HP MediaSmart Home Server

National Capital Technology and Computer User's Group

Lorrin R. Garson

March 5, 2008

The HP MediaSmart Server

Dimensions: 5.5”W, 9.8”H, 9.2”D

Background

- Product announced by Bill Gates at the Consumer Electronics Show on January 7, 2007.
- Released to manufacturing on July 16, 2007.
- First products for sale in November 2007 (Hewlett Packard).

Competitors

- Iomega HomeCenter Server. Due 1st quarter 2008. (see http://mswhs.com/2007/11/05/iomega-homecenter-server/)
- LaCie: something in late 2008 (see http://www.wegotserved.co.uk/?s=iomega+homecenter)
- Several products available in Europe

Availability

- Two MediaSmart Home Server models:
  - EX470 at $599.99 (One 500 GB internal drive)
  - EX475 at $749.99 (Two 500 GB internal drives)
- Hewlett Packard
- Amazon
- Newegg
- Circuit City
- Staples
- B&H Photo

Specifications (Model EX475)

- AMD 1.8 GHz 64-bit Sempron® processor
- OS: Microsoft “Windows Home Server” (based on Windows Server 2003 SP2)
- 512 MB DDR2 DRAM
- Network: 10/100/1000 GBit RJ45 Ethernet
- Four USB 2.0 ports; 1 eSATA port
- Two SATA 7200 RPM 500 GB drives

Specifications (cont.)

- Total of 4 internal hard drive bays
- Max Capacity: Only limited by number of internal & external disk drives
- Supports both wired and wireless PCs (via wireless router)
- Up to 10 user accounts plus “Guest”
- Headless—access via Windows Home Server Console on any attached PC

Key Functions

- Backup using Single Instance Storage
- File sharing [acts like a NAS (Network Attached Storage)]
  - Word processing files, etc.
  - Photos
  - Music (including iTunes)
  - Videos
  - Software

Key Functions (cont.)

- Folder level security for each user
  - None: no access
  - Read: only read files
  - Full: read, write, modify, delete, etc.
- Folder level duplication across multiple disks (“RAID-1 like”, but not mirroring)

Key Functions (cont.)

- General remote access via the Internet
  - A “Windows Live ID” from Microsoft is needed to create a domain name
  - Access via User-ID & password
- Remote access to home computers via the Internet & “Remote Desktop”
  - Windows XP Professional
  - Windows Vista Ultimate, Business & Enterprise
- Printer sharing (networked printer)

Key Functions (cont.)

- Media streaming to various devices
  - Xbox 360
  - D-Link MediaLounge DSM-320 Media Player
  - Roku SoundBridge M1000 Network Music Player
  - Roku SoundBridge M2000 Network Music Player
- For more information see
  http://www.microsoft.com/windows/windowsmedia/devices/wmconnect/faq.aspx#3_2

Windows Home Server Storage

- “Drive Extender” technology
  - Drives in or attached to the server can act as a combined storage pool or as individual drives
  - Drives in the storage pool just appear as “shared folders” on each desktop, not as a lettered drive (“D”, “E”, etc.)
  - Any size SATA, eSATA or USB drives can be used, i.e., mix and match

MediaSmart Server: Installation

- The installation & troubleshooting manual is quite thorough and readable

- One hour to read documentation & think
- One hour to install

— Alternatively—

MediaSmart Server: Installation

- **Don’t** read documentation or think
- 3-5 hours to install

Our Home Network

- Two HP d4996t desktop computers running Windows Vista Ultimate.
- One Dell XPS M140 laptop computer running Windows XP Media Center (SP2)
- A U.S. Robotics 8-port 10/100/1000 Mbps “Gigabit” switch
- D-Link Wireless Router
- Cat-6 cabling in the house
- ISP: Verizon FiOS 15 Mbps ↓ and 2 Mbps ↑

MediaSmart Home Server Backup

- PCs are backed up using an image-based system (VSS, Volume Shadow Services)
  - Operates at the cluster level (~4KB) and not the file level
  - A cluster is stored only once, regardless whether it comes from multiple computers
  - Single-instance storage

Frequency of Backups

- Nightly (midnight to 6:00 am)
- Backup Management
  - Set number of months to keep the first backup of the month (3)
  - Set number of weeks to keep the first backup of the week (3)
  - Set number of days to keep the first backup of the day (3)

What Happens During Backup?

- Home computers are backed up one after another in the time period set
- Windows updates are installed and Windows Home Server restarts if needed
- On Sunday “Backup Cleanup” runs

Backup: Time to Execute

Completion Time for Backups

Computer	Amount Data Stored (GB)	Initial Backup Time	Nightly Backup Time (min)
Lorrin's desktop	298	3 hrs 1 min	15.8
Ann's desktop	173	1 hr 13 min	10.1
Family laptop	35	54 min	6.5

