

**HARD DRIVE "SYSTEM IMAGE  
BACKUPS"  
AND  
"BARE-METAL" RESTORES  
USING BUNDLED PROGRAMS  
IN WINDOWS 7, 8, AND 8.1**

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Web location for this  
presentation:

<http://aztcs.org>

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“Meeting Notes”

# SUMMARY

"Windows 7", "Windows 8" and "Windows 8.1" are bundled with a Microsoft program that you can use for creating a "system image" of the C: drive partition and the "System Reserved" partition.

When you encounter problems with your computer at a future time, the "system image" can be used for performing a "bare-metal" restore.

# TOPICS

- Hard drive image backups and bare-metal restores
- Different names but same system imaging program inside "Windows 7", "Windows 8", and Windows 8.1
- How to create a backup image in "Windows 7", "Windows 8", and "Windows 8.1"
- How to perform a "bare-metal restore" in "Windows 7", "Windows 8", and Windows 8.1"

# HARD DRIVE IMAGING AND BARE-METAL RESTORES

- **BACKUP AND RESTORE PROCESS:**
  - ✓ Make a "system image" of the "System Reserved" partition and the C: drive partition onto an external or non-C: hard drive.
  - ✓ When you encounter problems with your computer, boot up with a recovery or installation DVD and perform a "bare-metal restore".

# HARD DRIVE IMAGE BACKUPS AND "BARE-METAL" RESTORES

- You can create a "system image" using either software that is provided by the maker of your operating system or software that is provided by third-party software developers.

# HARD DRIVE IMAGE BACKUPS AND "BARE-METAL" RESTORES

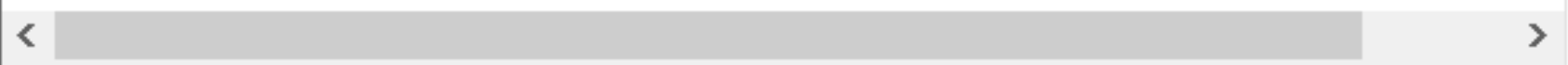
- For "Windows 7, 8, and 8.1", the hard drive consists of two partitions: A small "System Reserved" partition and a C: hard drive partition.

# Disk Management

File Action View Help



Volume	Layout	Type	File System	Status	Capacity	Free S...	%
L Storage spac...	Simple	Basic	NTFS	Healthy ...	2785.37 GB	1057.2...	38
SWS-1VMw-W...	Simple	Basic	NTFS	Healthy ...	2047.90 GB	894.37...	44
System Reserv...	Simple	Basic	NTFS	Healthy ...	100 MB	67 MB	67



**Disk 0**

Basic

2794.52 GB

Online

<b>System</b>	<b>SWS-1VMw-W8.1ProGA</b> ((	
100 MB	2047.90 GB NTFS	746.52 GB
Healthy	Healthy (Boot, Page File, Cra	Unallocated

■ Unallocated ■ Primary partition

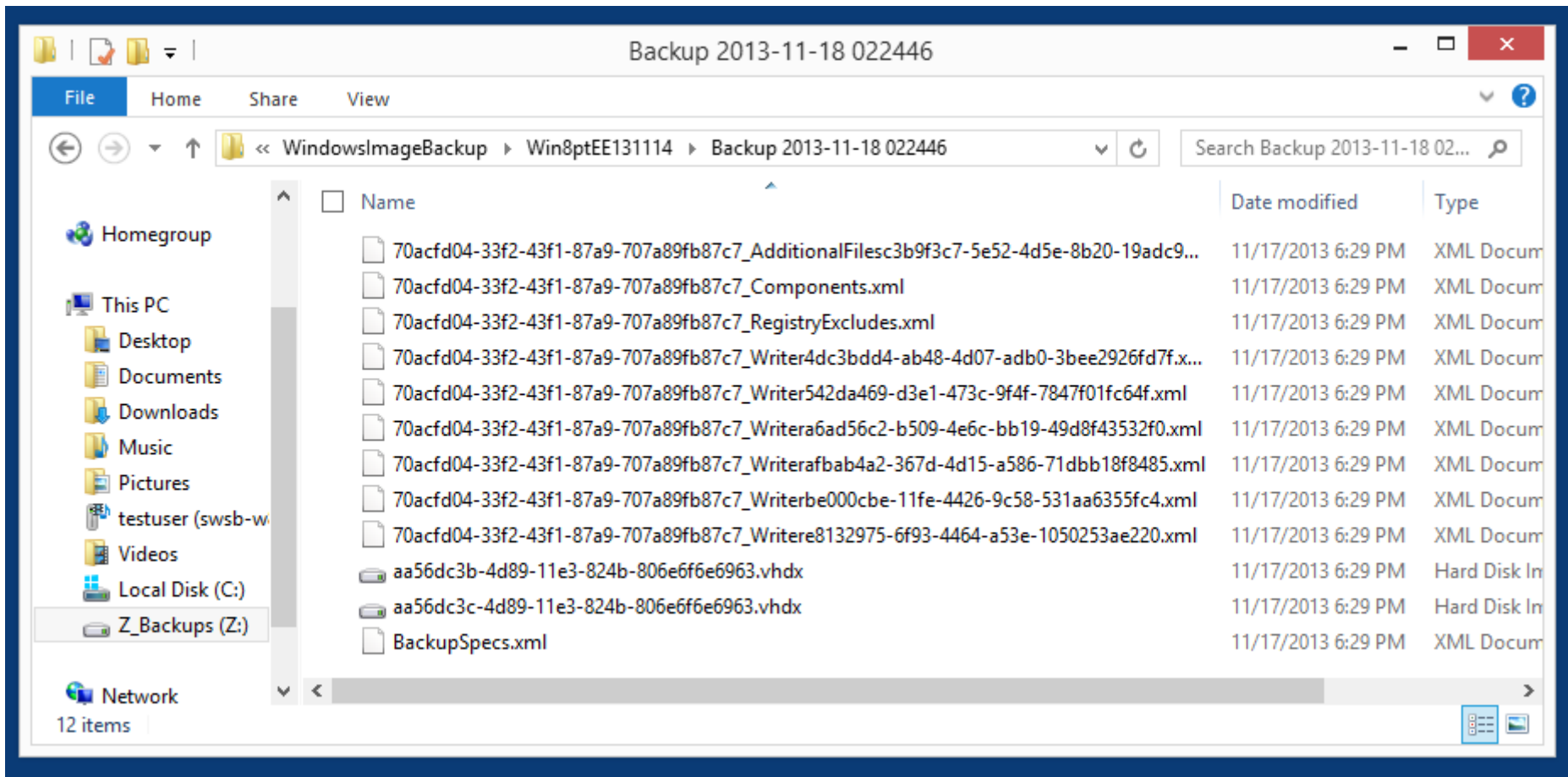


# HARD DRIVE IMAGE BACKUPS AND "BARE-METAL" RESTORES

- For "Windows 7, 8, and 8.1", a "system image" is a "WindowsImageBackup" folder that stores a representation of the complete contents and structure of the C: hard drive partition and the "System Reserved" hard drive partition.

