DFSee 16.X overview, demo - Q&A

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DFSee functionality overview
New stuff in versions 9 trough 16
Demos, Questions and Answers

FSYS - Software DFSee

Presentation contents

- Who am I
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- Version history, new in versions 9 .. 16
- Demo of several DFSee functions
  - DFSDISK procedure, 'Analyse disks for support'
  - The file-browser functionality, with file/directory recovery
  - Binary editor, including disassembler and ascii view
  - Whatever you like (and is doable :-)

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:
  - Backup and restore of partitioning information
  - Search missing partitions and recreate them
  - 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
  - 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
- BSFIND command to search lost partitions
- Integrated in the DFSDISK/DFSFAST procedures, preparing you for a partition recovery ...
  (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
- 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
  - (see the DFSxxx.TXT documentation for details)

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
- 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

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)
    - Improved in 9.xx 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

What is new in DFSee 9.xx

- Contents based disk geometry (sniffing)
  - Using partition-tables and LVM information
  - Can be disabled using a '-geocalc-' switch
- EXT2/3/4 and ReiserFS basic support
  - allows disk-allocation map, 'smart' imaging/cloning (and file level displays and recovery in later versions)
- GRUB detailed reporting and analysis
- Generate HTML menu-documentation
  - See DFSHIST.TXT and history web-page

New in version 9, continued

- Greatly enhanced native scripting capabilities
  - Uses 'C' and 'Perl' like expressions, variables and control statements like if-then-else and while, and with direct access to many DFSee internal variables ...

    Also see separate 'TxScript' presentation'
  - Used for recovery scripts, and USB-stick creation
- Disassembler modus (F2) for x86 processors added to binary sector editor, 16, 32 or 64-bit
  - Great for analysis of boot code, or any other piece of x86 code you may encounter while browsing your disk ...

What is new in DFSee 10.x

- Bootable USB stick/disk creation
  - Using PenDriveLinux ISO boot selection menu
  - Boots the standard DFSee 10.x ISO
  - Boots into the PartedMagic Linux ISO
  - User adaptable.
- Enhancements to scripting
  - Verbose mode with variable value expansion
  - Single-step mode for debugging a script
- Updated FreeDOS, including most drivers
  - Start menu includes special 'boot from USB' option
- Many other fixes and enhancements

Bootable USB stick, Boot

Bootable USB stick, Usage

- Boot the FreeDOS based ISO, select option '0' in its menu to access the stick itself too. (Can be made the default in the ISO file)
  - Logs to ram disk Z: by default (gone when not copied!)
  - May want to open a log on the stick D:\logs instead (get actual drive letter from the DFSee 'part' display)
  - Unfortunately, may cause a HANG on some systems
- Boot the PartedMagic Linux ISO
  - On Linux desktop, click “My Documents”
  - Find the stick, click it to mount and open root folder
  - Click the DFSee icon to start DFSee
  - Working directory is the sticks /logs directory

What is new in DFSee 11.x

- User interface allows SORTING most lists
- JFS/HPFS boot sector drive letter display/change
- Better 'enhanced format' geo support, 1-MiB/SSD
- Display-only 'GPT' style partition support
- More complete functionality for FAT(32)
- Reset 'bad sectors' on NTFS, HPFS and FAT
- WPI install, distr. ZIP and desktop script optimized
  - OS/2 binaries now reside in 'BIN' directory, not 'OS2'

What is new in DFSee 12.x

- 'Basic' versus 'Expert' user interface
  - Default is to use the 'Basic' mode, reducing complexity
    - Only the most used menu-items and options are present
    - Makes using DFSee a less 'frightening' experience
- Search/Grep capability in HELP and Output text
    - Forward/Backward searching, Grep result-list selection
- Support for the Enhanced FAT filesystem
    - Enhanced FAT is mandatory for SD-Cards over 32Gb
    - FS drivers available on Windows, OS-X and Linux (and on many cameras supporting huge SD media)
  - DFSee supports Enhanced FAT for most operations:
    - Display boot-record, space-allocation and directories
    - Use allocation info for 'smart' imaging and cloning
    - Browse, including copy (inaccessible) files to another drive

