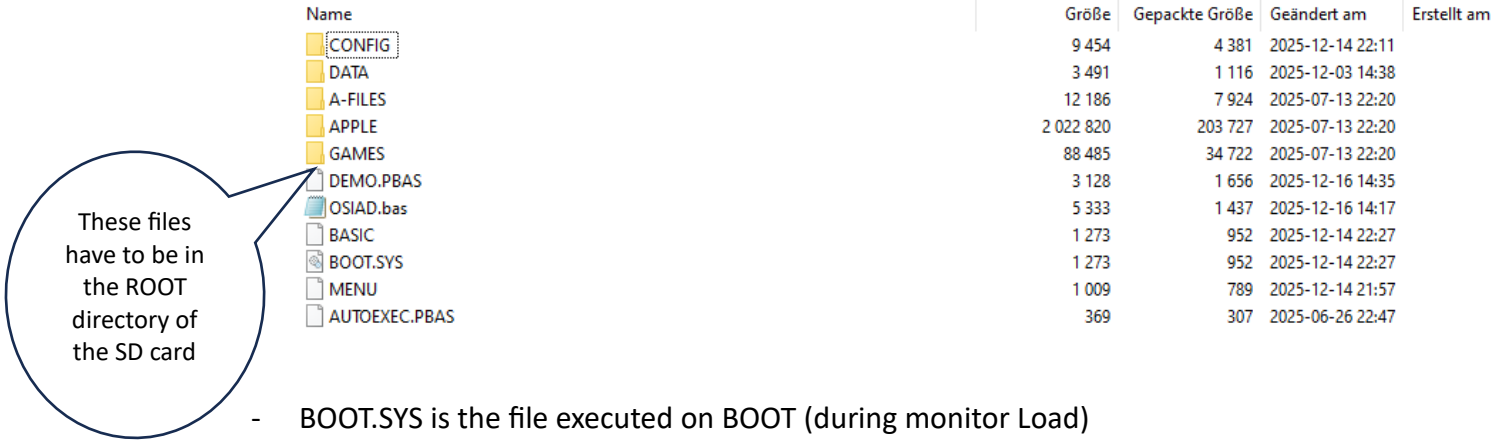
QUICK GUIDE TO SD-CARD EXTENDED BASIC V5

1 Software

- Make sure the SD card is formatted in FAT32 and standard cluster size of 16kB
  SD card size is limited to 32GB.
- Copy the System Boot and Games files to the SD-card
- OSI.SD (aka ZIP) contains these system files for different machines:
  8K, 16K 24K,32k and 40k RAM machines. Choose the directory that fits to your machine memory layout!!



Name	Größe	Gepackte Größe	Geändert am	Erstellt am
CONFIG	9 454	4 381	2025-12-14 22:11	
DATA	3 491	1 116	2025-12-03 14:38	
A-FILES	12 186	7 924	2025-07-13 22:20	
APPLE	2 022 820	203 727	2025-07-13 22:20	
GAMES	88 485	34 722	2025-07-13 22:20	
DEMO.PBAS	3 128	1 656	2025-12-16 14:35	
OSIAD.bas	5 333	1 437	2025-12-16 14:17	
BASIC	1 273	952	2025-12-14 22:27	
BOOT.SYS	1 273	952	2025-12-14 22:27	
MENU	1 009	789	2025-12-14 21:57	
AUTOEXEC.PBAS	369	307	2025-06-26 22:47	

- BOOT.SYS is the file executed on BOOT (during monitor Load)

2 How to Boot into the SD card?

Booting BOOT.SYS you have to do the following

1 First you need to do a cold start “C” to initialize BASIC and Memory
(this is only necessary at first power on to initialize BASIC)

2 Press RESET again

3 Press “M” for machine code

4 Press “L” within 2 seconds after reset. This is the time, where the SD card is waiting for you. To repeat the autoboot feature, start at 2 again. If the “Loading…” screen does not appear, the SD card was not recognized or BASIC not initialized.

- Check SD card format, max size of mini.SD card is 32 GB
  in FAT32 formatted
- Check if the correct machine files have been used (8k..40k)
- Check correct SD card insertion
- Check mechanical connector setup

The system will boot into the BOOOT.SYS file on the SD card. BOOT.SYS is a program that provides extended BASIC commands. BOOT.SYS can be any alternative program of your

choice. BOOT.SYS is in this version identical to the program “BASIC” and will show the usual BASIC “OK” prompt. It provides extended resident BASIC commands.
BOOT.SYS will occupy 1280 bytes at the TOP of RAM and adjust the BASIC memory pointers accordingly. It runs well on 8k machines. It also will place a jump instruction at $00BC to process the extended BASIC commands.

Using the File MENU program

Before explaining the new BASIC commands, you can run a program called “MENU” on the SD-card to browse the filesystem and run or load programs from there.
To quickly enter into the MENU program, type the command SDRUN. The MENU program is located 768 bytes before the extended BASIC program and does not stay resident.

