



### [Release Date]

Aug 31, 2011

### [Applicable Hardware]

All NASdeluxe XXX series / NDL-2450R / NDL-2550T / NDL-2700T series / NDL-2800R

### [Software Upgrade/Downgrade Note]

- 1 We recommend backup the RAID data before firmware upgrade. There is potential risk of data loss when upgrade the NAS firmware and NASdeluxe is not responsible for any data loss and recovery.
- 2 After firmware v5.01.05 installed, the new software doesn't allow users to downgrade to any firmware version below v5.01.05.
- 3 System Configuration Download/Upload does not support different software version. Reminder : After upgrade to latest firmware, download configuration and save separately.

### [New Features/Changes]

- 1) Added NFS v4 support.
- 2) Added Async mode for NFS to improve NFS performance.
- 3) Added Mac OSX Lion support

### [Limitations]

1. There is a capacity limit for different file systems. It means, if more than four 2 TB HDD installed, you may have select suitable file system when creating a RAID volume.
2. NDL-2550T/NDL-2700T series/NDL-2800R series support up to three RAID volumes. For ZFS RAID volume, just one is allowed. In addition, Snapshot function is only available in ZFS RAID.
3. RAID volume encryption : AES 256 bits
  - a. NAS admin has to insert an USB flash disk to save encryption key file on it.
  - b. To encrypt an existing RAID is not possible. Please do it while creating a new RAID.
  - c. NAS performance will drop significantly while using encrypted RAID.

| File System | Capacity Limit |
|-------------|----------------|
| EXT3        | 8 TB           |
| EXT4        | 16 TB          |
| XFS         | 16 TB          |
| ZFS         | > 16 TB        |

- d. The USB flash disk (key file) should exist whenever the NAS reboots/boots up and doing RAID configuring.
- e. Encrypted RAID doesn't support online Expansion, just offline Expansion is doable.
- f. Encrypted RAID doesn't support file system check.



g. If the USB flash disk (key file) lost or key file modified, the RAID data will be **INACCESSIBLE FOREVER** and no way to recover it.

4 Once the RAID created, there will be about 5% data used by EXT3 file system. The capacity stores the journal and inodes; which are necessary to keep RAID data safer.

5 RAID rebuild : in case one HDD failed in RAID 1, 5, 6, and 10 configurations, please hot unplug failed one and hot plug in new one; then RAID rebuilding will automatically start. If the replacement is done after NAS shutdown, administrator has to manually add spare in Admin Web GUI to start the RAID rebuilding.

6 RAID rebuild / migrate : 4K alignment HDD are not allowed to be added into a non 4K alignment RAID disk set. It means, **mixing up 4K alignment HDD and non4K HDD will bring the NAS troubles. The RAID will be unstable when doing so.**

7 RAID Expansion: When changing the RAID 5 configuration from five smaller disks to five bigger disks, you have to change one disk at a time and then rebuild the RAID. Lastly, utilize the newly added capacity from Space Allocation page.

8 ZFS limitations :

- Share folders on ZFS RAID are only allowed to be access by Samba.
- ZFS does not support NFS . When share folders created on ZFS RAID, NFS button in admin Web UI will be grayed out. [Storage > Folder] . NFS clients could not showmount the share folders created on ZFS RAID.
- c. ZFS does not support AFP
  - Mac computers could not find the share folders created on ZFS RAID even if the AFP service had been enabled from the NAS. In case the NAS just has ZFS RAID, Mac computers will fail to connect to the NAS.
- d. ZFS does not support FTP
  - When FTP user login into the NAS, all folders created on ZFS RAID are invisible and inaccessible.
- e. ZFS does not support ACL folder when doing Nsync in FTP mode
  - When doing Nsync in “Legacy FTP Server” mode, the Nsync folder on Target NAS is inaccessible, so the Nsync task always fails.
- f. ZFS does not need file system check

9. XFS limitations :

- XFS file system does not support folder quota. Since firmware 5.00.04, XFS supports user quota.
- XFS file system is with 16 TB limit.