What is new in DFSee 13.x

- Full support for Guid Partition Tables (GPT)
  - Transparent display of either MBR or GPT style partitions
  - Detailed display of GPT partition entries
  - Create, Delete and Resize of GPT partitions
  - Partition Table Editor specifically for GPT
- Full support for Ext2, Ext3 and Ext4 filesystems
  - Show the EXT generation being used (2, 3 or 4)
  - Display of the directory structures
  - File recovery from EXTn filesystems
  - Browsing EXTn filesystems, allowing view/edit and copy of files as well as navigating the directory tree

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

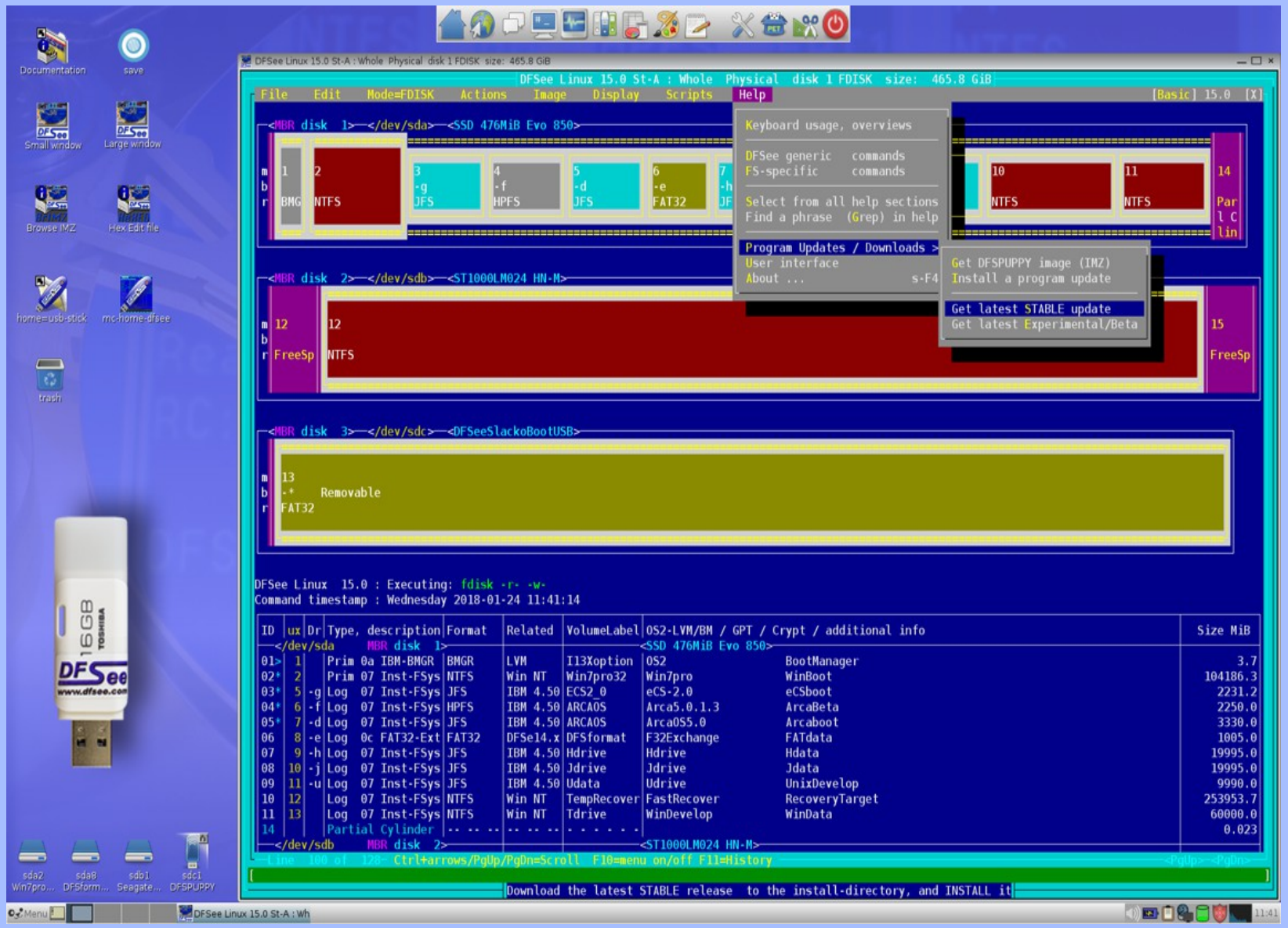
What is new in DFSee 15.x

- 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**, bootable USB-stick based on Linux
  - 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)