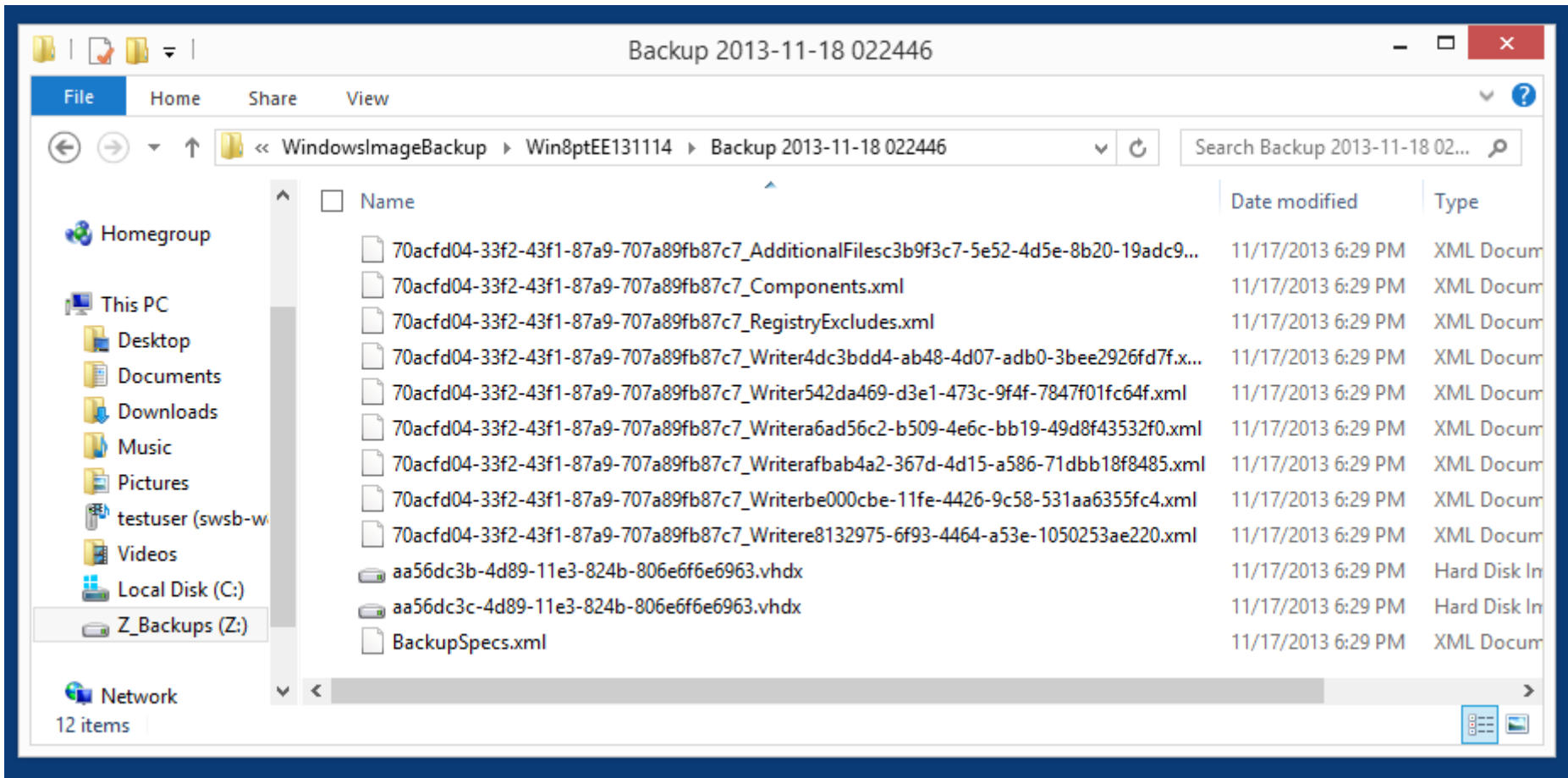
# HARD DRIVE IMAGING AND BARE-METAL RESTORES

- The storage scheme of the "system image" is a set of .XML and .VHDX files:



# HARD DRIVE IMAGING AND BARE-METAL RESTORES

- One .VHDX file is a representation of the "System Reserved" hard drive partition and the other is a representation of the C: hard drive partition:





aa56dc3b-4d89-11e3-824b-806e6f6e6963.vhdx



aa56dc3c-4d89-11e3-824b-806e6f6e6963.vhdx



# HARD DRIVE IMAGING AND BARE-METAL RESTORES

- A "bare-metal restore" is the procedure in which a "system image" is used to restore the complete contents and structure of the "System Reserved" partition and the C: hard drive partition.

# HARD DRIVE IMAGING AND BARE-METAL RESTORES

- **BACKUP AND RESTORE PROCESS:**
  - ✓ Make a "system image" that is stored on an external hard drive.
  - ✓ When you encounter problems with your computer, attach the external or non-C: hard drive that contains the "system image".
  - ✓ Boot up with a recovery DVD and do a "bare-metal" restore for the "System Reserved" and the C: partitions.



# DIFFERENT NAMES FOR SAME PROGRAM FOR MAKING A "SYSTEM IMAGE"

- **"Backup and Restore"**

in "Windows 7"

=

**"Windows 7 File Recovery"**

in "Windows 8"

=

**"System Image Backup"**

in "Windows 8.1"

# DIFFERENT NAMES FOR THE SAME PROGRAM FOR MAKING A "SYSTEM IMAGE" (continued)

- For all three of these versions of "Windows..", the backup process results in a folder called "WindowsImageBackup" on an external or non-C: hard drive.



