DFSee 17.x overview and Q&A

Jan van Wijk

DFSee brief functionality overview
New stuff in later versions up to 17.x
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
- Develop embedded software from 2007 onwards
- Retiring 2023, end DFSee development in 2022

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

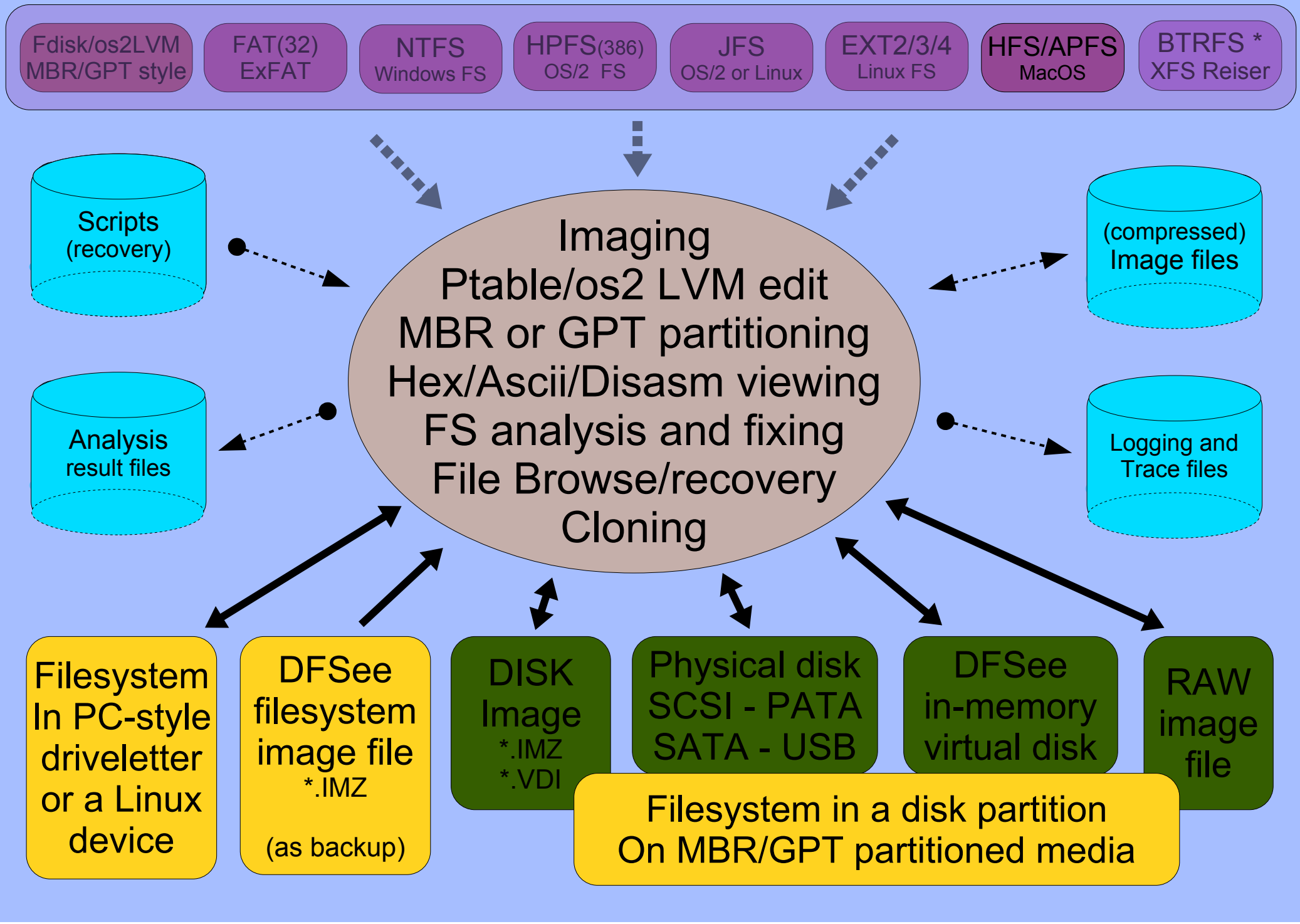
- Editing of files of any size, byte size granularity, including insert and delete at the EOF position

- X86 disassembler view modus for x86 binary code
- ASCII view modus, for text-files or binaries with text