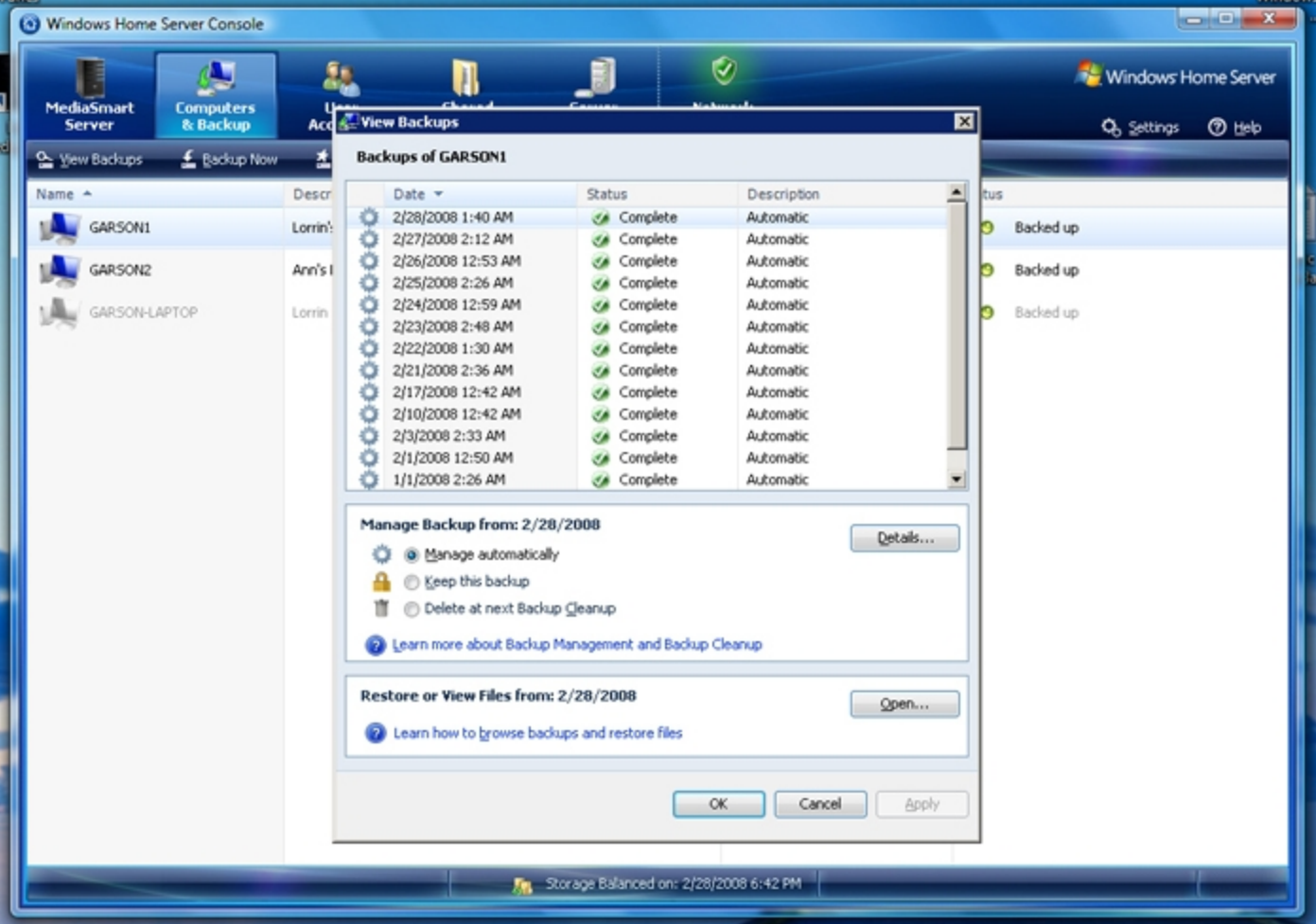
Backup: Storage Used

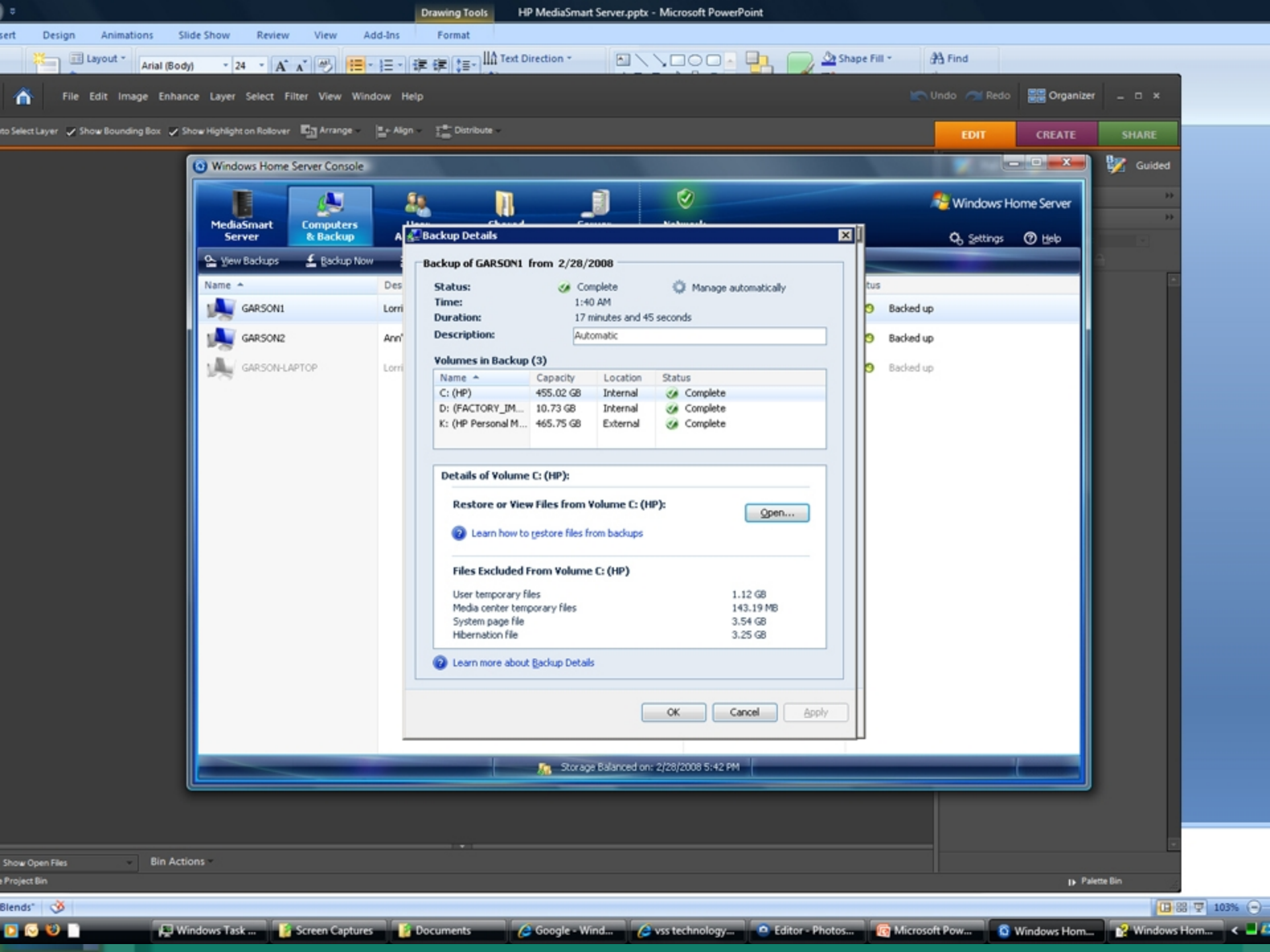
- The total amount of data stored on the three computers on the network is 506 GB
- The total amount of backup storage consumed on the server is 289 GB
  - This includes complete system backups plus daily backups starting on December 24, 2007

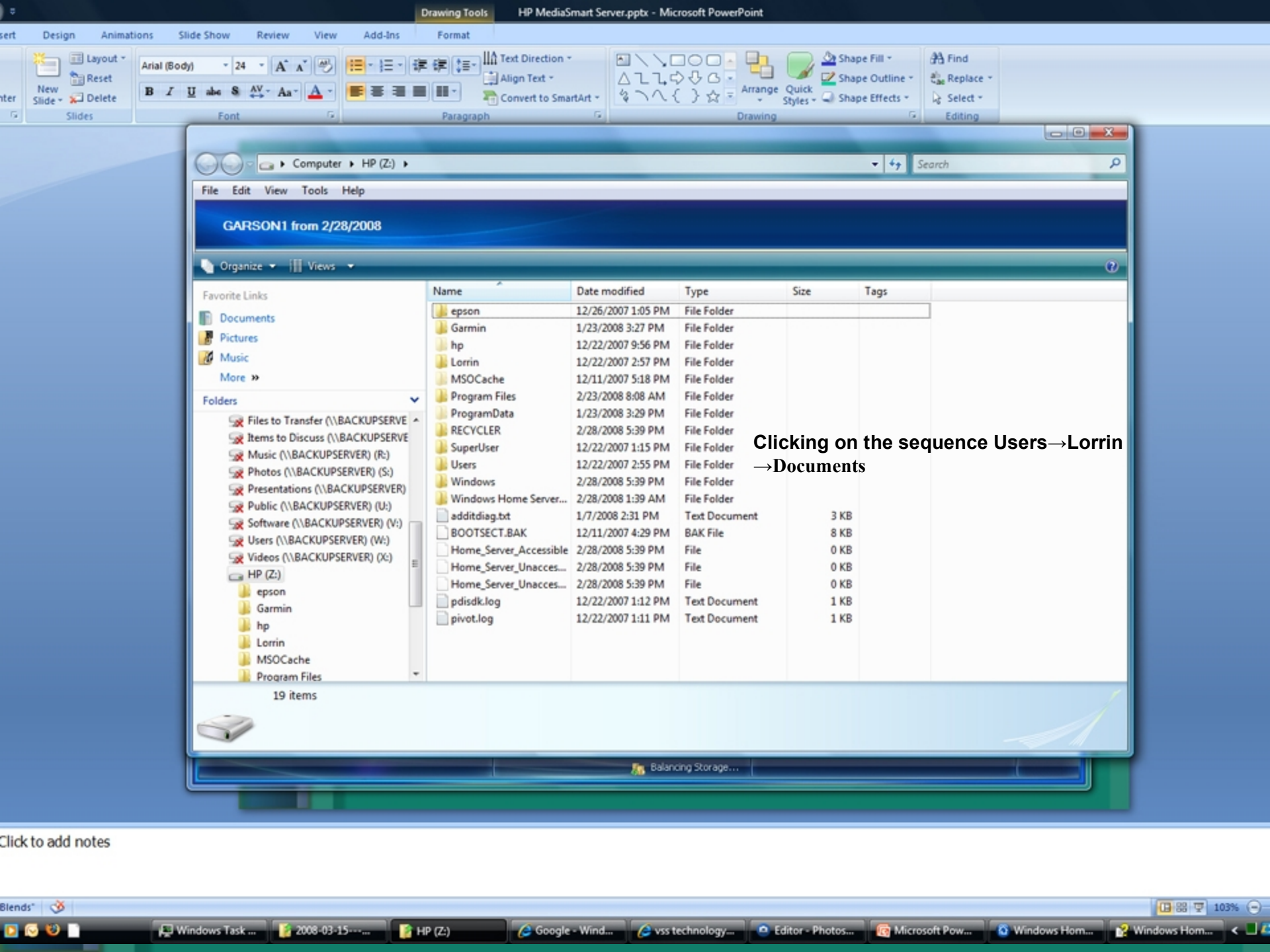
Data Recovery

- Individual files and folders can be restored
- Entire home computer systems can be restored
  - Two restoration discs are provided:
    - Server Recover Disc
    - PC Restore Disc

Restoring Folders and Files…




Drawing Tools
HP MediaSmart Server.pptx - Microsoft PowerPoint
Windows Home Server Console
MediaSmart Server
Computers & Backup
Windows Home Server
Settings
Help
View Backups
Backup Now
Name
GARSON1
GARSON2
GARSON-LAPTOP
Backed up
Backup Details
Backup of GARSON1 from 2/28/2008
Status: Complete
Manage automatically
Time: 1:40 AM
Duration: 17 minutes and 45 seconds
Description: Automatic
Volumes in Backup (3)
Name
Capacity
Location
Status
C: (HP) 455.02 GB Internal Complete
D: (FACTORY_IM... 10.73 GB Internal Complete
K: (HP Personal M... 465.75 GB External Complete
Details of Volume C: (HP):
Restore or View Files from Volume C: (HP):
Open...
Learn how to restore files from backups
Files Excluded From Volume C: (HP)
User temporary files 1.12 GB
Media center temporary files 143.19 MB
System page file 3.54 GB
Hibernation file 3.25 GB
Learn more about Backup Details
OK
Cancel
Apply
Storage Balanced on: 2/28/2008 5:42 PM


Drawing Tools
HP MediaSmart Server.pptx - Microsoft PowerPoint
Design
Animations
Slide Show
Review
View
Add-Ins
Format
Computer ▸ HP (Z:) ▸
Search
File Edit View Tools Help
GARSON1 from 2/28/2008
Organize
Views
Favorite Links
Documents
Pictures
Music
More »
Folders
Files to Transfer (\\BACKUPSERVE
Items to Discuss (\\BACKUPSERVE
Music (\\BACKUPSERVER) (R:)
Photos (\\BACKUPSERVER) (S:)
Presentations (\\BACKUPSERVER)
Public (\\BACKUPSERVER) (U:)
Software (\\BACKUPSERVER) (V:)
Users (\\BACKUPSERVER) (W:)
Videos (\\BACKUPSERVER) (X:)
HP (Z:)
epson
Garmin
hp
Lorrin
MSOCache
Program Files
Name
Date modified
Type
Size
Tags
epson 12/26/2007 1:05 PM File Folder
Garmin 1/23/2008 3:27 PM File Folder
hp 12/22/2007 9:56 PM File Folder
Lorrin 12/22/2007 2:57 PM File Folder
MSOCache 12/11/2007 5:18 PM File Folder
Program Files 2/23/2008 8:08 AM File Folder
ProgramData 1/23/2008 3:29 PM File Folder
RECYCLER 2/28/2008 5:39 PM File Folder
SuperUser 12/22/2007 1:15 PM File Folder
Users 12/22/2007 2:55 PM File Folder
Windows 2/28/2008 5:39 PM File Folder
Windows Home Server... 2/28/2008 1:39 AM File Folder
additdiag.txt 1/7/2008 2:31 PM Text Document 3 KB
BOOTSECT.BAK 12/11/2007 4:29 PM BAK File 8 KB
Home_Server_Accessible 2/28/2008 5:39 PM File 0 KB
Home_Server_Unacces... 2/28/2008 5:39 PM File 0 KB
Home_Server_Unacces... 2/28/2008 5:39 PM File 0 KB
pdisdk.log 12/22/2007 1:12 PM Text Document 1 KB
pivot.log 12/22/2007 1:11 PM Text Document 1 KB
19 items
Balancing Storage...
Clicking on the sequence Users→Lorrin →Documents
Click to add notes