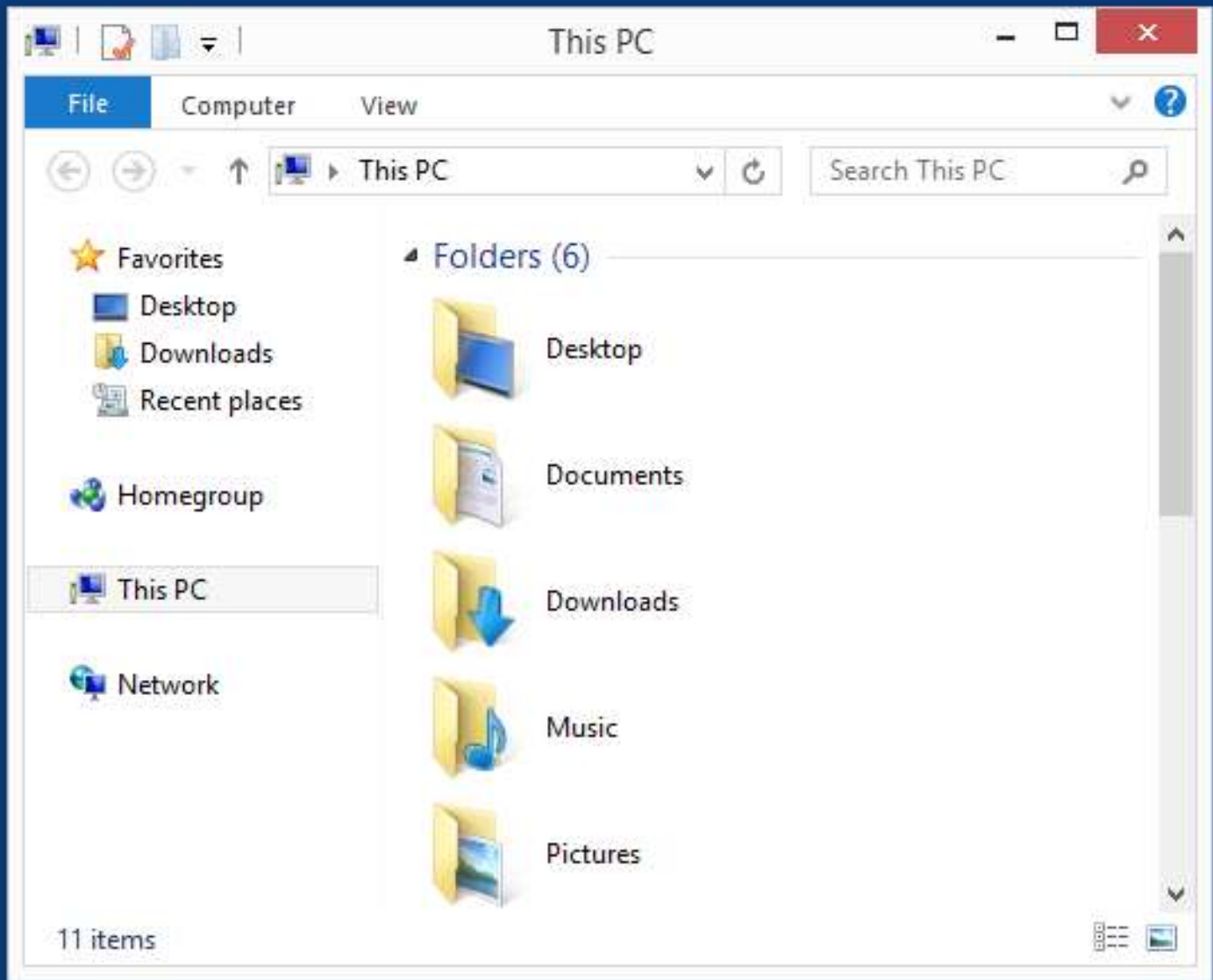
Recycle Bin

Windows 8.1 Enterprise Evaluation  
Windows License valid for 86 days  
Build 9600



3:06 PM  
11/18/2013







This PC



File

Computer

View



This PC

Search This PC



Homegroup

This PC

- Desktop
- Documents
- Downloads
- Music
- Pictures
- testuser (swsb-w)
- Videos
- Local Disk (C:)
- Z\_Backups (Z:)

Network

11 items

Folders (6)

- Desktop
- Documents
- Downloads
- Music
- Pictures





Drive Tools

This PC



File Computer View Manage

← → This PC ↕ Search This PC 🔍

- Homegroup
- This PC**
  - Desktop
  - Documents
  - Downloads
  - Music
  - Pictures
  - testuser (swsb-w
  - Videos
  - Local Disk (C:)
  - Z\_Backups (Z:)
- Network

Devices and drives (4)



- Floppy Disk Drive (A:)
- Local Disk (C:)  
948 GB free of 959 GB
- DVD RW Drive (D:)
- Z\_Backups (Z:)  
848 GB free of 859 GB

Network locations (1)

- testuser (swsb-w8pro-vmw)

11 items 1 item selected



<input type="checkbox"/> Name	Date modified	Type
 WindowsImageBackup	11/17/2013 6:25 PM	File fo
 Recovery.txt	11/18/2013 2:40 PM	Text D

- Homegroup
- This PC
  - Desktop
  - Documents
  - Downloads
  - Music
  - Pictures
  - testuser (swsb-w
  - Videos
  - Local Disk (C:)
  - Z\_Backups (Z:)

Network  
2 items



WindowsImageBackup

File

Home

Share

View



<< Z\_Ba... >> Windowsl... >>



Search WindowsImageBackup



Homegroup



This PC



Desktop



Documents



Downloads



Music



Pictures



testuser (swsb-w)



Videos



Local Disk (C:)



Z\_Backups (Z:)

