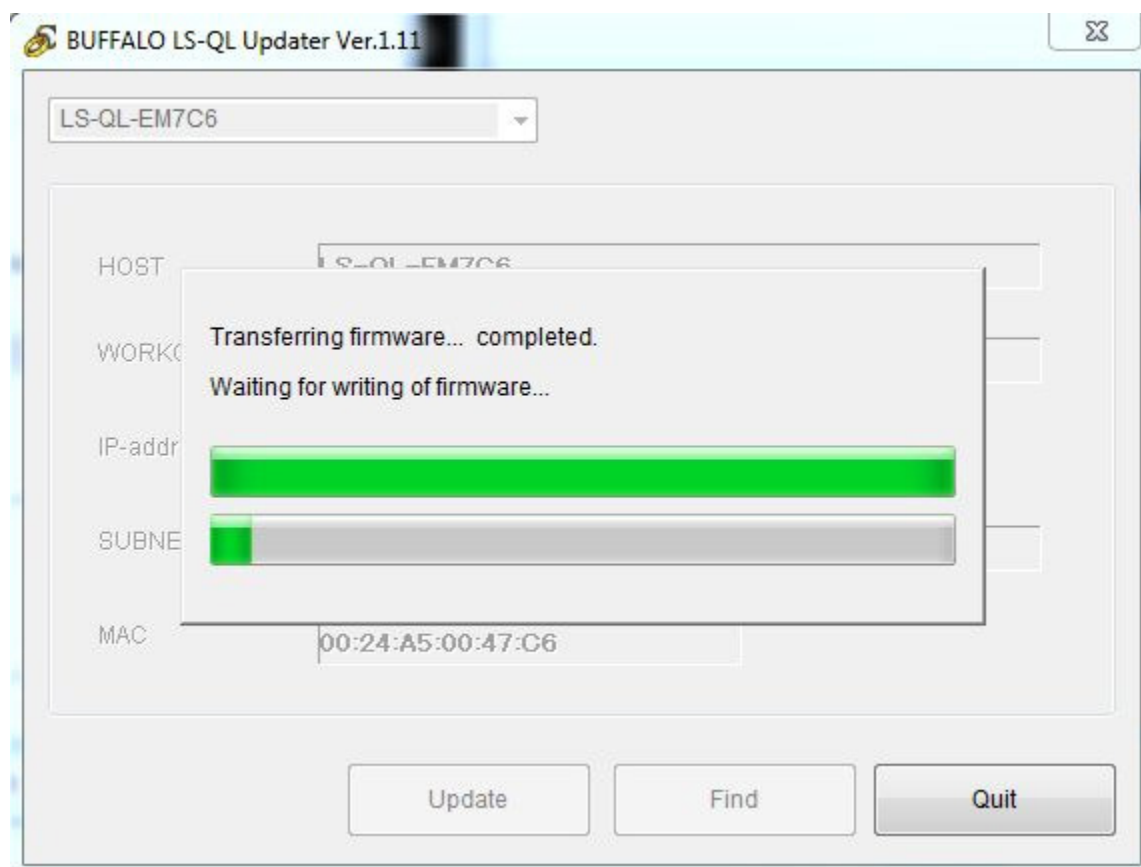


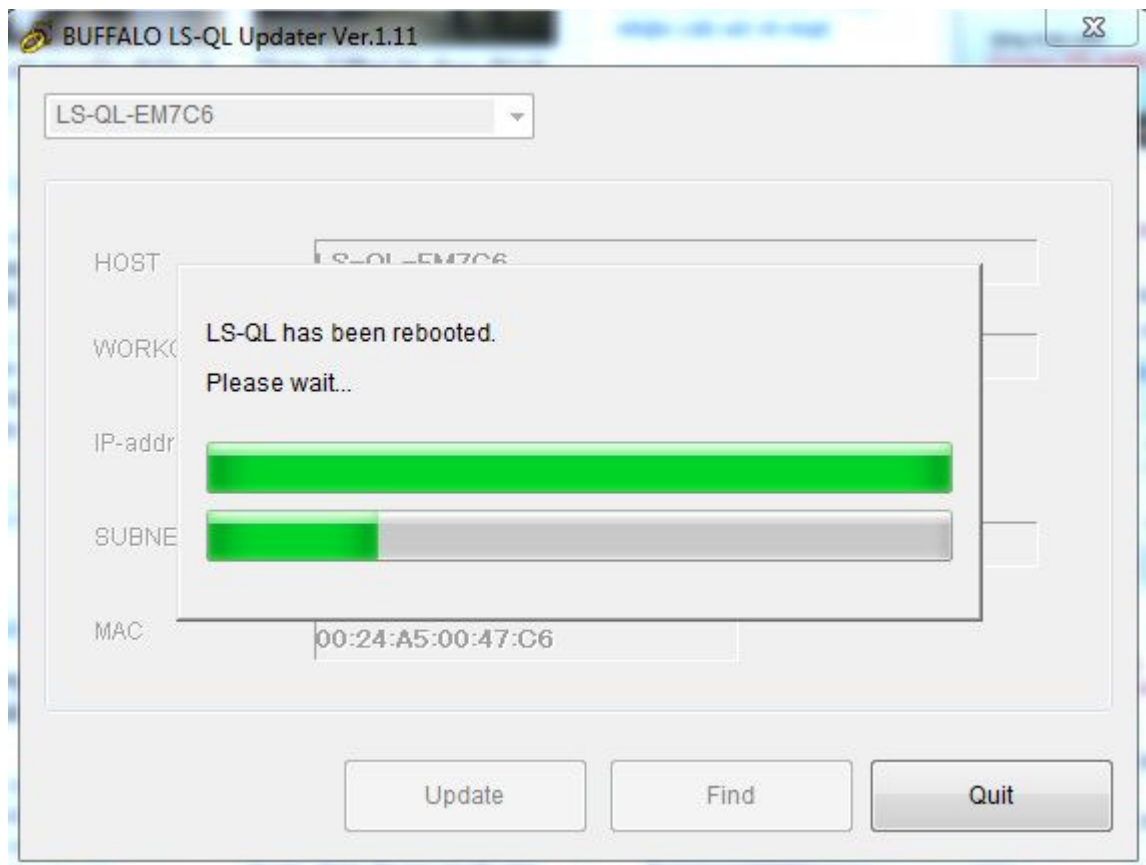