Drawing Tools HP MediaSmart Server.pptx - Microsoft PowerPoint

sert Design Animations Slide Show Review View Add-Ins Format

Layout Reset Delete New Slide Slides

Arial (Body) 24 Font

Text Direction Align Text Convert to SmartArt Paragraph

Arrange Quick Styles Shape Fill Shape Outline Shape Effects Drawing

Find Replace Select Editing

Computer ▸ HP (Y:) ▸ Users ▸ Lorrin ▸ Documents ▸

Search

File Edit View Tools Help

GARSON1 from 2/28/2008

Organize Views Slide Show Burn

Favorite Links
Documents
Pictures
Music
More »

Folders
RECYCLER
SuperUser
Users
Default
IUSR_NMPR
Lorrin
AppData
Contacts
Desktop
Documents
Downloads
Favorites
Links
Music
Pictures
Saved Games
Searches
Videos

Name Date taken Tags Size Rating

ACS Style Guide, 3rd Edition
ACS Style Guide, 4th Edition
ACS-CAS Staff
BACKUP WORKING ON PHOTOS
Bicycles
Books of Interest
Cake Photos from Tom Keys, Brians Wedding
Christmas
Clothing
Computer Notes
Computer Notes, OLD
Computer, Other
Digital Photographs-2000
Digital Photographs-2001
Directions
Fax
Food & Drink
Generated PDF Files
GPS
Herman Skolnik Award Jury
House, 9929 Bickley Court
Humorous Items
Important Dates
Items to Read
Logs, Personal
MS-PowerPoint Templates
MS-Word Templates
MS-Word Templates---Ann
My Albums
My Index Files
My RoboForm Data
Nautical Information
OLLI
Palm OS Desktop
Practice Photos
Presentations
Private Information & Letters
Publications & Resumes
Purchases, General
Purchases, Web
Rachel Pictures
Radio
References
Remote Assistance Logs
Scanned Documents
Security---Privacy Issues
Stuff for Brian
Telephone
TomTom
TV--HD
TV--Verizon FiOS
Updater5
Washington Metro
XM Satellite Radio 2004
1994-9160.pdf
Africa--Tropics.ROXIO
Cryptainer-C
cxp1705
Data_011108_073338.roxio
Default.rdp
Limited Warranty and Support Guide.pdf
Notes, Trip to Florida Jan 2-8, 2007.doc

62 items

Click to add notes

Blends*

103%

Windows T... Screen Cap... Documents Documents Google - W... vss technol... Editor - Ph... Microsoft P... Windows H... Windows H...