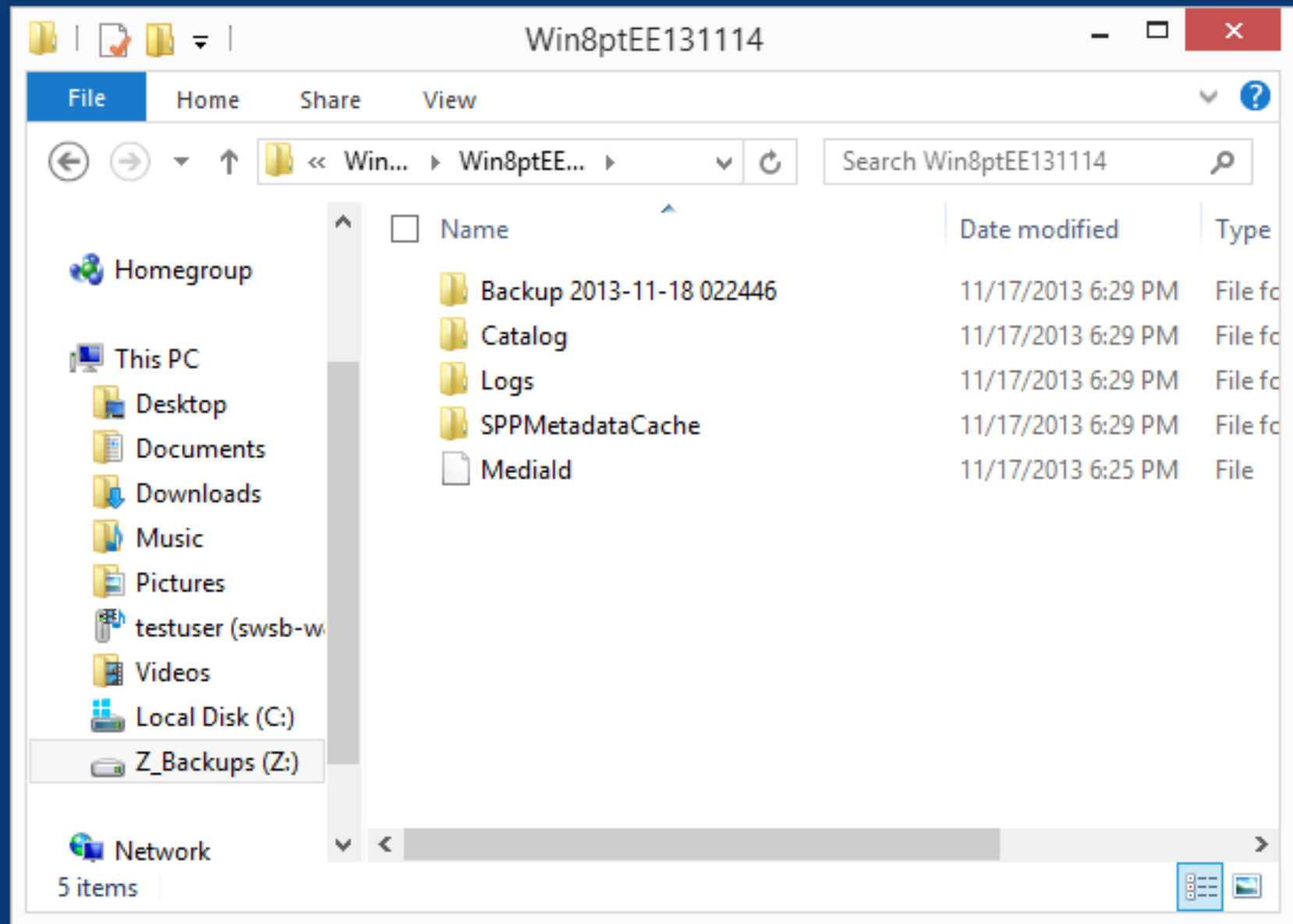


Network

1 item

<input type="checkbox"/> Name	Date modified	Type
Win8ptEE131114	11/17/2013 6:29 PM	File fo





# DIFFERENT NAMES FOR THE SAME PROGRAM FOR MAKING A "SYSTEM IMAGE" (continued)

- For all three of these versions of "Windows..", the executable file for the backup applet is `sdclt.exe` which resides inside `C:\Windows\System32\`

# DIFFERENT NAMES FOR THE SAME PROGRAM INSIDE "WINDOWS 7", "WINDOWS 8", AND "WINDOWS 8.1" (continued)

- The 4th letter in  
sdclt.exe  
is a lower case "L".



Recycle Bin

Windows 8.1 Enterprise Evaluation

Windows License valid for 85 days

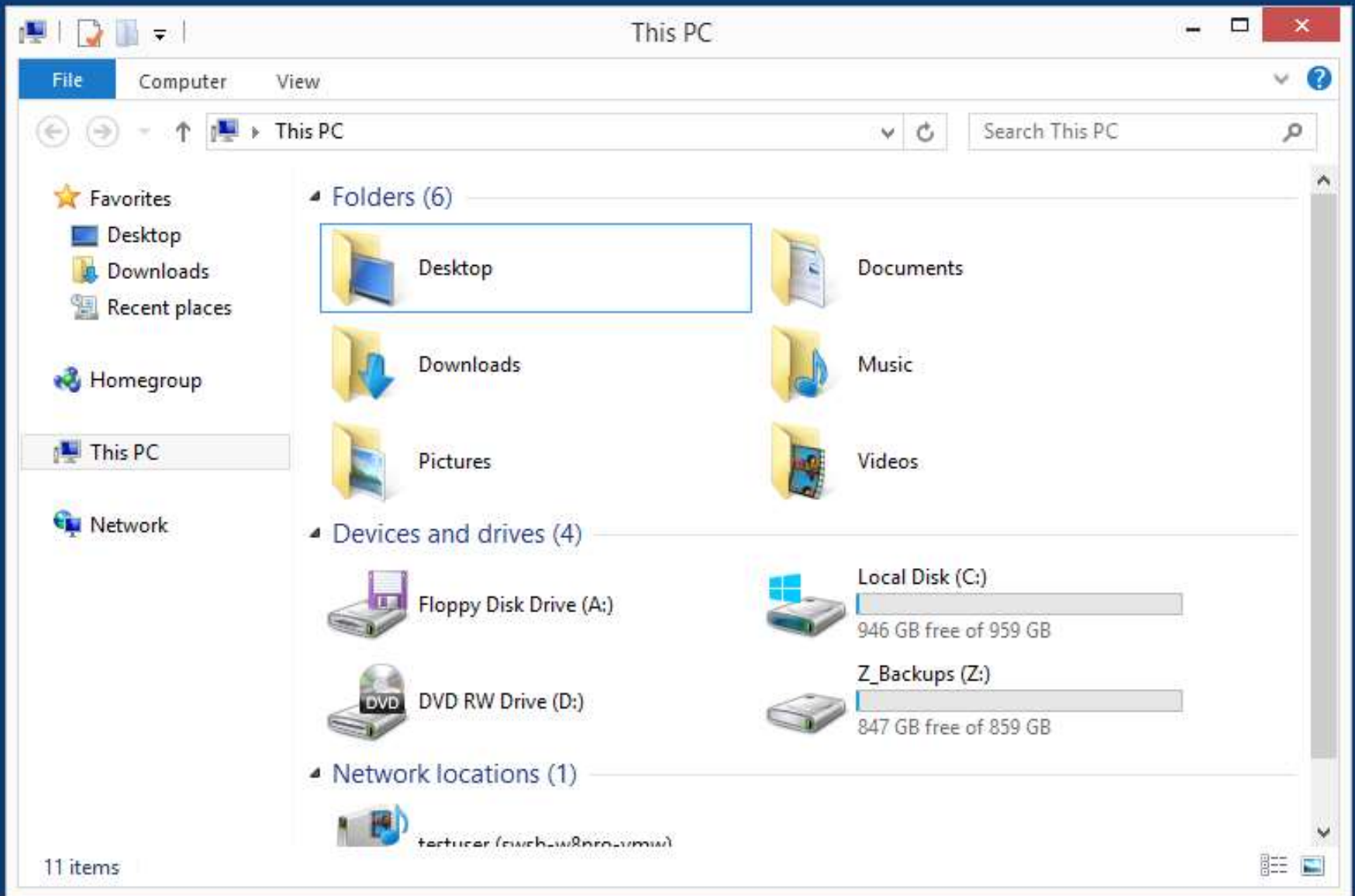
Build 9600



11:43 PM  
11/19/2013







Local Disk (C:)

