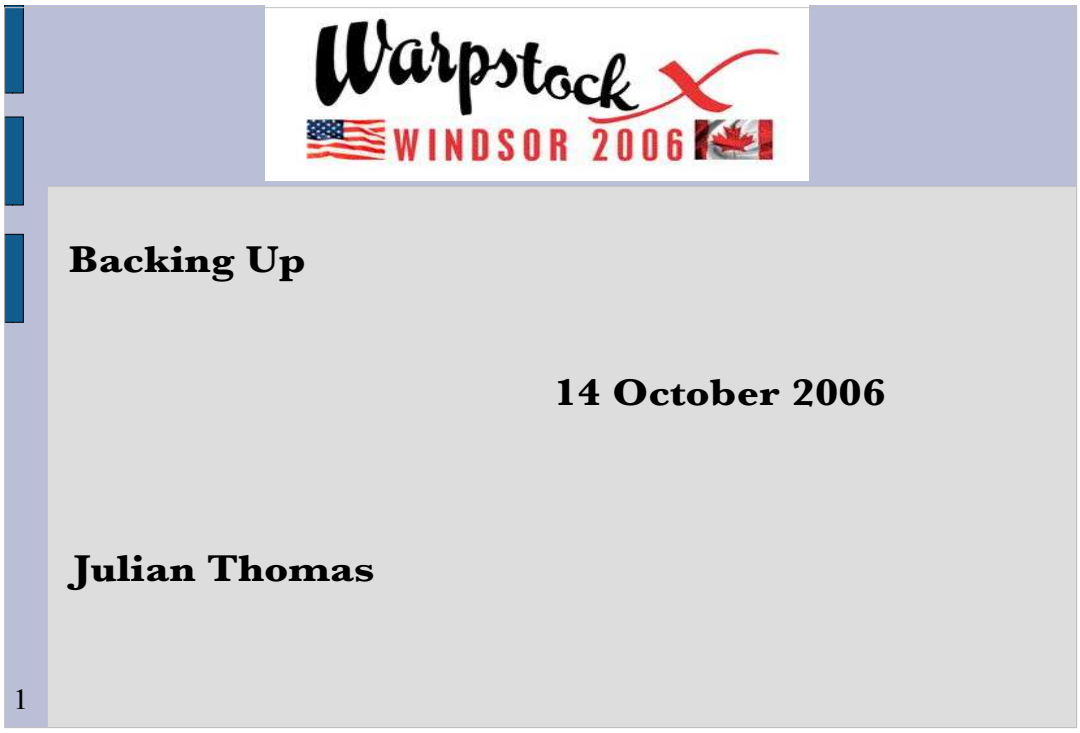

Warpstock 2006 leadin slide

Preparing for the Inevitable

It has been said for many years that death and taxes are inevitable.
The computer age has made it clear that to that list we must add hard disk failures (whether catastrophic or gradual).
It's not a question of "***whether***" a drive will fail, it's a question of "***when***". With this in mind, the prudent computer user will plan for this event and be prepared with suitable backups and a recovery plan.

OS2 Voice VNL0106

2

Anyone recognize this? It's from my Voice article Jan 06 “Hard Drive Disaster Recovery using DFSee” which covered some of what this talk will address, with special focus on the use of DFSEE.

NOTE the -screen- option in dfsdisk that became needed since that article.

Cite the case of Sue's Dell machine that took a lightning hit to the modem - fried video, motherboard, hard drive, ??? Sent to Dell for recycling.

Backing Up - WHY?

- Hardware failure
  - Hard drive
  - Controller
  - System disaster
- Loss
  - Laptop
  - Fire or lightning
- Recovery from software 'malfunction' or need to "uninstall" something – Backout
- .ini and other critical and vulnerable control files
- Migration to new machine

It's not "if" - it's "WHEN"!

3

It will come to bite you in the a** sometime - naturally, when you are least expecting it.

It's also handy to be able to revert your boot partition to where it was before you installed (or had a botched install of) that fantastic gee-whiz piece of software!

Recovery of applications that corrupt their INI (or other control) files.

The merits of TWO physical drives

Assuming that eCS boot partition is on primary drive:

Performance
- swapper.dat
- Programs, OS, data

Maintenance partition on separate drive
- If primary drive dies, can fiddle with bootmgr and get something going.