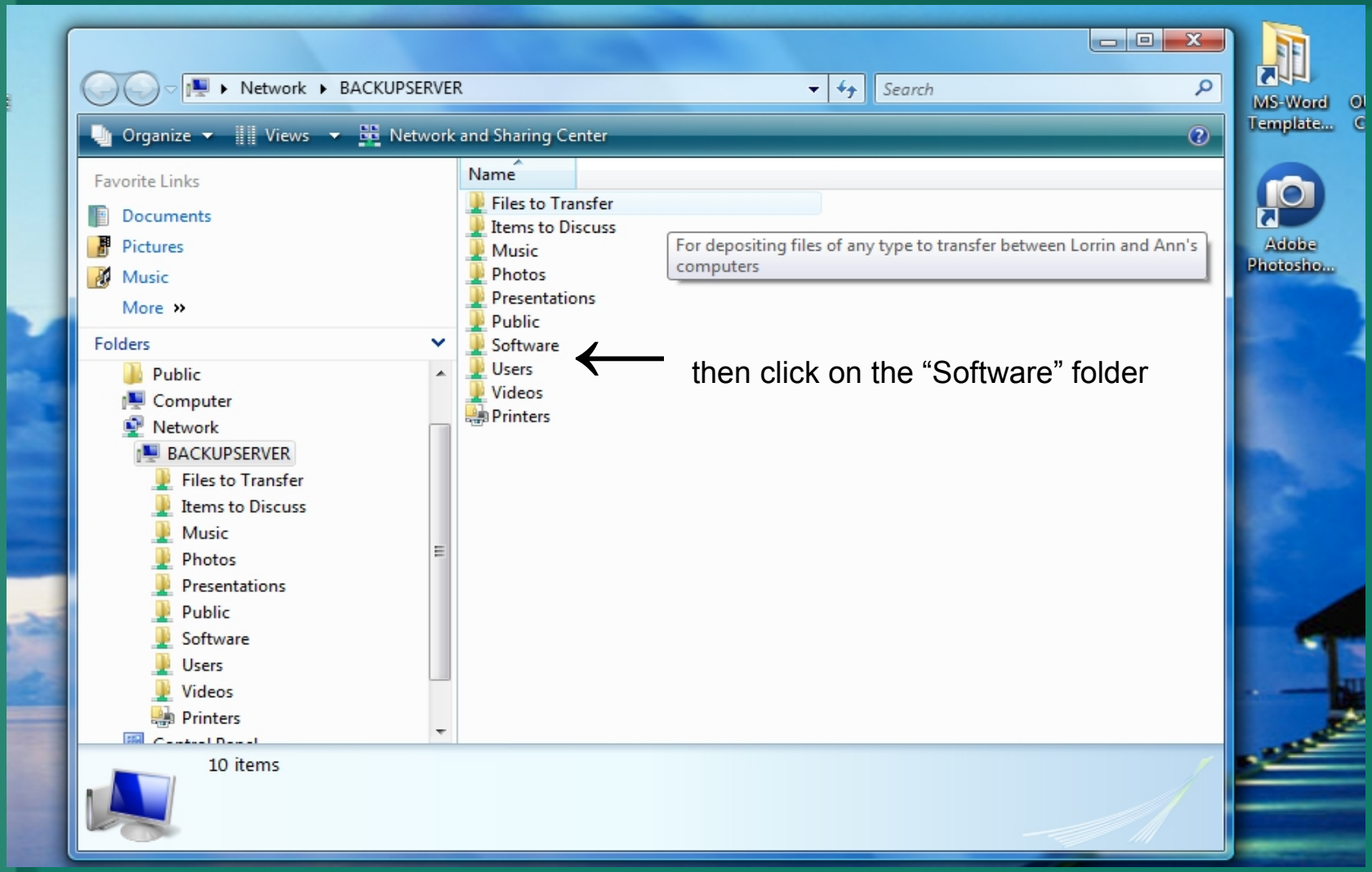
MediaSmart Home Server

What files on the server look like…

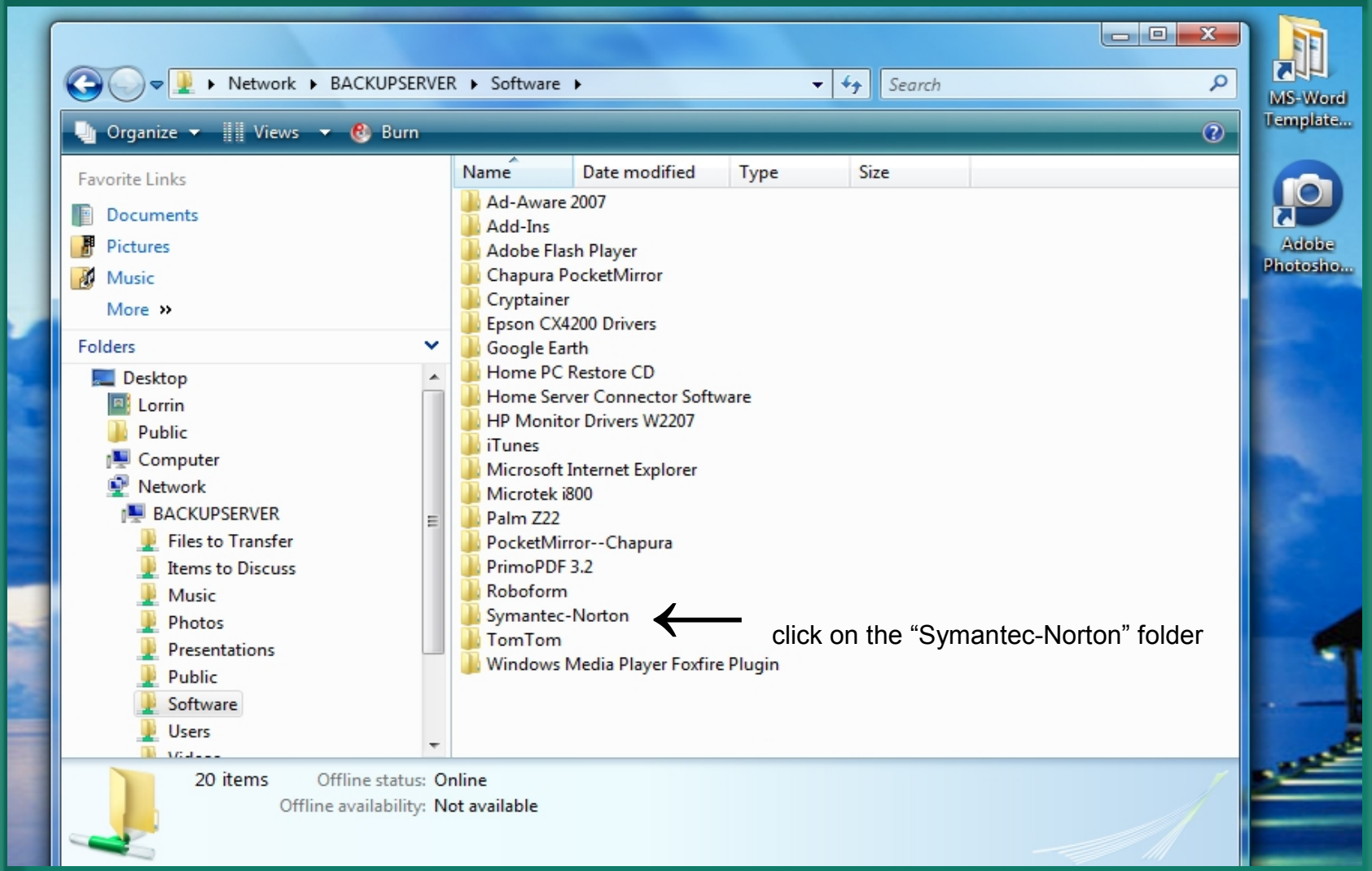
The Desktop

Adobe Reader 8
Windows Media Center
EPSON Scan
iTunes
Help and Support
HP Total Care Advisor
HP MediaSm...
GoodSync
Cryptainer PE
Shared Folders ...
click on the “Shared Folders” folder
QuickTime Player
Norton Intern...
Ad-Aware 2007
Mozilla Firefox
Internet Explorer
Microsoft Student wi...
Encarta Kids 2008
Learning Essentials f...
Encarta Dictionaries
Google Earth
Recycle Bin
Chapura Settings
Windows Remote ...
MS Word Template...
OUTSTAND... COMPUTE...
SHOPPING LIST.doc...
Notable Computer ...
Periodic Manual Ba...
Mahlzeiten... Dec 10, 200...
Adobe Photosho...
Rice wins Chinese he...
Afghan blast kills 5 p...
NATO confronts a fie...
Clinton throws the 'k...
53-56
Norton
HOME
Vienna, VA
27°
N/A
Thursday
Hi: 38°
Lo: 18°
Extended Forecast
Live Conditions
February 2008
28
Thursday
Windows Task Man...
Screen Captures
Google - Windows I...
11:29 AM

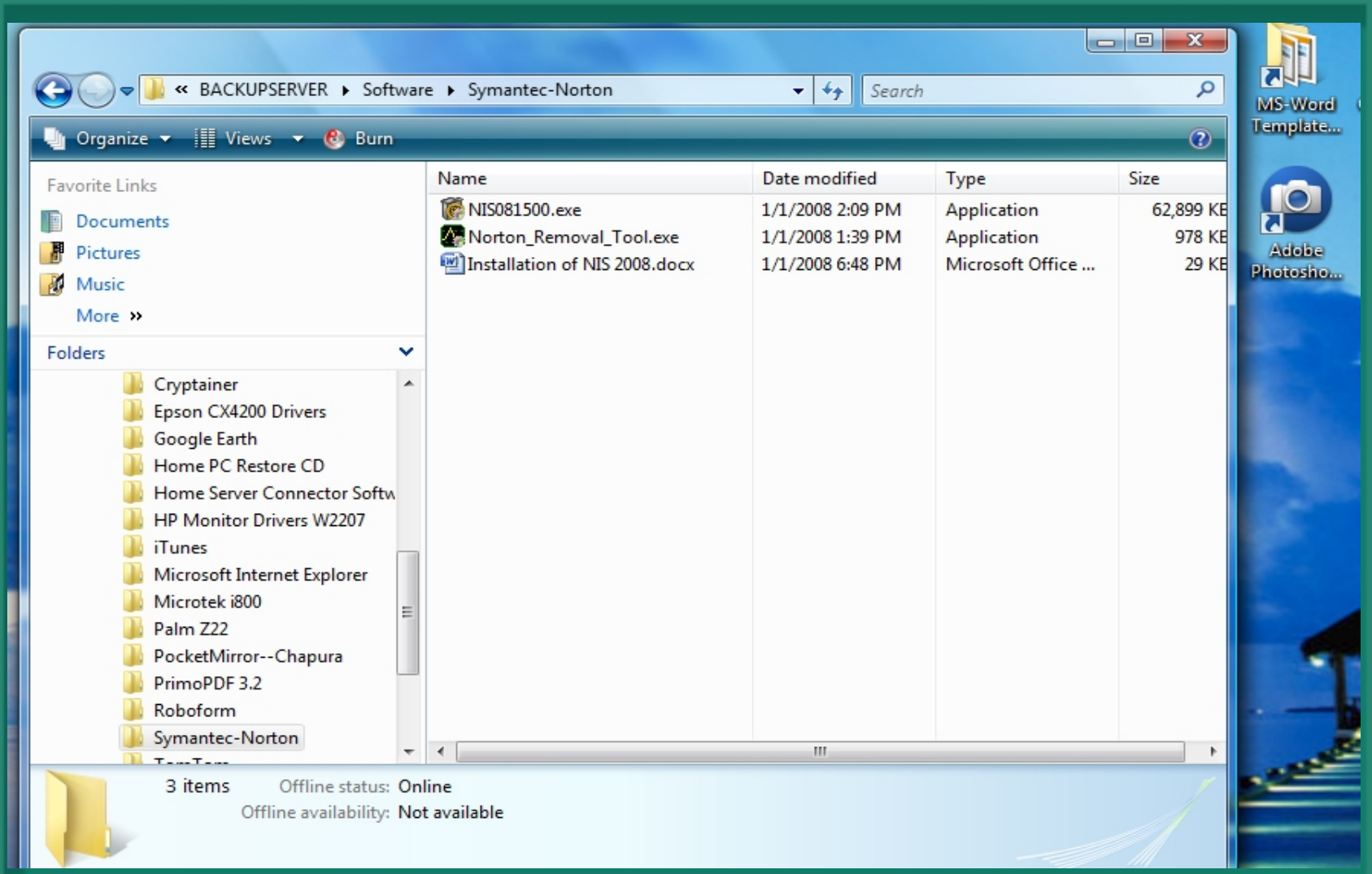
Shared folders on MediaSmart Server



After clicking on the “Software” folder…



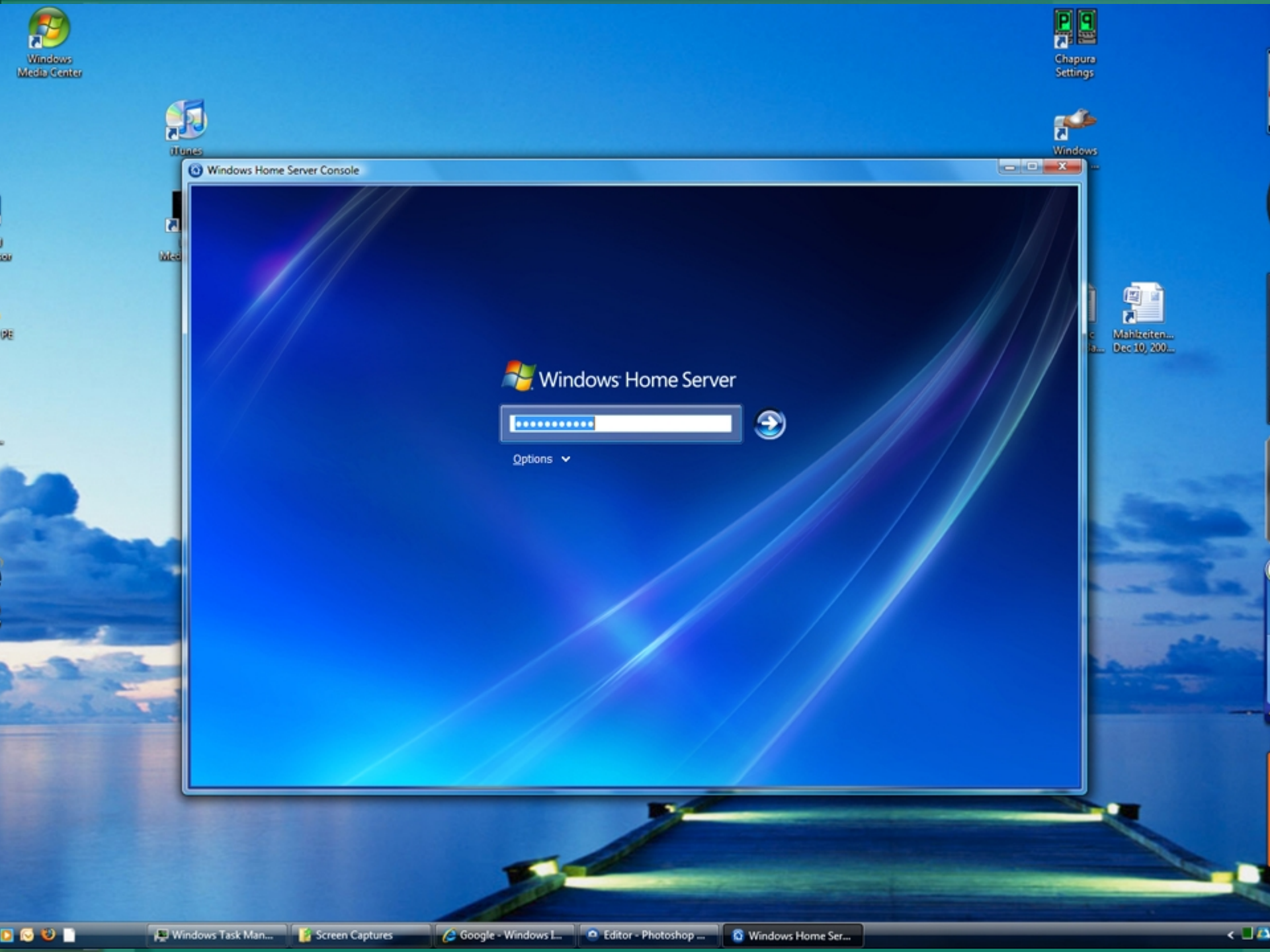
Contents of the “Symantec-Norton” folder…



MediaSmart Server

Looking at the server itself…

Adobe Reader 8
Windows Media Center
Chapura Settings
EPSON Scan
iTunes
Windows Remote ...
Help and Support
HP Total Care Advisor
HP MediaSm...
GoodSync
Cryptainer PE
MS Word Template...
OUTSTAND... COMPUTE...
SHOPPING LIST.doc...
Notable Computer ...
Periodic Manual 8a...
Shared
Adobe Photosho...
Norton Intern...
Ad-Aware 2007
Microsoft Student wi...
Encarta Kids 2008
Learning Essentials f...
Encarta Dictionaries
Google Earth
Internet
Internet Explorer
E-mail
Microsoft Office Outlook
Microsoft Office Word 2007
Mozilla Firefox
Cryptainer PE
Microsoft Office PowerPoint 2007
Backup and Restore Center
iTunes
Training Center
Adobe Reader 8
Windows Home Server Console
Click here
All Programs
Start Search
Lorrin
Documents
Pictures
Music
Games
Search
Recent Items
Computer
Network
Connect To
Control Panel
Default Programs
Help and Support
Windows Task Man...
Screen Captures
Google - Windows L...
Editor - Photoshop ...


