

# *DFSee concepts, demo and Q&A*

Jan van Wijk

How to use the DFSee program more effectively by understanding its capabilities and some of the internal workings

**FSYS** - *software* **DFSee**

# *Presentation contents*

- Who am I
- DFSee functional and technical view
- DFSee architecture and working
  - Accessing 'sectors' in 'stores'
  - Different types of media
  - Virtual disks, for analysis purposes
  - Generic implementation plus FS (mode) specific
- Examples using 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 14.x
- 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: <http://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:
  - Backup and restore of partitioning information
  - Search missing partitions and recreate them
  - FDISK/LVM 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
  - Browse directory/files, with copy, view, edit ...
  - Access disk/partition images incl browse (.IMZ/.VDI)
  - Disk data analysis and update (binary edit, disasm)

# *What is DFSee, technical view*

- DFSee is a tool to examine and possibly modify data on a variety of storage media
- Types of storage supported:
  - Physical disks, when access supported by the OS
  - Disk partitions on partitionable media, MBR or GPT
  - Volumes (driveletters on PC) or Devices on Linux
  - Regular files, like RAW disk images or binary files
  - DFSee compressed disk/partition images (.IMZ)
  - VirtualBox static or dynamic disk images (.VDI)
- Data can be viewed RAW or formatted for:
  - FDISK usage, partition-tables bootsectors, LVM-info
  - Filesystem structures, FAT, HPFS, NTFS, JFS, EXTn ...
  - And viewed as ASCII, Disassembly or HEX (incl. editing)

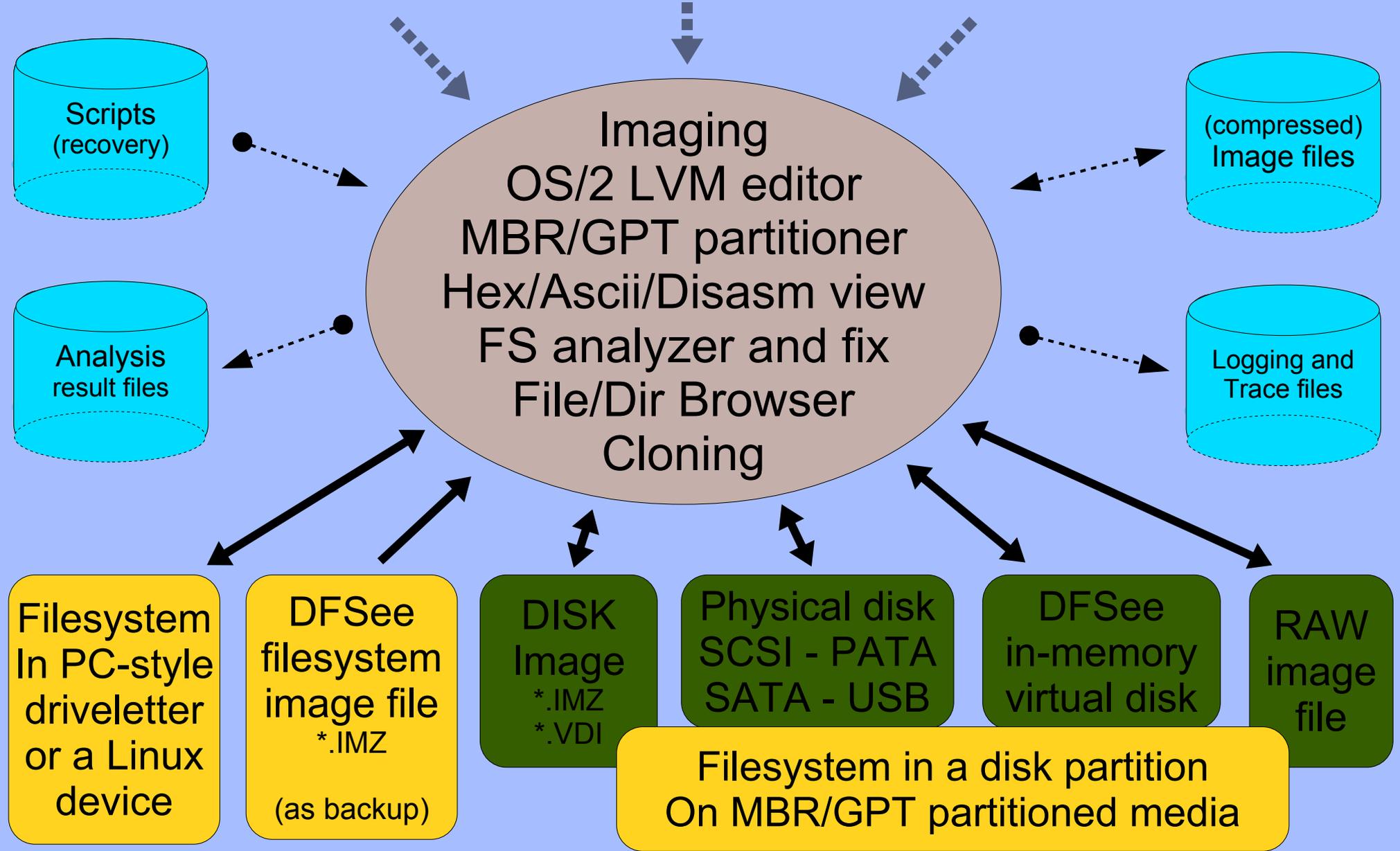
# *DFSee versions and user interface*

- DFSee is available for OS/2 (ArcaOS/eCS), DOS, Windows-NT/XP/7/8/10, most Linux distributions and Mac OSX (Intel)
- It is a non-graphical text based program, able to run in simple environments like a boot diskette, CDRROM or an USB-stick
- Most functions can be run from a windowed MENU interface with additional dialogs
- Even more through the command-line
- Output can go to the screen AND a logfile