File Home Share View Manage

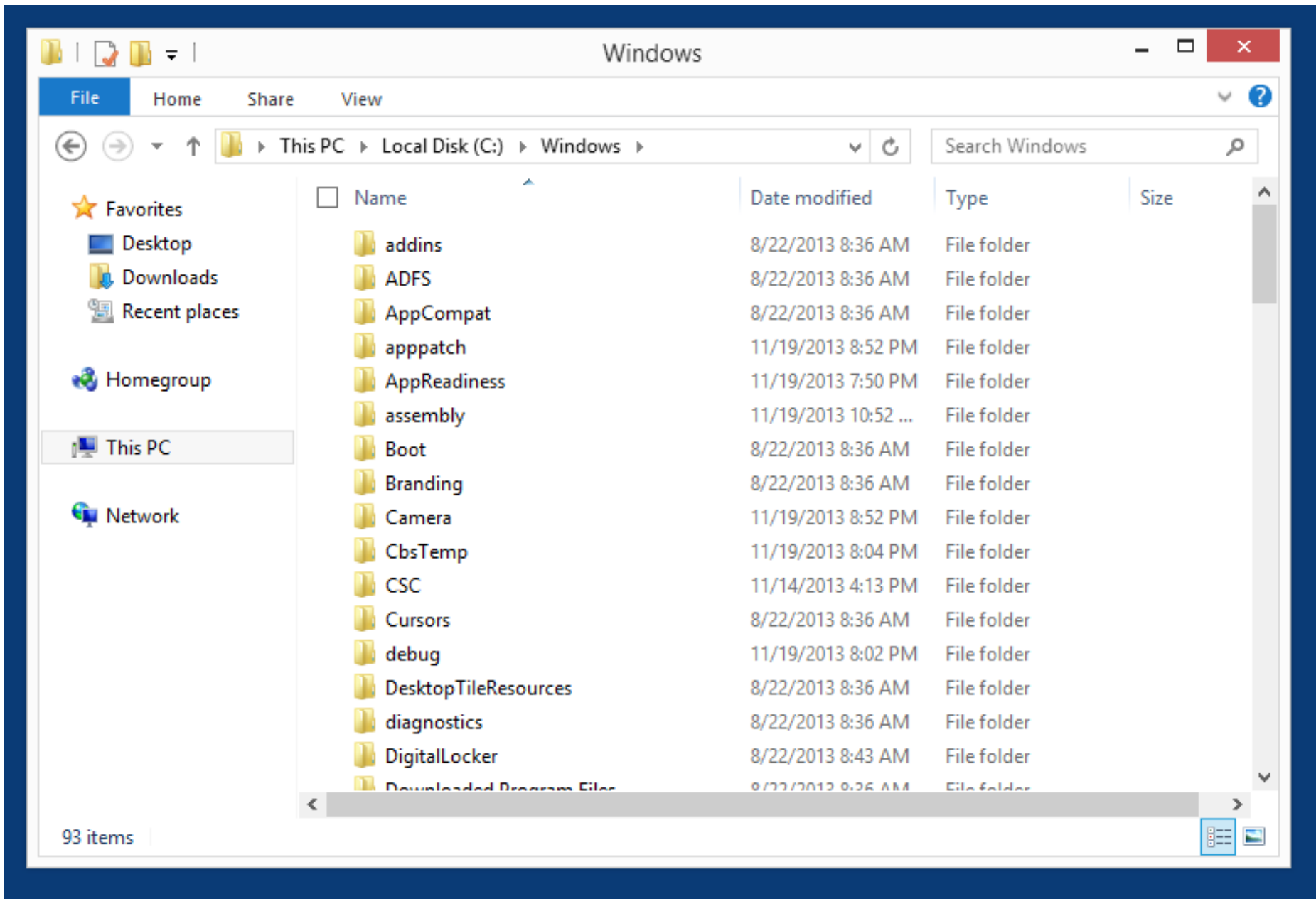
This PC > Local Disk (C:)

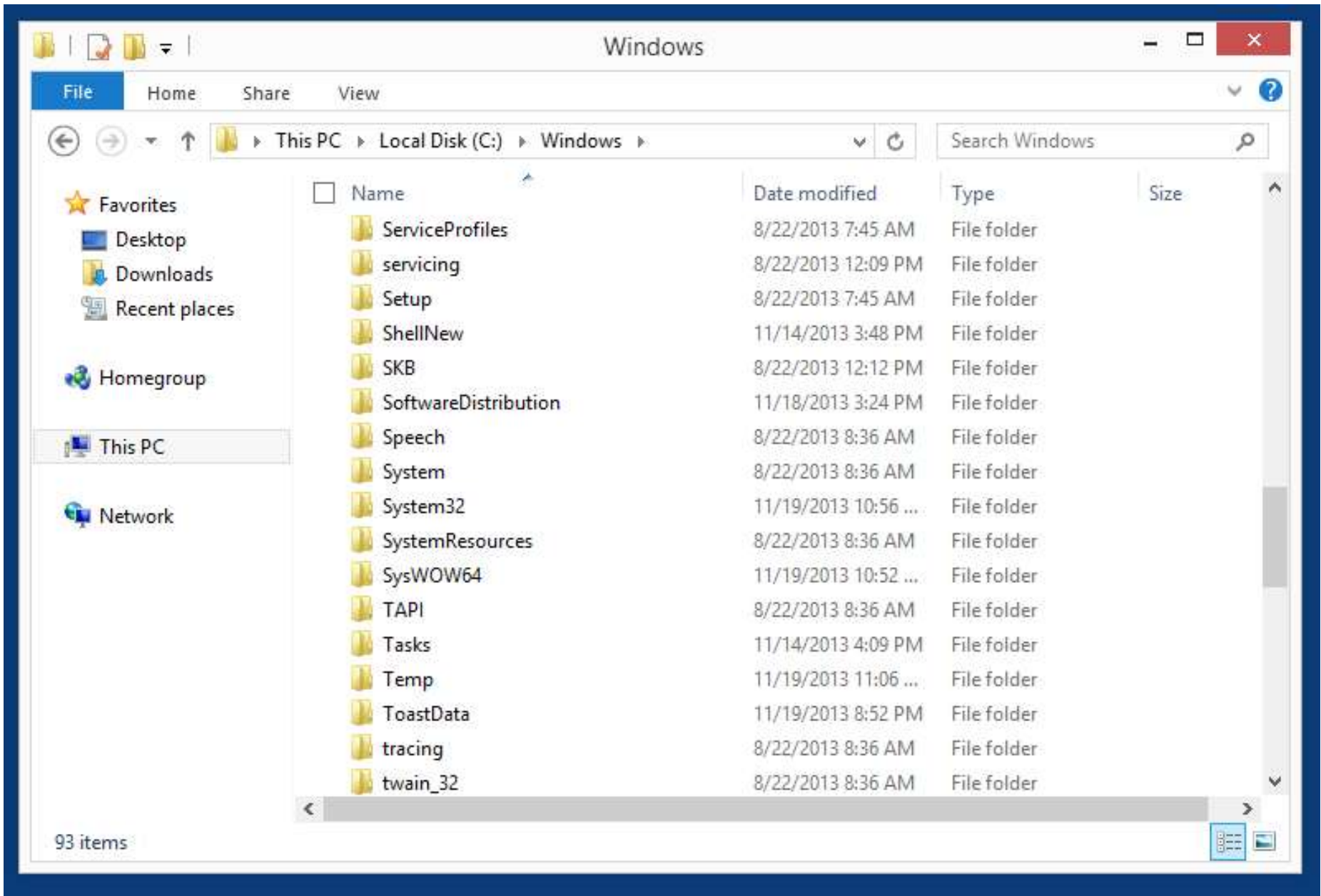
Search Local Disk (C:)