As usual, if there's no formatting error, firmware will be transferred to NAS

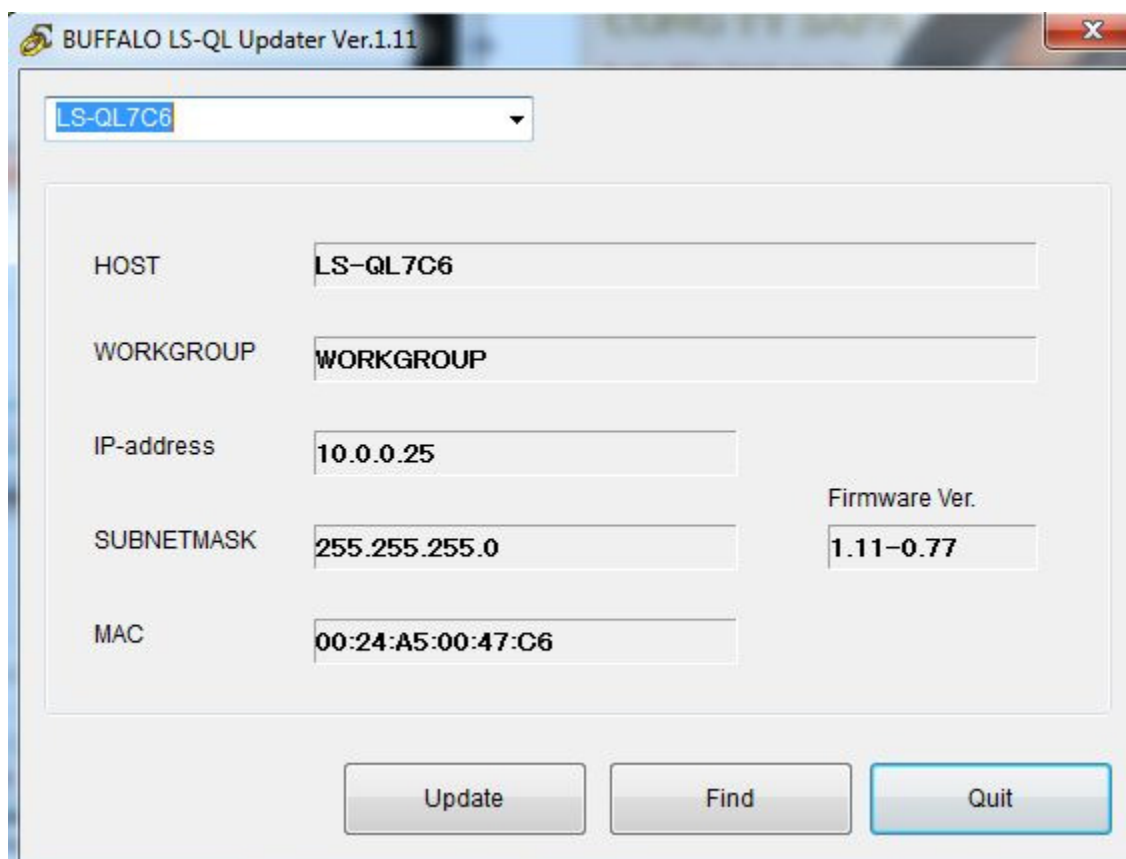
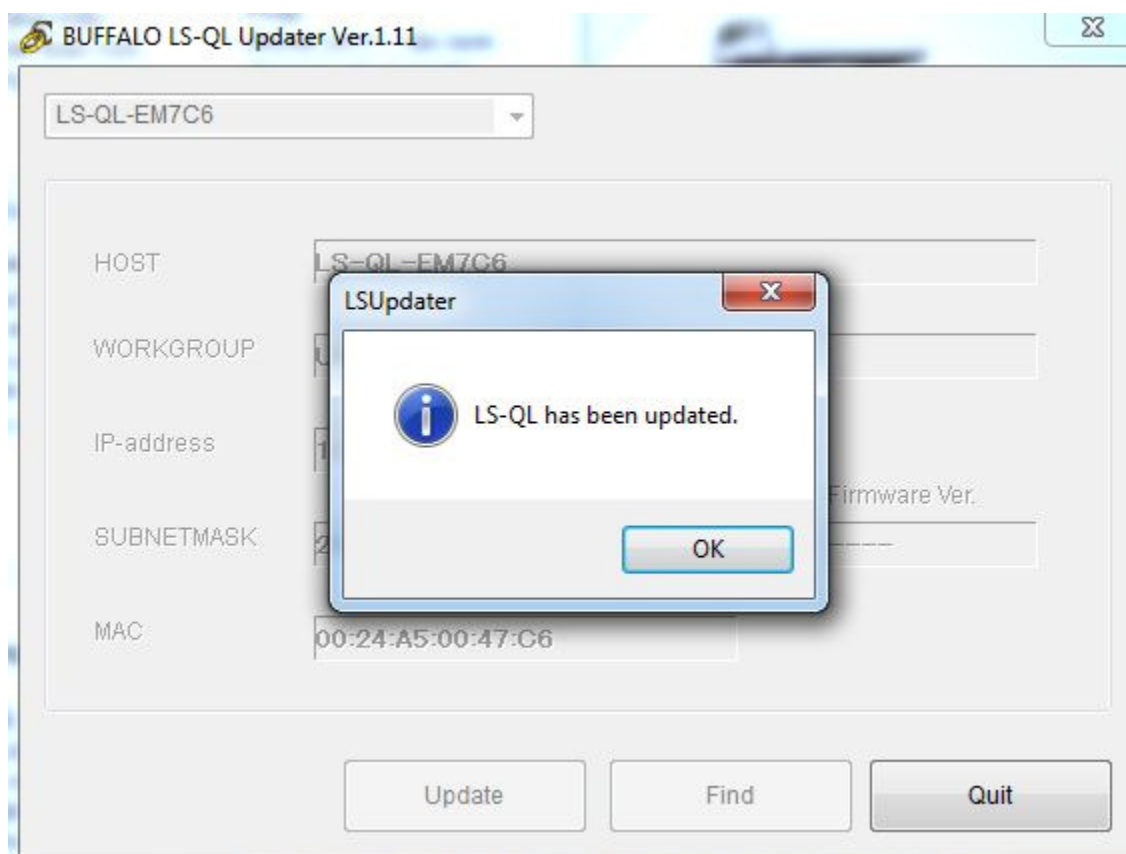