# *DFSee architecture*

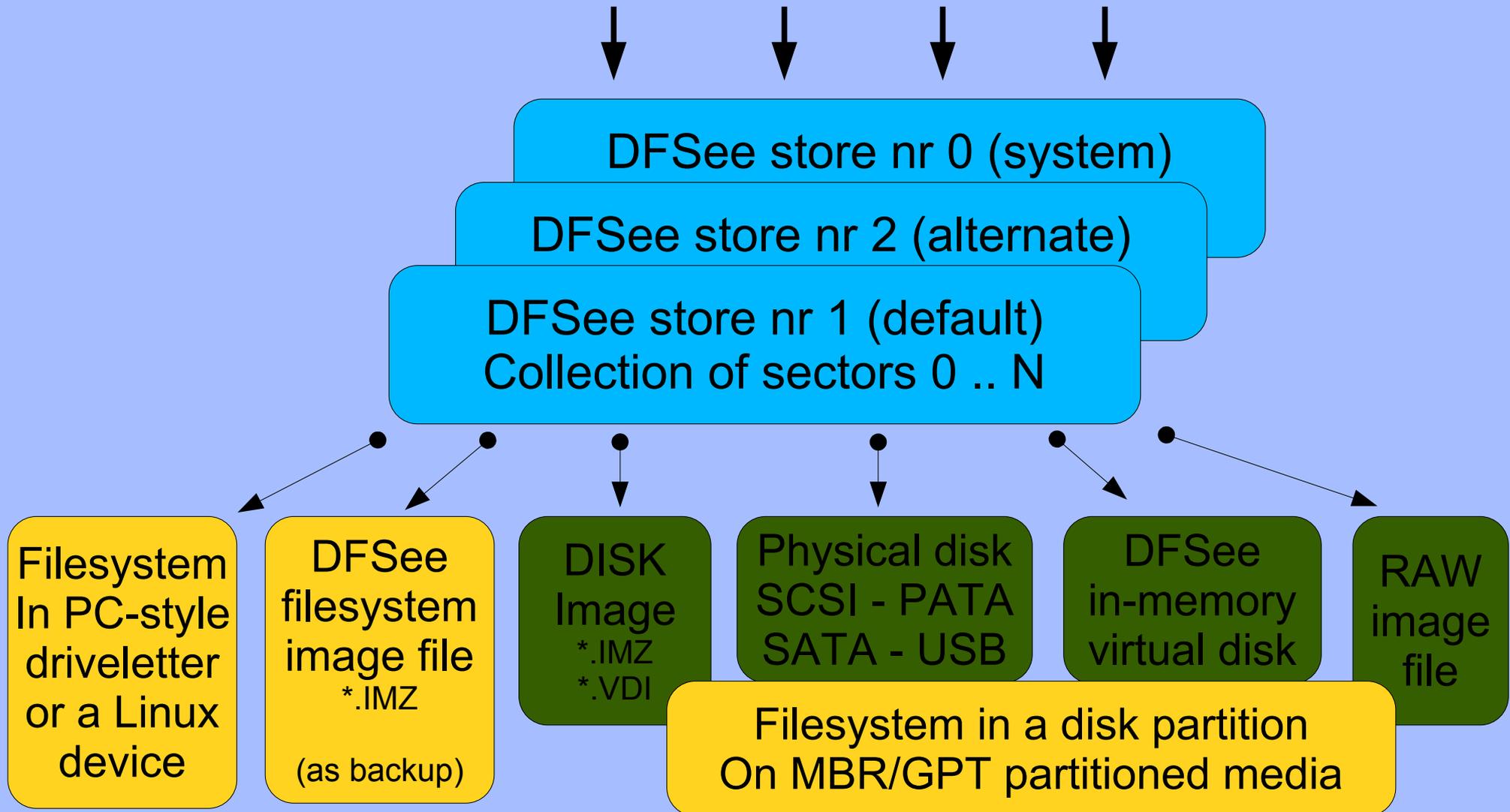
- DFSee considers all storage as a collection of sectors (typical 512 bytes) called a STORE
- Many generic commands are available to work on any type of FS or disk (see DFSCMDS.TXT)
- On opening, DFSee will analyze the first sector(s) and select a suitable mode with specific commands and menu selections
- For the 14.x, the most important modes are: FDISK, FAT, HPFS, NTFS, JFS, EXTn ...

- Fdisk / LVM  
MBR/GPT style
- FAT(32)  
advanced-FAT
- NTFS  
Windows FS
- HPFS(386)  
OS/2 FS
- JFS  
OS/2 or Linux
- EXT2/3/4  
Linux FS
- Mac HFS+  
XFS Reiser



# The DFSee STORE concept

Open/Read/Write from DFSee functions



# *Store concept, details*

- A store can be associated with a medium using an OPEN menu-item or command
- The store keeps additional information like the geometry and some statistics
  - See the **STORE** command/menu-item for details
- Partitions on (virtual) disks are supported by defining a non-zero 'base' sector number as the disk-sector considered to be 'sector 0'
  - See the **BASE** command/menu-item for details
- Operations like CLONE copy sectors between 2 stores

# *Virtual disks in DFSee*

- Exists in MEMORY within DFSee only
- Behaves (almost) the same as a real disk
- Can be created in 2 ways:
  - By specifying a size and/or disk geometry
  - By using a set of .Pdx files as a template (often used with the DFSDISK\*.\* result files)
- Can be used to:
  - Learn DFSee commands and functions
  - Test recovery scenarios and scripts

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Questions ?

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