10. iSCSI Target : the maximum numbers of iSCSI target volumes depend on the physical memory size and also the CPU power of each NASdeluxe NAS. So the following limit applies since FW 3.01.01. No matter one RAID or multiple RAID volumes exist in a NAS, the maximum limit will be the same.

| Max. No of iSCSI Targets | Model Name                                  |
|--------------------------|---|
| 10                       | NDL-2550T, NDL-2450R                        |
| 15                       | NDL-2700T, NDL-2700T+ NDL-2800R, NDL-2800R+ |
| 25                       | NDL-2700ST NDL-2800SR NDL-21200R            |
| 50                       | NDL-21600R                                  |

- For NAS admin without cluster based OS/applications to manage multiple initiators connected to the same iSCSI volume, we highly recommend every iSCSI volume is connected by single iSCSI initiator. However, in case NAS admin has cluster based OS/applications, up to 8 initiators is possible.
- **Uncontrolled concurrent access to the same iSCSI target volume may result data corruption or unpredictable results.**
- **iSCSI target may be disconnected from initiator if other RAID settings on the same target NAS being altered.**
- Verified iSCSI initiators:
  - Windows: Microsoft initiator v2.0.4
  - o StarPort initiator 3.5.2 MAC OS: globalSAN iSCSI initiator version 3.0 (1150) Linux: openiscsi 2.0865
- There is a system advanced option to choose 4K or 512 bytes block size for iSCSI volume, and the default is 4K bytes. 512 bytes block size may encounter **2TB volume capacity limitation** on some initiators running 32bit OS. Nevertheless, 4K block size could slice the iSCSI volume over 2TB, but, there might be compatibility issue. For VMware, we recommend using 512 bytes block size.

11. iSCSI Target : the iSCSI Target Driver had been changed since firmware 5.00.04.

| Firmware Version  | iSCSI Target Driver |
|-------------------|---------------------|
| 2.00.00 ~ 3.05.xx | IET                 |
| 5.00.04 and above | SCST 2.0.0.1        |



Please notice the limitations of iSCSI initiators running in host platform; NAS admin may have to change the LUN ID to fit below conditions.

XXXseries/NDL-2450R/ NDL-2550T/NDL-2700Tseries/NDL-2800Rseries  
5.01.05

| Host Platform                            | Allowed iSCSI LUN ID |
|--|----------------------|
| Microsoft initiator in Windows XP        | 0 ~ 254              |
| Microsoft initiator in Windows Vista / 7 | 0 ~ 7                |
| VMware ESXi                              | 0 ~ 254              |
| Open iscsi (to stack two NASdeluxe NAS)  | 0 ~ 1                |
| MAC globalSAN                            | 0                    |
| XenCenter                                | 0 ~ 1                |

12. iSCSI Expansion : there are some limitations applied.

- The maximum iSCSI volume would be 16TB, and the minimum expansion size is 1GB.
- iSCSI service will be stopped till the expansion completes.
- iSCSI expansion just handles the volume size. The partition(s) inside the volume won't be adjusted.
- iSCSI expansion just support local RAID, does not support addon RAID by iSCSI stackable.

13. Stackable function: Support of stackable function across NASdeluxe NDL-2550T/NDL-2700T series/NDL-2800R series NASes.

- **The concurrent connection on target iSCSI volume of NASdeluxe NAS will be limited to 1 if the initiator comes from other NASdeluxe NASes.**
- The internal file system format of stackable target is ReiserFS, and the maximum capacity is 16 TB.

14. iSCSI ThinProvisioning

- The ThinProvision capacity has to be determined first.
- Up to five iSCSI ThinProvision target can be created on the ThinProvision capacity.
- The total virtual size of iSCSI ThinProvision targets could not exceed 16 TB in a RAID.
- The virtual size should be larger than the real capacity and less than 16 TB.
- When determine the virtual size, the minimum increase is 100GB.
- When the total used capacity reaches 90% of real ThinProvision capacity, NAS will send Email notifications out every 10 minutes until the capacity expanded. Also, system log will show capacity warning in admin web interface. The host server won't receive any notification before the iSCSI Thin-Provision target full.

15. iSCSI LUN ID in admin web interface

- The iSCSI LUN ID is between 0 and 254.
- Duplicate ID is not allowed excepting ID 0.
- Mac computer just recognized the first iSCSI volume.



16. Active Directory Support behavior : before AD Sync is pressed, search criteria has to be a fully match string to user account. After AD Sync is pressed, search criteria can be only beginning part of the user account. Only 1000 search results will be displayed.

