

DVX User's Guide

DOS Visual eXecutive

Version 1.0.0

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Chapter 1. About DVX

DVX, the DOS Visual eXecutive, turns a DOS PC into a graphical desktop: windows, menus, icons, and a mouse, with programs to run in them. This chapter tells you what DVX gives you, which programs come with it, which parts you can add or leave out, and how this guide is laid out.

1.1. What DVX is

DVX is a graphical desktop for DOS computers. Instead of typing commands at the DOS prompt, you work with windows, menus, icons, and a mouse, much like Windows 3.1. You start DVX from the DOS prompt, and when you leave it you are back at the DOS prompt.

With DVX you can run several programs at the same time, each in its own window. You can move and resize those windows, switch between them, and copy text from one program to another.

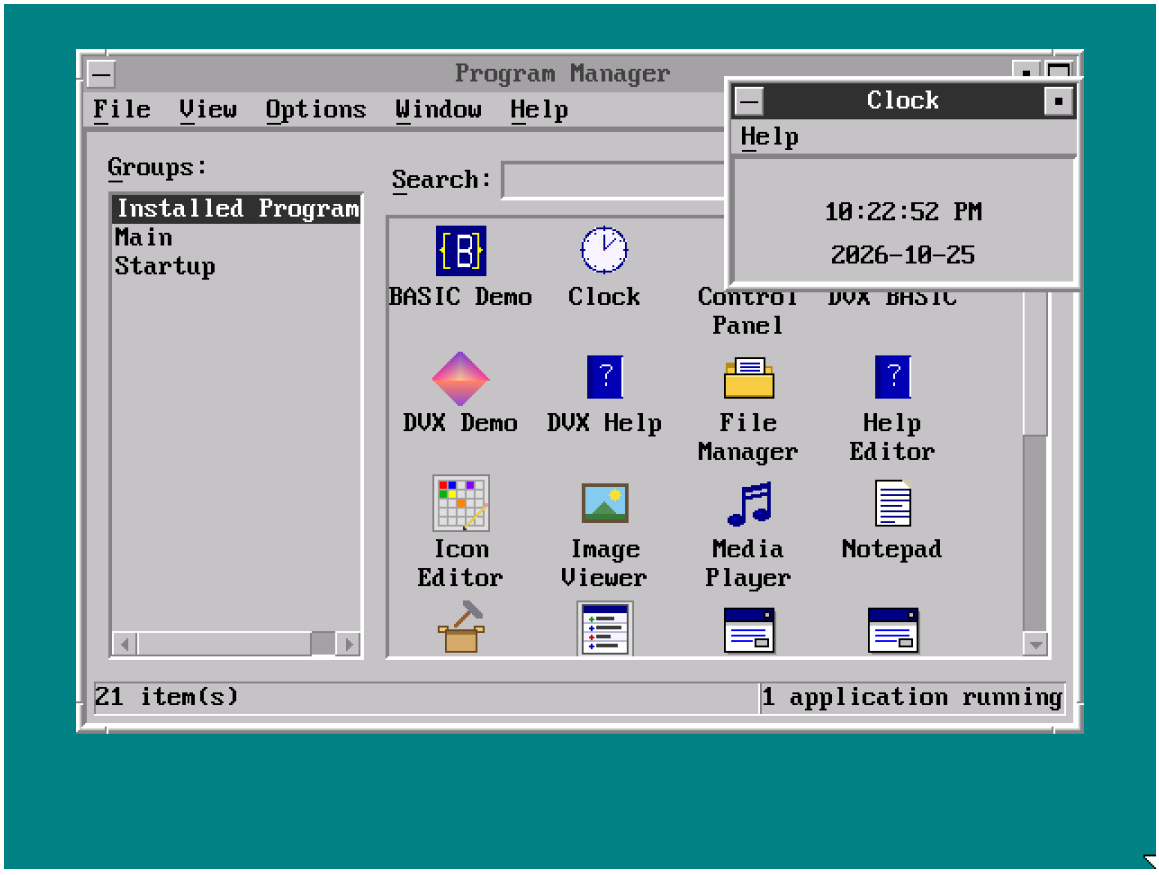


Figure 1. The DVX desktop, with Program Manager and Clock open

DVX gives you:

- A desktop with the **Program Manager**, which shows your programs as icons sorted into groups. Double-click an icon to start a program.
- Windows you can move, size, stack, tile, and minimize with the mouse or the keyboard, with

menus and dialog boxes that work the same way in every program.

- Help on every screen: press `F1` in any program for help about it.
- A set of everyday programs: a file manager, a text editor, a clock, a picture viewer, and more (see Section 1.2).
- A Control Panel that sets the colors, the desktop picture, the screen resolution, the mouse, sounds, printers, joysticks, and the network.
- The Software program, which installs, lists, and removes add-on software, from a file or from the package server.
- A way to start your ordinary DOS programs from the desktop (see Section 5.15).

DVX is free software under the MIT licence, Copyright 2026 Scott Duensing. Setup shows the licence before it installs anything. This guide describes DVX version 1.0.0.

1.2. The programs that come with DVX

These programs are always installed with DVX. Each one is described in the section named beside it.