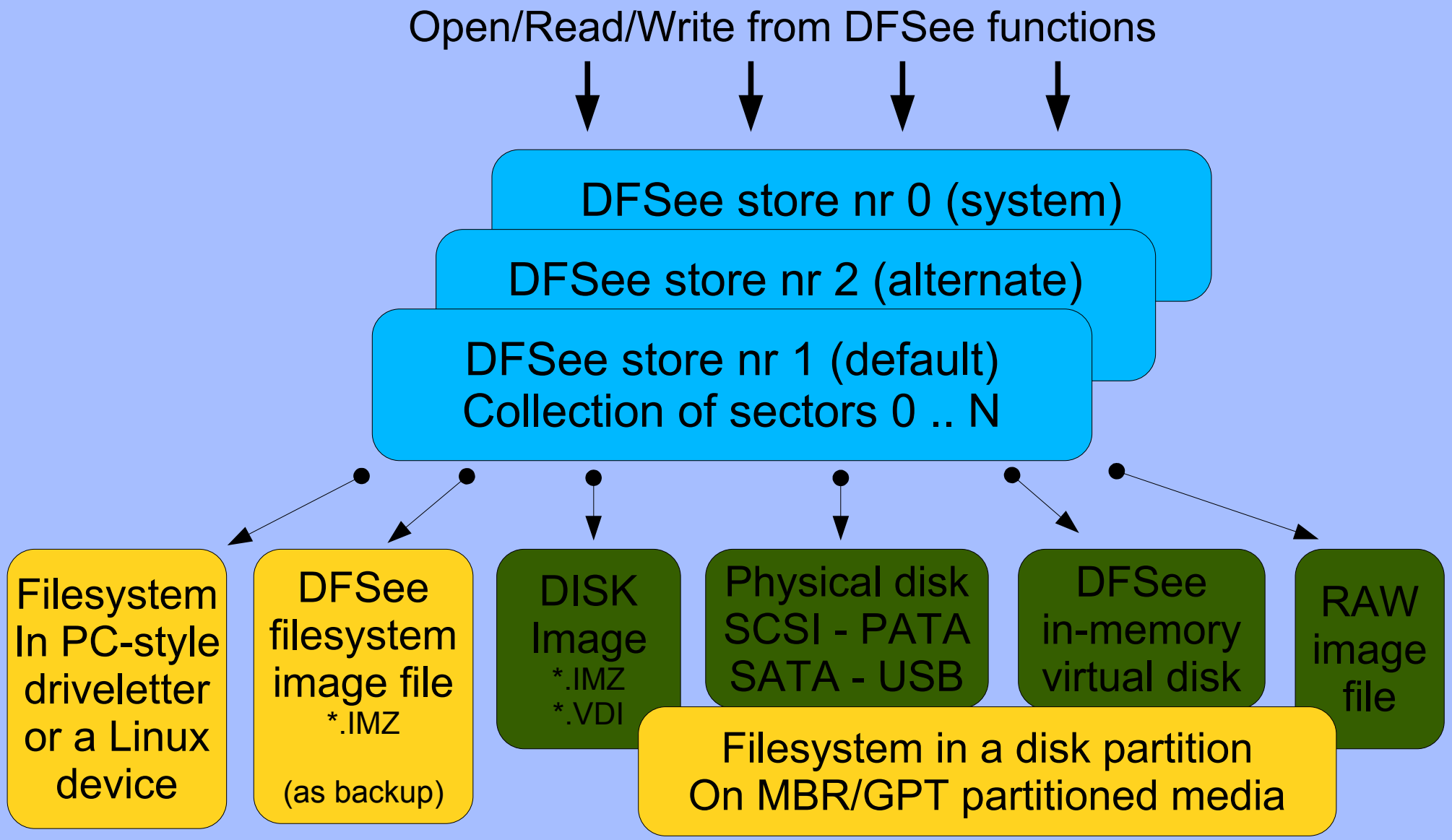
- Mouse-marking as byte-range or complete lines, with clipboard integration (copy and paste)

DFSee architecture

- DFSee considers all storage as a collection of sectors (typical 512 bytes) called a STORE
- Many generic commands are available to work on any type of FS or disk (see DFSCMDS.TXT)
- On opening, DFSee will analyze the first sector(s) and select a suitable mode with specific commands and menu selections
- The most important modes (or filesystems) are: FDISK, FAT, HPFS, NTFS, JFS, HFS+, EXTn ...