17 To enable ADS support for Small Business Server 2003, we recommend do not install ISA server. Otherwise, NDL-2550T/NDL-2700T series/NDL-2800R series may fail to join the AD.

18 User Quota : user quota has been added since firmware version 5.00.04.

- Value "0" means "User Quota Disabled"
- A quota setting will be applied across multiple RAID volumes. It means, if you set 10GB quota for user John, he will be having 10GB on every RAID. For a NAS with three RAID volumes, John will have 30GB quota in total.
- "User Quota" is implemented in EXT3, EXT4, and XFS RAID; however, ZFS just has "Folder Quota" support.
- When using "User Quota" in a Master and XFS RAID, disabling quota might not take effective until the NAS reboots.
- When "User Quota" full, the user will have 10% tolerance within 7 days; thus he can do some data moving and deleting temporarily.
- System log and Email Notification will remind the users whose "User Quota" reached the limit at 24:00 every day.
- The status of "User Quota" across multiple RAID will be displayed on [User and Group Authentication > Quota > Quota Setting] page.
- It may take long time to enable the "User Quota" the 1st time.
- "User Quota" is calculated by UID in the NAS.
- When users put data into a public folder, the used capacity will not be added to quota calculation. Also, data copied through WebDisk will not be calculated either.

19 Target USB function : the maximum capacity of Target USB is limited at 2TB. Just NDL-2550T features target USB function; NDL-2700T series/NDL-2800R series doesn't have it.

20 Supports the following USB wireless dongles only. And it has to be installed before NAS booting up, no PnP. However, **USB wireless dongles are no longer supported since firmware version 5.00.04.**

[ZyDAS ZD1211]

- 3Com 3CRUSB10075 (Manufacture ID: 6891, Device ID: A727)
- Zyxel G220USB (Manufacture ID: 0586, Device ID: 3401)
- PCI GWUS54mini (Manufacture ID: 14EA, Device ID: AB13) [ZyDAS ZD1211B]
- Zyxel ZyAIR G220 V2 (Manufacture ID: 0586, Device ID: 340F)

21 Some attributes may not be included with files and folders when copying to a USB drive with FAT32 format.

22 If a USB hard drive is connected to NAS formatted as FAT16/32, the following restrictions apply: Copy file with size greater than or equal to 2 GB to the NAS cannot be performed due to FAT file system limitation. Files created by Mac OS X like DS\_Store cannot be copied to the FAT16/32 USB drive.

23 NFS share is limited to public folders. In case you enable an NFS share on nonpublic (ACL) folder, the NFS client could successfully mount it but won't be able to read/write files. Currently we



implemented NFS V3.

24 Reset button : NDL-2700T series/NDL-2800R series doesn't have a reset button like what N5200/NDL-2550T has. So, in case the admin password or HTTP port lost, use LCM bottoms to load factory default please. In that case, user accounts and groups will be erased, but RAID data won't be affected.

25 HTTP and HTTPS ports should follow the rules given below. Larger than 1024 Could not use 3169 Port 80 (HTTP) and 443 (HTTPS) are allowed

26. Mac OS Limitations

- o When using Mac OS X (post 10.2 with AppleTalk) without SMB, do not use Japanese characters in folder or file names to prevent errors accessing the data over a network.
- o Mac OS 9 and Mac OS X cannot see files on the network with names made up of over 32 characters.
- o Mac OS 8.x/9.x only supports local character encoding on file names (without Unicode support).
- o Occasionally, when a file is accessed by a Mac OS computer within a shared folder, an information file will be created in the same folder. If the file is then deleted by a Windows OS computer, the original file may no longer be accessible by Mac OS computers.
- o The following characters are not allowed to be included in the name used for a
  - file or shared folder when using Mac OS (AppleTalk) devices. `?[\^+=+<>;:~"]*`
- o Writing a file larger than 2 GB is not allowed by MAC OS9.
- o When using AFP or Samba to access NAS, please disable "Hide Temporary
  - Files" option under Samba/CIFS.
  - h.Hidden "\_NAS\_Piczza\_" folder in AFP.

27. NAS needs about 5 minutes to broadcast/register itself to other Mac OS through AppleTalk after booting up and service enabled.