Windows Media Center
Chapura Settings
Windows
Windows Home Server Console
Windows Home Server
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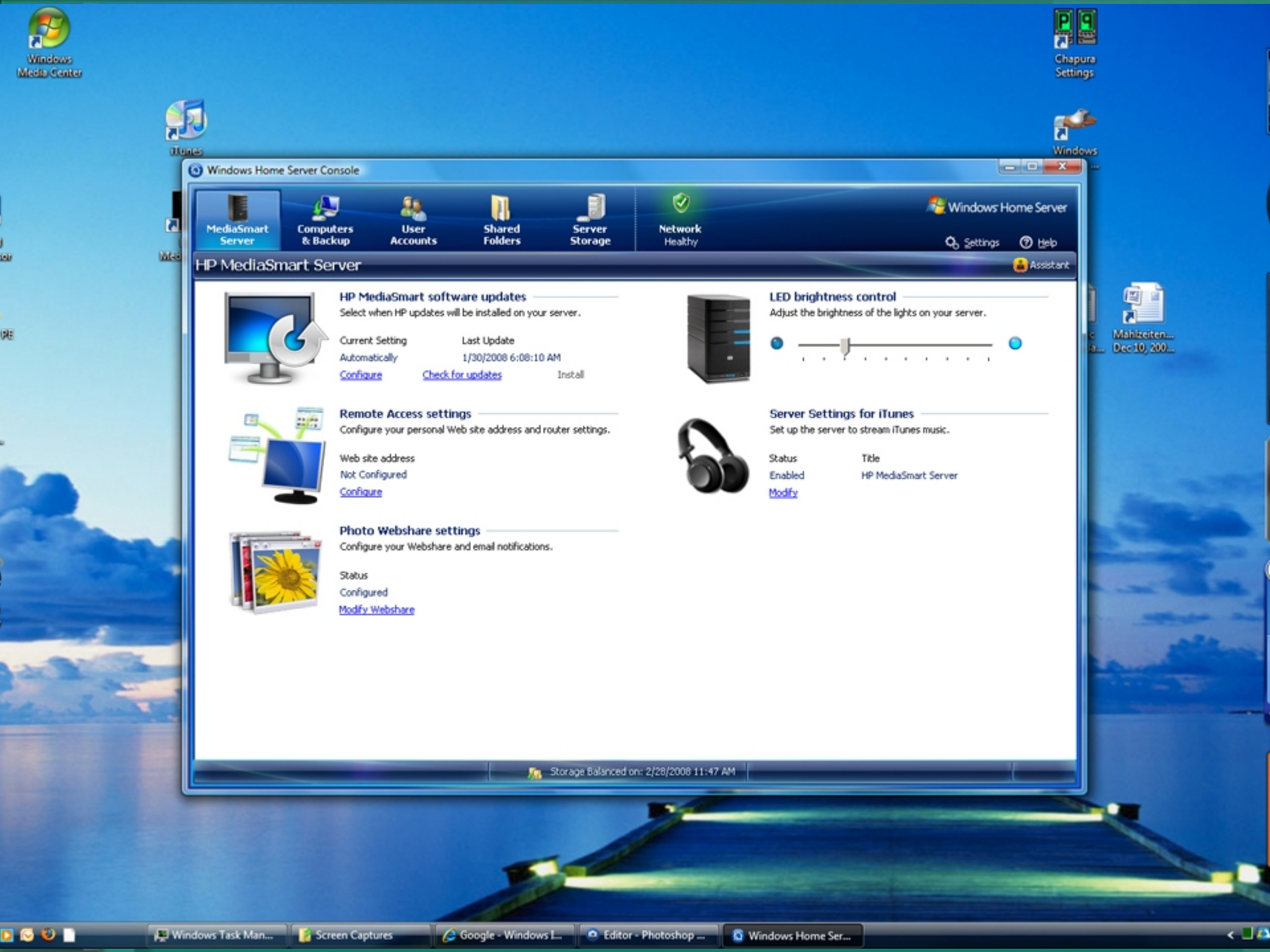
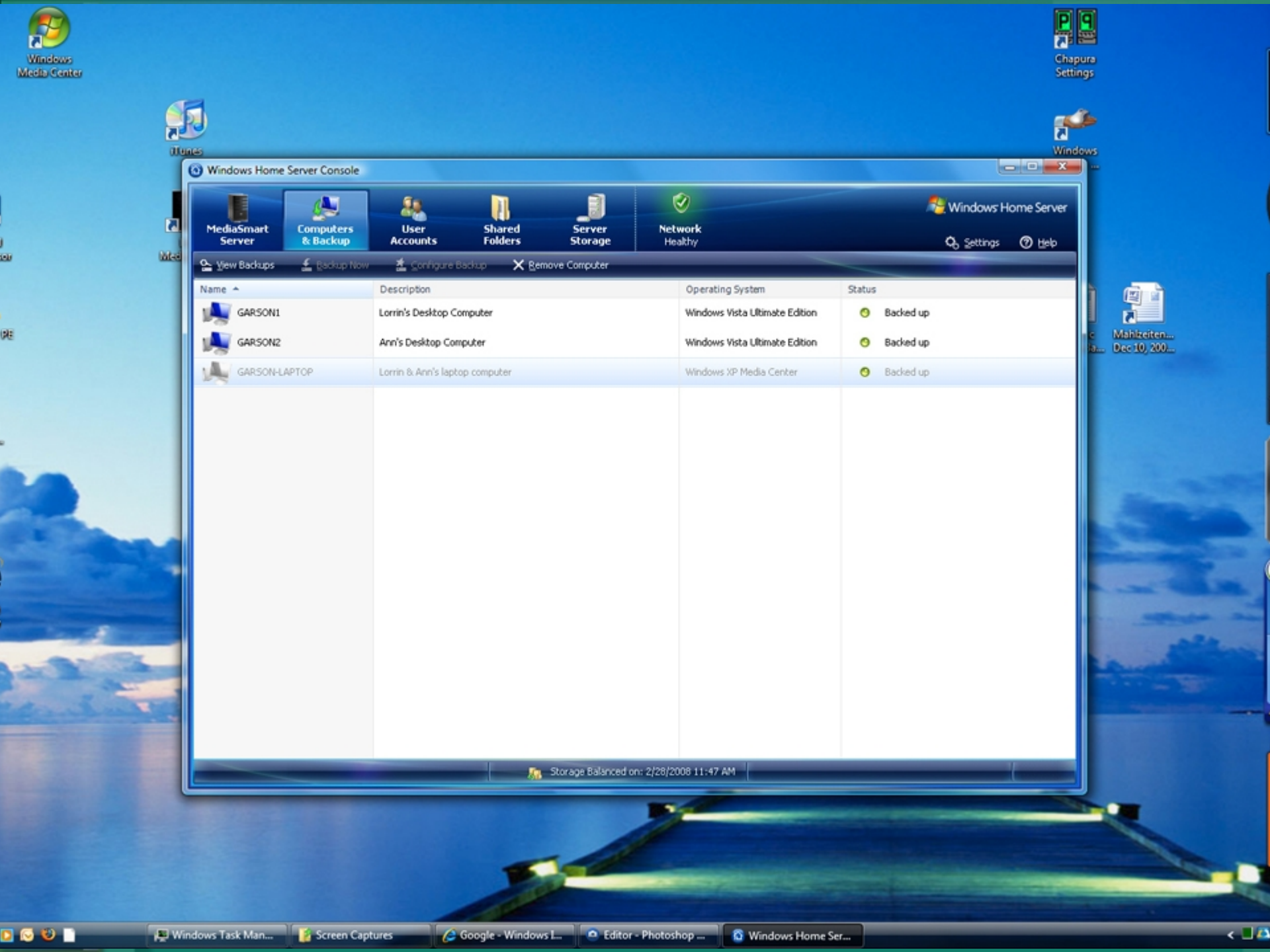
Windows Task Man...
Screen Captures
Google - Windows I...
Editor - Photoshop ...
Windows Home Ser...