- Back each partition up to a partition on the "OTHER" drive
- Protects against a drive failure (but not a system or drive controller failure)

4

Hard to do on a laptop, but all my towers have 2 drives.

My 'standard' setup:

Drive 1

C: Fat32 - windows (if present)

D: Fat32 - windows progs and data

E: Fat 16 or ?? - more data

F: HPFS - eCS boot

J - JFS backup part for drive 2 parts

Drive 2

M: HPFS – eCS maint

G:, H: JFS ecs Progs and data

K: JFS backup for drive 1 parts; swapper.dat

Backing Up - HOW

- Media
- Backup programs
- Recovery considerations
- Partition backups
- Critical data

Backup that is automatic and unattended is more apt to happen (and less disruptive) than if it has to be manually invoked.

5

This is "HOW" and "WHERE" (or "onto what").

I've done diskettes (in DOS days), CMS tape, IBM dualstor tape over the years. I've evolved to the approach that will be described in this presentation - the basic approach is TWO drives, with each partition being backed up on the "other drive", and the use of SETBOOT to switch partitions.

A USB or network drive also works..

Backing up - Media

- Hard drive
  - "other" drive
  - Tray
  - USB drive (you want to have USB 2.0)
  - USB stick (limited capacity)
- Network Drive
  - Other system
  - Network attached storage box
- CD/DVD
  - Not easily automated, and not direct
- Tape
  - Device driver issues; not currently easy to do

6

Amplified on following slides

Don't try using UDF on RW CD or DVD media. It's slow and not dependable..

Recovery Considerations

- Restoring a boot partition requires being booted to SOMETHING else!!!!
  - Diskette
  - CD
  - Maintenance partition
  - Move drive to another machine
- Device and file system driver issues
- What software does the restore?

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The system booted for recovery may need:

- File system drivers for partitions to be restored by unzip
- DFS
- USB drivers (if recovering from a USB drive)
- Networking (if recovering from a remote system).

Partition Backup

- Boot partition considerations
  - Win2K and XP issues
- Partition under backup should not be in use
  - **Especially for a boot partition!**
- Methods:
  - Image (DFSEE or ???)
  - ZIP (2 gig limit on zipfile size)m RAR, ???
  - XCOPY poblems
    - No compression
    - Doesn't do will for large # of files

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Some people may prefer using a dfs **clone** to a dfs **image**.

There are products that will do imaging in addition to dfsee. Be sure that the restore process will work if you use one of these - see driver notes on previous slide.

I have seen several postings about XCOPY failing on whole drive copies (too many files).

Critical Data

- Daily backup is best
  - bootup or via cron job

  .ini files, other files that are important to YOUR situation

  config.sys (most but **not all** OS/2 installers back this up)
- Desktop backup tools:
  - archive
  - Unimaint
  - Filestar
  - others

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I use these backups from time to time; it's easier to extract a file from the cfbu zipfile than from the zipfile for the whole partition.

RECOVERING A FILE: Go to root of drive where the file you want to unzip lives. Example:

x:\a\b\x

[x:\]Unzip <zipfile> a/b/c

Critical files - My list

G:\filestar\FLEXEDIT.INI
G:\filestar\FILESTAR.INI
G:\DeScribe\DeScribe.DAT
G:\mesa2\MESA2.INI
G:\mozhome\Mozilla\Firefox\Profiles\algb7hf1.default\prefs.js
G:\mrmsg\MRMESSAGE.INI
G:\rxast\RXAUTOST.INI
G:\wp60\WP{WPC}.SET
G:\zoc\phonebk
G:\openoffice\user\registry\cache\org.openoffice.Setup.dat

H:\jt\phones
H:\jt\passwrds
H:\mr2ice\MR2IC.INI
H:\mr2ice\mail\FOLDERS.NDX
H:\mr2ice\mail\mr2i.adr
H:\mr2ice\mail\MR2I.GRP
H:\records\address.lst
F:\OS2\OS2.INI
F:\OS2\OS2SYS.INI
F:\.ncftp\bookmarks
E:\wplib\CALENDAR.fil

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In my experience, I've found most of these files have gotten corrupted at one time or another.