28. While upgrade firmware version, note the special relation between addon modules and firmware kernel/UI architecture.

| Firmware Version  | Kernel Version | Module Dependency |
|-------------------|----------------|-------------------|
| 1.00.00 ~ 2.00.xx | 2.6.13         | V                 |
| 3.00.06 ~ 3.05.xx | 2.6.23         | V                 |
| 5.00.00 and above | 2.6.33.7       | V                 |

- a. Many application modules are kernel dependant; so, for firmware V5, you may need new modules.
- b. Automatically disable all installed modules while NAS firmware upgrading from 3.xx.xx to 5.00.00.12 or above. Old and not working modules will have an exclamation mark "!" for reminder.



- 29 WebDisk : Only UTF8 file name is supported.
- 30 File size has to be less than 1GB to be uploaded to NASdeluxe NAS from web browsers. FTP software has no such limitation.
- 31 File names and folder names should not contain more than 250 characters in their entire directory path to prevent errors occur in the file copy operations.
  - a. 32. The following characters are not allowed to be included in the name used for files or
  - b. folders on NASdeluxe NAS.  
^:\*?"<>|[]=+;,
- 32 File and directory attributes can not be modified by an FTP client when the FTP server of NASdeluxe NAS is enabled.
- 33 Anonymous FTP user could upload files into public folders but could not delete them.
  - a. FTP client can list up to 2000 files in a single folder.
- 34 NASdeluxe NAS could work as a TFTP server since firmware 3.04.00.3.
  - a. a. TFTP service folder should be public and without any ACL rule.
  - b. b. Double byte file name (Chinese, Japanese, Korean, etc) may have problems in case the TFTP client doesn't support UTF8. Anyway we recommend using single byte characters as the file name.
  - c. c. TFTP service runs at port 69 by default. It is changeable from admin web interface. Please notify possible port conflicts, if any.
  - d. d. The biggest file size is 4GB while transferring thru TFTP.
- 35 NDL-2700T+ / NDL-2800R+ support specific GbE and 10 GbE NIC cards. There will be Additional LAN 1, 2, 3, and 4 to configure the network setting in admin web interface. However, the Link Aggregation functions will just work on original two onboard NIC, WAN/LAN1 and LAN/LAN2.
- 36 File system check page is in English, no multilingual.
- 37 Disk Power Management : some HDD may not respond to "idle spin down" command, and they won't get into standby mode even if the specified idle time had been reached. In addition, NDL-2700ST and NDL-2800SR do not support SAS HDD spin down at current moment.
- 38 Disk S.M.A.R.T. Test : NDL-2700ST and NDL-2800SR do not support Disk S.M.A.R.T. Test on SAS HDD.
- 39 UPnP function only works on WAN interface.
- 40 The create date is the same with modify date for every file copied into the NAS.
- 41 Single file size upper limitation: 2TB for EXT3 file system.
- 42 NASdeluxe NAS uses the following service ports by default. FTP: 20/21
  45. While the log folder for rsync is not exist, the log event will write to "nsync" folder.

### [Known Problems]

- 1 Using samba protocol in MAC OS will not accept file names with blank characters in tail.
- 2 AD users cannot access file via AFP on MAC OS.
- 3 IE7 / IE8 will show certification error alert while user access WEB admin UI via HTTPS.
- 4 DOM backup won't work while there is only single DOM on the NAS.

### [Attention]

- 1 During firmware upgrade process, it is imperative that user DO NOT turn off the power to NASdeluxe NAS or closes the browser window. This will lead to catastrophic result. If your browser is set to cache the screen, after firmware upgrade has started for 5 minutes, please press CTRL+F5 to reload browser screen from server instead of from browser cache.



2 NASdeluxe strongly recommends NAS admin to backup the RAID data before doing the RAID Migration and Expansion. There is potential risk of permanent data loss when doing Migration/Expansion with disk drives having physical problems, and NASdeluxe is not responsible for any data loss and recovery expense.

3 When installing the Windows Wizard program of NASdeluxe NAS on Windows XP Professional SP1 or SP2, Windows Vista, and newer OS, the firewall UDP ports 10000 and 10001 need to be opened.

4 Reset to factory default function automatically resets all the system settings including network settings, administrator password, user groups, language setting, system notification setting, and time zone setting.