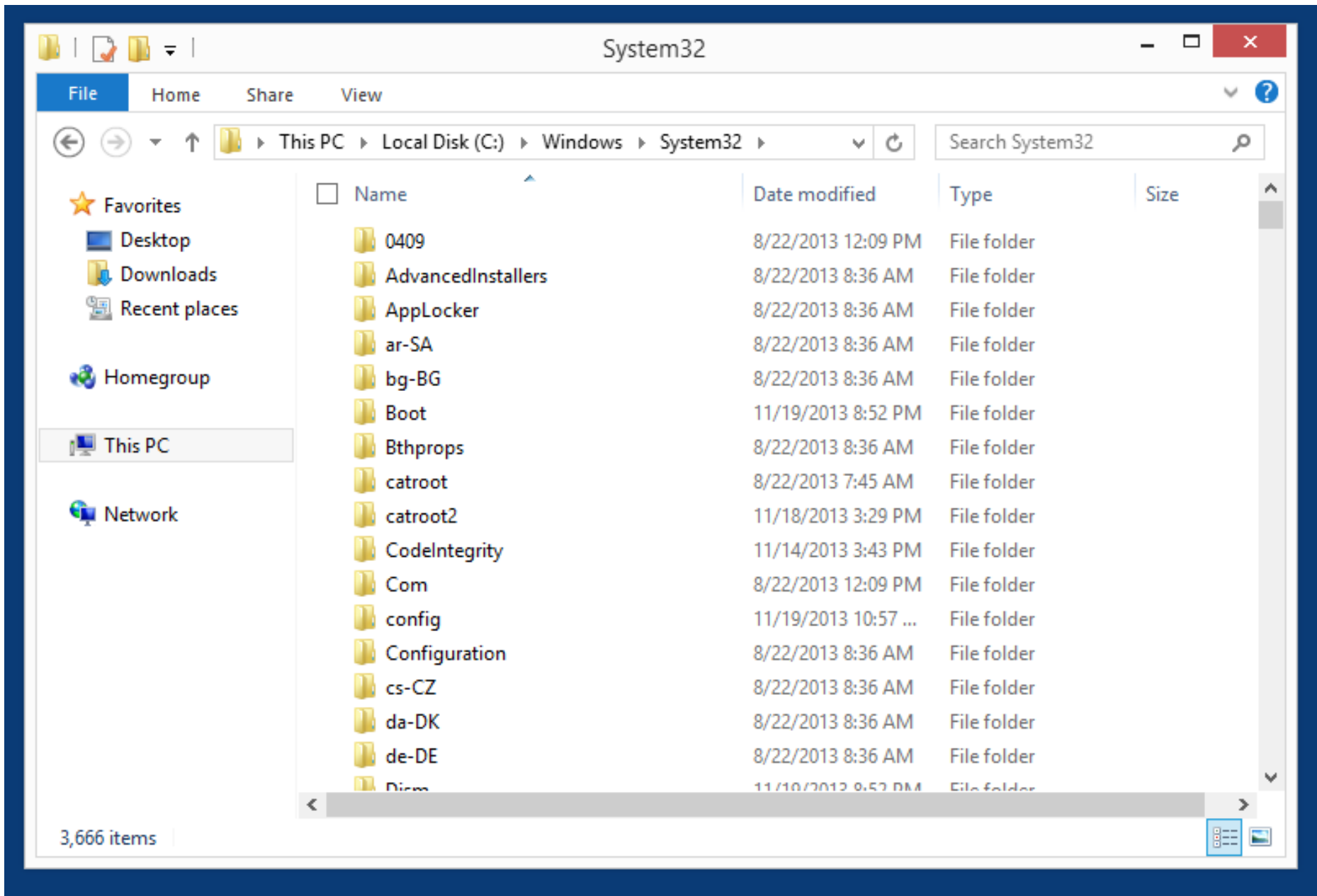
7 items

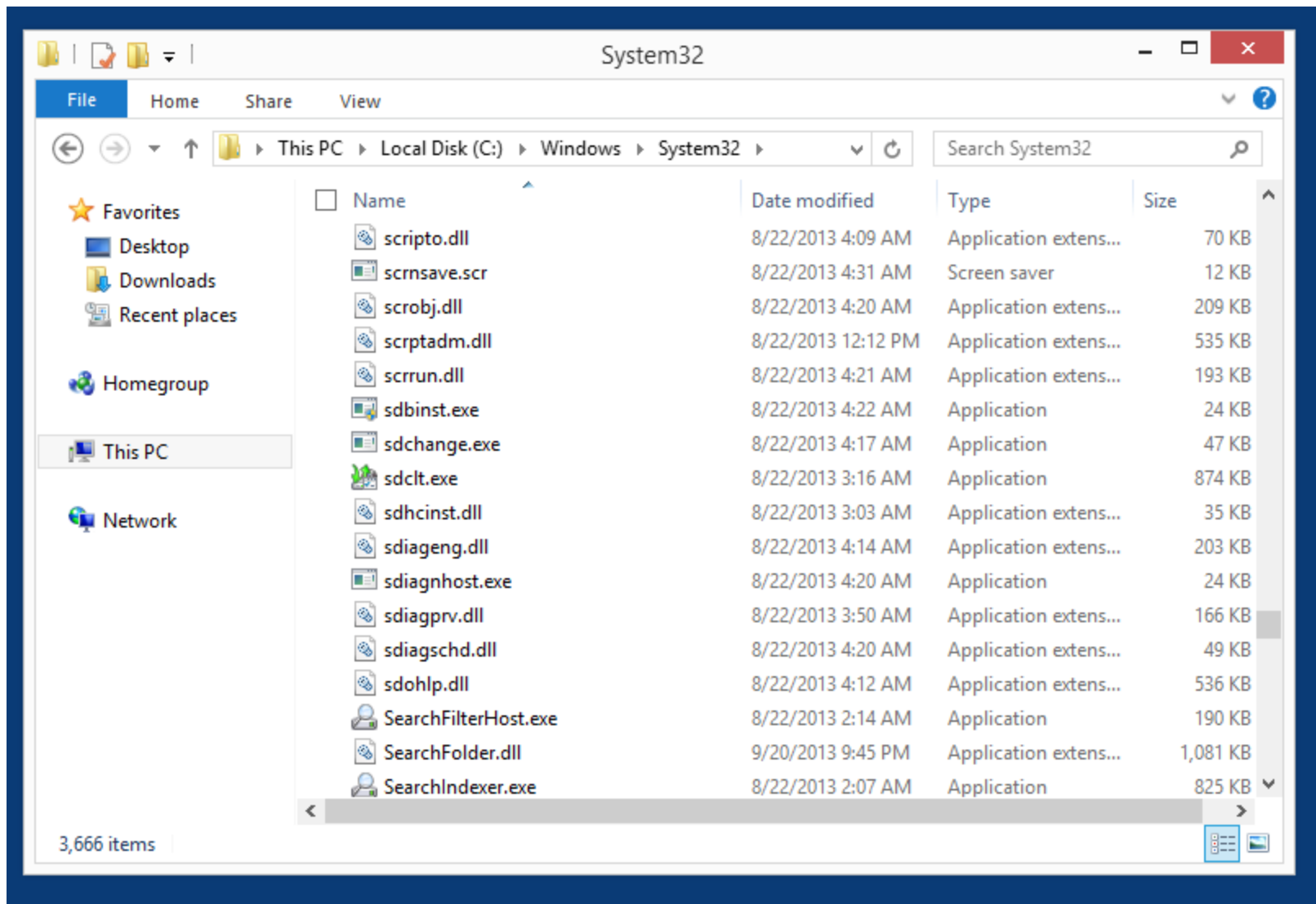
Name	Date modified	Type	Size
PerfLogs	8/22/2013 8:22 AM	File folder	
Program Files	11/14/2013 4:08 PM	File folder	
Program Files (x86)	11/14/2013 3:51 PM	File folder	
ProgramData	11/14/2013 3:51 PM	File folder	
