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msxDS v.0.87 Manual  
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## Introduction

msxDS is an emulator of MSX/MSX2/MSX2+ computers for Nintendo DS/DS Lite. Requires a flash card adapter with DLDI support to work.

msxDS is based on fmsxDS v.0.07 from Nyagosu but since then, several bugfixes and improvements have been added.

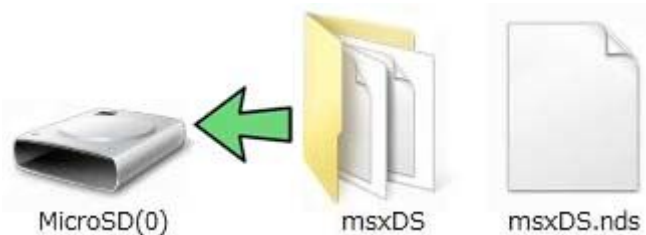
## Download

Please download msxDS on the official website at the following address.

<http://www.alternate-fmsxds.webs.com/index.html>

## Setup

1. Unzip the archive and copy the `fmsxDS.nds` file on your flash card.
2. Copy the `/msxds` folder that contains `Carts.crc` and `CMOS.ROM` files at the root of your flash card.



3. Copy MSX/MSX2/MSX2+ japanese BIOS, FM-PAC BIOS and Kanji ROM into this folder. Here's the list of the different files:

- `MSX.ROM` = BIOS MSX and BASIC (CRC32: EE229390 or 071135E0)
- `MSX2.ROM` = BIOS MSX2 and BASIC (CRC32: 9B3E7B97)
- `MSX2EXT.ROM` = MSX2 Extended ROM (CRC32: 43E7A7FC)
- `DISK.ROM` = Disk ROM and BDOS (CRC32: 697EAF4E)
- `FMPAC.ROM` = FMPAC BIOS (CRC32: 0E84505D)
- `KANJI.ROM` = JIS 1st+2nd Class kanjis ROM from FS-A1WSX (CRC32: 1F6406FB) (256KB)
- `MSX2P.ROM` = MSX2+ BIOS and BASIC from FS-A1WSX (CRC32: 19771608)
- `MSX2PEXT.ROM` = MSX2+ Extended ROM from FS-A1WSX (CRC32: B8BA44D3)
- `A1WXKDR.ROM` = Kanji Basic from FS-A1WSX or FS-A1WX (CRC32: B4FC574D or A068CBA9)
- `CMOS.ROM` = To save parameters of the MSX.

Check out the checksums for optimum functioning. DLDI patch is required.

Note: For the Supercard SD/miniSD, please use the following DLDI driver.

<http://www.alternate-fmsxds.webs.com/msxds/dldi.scp-neoDS.7z>

Unzip the archive and copy the `dldi.scp` file into micro SD root directory. The DLDI patch will be applied automatically at launch. NeoDS works fine too with this driver.

## Main menu

When you launch msxDS, a menu with icons is displayed. Here's their description.



- The icons representing a power button can turn ON or OFF the MSX.
- The icons representing a cartridge can launch your ROM image files. Only the '.rom' files are displayed.
- The icons representing a floppy disk can launch your floppy disk image files. Only the '.dsk' files are displayed.
- The icon representing a tape can launch your tape image files. Only the '.cas' files are displayed.
- The icon representing a Nintendo DS can fit to screen or shift the MSX display. It's useful only in mode MSX2/2+.
- The 'Load State' icon can load the last saved MSX state. (Previously You must select the corresponding ROM, floppy(s) and/or tape.)
- The Save state icon can save the MSX state. (Need a double-tap to save.)
- MSX logo icon can choose the MSX type (MSX/MSX2/MSX2+).
- The icon representing a speaker can select the sound mode. (PSG, PSG+SCC/SCC+ or FM.)
- The icon with a cross closes the menu.

You can place your image ROM/DSK/CAS files into any folder into your flash card.

## Buttons Description

In general, the DS buttons have the following functions:

- A = OK / Button 1 of MSX joypad 1 / Left mouse button
- B = Back to previous folder / Button 2 of MSX joypad 1 / Right mouse button
- Y = Cartridge, Floppy or Tape ejection
- Start = Main menu Display
- Pad = MSX Joypad 1

In some cases, certain buttons may change function depending from the started game.

With 'Fire Ball' or 'Roller Ball' in ROM version, L and R triggers are used to control the flippers.

With 'Metal Gear' 1 or 2 in ROM version, L and R triggers are used to press F2 and F3 keys faster.