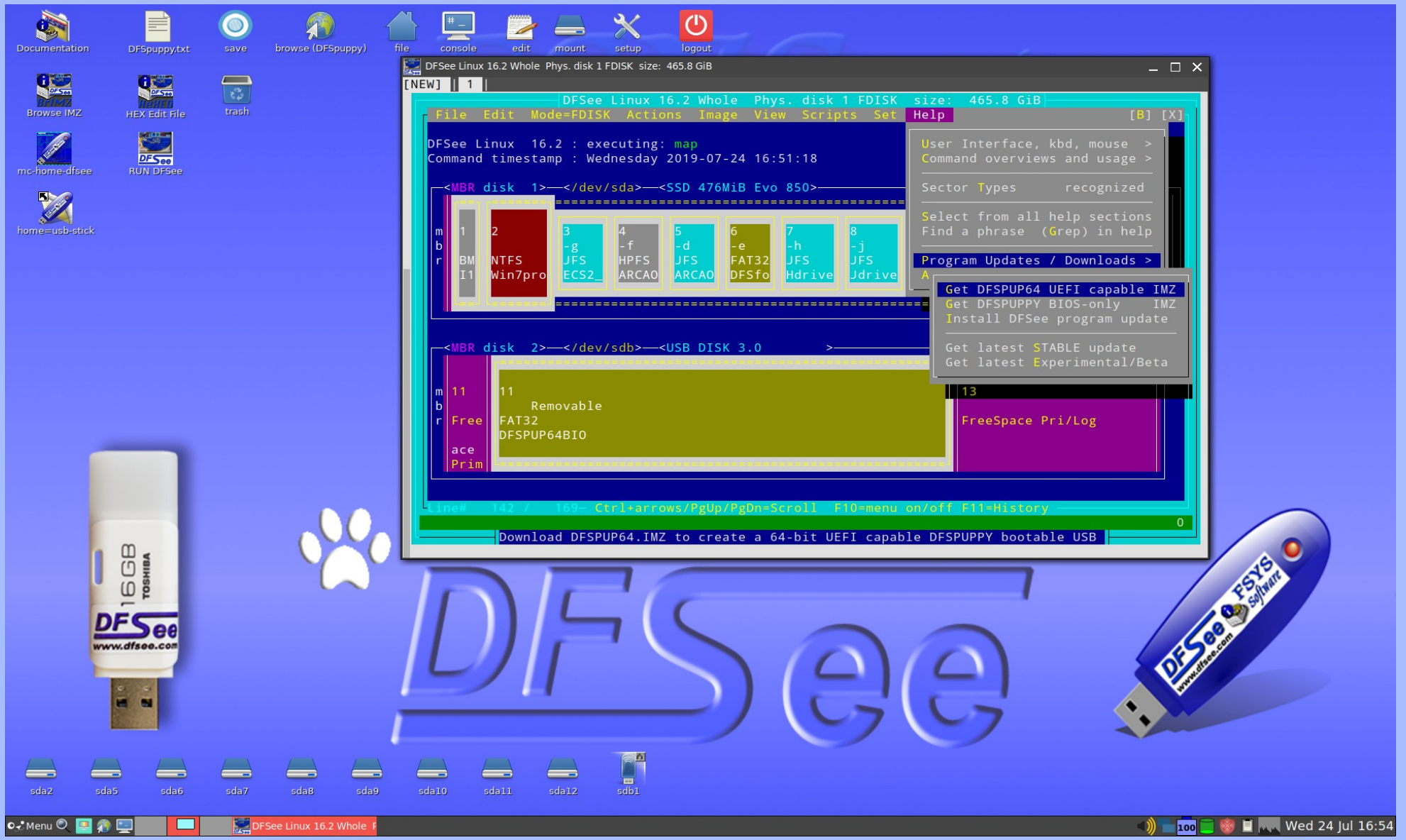
What is new in DFSee 16.x

- 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
- **DFSPUPPY**, bootable USB-stick based on Linux
  - 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

DFSPUPPY USB stick, desktop



DFSPUP64 USB stick, desktop



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Questions ?

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