Users	11/14/2013 4:13 PM	File folder	
Was on Desktop	11/18/2013 3:06 PM	File folder	
Windows	11/19/2013 8:52 PM	File folder	

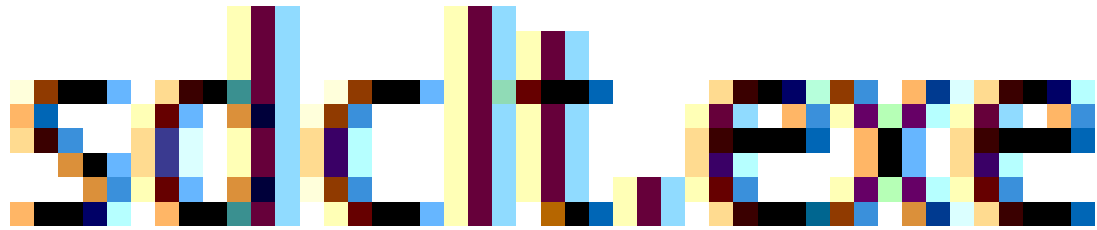


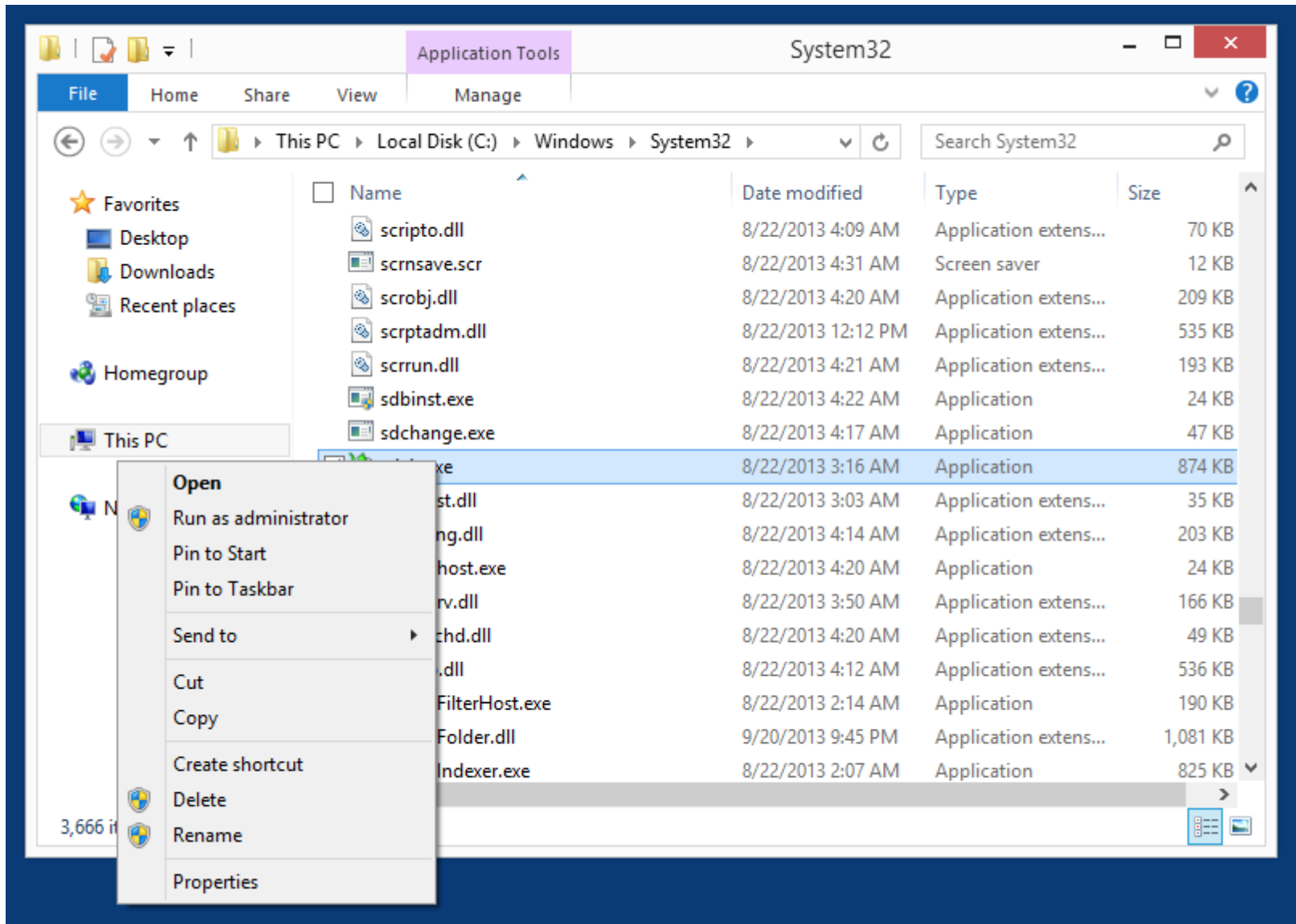














## sdclt.exe Properties



General Security Details



sdclt.exe

Type of file: Application (.exe)