Desktop/WPS Backup/Restore

Things happen.

There are many options:
- System Archiver
- Unimaint
- FileStar
- Robosave
- **...**

Don't forget **config.sys** - some installers don't make a backup!

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I don't care what you use; just use something!

My approach

- TWO physical drives (except on T23)

  Daily cronjobs (I use cronrgf):
  - zbu.cmd (partitions)
  - cfbu.cmd (critical files)

  Filestar automatic desktop backup

- Cycle through multiple generations of backups.
  - 3 major cycles
  - 5 minor cycles (zbu); 15 (cfbu)

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I use cronrgf (available from Hobbes) because I did some time in a unix-like environment (AIX), but almost any scheduler will do.

cfbu can be run from startup folder at boot time if you prefer.

I ALWAYS have a FileStar instance running, so the desktop backups are done regularly.

zbu.cmd - SYSTEM backup

- Daily cron job (4am)
- Back up maintenance partition, then use **setboot** to reboot to it and do the other partitions.
- **zip.exe** used for backups, with exclude files for each drive (don't want to backup /tmp/* or swapper.dat)
  Separate zip files for large subdirectories on a partition so that no zip file >2gig.
  Periodic manual burn to dvd - stored off premises (detached garage)

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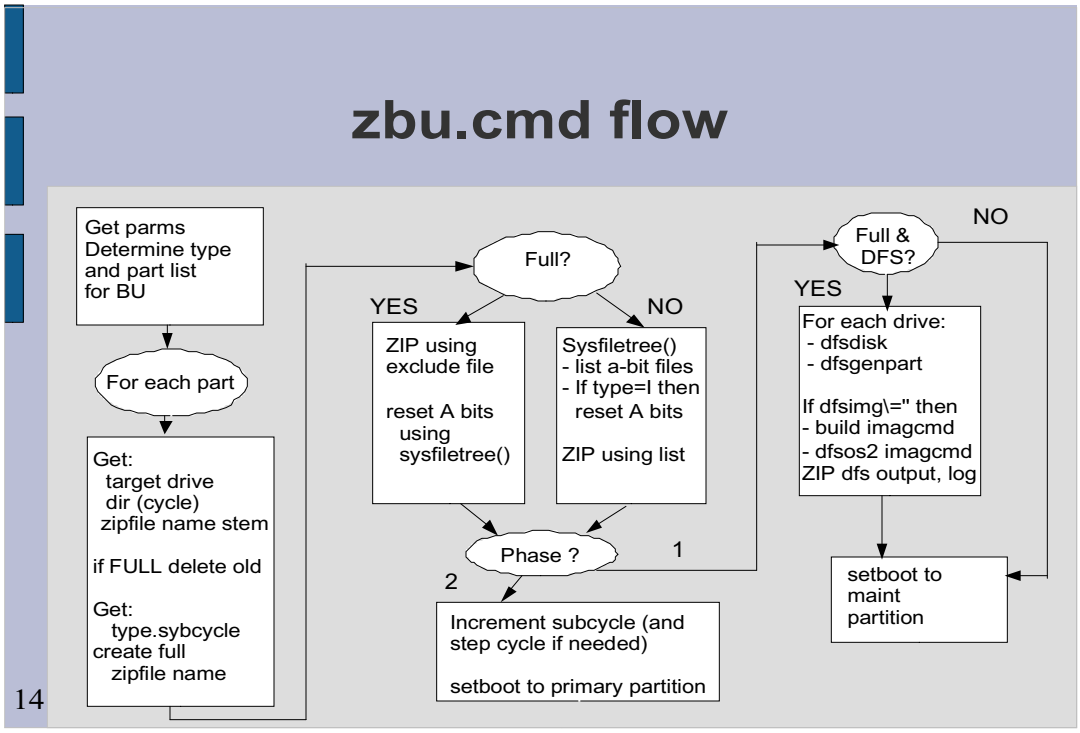
WARNING about setboot: some programs, **including dfsee**, will block the reboot and cause it to just sit there. They must be closed or killed before setboot will work.

I've discovered recently that my backups will no longer fit on a single DVD.

I may do some housecleaning, or I may segregate some directories that don't change and back them up to DVD outside of the regular (automated) process.