Windows Media Center
Chapura Settings
Windows
Windows Home Server Console
MediaSmart Server
Computers & Backup
User Accounts
Shared Folders
Server Storage
Network
Healthy
Windows Home Server
Settings
Help
HP MediaSmart Server
Assistant
HP MediaSmart software updates
Select when HP updates will be installed on your server.
Current Setting
Automatically
Last Update
1/30/2008 6:08:10 AM
Configure
Check for updates
Install
LED brightness control
Adjust the brightness of the lights on your server.
Remote Access settings
Configure your personal Web site address and router settings.
Web site address
Not Configured
Configure
Server Settings for iTunes
Set up the server to stream iTunes music.
Status
Enabled
Title
HP MediaSmart Server
Modify
Photo Webshare settings
Configure your Webshare and email notifications.
Status
Configured
Modify Webshare
Storage Balanced on: 2/28/2008 11:47 AM
Windows Task Man...
Screen Captures
Google - Windows I...
Editor - Photoshop ...
Windows Home Ser...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User Accounts
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Healthy
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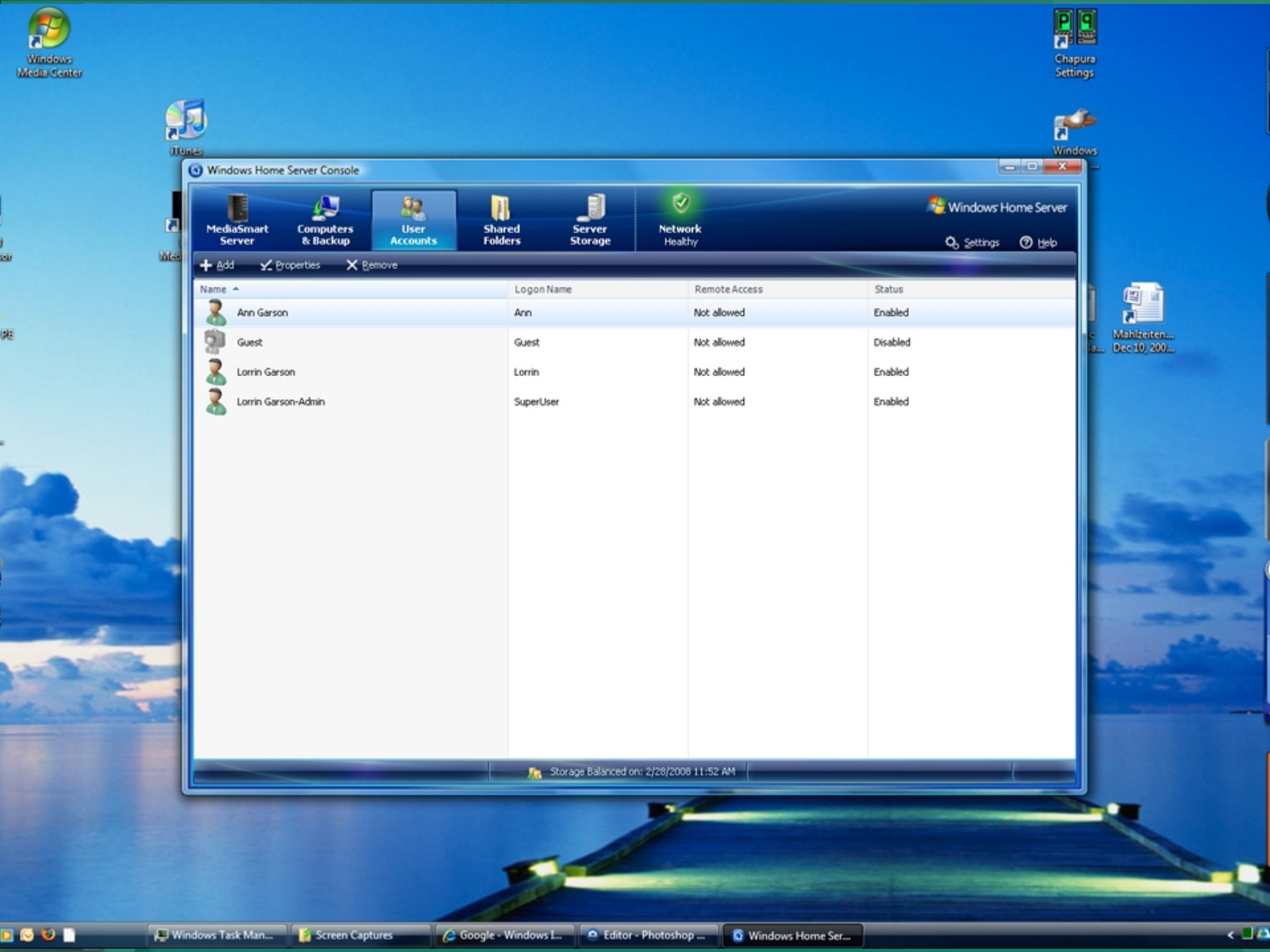
Settings
Help
View Backups
Backup Now
Configure Backup
Remove Computer
Name
Description
Operating System
Status
GARSON1
Lorrin's Desktop Computer
Windows Vista Ultimate Edition
Backed up
GARSON2
Ann's Desktop Computer
Windows Vista Ultimate Edition
Backed up
GARSON-LAPTOP
Lorrin & Ann's laptop computer
Windows XP Media Center
Backed up
Storage Balanced on: 2/28/2008 11:47 AM
Mahlzeiten... Dec 10, 200...
Windows Task Man...
Screen Captures
Google - Windows I...
Editor - Photoshop ...
Windows Home Ser...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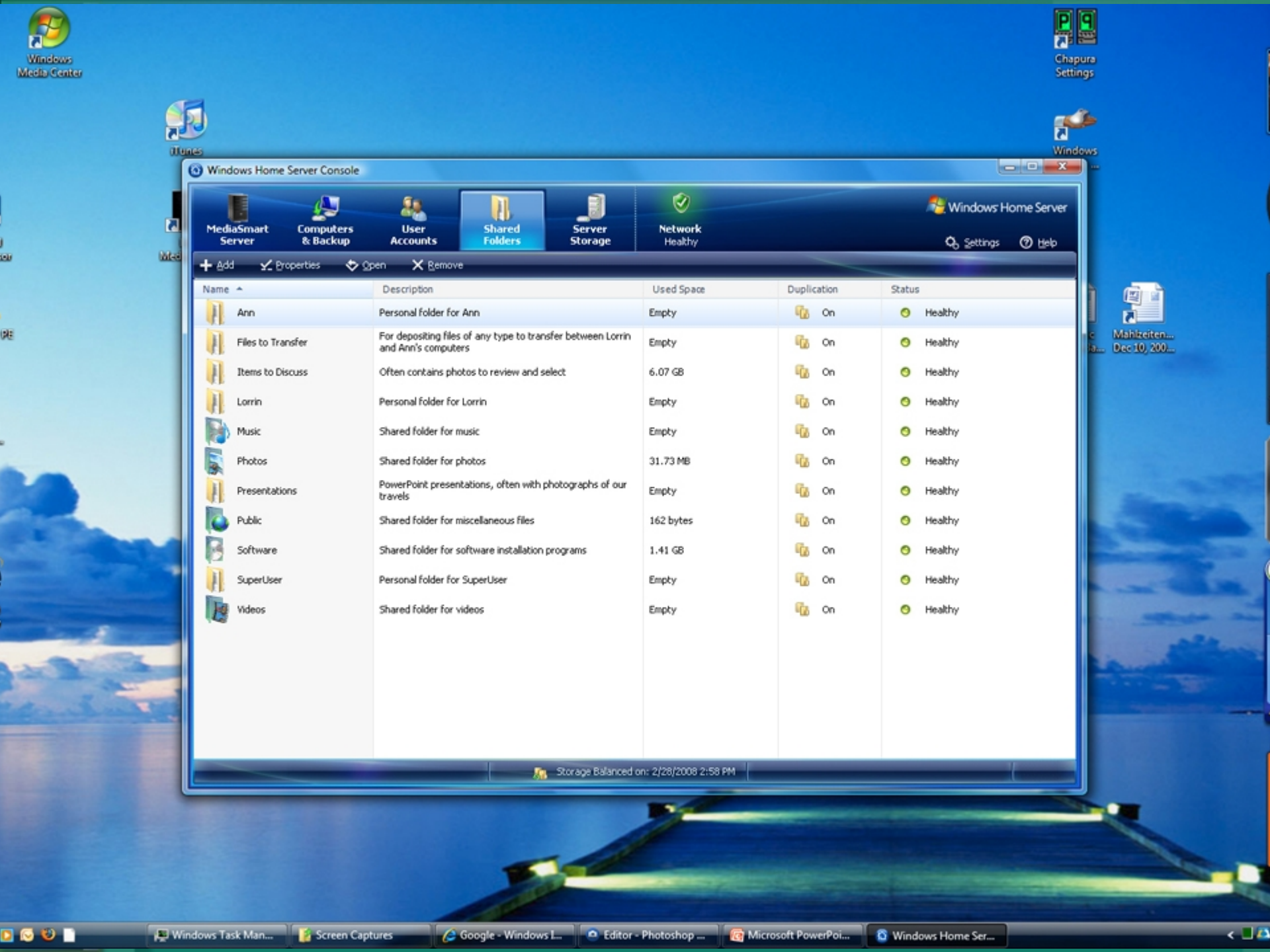
Healthy
Windows Home Server
Settings
Help
Add
Properties
Remove
Name
Logon Name
Remote Access
Status
Ann Garson
Ann
Not allowed
Enabled
Guest
Guest
Not allowed
Disabled
Lorrin Garson
Lorrin
Not allowed
Enabled
Lorrin Garson-Admin
SuperUser
Not allowed
Enabled
Storage Balanced on: 2/28/2008 11:52 AM
Windows Task Man...
Screen Captures
Google - Windows I...
Editor - Photoshop ...
Windows Home Ser...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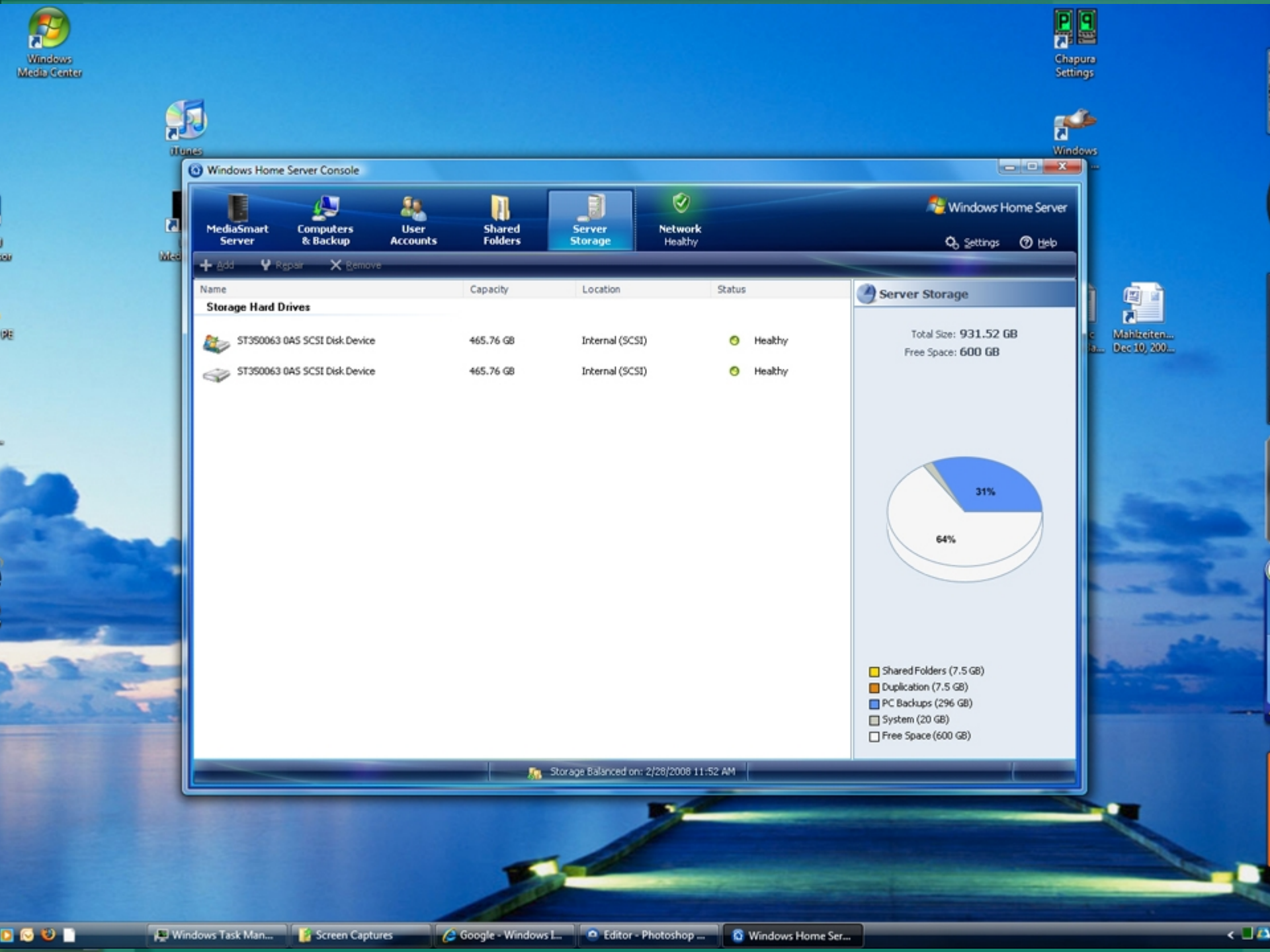
User Accounts
Shared Folders
Server Storage
Network
Healthy
Windows Home Server
Settings
Help
Add
Properties
Open
Remove
Name
Description
Used Space
Duplication
Status
Ann
Personal folder for Ann
Empty
On
Healthy
Files to Transfer
For depositing files of any type to transfer between Lorrin and Ann's computers
Empty
On
Healthy
Items to Discuss
Often contains photos to review and select
6.07 GB
On
Healthy
Lorrin
Personal folder for Lorrin
Empty
On
Healthy
Music
Shared folder for music
Empty
On
Healthy
Photos
Shared folder for photos
31.73 MB
On
Healthy
Presentations
PowerPoint presentations, often with photographs of our travels