Fdisk/os2LVM
MBR/GPT style
FAT(32)
ExFAT
NTFS
Windows FS
HPFS(386)
OS/2 FS
JFS
OS/2 or Linux
EXT2/3/4
Linux FS
HFS/APFS
MacOS
BTRFS *
XFS Reiser
Scripts
(recovery)
Analysis
result files
Imaging
Ptable/os2 LVM edit
MBR or GPT partitioning
Hex/Ascii/Disasm viewing
FS analysis and fixing
File Browse/recovery
Cloning
(compressed)
Image files
Logging and
Trace files
Filesystem
In PC-style
driveletter
or a Linux
device
DFSee
filesystem
image file
*.IMZ
(as backup)
DISK
Image
*.IMZ
*.VDI
Physical disk
SCSI - PATA
SATA - USB
DFSee
in-memory
virtual disk
RAW
image
file
Filesystem in a disk partition
On MBR/GPT partitioned media

The DFSee STORE concept



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
- 17.x 2022 Open Source Edition, no registration required

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 trough 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)

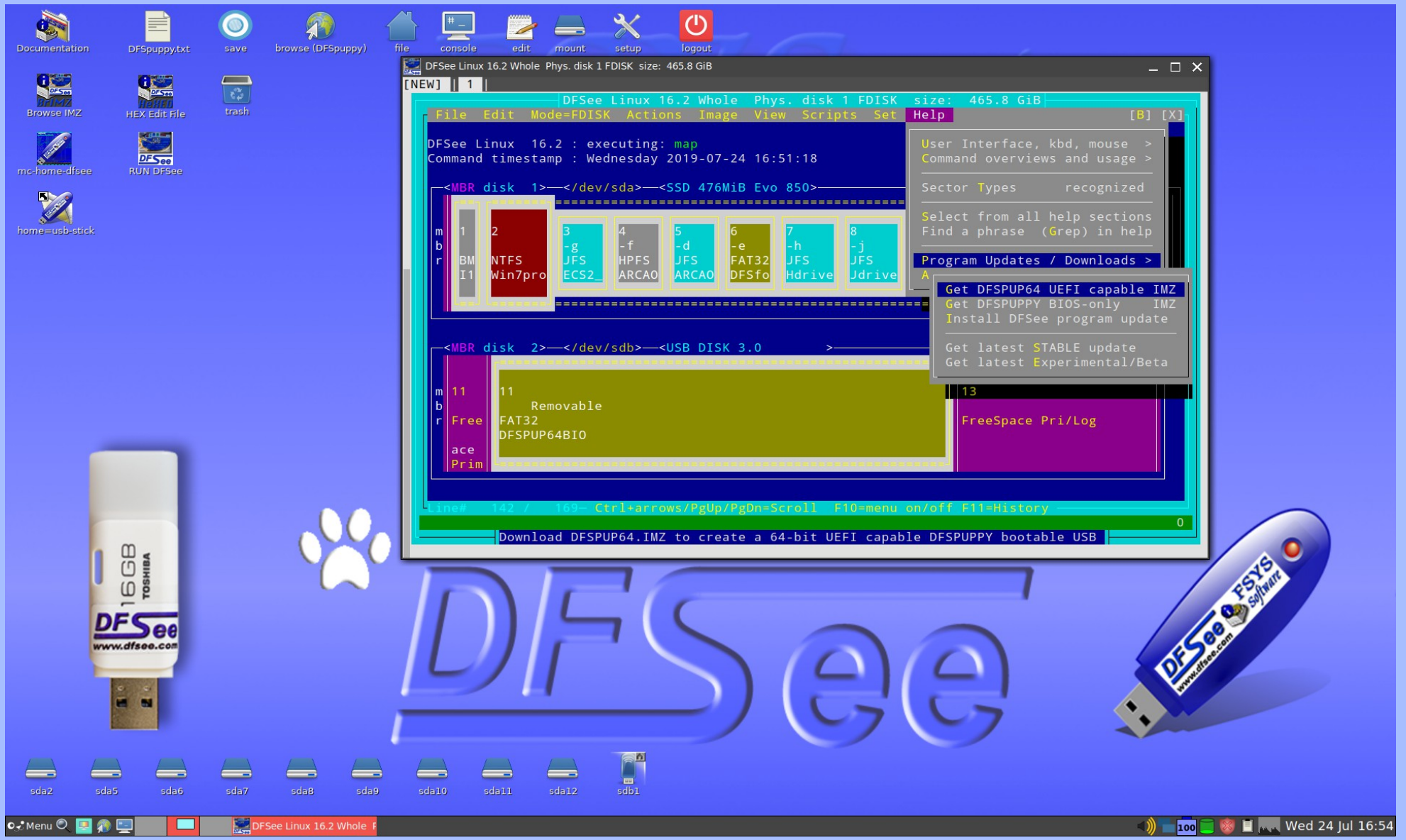
What is new in DFSee 16.x

- 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** CDROM (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

What is new in DFSee 17.x

- In terms of functionality, nothing ...
  - Just some minor bug fixes and cleanup, but no registration check!
- **OPEN SOURCE EDITION** no registration required
- There will be no more active code development, just minor bugfixes when needed
- **Support** (email) **continues** on a **best-effort** basis
- Source code will be made available in some form

DFSPUP64 USB stick, desktop



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Questions ?

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