This is oversimplified, but shows the overall flow.

dfs.cmd internals

- Locate ourselves, read parameter file
- Determine ONCE or cycle/subcycle; backup type
- Call doparts() to do partitions:
  - For each partition PX:
    - If partial and type\='FULL': then skip
    - If FULL then delete old
    - Call external zipit.cmd PX zipfilename type
- If type="FULL and phase=1 and dfsdir\=" then
  - loop through dfsdrives
    - dfsdisk
    - dfsos2 genpart
  - If dfsimg\=" then do dfsos2 image
- Call closep1/p2 command
- setboot to reboot to where we go next

Standardized Rexx code I use in many programs to:

- parse source to get program location and set it as working directory
- Read parameter file and set values as compound variables - e.g. **p.once**
- doparts() is an internal function; zipit.cmd is external
- dfs stuff is optional
- closep1.cmd and closep2.cmd are required - they are for any cleanup or shutdown procedures you need.

- If you want to inhibit the automatic reboot, you need to code a wait in closepx.cmd:

```
say 'Press Enter to proceed to reboot'
say 'Cntrl-C to quit'
xxx=sysgetkey()
```

zbu.cmd associated files

```
tmp             subdirectory, required
exclude-c       exclude files (filespecs that do not get zipped)
exclude-d
...             (one for each partition)
exclude.def     default exclude file
yfile           Contains a Y and is echoed to a delete * command
zbu.cmd         the program
zbu.prm         Parameter file
zbu.txt         Documentation file
zclosep1.cmd    These files are required.  They are executed just
zclosep2.cmd    before reboot and can be used to invoke any
                 shutdown procedures you want.
zipit.cmd       Program called by zbu to actually do the zipping.
```


All these files are in zbu.zip.

You will need to customize:

- zbu.prm
- exclude-x (and maybe exclude.def)
- zclosep1.cmd and zclosep2.cmd

zbu.prm: zbu parameter file

- Sample is well documented by comments
- Mode (once or cycling; cycle settings)
  Backup types (by subcycle)
  Backup target directories
  Partitions for each phase to backup
  dfs settings (if used)
  setboot parameters for reboot to maint part, primary part

cfbu.cmd internals

- Locate ourselves, read parameter file
- Quit if already done this date
  Determine target directory (as per **cycle**)
  - If subcycle=1 then delete targdir/*
  Loop through drivelist
  - zip -rs8 zipfile -i@cfbu.incl *<include file>*
- If two target drives, copy zipfile to second
- Step subcycle (and cycle if needed)

WARNING the zipfile doesn't include drive letters; you may NOT specify more than one file with the same filespec (esclusive of drive) in the include file.

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Uses the same parameter file mechanism as zbu.cmd, and the cycling mechanism is similar.

Note the repeated calls to zip which will append to “today's” zipfile after the first drive is zipped.

The include file includes drive letters; zipping drive X will ignore includes from drive Y.

cfbu.prm: cfbu parameter file

```
/*  cfbu.prm  - parameter file for cfbu.cmd  */

/* REXX style comments OK but no multiline !!!!.  Blank lines are ignored.
/* DO NOT use any form of comment on a parameter line!!!!!
;  this is another legal comment form
#  as is this
/* cymax is max number of major cycles.  subcymax = number of minor cycles
cymax=3
subcymax=12

/* target directory / directories for backup files.  Note REQUIRED trailing \
targdir1=J:\cfbu\

/* delete this param if you only make one copy of the backup file  */
targdir2=K:\cfbu\

/*  drives with files in the include file.  Note syntax:  */
/*  trailing backslash and ; as delimiter  */

drives=E:\;F:\;G:\;H:\;
```


This should be self-explanatory.

My experience

I've used the partition backups for:

- System migration (new machine)
  Installing a new drive (either because of failure or for a larger drive) recreating the partitions
  Backout – after a really botched install that messes up the boot partition
- Recover back level files that have become corrupted.
- Critical files:
  - Assorted .INI files

These backups (both partition – particularly boot partition – and critical files) have saved me endless grief on many occasions!

Where to get the programs

- ftp.jt-mj.net (anonymous, your email address as password)

  The public directory will contain:
  - zbu.zip
  - cfbu.zip
  - backup06.pdf (these slides as a PDF file)