Empty
On
Healthy
Public
Shared folder for miscellaneous files
162 bytes
On
Healthy
Software
Shared folder for software installation programs
1.41 GB
On
Healthy
SuperUser
Personal folder for SuperUser
Empty
On
Healthy
Videos
Shared folder for videos
Empty
On
Healthy
Storage Balanced on: 2/28/2008 2:58 PM
Windows Task Man...
Screen Captures
Google - Windows I...
Editor - Photoshop ...
Microsoft PowerPoi...
Windows Home Ser...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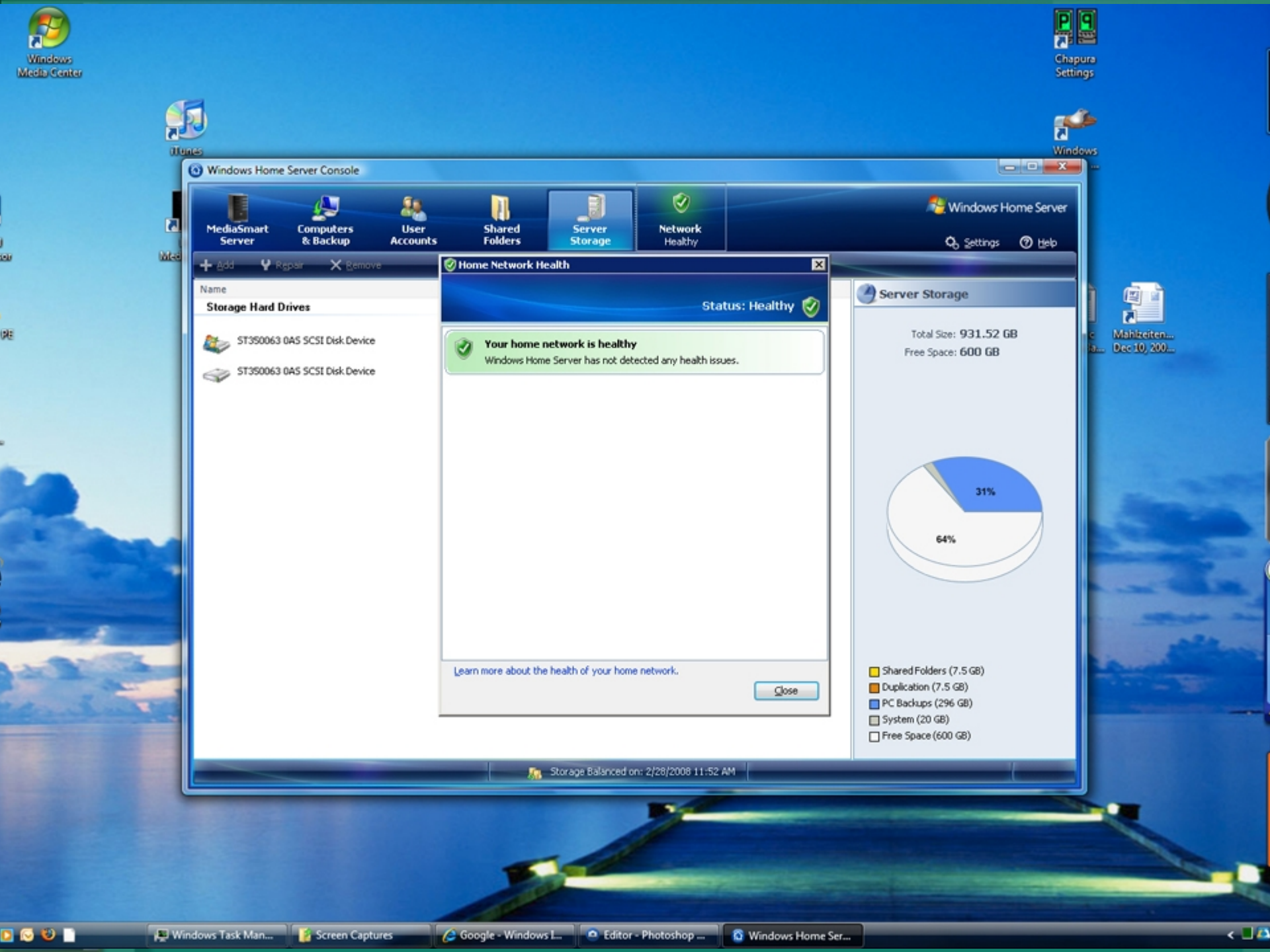
Windows Home Server
Settings
Help
Add
Repair
Remove
Name
Capacity
Location
Status
Storage Hard Drives
ST350063 0AS SCSI Disk Device
465.76 GB
Internal (SCSI)
Healthy
ST350063 0AS SCSI Disk Device
465.76 GB
Internal (SCSI)
Healthy
Server Storage
Total Size: 931.52 GB
Free Space: 600 GB
31%
64%
Shared Folders (7.5 GB)
Duplication (7.5 GB)
PC Backups (296 GB)
System (20 GB)
Free Space (600 GB)
Storage Balanced on: 2/28/2008 11:52 AM
Windows Task Man...
Screen Captures
Google - Windows I...
Editor - Photoshop ...
Windows Home Ser...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Shared Folders
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Network
Healthy
Windows Home Server
Settings
Help
Add
Repair
Remove
Name
Storage Hard Drives
ST350063 0AS SCSI Disk Device
ST350063 0AS SCSI Disk Device
Home Network Health
Status: Healthy
Your home network is healthy
Windows Home Server has not detected any health issues.
Learn more about the health of your home network.
Close
Server Storage
Total Size: 931.52 GB
Free Space: 600 GB
31%
64%
Shared Folders (7.5 GB)
Duplication (7.5 GB)
PC Backups (296 GB)
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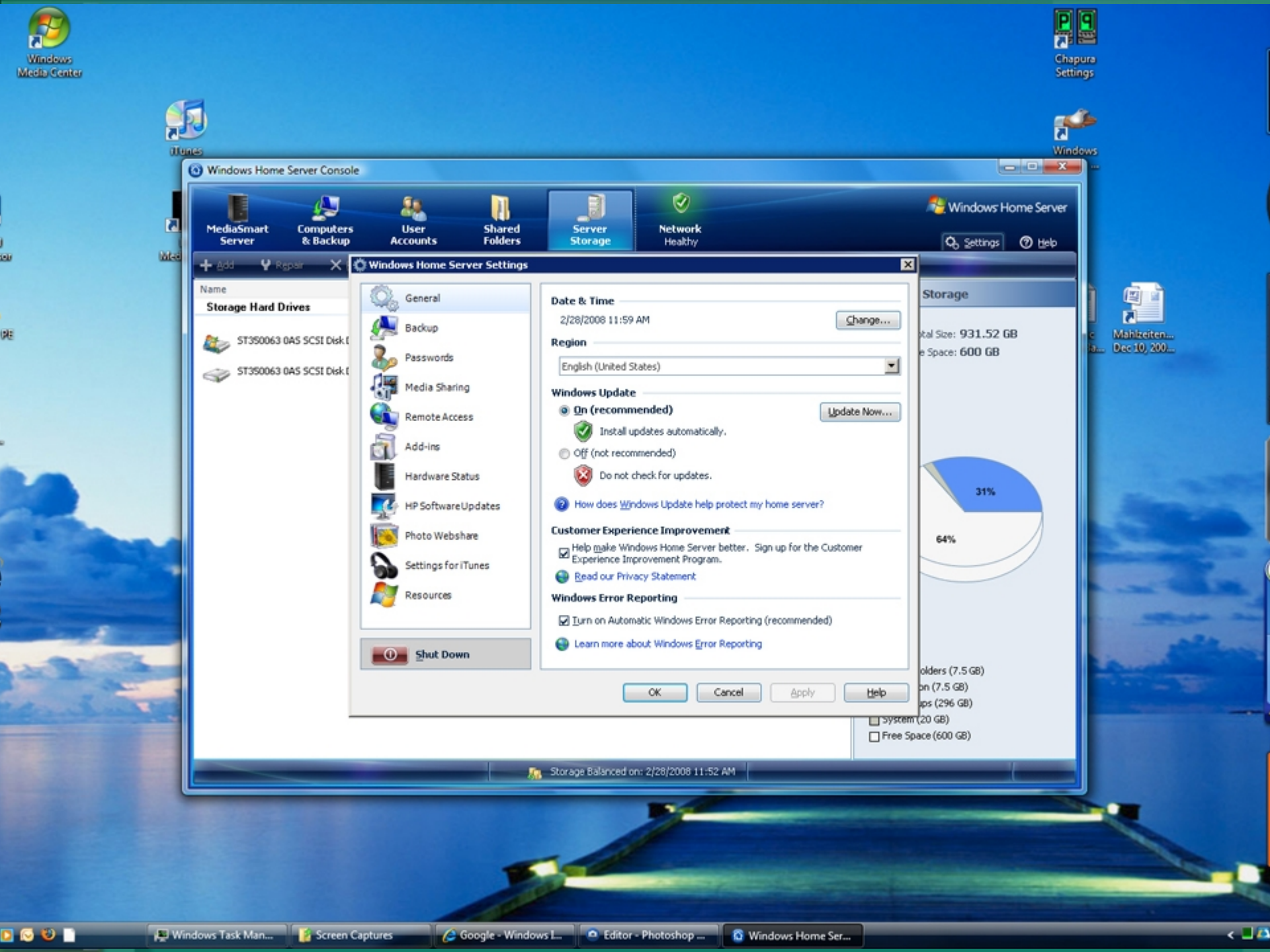
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Storage Hard Drives
ST350063 0AS SCSI Disk D
ST350063 0AS SCSI Disk D
Windows Home Server Settings
General
Backup
Passwords
Media Sharing
Remote Access
Add-ins
Hardware Status
HP SoftwareUpdates
Photo Webshare
Settings for iTunes
Resources
Shut Down
Date & Time
2/28/2008 11:59 AM
Change...
Region
English (United States)
Windows Update
On (recommended)
Update Now...
Install updates automatically.
Off (not recommended)
Do not check for updates.
How does Windows Update help protect my home server?
Customer Experience Improvement
Help make Windows Home Server better. Sign up for the Customer Experience Improvement Program.
Read our Privacy Statement
Windows Error Reporting
Turn on Automatic Windows Error Reporting (recommended)
Learn more about Windows Error Reporting
OK
Cancel
Apply
Help
Storage
Total Size: 931.52 GB
Space: 600 GB
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64%
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(7.5 GB)
(296 GB)
System (20 GB)
Free Space (600 GB)
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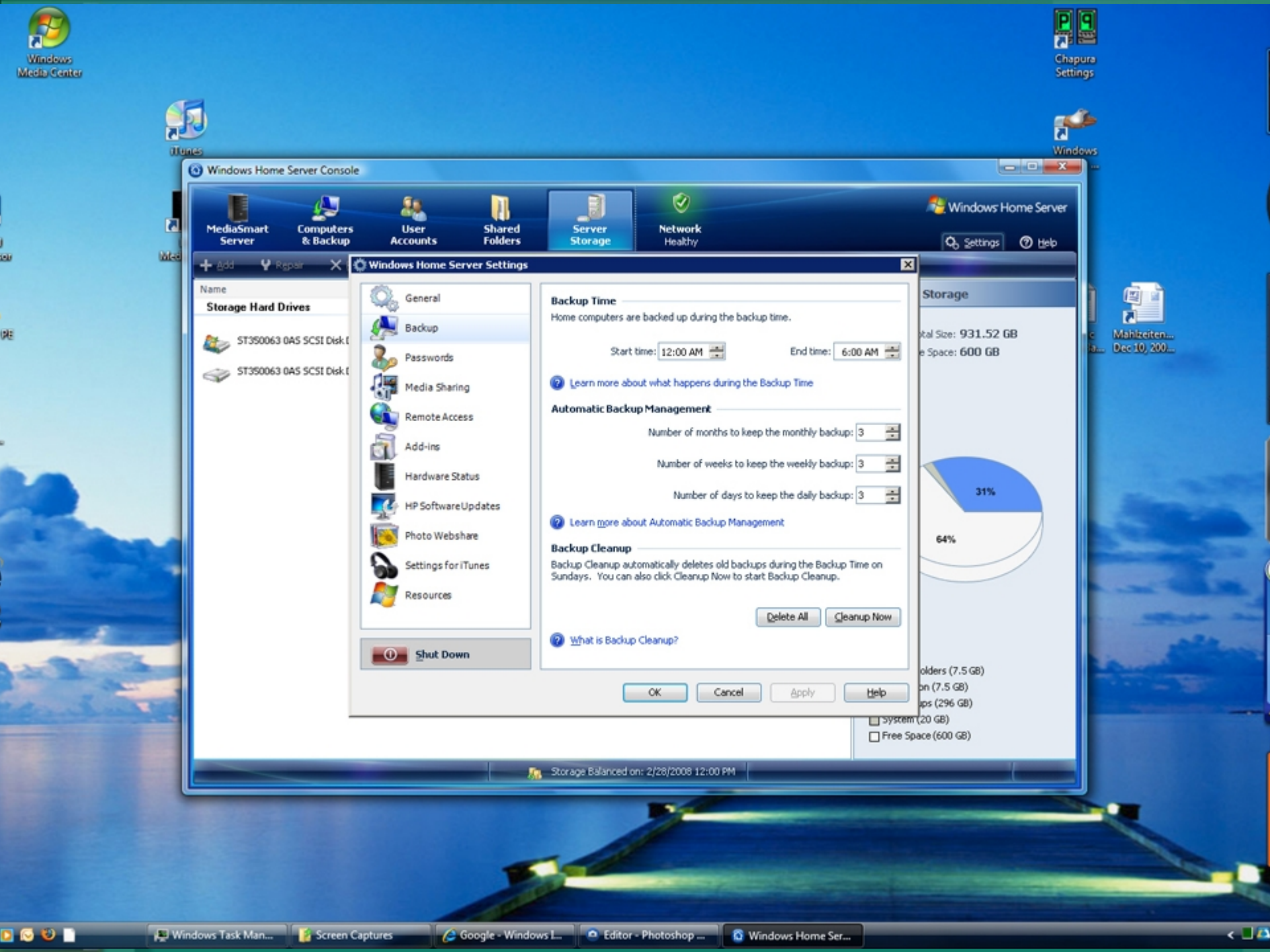
Windows Home Ser...


