



[Release Date]

Dec 10, 2007

[Applicable Hardware]

Thecus 1U4500 IP Storage Server

[Software Upgrade/Downgrade Note]

1. After firmware v2.00.04 installed, the new software doesn't allow users to downgrade to any firmware version below v2.00.04.
2. 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) Extend the limitation of iSCSI target volumes per RAID up to 5 for each RAID.
 - 1.1) 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 imitator. However, in case NAS admin has cluster based OS/applications, up to 8 initiators is possible.
 - 1.2) **Uncontrolled concurrent access to the same iSCSI target volume may result data corruption or un-predicable results.**
 - 1.3) **iSCSI target may be disconnected from initiator if other RAID settings on the same target NAS being altered.**
 - 1.4) Verified iSCSI initiators:
 - Windows: Microsoft initiator v2.0.4
 - StarPort initiator 3.5.2
 - MAC OS: globalSAN iSCSI initiator version 3.0 (1150)
 - Linux: open-iscsi 2.0-865
 - 1.5) There may exist **2TB volume capacity limitation** on some initiators running 32bit OS.
- 2) Support of stackable function across Thecus N5200PRO and 1U4500 series NAS.
 - 2.1) **The concurrent connection on target iSCSI volume of Thecus NAS will be limited to 1 if the initiator comes from other Thecus NAS.**
 - 2.2) The internal file system format of stackable target is ReiserFS
- 3) Improve Microsoft iSCSI initiator performance in Windows XP while connect to iSCSI volume on Thecus NAS.
- 4) Disable the unnecessary access to RAID by CIFS server which may prevent



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HDDs from spin-down.

- 5) Move file system check function to isolated mode to avoid file system being accessed by other services.
- 6) Support customized size for expand in RAID expansion function.
- 7) Show more HDD SMART information in WEB UI.
- 8) In case Master RAID failed, the next available RAID will be active as Master RAID automatically.
- 9) Change the setting of beep notification to be “enabled” by default.
- 10) Add continuous beep while RAID degraded or damaged, which can only be muted by WEB admin UI.
- 11) Remove the default reservation of internal file system to avoid over occupation on large RAID.
- 12) Add support of IEEE802.3ad LACP.
- 13) Change folder location of external eSATA HDDs to /usbhdd/esata to avoid confusion with USB disks.
- 14) Remove the setting of password while using batch user add function to avoid the violation of password characters restrictions.
- 15) Add system shutdown message on LCD display.
- 16) Add CPU fan fail notification and beep for 1U4500.
- 17) User can interrupt the RAID creation process by removing the RAID in WEB admin UI.
- 18) Disable the anonymous button in NFS WEB admin UI while the share folder is ACL controlled.
- 19) Remove USB disk information from WEB admin UI after being ejected manually to avoid confusion.
- 20) Added support of file system check on RAID data volumes larger than 2TB.

[Bug Fixes]

- 1) Security patches of WEB UI since F/W v2.00.01.
- 2) Fixed the bug that file/folder names in USB disk cannot recognize Unicode encoding.
- 3) Fixed the bug which users cannot store file into external eSATA HDD.
- 4) Fixed USB disk hot-plug problem.
- 5) Fixed NFS bug which cannot allow two or more NFS share folders being exported.
- 6) Fixed the bug of periodical HDD access for every 5 minutes caused by USB printer server.
- 7) Fixed the AFP issues on the modified files, which will become invisible in finder window.
- 8) Fixed the device size calculation when doing RAID Migration with large HDDs.



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- 9) Fixed the bug that schedule tasks will not execute if time zone setting changed.
- 10) Fixed the bug of RAID creation error if disks are removed before RAID creation process actually starts.
- 11) Fixed the bug which disconnects active CIFS links while making changes on share folders.
- 12) Fixed the bug of duplicate checking on batch user add in WEB admin UI.
- 13) Solved the security hole of NFS which can access the entire RAID volume by some special folder names.
- 14) Blocked the RAID level migration between the same RAID levels in WEB admin UI.
- 15) Fixed the problem that missing default gateway setting while link aggregation is enabled.
- 16) Fixed the bug which folder description cannot accept special characters.
- 17) Improve the detection policy of RAID 10 on degrade and damage decisions.
- 18) Fixed the bug of user duplication while using batch user add with the group names contains blank characters.
- 19) Fixed the bug which language selection on Korean and Spanish cannot be kept after reboot.
- 20) Fixed the UI block problem while on-line checking for user module updates.
- 21) Skipped the SMART check on USB HDDs.
- 22) Fixed the bug of missing UPS related email notification while UPS status changes or system shutdown by UPS.
- 23) Fixed the bug of RAID6 degrade decision and auto-rebuild problems.
- 24) Fixed the bug which blocked all FTP access after delete any share folder.
- 25) Fixed the LCD display of WAN port IP address while applying link aggregation settings.
- 26) Add error handling of WEB disk upload while target disk is full.
- 27) Fixed the WEB disk permission problem which prevents users in ACL to create or write files.
- 28) Fixed the IP setting problem on LCD panel.
- 29) Fixed the WEB inaccessible problem after RAID level migration finished.
- 30) Fixed the compatibility problem with globalSAN on MAC OS.
- 31) Fixed the RAID 10 auto-rebuild bug with 1 spare disk installed.
- 32) Improve the hot-plug handling of external eSATA HDDs.
- 33) Fixed the detection of available space on Nsync target to avoid incorrect result reported by Nsync source.
- 34) Correct the confirmation message while modifying the master RAID settings.