## Using the Mouse

msxDS emulates the mouse since version 0.87. To activate it, do a double-tap on the icon corresponding to the mouse plugged into port 1 or 2 under the keyboard on the left.



The mouse appears on the bottom screen. Therefore, you can manipulate it. Drag the stylus on the mouse to move the MSX cursor. Touch the screen around the mouse to move the mouse. Basically, it works like a trackpad.



To click, you have three options:

1. Touch the mouse buttons directly.
2. Press the Down Arrow key to right-click and Right Arrow to left-click.
3. Press the B button to right-click and the A button to left-click. (For left-handed user)

The keyboard icon at the bottom left corner allows to go back to the keyboard with a double-tap. However, the mouse is still connected. To unplug a mouse, touch the orange icon for some time until it becomes again grey.



## Versions history

### Version 0.87 (2010-12-11)

- Updated [Carts.crc](#) file for several megarom from Spain (CAS converted to ROM), etc.
- The LED of CAP and Kana keys are now truly emulated.
- Mouse Emulation.
- Key mapping F2,F3 to L,R for Metal Gear. (ROM versions only.)
- Using the Z80 emulation source code of fMSX v.3.51.
- Z80 emulation code optimization.
- Fixed bug of color 0 in the save state.
- PDF User's manual.

### Version 0.86 (2010-09-18)

- Added scrolling file names with the stylus.
- Now we must do a double-tap on the save-state icon.
- Modified the routine of collision of MSX1 sprites for Pitfall II.
- Small improvement of the UI.
- MSX2 mode by default (because it is faster than the MSX2+ mode).
- Fixed some bugs in the patching of the ROM disk. (Improved DSK images support.)
- SCC+ emulation (for SD Snatcher, Konami Game collections, etc...).
- Fixed of the screen12 color contour which was managed like the screen8.
- Removal of some useless display conditions. (msxDS is still a bit faster!)

### Version 0.85 (2010-08-22)

- Updated [Carts.crc](#) file for many megarom from Korea.
- Fixed 32KB ROM mirrors.
- Rewrote sprites routines. (full emulation)
- Super Pierrot mapper support.
- Some small fixes in the megaroms mappers routines.
- Fixed status register 0 of VDP in MSX1 mode. (Zaxxon published by Electric Software works.)
- Added Kanji BASIC support. (The a1wxkdr.rom file is now required.)
- MSX2+ logo is displayed.
- Use of TCM memory for several graphics routines. (msxDS is a bit faster!)
- Double-tap on a file name to select it (and close the window).
- Use of L and R triggers for 'Fire Ball' and 'Roller Ball' pinballs. (ROM versions only)

### Version 0.84 (2010-06-25)

- Fixed a small bug in the keyboard.
- Added Kanji ROM support. You can also input Kanjis in BASIC by loading the kanji driver ROM (CRC32: B4FC574D/32KB) into SLOT 1 or 2.
- Added emulation clock (RTC).
- Improved ROM support. The [Carts.crc](#) file is required for some megaroms.

### Version 0.83 (2010-05-26)

- Fixed a bug in the management of background color for screen 0.
- Added tape emulation. Support files CAS with fMSX-DOS format.

- Usually, to load a game tape, select a file CAS with the tape icon and turn on the MSX with SHIFT pressed until the sound "Beep" and then enter `RUN"CAS:"` or `BLOAD"CAS:"`, `R` or `CLOAD` in Basic.
- Improved keyboard.
- Improved folders management.

#### Version 0.82 (2010-05-10)

- Compiled with devkitARM r30 and Libnds 1.4.3+.
- Fixed a bug in the management of color 0 for screen 6 mode.
- Added a filter to improve the display quality of high resolution modes.
- There are now three sound modes (PSG at 40Khz, PSG+SCC at 22Khz, PSG+FM at 8Khz).
- Fixed the path of instant save file that was saved by mistake at the root.
- The selection of cartridges, MSX type and sound mode is blocked when the MSX is ON.
- Improved change of display mode.

#### Version 0.81 (2010-03-20)

- MsxDS no longer crashes after MSX reboots.
- Scrolling of file name selected when it exceeds the frame.
- Memorization of location of last opened folder.

#### Version 0.8 (2010-03-03)

Already 3 years that I had not coded it. This year I am pleased to finally offer an update with many changes which are not all visible to the user but necessary. This is main changes.

- Compiled with devkitARM r27 and libnds 1.4.0.
- Using of the libfifo optimised by Cooper.
- New sound routine (It's more clean & faster).
- Loader window is bigger and more convenient.