Windows Media Center
Chapura Settings
Windows Home Server Console
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Network
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Windows Home Server
Settings
Help
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Repair
Name
Storage Hard Drives
ST350063 0AS SCSI Disk D
ST350063 0AS SCSI Disk D
Windows Home Server Settings
General
Backup
Passwords
Media Sharing
Remote Access
Add-ins
Hardware Status
HP SoftwareUpdates
Photo Webshare
Settings for iTunes
Resources
Shut Down
Backup Time
Home computers are backed up during the backup time.
Start time: 12:00 AM
End time: 6:00 AM
Learn more about what happens during the Backup Time
Automatic Backup Management
Number of months to keep the monthly backup: 3
Number of weeks to keep the weekly backup: 3
Number of days to keep the daily backup: 3
Learn more about Automatic Backup Management
Backup Cleanup
Backup Cleanup automatically deletes old backups during the Backup Time on Sundays. You can also click Cleanup Now to start Backup Cleanup.
Delete All
Cleanup Now
What is Backup Cleanup?
OK
Cancel
Apply
Help
Storage
Total Size: 931.52 GB
Space: 600 GB
31%
64%
Folders (7.5 GB)
(7.5 GB)
(296 GB)
System (20 GB)
Free Space (600 GB)
Storage Balanced on: 2/28/2008 12:00 PM
Windows Task Man...
Screen Captures
Google - Windows I...
Editor - Photoshop ...
Windows Home Ser...

Information & Reviews

- YouTube: http://www.youtube.com/watch?v=iwRaT1onAFM
- C/NET: http://reviews.cnet.com/desktops/hp-mediasmart-server-ex475/4
- PCAdvisor: http://www.pcadvisor.co.uk/reviews/index.cfm?reviewid=1687
- ZDNet: http://review.zdnet.com/desktops/hp-mediasmart-server-ex475/4
- NetworkWorld: http://www.networkworld.com/columnists/2008/012308-cool-tools.html?page=1

References

- Book: *Windows Home Server User's Guide*, Andrew Edney, Apress, Berkeley, CA, 2007.
- Wikipedia: http://en.wikipedia.org/wiki/Windows_Home_Server
- Windows Home Server — Microsoft: http://www.microsoft.com/windows/products/winfamily/windowsh

References (cont.)

- Reviewer's Guide from Microsoft: http://download.microsoft.com/download/3/6/8/368DF7AB-24BD-4E0E-8
- Windows Home Server Team Blog: http://blogs.technet.com/homeserver/
- "We Got Served": http://www.wegotserved.co.uk/
- Windows Home Server Ad-Ins: http://www.wegotserved.co.uk/windows-home-server-add-ins/

The End

Questions? Comments?