Navigation is done by the three keys
“ >” , “<” and “/” on the OSI keyboard

“ESC” will bring you back to BASIC with the extended already loaded.

“ENTER” will allow to
A) go into a subdirectory
B) load and start a program

“[]” indicates a subdirectory

“/” will bring you back to the root directory

Pressing ENTER on a .PRG, PBAS. .LOD, 65V, HEX type of file will load and start the file.
.BAS are Basic text files
.LOD and .HEX and .65V are OSI machine loader text files
.PRG or PBAS are binary program files

3 Extended BASIC for SD card

Here the new BASIC commands available:

SDLIST	List current directory
SDLOAD “FILENAME”, [ADDRESS]	Loads BASIC or Binary file
VAL=SDSAVE “FILENAME”, [START ADDRESS, END ADDRESS]	Saves BASIC or binary file
VAL=SDLEN “FILENAME”	Returns length of file
SDGOSUB “PATH”	Select Directory
VAL=SDLOG	Returns last error
VAL=SDREM “FILENAME”	Removes a file
VAL=SDFRE	Returns free space on SD card

SDCLEAR	Close file / Clear Errors
SDDEF 0 or 1	AutoStart for BASIC files
SDRUN	Runs the “MENU” program

BASIC commands available on 16k RAM or more:

VAL=SDNULL ”DIRECTORY”	Remove directory in current path.
VAL=SDDIM ”DIRECTORY”	Create directory name in current path
VAL= SDVAL “FILENAME”, “FILENAME”	Rename File

BASIC commands available on newer firmware:

STRING=SDCHR$ (x)	Get directory entry at position x “” (empty) at end of directory

PATH string length is max 31 characters; FILENAME string length is max 23 characters. FILESIZE is max 65535 bytes for saving. Read files may be larger. SDLEN returns 65535 in length, if file is larger than 64k or zero, if a file does not exist.

INFO:

SDCLEAR may be used like a CLOSE command after reading or writing files.
I case the SD commands get stuck due to program interruption or mistaken commands, SDCLEAR will reset any SD card error and you can continue operation.

SDLIST will show a directory listing of the actual path. The listing may be interrupted by pressing the right “SHIFT” key. Changing the path can be done by **SDGOSUB** ”Path”.
Type SDGOSUB ”” (empty string) to return to the root directory.
Several path levels are separated by “/”, for example SDGOSUB ”APPLE/TEST”

Programs are always saved in binary format, even standard BASIC programs.
To save a BASIC program under extended BASIC, use the *.PBAS extension.
A file with a .BAS extension is the conventional text file format and will be loaded like a file form the serial/cassette port. Under extended BASIC, you **cannot** save Basic programs in text file format (for now). But loading of old text file formatted software just works fine.

If you want to save your BASIC program as an AutoStart program, enter **SDDEF** 1.
Do this before save. SDDEF is default 0. For example, SDDEF 1: SDSAVE “TEST.PBAS”

Without an address field, the current BASIC program will be taken and saved in binary PRG encoded format (BASIC binary includes a specific header with starting @ 02D8…).
You may chain AutoStart basic programs by SDLOAD within a BASIC program. Variables will be cleared. For transfer of data, you need dedicated memory areas.

If you add the optional [ADDRESS START, END] field, a machine code PRG file will be created with AutoStart at the given START ADDRESS.
If you use **SDLOAD** ”FILENAME” the file will be loaded at its original location and executed, if the extension starts with “P…”. Otherwise, the SD command just returns.
If you use **SDLOAD** ”FILENAME”, Address, the file will be loaded to the given Address instead.
The value returned (data or error status) indicates, if the SDSAVE, SDREM failed (1) or passed (0). To check if a file exists, use **SDDIM** “FILENAME”. A return value >0 shows the file size and that the file was found. (see also SD_Card_Reference.pdf)

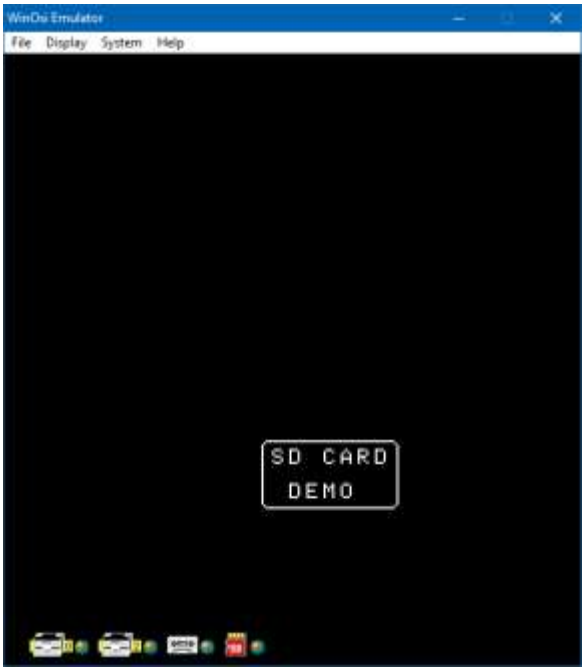
In the current implementation, it is **not** possible to create or delete subdirectories.