then NAS will reboot and write firmware into HDD





At this point, you will see the Info LED flashes in pink/orange code I25 (2 long flashes, 5 short flashes), means Firmware Flashing, **do not turn off your NAS at this stage.** Then NAS will be rebooted after finish writing its firmware to HDD, you should see the below



Now you can plug the LAN cable from the router to NAS to get new working IP for NAS (you can access NAS via your LAN network now).

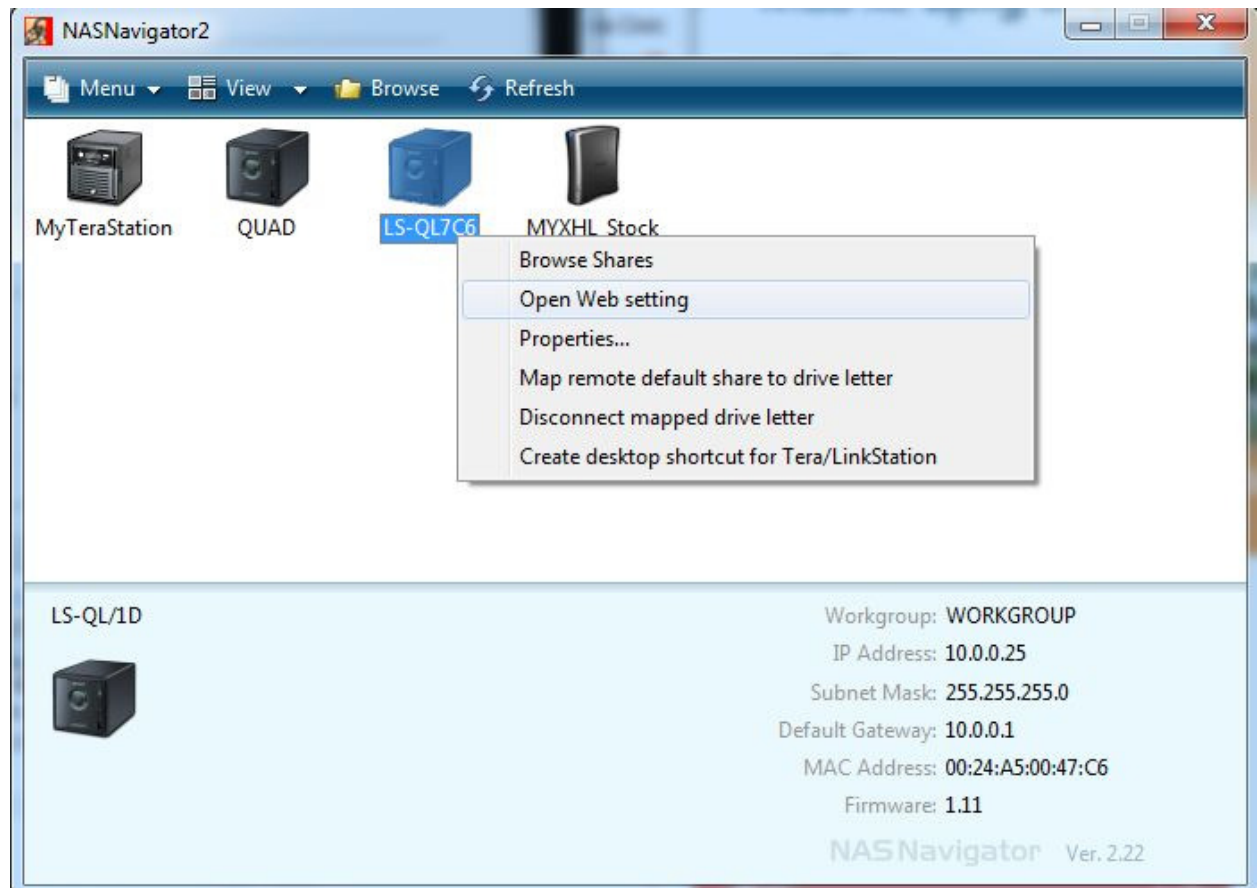
## Change the NAS language to English

Since the NAS is made from Japan, the default language in Web GUI is Japanese, you can change to English as following:

1. Open NASNavigator

For the first time, you will be asked to sync Date and Time of NAS with your PC's one. Click Yes if you want to do so.

Then right click on NAS in NASNavigator and select Web Admin (please note the new IP of NAS at the bottom right corner, which was obtained from DHCP/router)



2. You can login into NAS's Web Admin with default username/password (case sensitive)  
Username: **admin**

Password: **password**



The image shows the login page of the Buffalo LinkStation web interface. The header features the 'Link Station' logo with 'Network Attached Storage' underneath, and the 'BUFFALO' logo on the right. The main heading is 'ログイン' (Login). A yellow button labeled '? ヘルプ' (Help) is in the top right. Below the heading, a message says 'ログインに使用するユーザ名とパスワードを入力してください。' (Please enter the username and password to use for login). There are two input fields: 'ユーザ名' (Username) with 'admin' entered, and 'パスワード' (Password) with masked characters. A 'ログイン' (Login) button is at the bottom. The footer contains the copyright text: 'Copyright 2002-2008 (C) BUFFALO INC. All Rights Reserved.'