#### Version 0.7+ (2007-09-19)

- Add MSX2+ scrolling.
- Loader rewritten.
- Improved sprites.
- New icons.
- Add screens modes.

## Known issues

- The sleep mode is stable only when the menu of msxDS is displayed.
- The keyboard support a japanese Bios only.
- The keyboard is malfunctioning when a software doesn't pass through the bios to access to keyboard.

## Tip & Tricks

1. Run a european game on tape at 50Hz.

Enter first the following instruction in MSX2 mode before launch the game.

`VDP(10) = VDP(10) OR 2`

2. Run a soft that crashes on launch.

Edit the BASIC launcher of corresponding soft, seek instruction `POKE-1,0` or `POKE-1,255` then replace it by `POKE-1,1.0625*(NOT(PEEK(-1))AND&HF0)`

## FAQ

### Q. How to get the crc32 of ROM?

A. There are several ways such as using special software, some softwares compression, etc.. Here are some examples:

- [Winrar](#), a famous compression software for Windows, has an option to display the crc32 of most compressed files.
- On Windows, [Arpoon Checksum](#) provides the crc32 (and other checksums) of one or more files at time.
- On Mac OSX, the `crc32 FileName.ext` command of terminal can easily get the crc32 of a file. Drag and drop a ROM on the terminal window to obtain the "FileName.ext".
- [CheckSum+](#) is a software for Mac OS X that allows to obtain the crc32 (and other checksums) of one or more files at time.

### Q. How to Saving a game of Metal Gear 1 ?

A. Metal Gear has 3 ways of saving games:

1. The usual way. This is the save option from the game itself.
  - The first time you need create an empty `FileName.cas` file (or use the `Empty.cas` file of `/msxDS` folder).
  - Copy this file on your flash card and select it with msxDS.
  - In game, press F1 to do a pause and then F5 to open save menu.
  - Input a name and you can save on tape.



- Skip the verification step because no need to verify it.

Note: Saving in this way is only useful after reaching the elevator. You will continue in the last used elevator.

Loading method:

- Select the file [FileName.cas](#) with msxDS and Metal Gear.
- Touch F1 to do a pause and then F4 to open load menu.
- Input a name and you can load from tape.

Note: A bug (of Metal gear?) crashes the game when the save is not found at the end of tape. To avoid this, do not input a wrong name and eject the tape before reload the same save.

2. The second way. This is done with the Game Master 2 cartridge into SLOT 1.

- After booting, select "GAME" to start Metal Gear.
- At any time during the game, tap the STOP key then Tap CTRL key to open the save menu. (Touch CTRL again to unpress it)
- Insert a user disk (a blank disk in first time) in the msxDS disk drive.
- Choose "DISK SAVE" from the menu.
- Choose "GAME DATA" in the "DISK-SAVE" menu.
- Input a filename for your save game. The game will now be saved to disk image. After saving, choose "END" and press the STOP key again. The game will resume.

Loading method:

- Start Metal Gear as described upper.
- In the save menu, choose "DISK LOAD".
- Insert the disk image on which your save game was saved.
- Choose "GAME DATA".
- The game will list the files on the disk that are savegame files. Select the one you want to load and it will be loaded.
- Choose "END" and press the STOP key to resume the game.

3. There is a save-state mechanism yet in msxDS. This is the easiest method. (Need two taps on save state icon to save.)

### **Q. How to do a DSK image of a MSX floppy disk on Mac OS X ?**

A. You must first get a USB floppy drive. Most PC floppy drives are supported by Mac OS X. Having found no software for it, the terminal is necessary.

Procedure:

1. Connect the floppy disk into a free USB port.
2. Insert the floppy disk to convert to making sure it's write protected.
3. Dismount the disk with Disk Utility in Mac OS X if necessary.

4. Open a terminal window and enter the following command. (Copy / Paste is possible)  
(See notes for details)

```
dd if=/dev/disk1 of=/Users/UserName/Desktop/DiskImageName.dsk conv=notrunc,noerror,sync
```

5/ After input the command, the DiskImageName.dsk file will be created on the desktop.

Notes:

- **UserName** must be replaced by the name of current user folder of Mac OS X.
- **DiskImageName** can be any name.
- **conv=notrunc,noerror,sync** is used to ignore errors. Add this option if necessary.
- **disk1** is the disk identifier. To know it run the Disk Utility of Mac OS X, select the floppy drive icon in the left column and then click the Info icon (or press Command+i).

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Manual by ProgDS

Thanks to Copper, Marat Fayzullin, Nyagosu, Mars2000 and ProgDS.

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