IMPORTANT:
The file extensions are relevant to determine the type of program code. Upper and lower case as file extensions make no difference. We have:
*.PRG, *PBAS, *”” (no extension), or all file extension starting with “P “or empty
-> These are binary AutoStart executables with a leading load/start address
*.BAS, or all file extension starting with “B “
-> These are true BASIC text files that will be loaded by the BASIC interpreter
*.LOD, *.HEX, or all file extension starting with “L “ or “H”
-> These are OSI Hex loader text files that will be loaded by the OSI MONITOR

All other file extensions are handled like binary executables with a leading load/start address but these will not AutoStart.

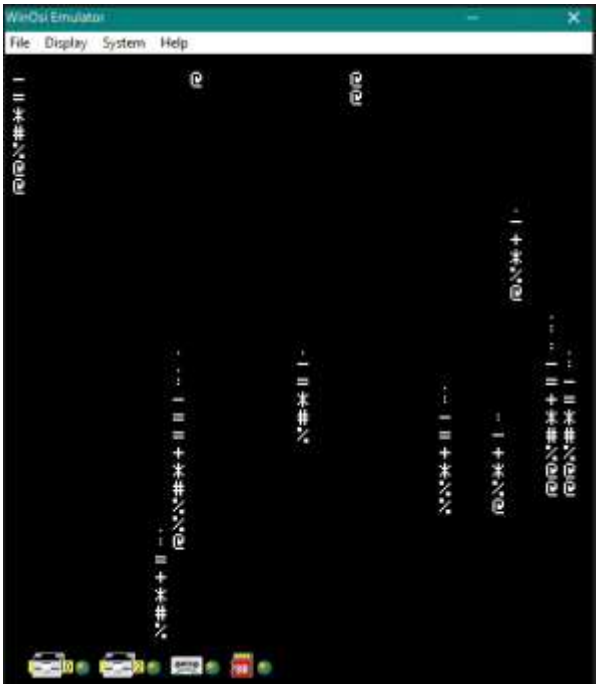
Example 1:

```
10 REM BOING DEMO
20 SDCLEAR: SDGOSUB"CONFIG"
30 QB=SDLEN"DEMO.IMG": IFQB=0 THEN
   PRINT "FILE NOT FOUND": END
40 FORQA=0TO30:PRINT: NEXT
50 PX=0:PY=0: DX=1: DY=1
60 PX=PX+DX:PY=PY+DY
70 IF PX>7 THEN DX=-1
75 IF PY>20 THEN DY=-1
80 IF PX<-7 THEN DX=1
85 IF PY<2 THEN DY=1
90 SDLOAD"DEMO.IMG",53248+PX+32*PY
100 FOR QA=0TO31: NEXT: GOTO60
```



Here a DEMO.IMG binary file (with a leading load/start address) is placed at different positions on the screen, ignoring the original load address.

Example 2:




```
10 REM READ DATA IMAGE DEMO NEW
20 FOR QA=0TO27:PRINT:NEXT
30 A$="ANI.IMG":B$=A$+"01"
40 A=7+PEEK(129)+PEEK(130)*256
50 SDCLEAR:SDGOSUB"DATA"
60 QB=SDLEN B$:IFQB=0 THEN PRINT
    "FILE NOT FOUND":END
100 FOR QC=1 TO 90
110 IF QC<10 THEN QB=48:GOTO 130
120 QB=48+INT(QC/10)
130 FOR QA=0TO20:NEXT
140 POKE A,QB:POKE A+1,48+QC-
     (INT(QC/10)*10)
150 SDLOAD B$
160 NEXT
170 GOTO 100
```

Here a list of 90 animation images is loaded into screen memory.

Several other BASIC files are on the SD card to demonstrate the functions.
GETBAS.BAS shows how to activate the BASIC extension directly from BASIC only.
Or GETFILE.BAS to access the SD card without the BASIC extension present. Directly from standard OSI BASIC (only if you want to access the SD card without the BASIC extension). **But using the BASIC command extension is much more effective!**

REMARK: When running the SD MENU program, the BASIC command extension will stay resident. MENU uses some routines in the same memory space at the end of memory. The MENU program and other programs should be placed below in memory, to keep the BASIC extension available. On 8K machines, some programs occupying more than 6kb program space may not work. Here you need at least a 16kB machine.

Just returning to BASIC can be done by pressing the “ESC” key. The BASIC command extension is kept in memory.
Basic programs in memory will not be changed and can be edited or run normally.

If you once lost the BASIC extension (SD… commands report a Syntax error), hit the BREAK key, and do M and L to reload.