[Limitations]



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1. 1U4500 doesn't support hard disk drives that won't spin up before "start unit" command receives; such as Seagate Barracuda 7200.9 series.
2. Target USB function : once RAID created and Target USB capacity determined, you have to AC off and then on to make it works. In addition, the maximum capacity of Target USB is limited at 2TB.
3. Reset button : you could use reset button to load the factory default in firmware v1.00.03 or later version.
 - a. When the 1U4500 successfully boots up, press the reset button for 10 seconds. And then the NAS will automatically reboot itself.
 - b. This resets the 1U4500 to its factory default.
 - WAN IP: 192.168.1.100
 - LAN IP: 192.168.2.254 (It will be 192.168.2.100 in firmware v1.00.03)
 - HTTP port: 80
 - HTTPS port: 443
 - Admin password: admin
 - User accounts and groups will be erased, but RAID data won't be affected.
4. iSCSI Target (for N5200B/BR PRO and 1U4500S/R only) : up to 5 iSCSI target volumes are supported for each RAID.
 - a. 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 imitator. However, in case NAS admin has cluster based OS/applications, up to 8 initiators is possible.
 - b. Uncontrolled concurrent access to the same iSCSI target volume may result data corruption or un-predicable results.
 - c. iSCSI target may be disconnected from initiator if other RAID settings on the same target NAS being altered.
 - d. Verified iSCSI initiators:
 - Windows: Microsoft initiator v2.0.4
 - StarPort initiator 3.5.2
 - MAC OS: globalSAN iSCSI initiator version 3.0 (1150)
 - Linux: open-iscsi 2.0-865
 - e. There may exists **2TB volume capacity limitation** on some initiators running 32bit OS.
5. Stackable function (for N5200B/BR PRO and 1U4500S/R only) : Support of stackable function across Thecus N5200/1U4500 series NASes.
 - a. **The concurrent connection on target iSCSI volume of Thecus NAS will be limited to 1 if the initiator comes from other Thecus NASes.**
 - b. The internal file system format of stackable target is ReiserFS
6. 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.



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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, click on “Expand” button to resize the total capacity. Otherwise, you may see additional capacity was added into the snapshot partition.
8. Since firmware v2.00.01, the option “Add new disk as spare disk” has been removed.
9. Supports the following USB wireless dongles only. And it has to be installed before NAS booting up, no PnP.
 - [ZyDAS ZD1211]
 - a. 3Com 3CRUSB10075 (Manufacture ID: 6891, Device ID: A727)
 - b. Zyxel G220USB (Manufacture ID: 0586, Device ID: 3401)
 - c. PCI GW-US54mini (Manufacture ID: 14EA, Device ID: AB13)
 - [ZyDAS ZD1211B]
 - d. Zyxel ZyAIR G-220 V2 (Manufacture ID: 0586, Device ID: 340F)
10. Some attributes may not be included with files and folders when copying to a USB drive with FAT32 format.
11. 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 can not be performed due to FAT file system limitation.
 - Files created by Mac OS X like DS_Store can not be copied to the FAT16/32 USB drive.
12. NFS share is limited to public folders. In case you enable an NFS share on non-public (ACL) folder, the NFS client could successfully mount it but won't be able to read/write files.
13. 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
14. If AC power lost during RAID building, admin has to manually resume it through Web GUI.
 - a. You will see "Total Capacity: N/A" after building process completed.
 - b. Manually remove RAID.
 - c. Create RAID again.
15. 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 rebooting or shutdown, administrator has to manually add spare in Admin Web GUI to start the RAID rebuilding.
16. When adding an HDD into JBOD RAID, all services such as WebDisk, SMB/CIFS, and FTP will be temporarily disabled. Once the JBOD resizing completes, all services will be turned on according to original settings.