Link Station  
Network Attached Storage

BUFFALO

## ログイン

? ヘルプ

ログインに使用するユーザ名とパスワードを入力してください。

ユーザ名 admin

パスワード .....

ログイン

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Then you can see all menus in NAS Web Admin (in Japanese)



The image shows the main menu of the Buffalo LinkStation web interface. The header is the same as the login page. On the left is a vertical menu with icons and labels: 'TOP', '基本' (Basic), 'ネットワーク' (Network), 'ディスク管理' (Disk Management), '共有フォルダ管理' (Shared Folder Management), 'グループ管理' (Group Management), 'ユーザ管理' (User Management), 'Webアクセス' (Web Access), 'メディアサーバ' (Media Server), 'ダイレクトコピー' (Direct Copy), 'プリントサーバ' (Print Server), 'バックアップ' (Backup), 'Time Machine', 'BitTorrent', 'メンテナンス' (Maintenance), 'システム状態' (System Status), and 'ログアウト' (Logout). The main area is titled 'TOP' and contains system information: 'LinkStation 名' (LS-QL7C6), 'モデル名' (LS-QL F/W 1.11), 'IPアドレス' (10.0.0.25), '現在時刻' (2010/9/15 16:43:02), and 'HDD状態' (ディスク1 0.00 GB / 225.27 GB (0.00 %)). A yellow button labeled '? ヘルプ' (Help) is in the top right. The footer contains the copyright text: 'Copyright (C) 2002-2009 BUFFALO INC. All Rights Reserved.'

Link Station  
Network Attached Storage

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## TOP

? ヘルプ

- LinkStation 名 LS-QL7C6
- モデル名 LS-QL F/W 1.11
- IPアドレス 10.0.0.25
- 現在時刻 2010/9/15 16:43:02
- HDD状態 ディスク1 0.00 GB / 225.27 GB (0.00 %)

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基本  
ネットワーク  
ディスク管理  
共有フォルダ管理  
グループ管理  
ユーザ管理  
Webアクセス  
メディアサーバ  
ダイレクトコピー  
プリントサーバ  
バックアップ  
Time Machine  
BitTorrent  
メンテナンス  
システム状態  
ログアウト

