

DFSee 16.x overview, demo - Q&A



Jan van Wijk

DFSee functionality overview
New stuff in versions up to 16.x
Demos, Questions and Answers

FSYS - software **DFSee**

Who am I ?

Jan van Wijk

- Software Engineer, C, Rexx, Assembly, PHP
- Founded FSYS Software in 2001, developing and supporting DFSee from version 4 to the latest
- First OS/2 experience in 1987, developing parts of OS/2 1.0 EE (Query Manager, later DB2)
- Used to be a systems-integration architect at a large bank, 500 servers and 7500 workstations
- Developing embedded software for machine control and appliances from 2007 onwards

Home page: <https://www.dfsee.com/>

What is DFSee, functional view

- DFSee is an OS neutral utility similar to FDISK, LVM, PQ-Partition Magic, PQ-Drive-Image Norton-Ghost, Norton-Commander, Undelete and more ...
- Main areas of functionality:
 - FDISK/LVM/GPT create and maintain partitions
 - Imaging, disk-areas to/from (compressed) files
 - Cloning, disk-areas to/from other disk-areas
 - FS-specific: Check, Display, Undelete and Fix
 - Search missing partitions and recreate them
 - Browse directory/files, with copy, view, edit ...
 - Access disk/partition images incl browse (.IMZ/.VDI)
 - Disk data analysis and update (binary edit, disasm)

Managing partition info

- Backup/Restore commands Psave/Prestore and the corresponding items in the FDISK menu
- DFSDISK/DFSFAST procedures, preparing you for a partition recovery using the BSFIND command (Can be done 'post-disaster' as well :-)

Menu: 'Scripts -> Analyse disks for support'

- Recovery script can often be made (and tested!) based on the (7) disk analysis result files

Create and maintain partitions

- Use the CR/DELETE commands or menu items to manage the partition tables (MBR or GPT)
- Use the LVM command/menu to create and update the OS/2 specific LVM information and (IBM) Bootmanager configuration
- Use the Partition Table Editor (PTE) to directly manipulate table entries in MBR or GPT style
- Use the various SETxx and FIXxx commands to change partition properties and fix errors

Imaging to/from files

- Imaging is a process where DFSee objects like disks or partitions are copied into a regular (often compressed) image-FILE
 - You NEED regular file-level access in the OS you are running to read/write this imagefile!
- Can use 'smart' technology to skip unused areas
 - (Risky on bootable EXT4 filesystems!)
- Images can be restored to the same or to a different object, but keep the SAME size!
- Imaging is used for backup and restore, including data transfer between systems

Cloning between objects

- Cloning is a process where sectors from any DFSee object like disks and partitions are directly copied to another DFSee object
 - Disk-to-disk clone, as backup or recovery clone includes all partitioning and LVM info
 - Partition-to-partition clone, mainly for backup
- Special handling possible for bad sector areas
- Like imaging, can use 'smart' technology to skip any unused (freespace) areas in the object
 - (Risky on bootable EXT4 filesystems!)

File recovery and undelete

- File recovery is the copying of file-data as a new file on another filesystem, retaining as much of the name, path and file properties as possible
- When targeting files that have been deleted it is usually called an 'undelete' operation
- For 'normal' files it is often used to recover files from damaged or inaccessible filesystems
- Integrated in the directory/file **BROWSER UI** dialog
- Or use SEARCH, DISPLAY, RECOVER commands

Directory/File Browsing

- Implements display and navigation on directory and files in most filesystems on physical disks and DFSee .IMZ or VirtualBox .VDI imagefiles
- User interface resembles file managers with display, filtering, selection, marking and copying
- Actions on current/marked files, <F10> menu:
 - View contents, in ASCII, Disassembly or Hexedit view
 - Edit, modifying data in the HEX-editor where possible
 - View metadata like Fnode/Inode/MFT-rec/Dir-entry
 - View OS/2 Extended attributes (HPFS, FAT, JFS)
 - Edit filename on HPFS or JFS (same length name)
 - Copy/Recover file(s) to another drive

Interactive binary edit/view

- Large window with HEX and ASCII sections
- Variable number of lines and columns, selectable
- Integrated SEARCH facility, highlighted result
- Editing of files of any size, byte size granularity, including insert and delete at the EOF position
- X86 disassembler view modus for x86 binary code
- ASCII view modus, for text-files or binaries with text
- Mouse-marking as byte-range or complete lines, with clipboard integration (copy and paste)

Enhanced native scripting

- Backwards compatible with existing .DFS scripts
- Much better error checking possible
- Direct access to much DFSee specific info, including disk sector contents from a script
- Powerful expressions, variables and functions
 - Can be used directly from the DFSee command line too:
example, show current sector-number: `say {i2hex($_this)}`
- Conditional and looping control logic allows more intelligent and powerful scripts

DFSee versions and user interface

- DFSee is available for 32-bit DOS, Linux, Windows-XP/7/8/10 and OS/2 (ArcaOS/eCS) and as a 64-bit macOS version.
- It is a non-graphical text based program, can run from a boot diskette, bootable CD or USB stick
- Most functions can be run from a MENU interface with additional selection dialogs
- Even more functionality through a command line
- Output can go to the screen AND a log file
- Command scripting capability (recovery, automation) with many C/Perl-like features