Description: Microsoft® Windows Backup

Location: C:\Windows\System32

Size: 873 KB (894,464 bytes)

Size on disk: 876 KB (897,024 bytes)

Created: Thursday, August 22, 2013, 3:17:05 AM

Modified: Thursday, August 22, 2013, 3:16:52 AM

Accessed: Thursday, August 22, 2013, 3:17:05 AM

Attributes:  Read-only  Hidden

Advanced...

OK

Cancel

Apply



## sdclt.exe Properties



General Security **Details**

Property	Value
<b>Description</b>	
File description	Microsoft® Windows Backup
Type	Application
File version	6.3.9600.16384
Product name	Microsoft® Windows® Operating System
Product version	6.3.9600.16384
Copyright	© Microsoft Corporation. All rights reserv...
Size	873 KB
Date modified	8/22/2013 3:16 AM
Language	English (United States)
Original filename	sdclt.exe

[Remove Properties and Personal Information](#)

OK

Cancel

Apply



# DIFFERENT NAMES FOR THE SAME PROGRAM INSIDE "WINDOWS 7", "WINDOWS 8", AND "WINDOWS 8.1" (continued)


- By default, the drive imaging program in "Windows 7,8,and 8.1" only allows you to keep a single "system image" on an external or non-C" hard drive:




← Create a system image

### Confirm your backup settings

Backup location:

 Z\_Backups (Z:)

The backup could take up to 12 GB of disk space.

 Any existing system images for this machine might be overwritten.

The following drives will be backed up:

-  System Reserved (System)
-  (C:) (System)

Start backup

Cancel



# DIFFERENT NAMES FOR THE SAME PROGRAM INSIDE "WINDOWS 7", "WINDOWS 8", AND "WINDOWS 8.1" (continued)

- If you want to store more than one "system image" on an external or non-C" hard drive, you have to move any "WindowsImageBackup" that you create to a new folder that should be given a name of <year>-<month>-<day> etc.

# HOW TO CREATE A BACKUP IMAGE IN WINDOWS 7 or 8 or 8.1

- See

[http://aztcs.org/meeting  
\\_notes/winhardsig/backup  
up/backupoptions.xls](http://aztcs.org/meeting_notes/winhardsig/backup/backupoptions.xls)

# HOW TO PERFORM A "BARE-METAL RESTORE" IN WINDOWS 7 or 8 or 8.1

- See

[http://aztcs.org/meeting  
\\_notes/winhardsig/backup  
up/backupoptions.xls](http://aztcs.org/meeting_notes/winhardsig/backup/backupoptions.xls)

# "WINDOWS 7 FILE RECOVERY" IN "WINDOWS 8"

- Despite this strange name, it is still the same as the great "Windows Backup and Restore" that is available in "Windows 7".
- Microsoft has decided to "deprecate" "Windows Backup" which means that it will probably disappear in "Windows 8.1" and "Windows 9".

# "WINDOWS 7 FILE RECOVERY IN "WINDOWS 8" (continued)

- See

<http://allanjsmithie.wordpress.com/2012/05/11/back-up-restore-deprecated-in-windows-8/>

# "Windows 7 File Recovery" in "Windows 8" (continued)

- "Windows 7 File Recovery" is an icon in the "Control Panel" of the "Desktop" in "Windows 8":
  - Hover the mouse cursor over the lower-left corner of the monitor screen.
  - When a thumbnail pops up, use the RIGHT mouse button to click once.
  - When a "Power Users Menu" pops up, click on "Control Panel".



# **"Windows 7 File Recovery" in "Windows 8" (continued)**

- Double-click on the "Windows 7 File Recovery" icon inside the "All Control Panel Items" window.

All Control Panel Items

Control Panel > All Control Panel Items

Adjust your computer's settings View by: Small icons

- HomeGroup
- Internet Options
- Keyboard
- Location Settings
- Network and Sharing Center
- Performance Information and Tools
- Phone and Modem
- Programs and Features
- Recovery
- RemoteApp and Desktop Connections
- Sound
- Storage Spaces
- System
- Troubleshooting
- Windows 7 File Recovery
- Windows Firewall
- Indexing Options
- Java
- Language
- Mouse
- Notification Area Icons
- Personalization
- Power Options
- Realtek HD Audio Manager
- Region
- SiSoftware Sandra
- Speech Recognition
- Sync Center
- Taskbar
- User Accounts
- Windows Defender
- Windows Update



Windows 7 File Recovery

Control Panel Home

- Create a system image
- Create a system repair disc

See also

- Action Center
- File History
- Windows Easy Transfer

## Back up or restore your files

Backup

Windows Backup has not been set up. [Set up backup](#)

Restore

Windows could not find a backup for this computer.

[Select another backup to restore files from](#)

# **"Windows 7 File Recovery" in "Windows 8" (continued)**

- **"Windows 7 File Recovery" is the same as "Backup and Restore" in "Windows 7".**
- **"Windows 7 File Recovery" can backup and restore your entire C: drive, including the "Windows 8.." operating system.**

# **"Windows 7 File Recovery" in "Windows 8" (continued)**

- Despite this strange name, it is still the same as the great "Windows Backup and Restore" that is available in "Windows 7".

# "Deprecated" = Gone in Windows 9

- Microsoft announced in 2008 that the

"Backup and Restore"

(in "Windows 7")

="Windows 7 File Recovery"

(in "Windows 8")

="System Image Backup)

(in "Windows 8.1")

has been "deprecated". This means that this great program will be missing from the future "Windows 9".

# "Deprecated" = Gone in Windows 9(continued)

- See

<http://allanjsmithie.wordpress.com/2012/05/11/back-up-restore-deprecated-in-windows-8/>

# REFERENCES

- [http://en.wikipedia.org/wiki/Backup\\_and\\_Restore\\_Center](http://en.wikipedia.org/wiki/Backup_and_Restore_Center)
- <http://technet.microsoft.com/en-us/magazine/2007.09.backup.aspx>