Please select the second menu on the left

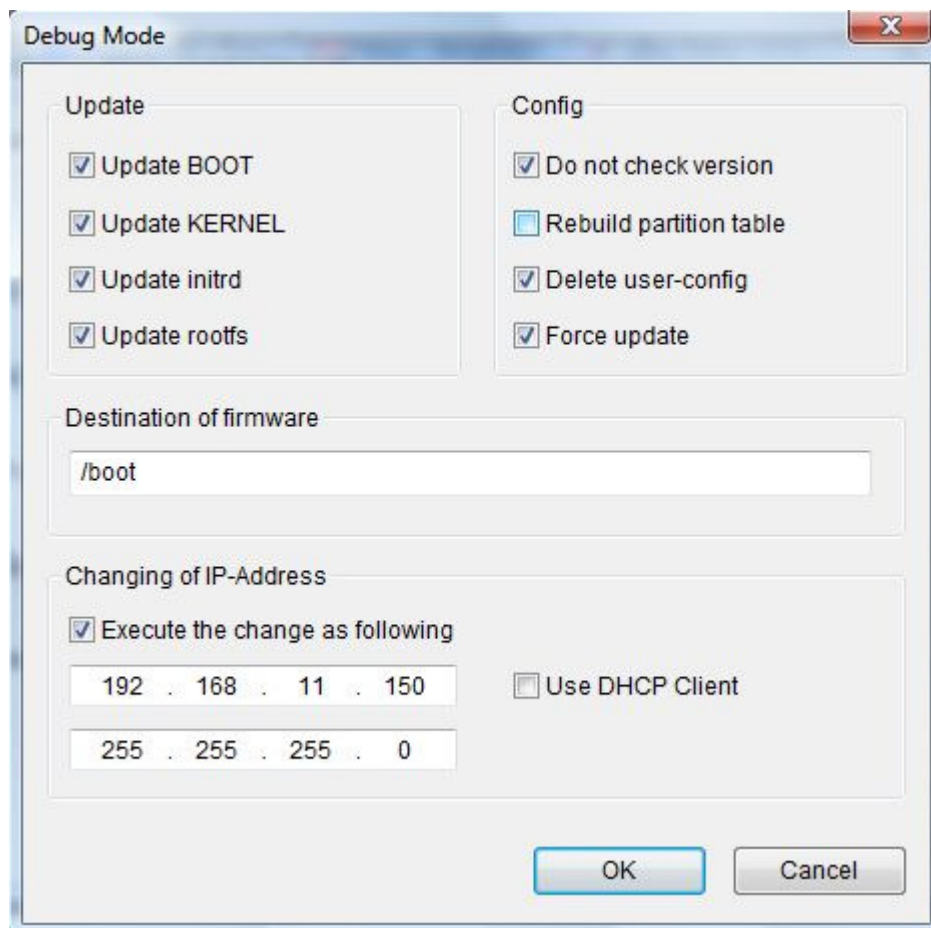


At the bottom of the page, you will find there're two combo boxes, please change them to English and CP437 respectively, then click the button at the bottom to apply the change.  
Logout and login, you will see its language changes to English

## Troubleshooting:

Sometime, LSUpdater just reported that it can not connect to NAS and update failed if you perform big HDD format with NAS, don't panic, it is just timeout problem since NAS has to format big HDD and it stops sending signals to LSUpdater while it's doing that. You just go back to step 11 and the NAS will continue from the previous states (don't worry, it won't begin from scratch again), just redo <step 11> **but this time DO NOT CHECK Rebuild partition table** – I did <step 11> 4 times with 2 blank x 1.0TB.

If you get formatting error, just close LSUpdater and rerun it, select Debug Menu as step 11, however, this time DO NOT CHECK the option **"Rebuild partition table"**. Please give it sometime to format HDD



If you have any problems, please contact me at [danghai2k@gmail.com](mailto:danghai2k@gmail.com)

**Thank you very much for your purchases and hope you had a good deal.  
Much appreciated if you can leave me a feedback on eBay profile after you  
finishes checking the item.**

**Thanks!**