Major versions

- 1.xx 1994 HPFS viewing/fixing OS/2 16/32-bit
- 2.xx 1997 NTFS, FAT, FDISK, Imaging, setboot
- 3.xx 1999 Windowed UI, NT-version, DFSDISK
- 4.xx 2001 Cloning, Scripting, freespace-wipe
- 5.xx 2002 Menu-system, Dialogs, FS-resize
- 6.xx 2003 Linux version, Smart imaging
- 7.xx 2005 Installer, Mouse, new dialogs
- 8.xx 2006 JFS support, Sector edit, FAT format
- 9.xx 2007 Geo sniffing, more linux FS support
- 9.xx 2008 Enhanced (C/Perl) scripting support
- 10.x 2010 Bootable USB stick, better scripting
- 11.x 2012 Many small enhancements and fixes
- 12.x 2014 Basic/Expert menu, DUMPFS, ExFAT
- 13.x 2015 Full GPT en EXT2/3/4 support
- 14.x 2016 Browse FS incl DFSee .IMZ/VirtualBox .VDI
- 15.x 2018 FS, more Browse, mark/clipboard, DFSPUPPY
- 16.x 2019 ISO and APFS FS support; Browse/PUPPY update

New features in 9.xx - 11.x

- Contents based disk geometry (sniffing)
- EXT2/3/4 and ReiserFS basic support
- GRUB detailed reporting and analysis
- Generate HTML menu-documentation
- Enhanced native scripting capabilities
- Disassembler (F2) for x86 processors in the binary sector editor, 16, 32 or 64-bit
- Bootable USB stick/disk creation, for 1st generation, FreeDOS / PartedMagic stick
- Display-only 'GPT' style partition support
- JFS/HPFS boot driveletter display/change
- Reset 'bad sectors' on NTFS, HPFS, FAT

Bootable USB stick, 1st Gen

GRUB4DOS 0.4.4 2009-06-20, Memory: 636K / 2045M, MenuEnd: 0x48C4C

0

Boot FreeDOS and run DFSee, select option '0' for file access to the stick
Boot Parted Magic Linux, find a DFSee icon on the stick in "My Documents"



Use the ↑ and ↓ keys to highlight an entry. Press ENTER or 'b' to boot.
Press 'e' to edit the commands before booting, or 'c' for a command-line.

The highlighted entry will be booted automatically in 6 seconds.

New features in 12.x and 13.x

- 'Basic' versus 'Expert' user interface
- Search/Grep capability in HELP and Output text
- Support for the Enhanced FAT filesystem (ExFAT)
- Full support for Guid Partition Tables (GPT)
- Full support for Ext2, Ext3 and Ext4 filesystems

What is new in DFSee 14.x

- **Browse directory/file structures on most filesystems**
 - Works on HPFS, JFS, FAT, NTFS, HFS and EXT/2/3/4
 - Easy navigation through the directory tree
 - View (or Edit) file contents, metadata or extended attributes
 - Copy/recover one or more files to another drive
- **Access disks/filesystems in .IMZ or .VDI images**
 - Browse a filesystem backup in a DFSee compressed image (*.IMZ) allowing viewing or copying of file(s) and navigation the directories
 - Mount a complete disk-backup inside such an IMZ, in DFSee allowing access to the partitions and browsing the filesystems
 - Mount a VirtualBox disk image (*.VDI) allowing partitioning, recovery and browsing of the filesystems inside, including copying one or more files to other drives

What is new in DFSee 15.x

- Many enhancements to the user interface
 - Marking of text in various windows using the mouse (drag) with integration with the systems clipboard (copy and paste)
 - Update DFSee from the Help menu (requires WGET utility)
- **BROWSE** updates like recursive directory copy
- MacOS full HFS+ and limited APFS support
 - DFSee.app to start DFSee from the macOS 'Dock'
- **DFSPUPPY**, 2nd generation bootable USB-stick
 - Boots into a fully functional PUPPY Linux desktop that includes many standard applications, and has network/Internet access as well
 - Dedicated icons on the desktop to start DFSee, Hex-Edit and MC
 - Can use the USB-stick for image, script and log file storage (FAT32)
 - DFSee can be updated from the menu itself, saved on shutdown.
 - Stick can be created from DFSee itself (on platforms supporting USB)

What is new in DFSee 16.x

- More enhancements to the user interface
 - File dialog new features, show hidden-files made optional, cleanup
- **FILE BROWSER** updates like hidden-files, fixes
- **APFS** filesystem support including file recovery
- **ISO 9660** CDRROM (and ISO imagefile) support
- **DFSPUP64**, bootable USB-stick, 3rd generation
 - Latest releases include direct NTFS and JFS access too (from Linux itself)
 - Updated to use very recent PUPPY distribution and Linux kernel releases:
 - **DFSPUP64**, BionicPup 64-bit BIOS/UEFI capable, requires 64-bit CPU
 - **DFSPUP32**, BionicPup 32-bit BIOS ONLY, run on older 32-bit CPU's
 - **DFSPUPPY**, Older Slacko 32-bit BIOS ONLY, the original DFSPUPPY

DFSPUP64 USB stick, desktop

DFSee Linux 16.2 Whole Phys. disk 1 FDISK size: 465.8 GiB

```
DFSee Linux 16.2 : executing: map
Command timestamp : Wednesday 2019-07-24 16:51:18

<MBR disk 1>--</dev/sda>--<SSD 476MiB Evo 850>-----
m  1  2  3  4  5  6  7  8
b  BM NTFS -g -f -d -e -h -j
r  I1 Win7pro JFS HPFS JFS JFS FAT32 JFS JFS
ace DFSPUP64B10
Prim

<MBR disk 2>--</dev/sdb>--<USB DISK 3.0 >-----
m 11 13
b Free Removable FreeSpace Pri/Log
r FAT32
ace DFSPUP64B10
Prim
```

Download DFSPUP64.IMZ to create a 64-bit UEFI capable DFSPUPPY bootable USB

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Questions ?

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