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17. To enable ADS support for Small Business Server 2003, we recommend do not install ISA server. Otherwise, 1U4500 may fail to join the AD.
18. Mac OS Limitations
 - a. 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.
 - b. Mac OS 9 and Mac OS X can not see files on the network with names made up of over 32 characters.
 - c. Mac OS 8.x/9.x only support local character encoding on file names (without Unicode support).
 - d. 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.
 - e. 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.
? [] / \ = + < > ; : " , | *
f. Writing a file larger than 2 GB is not allowed by MAC OS-9.
19. NAS needs about 3~5 minutes to broadcast/register itself to other Mac OS through AppleTalk after booting up and service enabled.
20. For Mac users, NAS user accounts created in old firmware may fail to log in before admin re-entering the user's password. SMB/CIFS users don't have this issue.
21. WebDisk : Only UTF-8 file name is supported.
22. File size has to be less than 1GB to be uploaded to the NAS from web browsers. FTP software has no such limitation.
23. 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.
24. The following characters are not allowed to be included in the name used for files or folders on the NAS.
/ \ : * ? " < > | [] = + ; ,
25. When copying a file that uses superscript in its file name (common with some international character sets), the date and time attributes may not be properly set on the NAS for that particular file.
26. File and directory attributes can not be modified by an FTP client when the NAS FTP server is enabled.
27. Anonymous FTP user could upload files into public folders but could not delete them.
28. File system check page is in English, no multilingual.
29. Disk Power Management : some HDD may not respond to "idle spin down" command, and they won't get into stand by mode even if the specified idle time had been reached.
30. Stackable function (for N5200B/BR PRO and 1U4500S/R only): To avoid the RAID



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name confliction while combined different RAID sets in one NAS by using disk roaming, the target NAS should modify the RAID name first before inserting the roaming RAID set.

31. Beep Notification : beep notification will be turned on automatically when upgrade to or re-install firmware v2.00.04. This is to remind NAS administrator in case any critical event happens; such as RAID degraded.
32. UPnP function only works on WAN interface.
33. The create date is the same with modify date for every file copied into the NAS.
34. 1U4500/N5200/N5200PRO supports Setup Wizard v1.1.6 or later.
35. Single file size upper limitation: 2TB
36. The file downloaded from the NAS via Microsoft IE might include extension index number in its file name.
37. Windows 95/98 clients can not display files with double-byte file name correctly.
38. Because of Windows 95/98 compatibility issues, share folder name may have a problem when it is longer than 12 characters.

[Known Problems]

1. The HDD LED should blink green to indicate the HDD read/write activity. Please apply "ledpatch_1.00.00.2a.bin" in case you see it's red. The patch file is available here: http://www.thecus.com/Downloads/ledpatch_1.00.00.2a.bin.
 - 1) Load the patch just like upgrading a firmware. [Admin Web GUI: System / Firmware Upgrade / Browse / ledpatch_1.00.00.2a.bin / Apply]
 - 2) It requires rebooting to take effect.In addition, during the NAS booting, the first 50 seconds, HDD LED may partially glow red or orange. It's a normal behavior and no worries about that please! Once the booting completes, the LED will blink green when reading/writing HDD.
2. On system log page, you will see the following messages whenever the NAS boots up. It doesn't really mean there had been a disk problem. Actually, it means "the NAS successfully boots up and RAID configuration is checked OK".

```
2006/09/17 15:49:52 1U4500 : mdadm: /dev/md0 has been started with 5 drives.
2006/09/17 15:49:58 1U4500 : Healthy: The system 1U4500 is recovered from the disk problem.
```
3. Disk Power Management is not ready in firmware v1.00.03 and earlier versions. It has been implemented since v1.00.04.
4. Could not completely delete share folders if SMB/CIFS users are using the share files.
5. Web GUI : Can not login Web UI when the NetBIOS name is with an underscore.
6. Failed to edit or delete a folder that its folder name contains a superscript "".
7. MAC OS 9 Apple network browser sometimes freezes for 5~10 minutes after selecting 1U4500; however, using afp://IP always works fine on both MAC OS-9/X
8. FTP client can list up to 2000 files in a single folder.
9. Using samba protocol in MAC OS will not accept file names with blank characters in tail.



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10. Cannot handle DHCP IP assignment with more than one default gateways.
11. Nsync source cannot detect the shutdown or connection lost of target peer.
12. Stackable error handling while target iSCSI volume removed or changed during initiator file transfer in progress.
13. AD users cannot access file via AFP on MAC OS.
14. IE7 will show certification error alert while user access WEB admin UI.

[Attention]

- 1. During firmware upgrade process, it is imperative that user DO NOT turn off the power to the 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. When installing the Windows Wizard program on WinXP Professional SP1 or SP2, the firewall UDP ports 10000 and 10001 need to be opened.
3. 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.
4. Hardware reset button triggers the NAS to reset its network settings and administrator password.
5. Users should obey the international RF regulatory rules as they set up the wireless RF channel on the NAS. The RF operating channels for different regions have been specified as following. Thecus has no responsibility for users attempting to violate the international RF regulation.
 - 11 for N. America
 - 14 Japan
 - 13 Europe (ETSI)
 - 2 Spain
 - 4 France