Program	What it does	See
Program Manager	Your home base on the desktop. It opens when DVX starts, stays open while DVX runs, and starts every other program.	Chapter 6
File Manager	Browses, copies, moves, renames, and deletes files and folders.	Section 8.3
Notepad	A simple text editor.	Section 8.4
Clock	A digital clock with the date.	Section 8.5
Image Viewer	Shows BMP, PNG, JPEG, and GIF pictures.	Section 8.6
DVX Help	Shows the help for DVX and its programs, with an index and a search. `F1` opens it.	Section 8.9
Control Panel	System settings and preferences.	Chapter 7
Software	Installs, lists, and removes add-on software.	Section 10.2
Welcome	Introduces DVX when it starts for the first time, with a short tour.	Section 8.10

DVX itself also includes the **Task Manager**, which `Ctrl` + `Esc` opens from anywhere: it lists the programs that are running and can end one that stopped responding (see Section 5.10).

Four screen savers come with DVX as well: Blank Screen, Marquee, Mystify, and Starfield (see

Section 5.12).

1.3. The optional parts

Besides DVX itself, which is always installed, DVX comes in seven optional parts. Setup offers each part with a box to tick, and on a new install every box starts ticked. A part you leave out takes no disk space and leaves more memory for your programs.

Part	What it adds	See
DVX BASIC	DVX BASIC, for writing your own programs: the editor, form designer, compiler, and debugger, with its guides. It also adds `BASCOMP.EXE`, which builds BASIC programs at the DOS prompt.	Section 8.13
Databases	SQLite databases for BASIC programs, with the Data control and the DBGrid control that show them.	Section 8.13
Networking	The use of a network card (through its DOS packet driver), web requests, and the link from Software to the package server.	Chapter 4
Communications	The Terminal: modems, serial ports, secure links, Telnet (with Networking), and XMODEM, YMODEM, and ZMODEM file transfers.	Chapter 9
Media	The Media Player and the Sound Recorder.	Section 8.7, Section 8.8
Developer Tools	The Icon Editor, Resource Editor, Help Editor, Package Builder, and Widget Showcase, with `DVXRES.EXE` and `DVXHLPC.EXE` for the DOS prompt.	Section 8.13
Demos	The DVX Demo and the BASIC Demo.	Section 8.11

No part needs another. In particular, Communications works without Networking: only the Terminal's Telnet and the secure link over a network need the Networking part.

You can change your mind later. To add a part, run Setup again and choose **[Upgrade or repair DVX]** (see Section 3.8). To remove one, use Setup the same way, or remove it with the Software program, which lists each part you installed as one package (see Section 10.9).

When a part is not installed, the programs that would use it work without it:

- Welcome hides its **[Write a program]** tile without DVX BASIC, and its **[See it in action]** tile without the Demos.

- Without Networking, the **Network** page of the Control Panel shows only “Networking is not installed.”, and Software installs packages from files only.
- Without Networking, the Terminal says “Telnet and the secure link over the network need Networking, which is not installed. Setup can add it.”

1.4. Fonts, themes, pictures, and sounds

DVX comes with more than programs. These are the things that change how it looks and sounds.

1.4.1. Fonts

DVX always has its own built-in font. Setup can also install the base set of fonts: DejaVu Sans, DejaVu Sans Mono, and DejaVu Serif, each in regular, bold, italic, and bold italic, in sizes for the screen and for printing. The base set takes about 8 MB. Software lists it as “DVX Fonts”.

The DVX CD also holds the More Fonts add-on: more than forty more typefaces for documents, programs, and games, including condensed DejaVu, Arimo, Tinos, Cousine, display faces, and pixel fonts (see Section 3.6).

A program that asks for a font you did not install shows its text in DVX’s own font instead, unless it carries that font itself. Some programs do, such as Welcome and the DVX Demo.

Every font file holds its own licence. The **[Licence...]** button of the Font dialog shows it.

1.4.2. Color themes and desktop pictures

DVX comes with four color themes, in the style of CDE (the Common Desktop Environment), GEOS Ensemble, Hot Dog Stand, and Windows 3.1. You choose a theme, change single colors, and save your own themes on the **Colors** page of the Control Panel (see Section 7.5).

Three desktop pictures (wallpaper) come with DVX, and you can use any BMP, JPEG, PNG, or GIF picture of your own. You choose one on the **Desktop** page of the Control Panel (see Section 7.6).

1.4.3. Sounds and music

DVX plays short sounds when it starts and ends, when a message appears, and, if you choose, when a window opens or closes. You choose the sound for each event on the **Sounds** page of the Control Panel (see Section 7.12). DVX finds the sound hardware by itself; without any, DVX and its programs work the same, silently.

For MIDI music on a sound card’s music chip, DVX comes with two General MIDI instrument banks, DMXOPL and DMXOPL3, made to sound like a Roland Sound Canvas.

The DVX CD also holds the DVX General MIDI add-on, which gives a Gravis UltraSound or a Sound

Blaster AWE32 or AWE64 General MIDI instruments (see Section 3.6).

1.5. About this guide

1.5.1. Who it is for

This guide is for anyone who uses DVX on a DOS PC. You do not need to know how to program. You should know how to turn the computer on and type a command at the DOS prompt. Where DVX needs something done at the DOS level, such as loading a mouse driver from `AUTOEXEC.BAT`, the guide explains the steps.

1.5.2. How it is organized

If you are new to DVX, read the first chapters in order: they take you from checking your computer to using the desktop.

- Chapter 2 lists what your computer needs, and what extra hardware DVX can use.
- Chapter 3 takes you through Setup, page by page, and through starting DVX for the first time.
- Chapter 4 connects DVX to a network, if you have a network card.
- Chapter 5 explains windows, menus, dialog boxes, the clipboard, help, and the Task Manager.
- Chapter 6 explains how to start programs and arrange them in groups.
- Chapter 7 covers every setting, page by page.
- Chapter 8 describes each of the programs that come with DVX.
- Chapter 9 covers modems, serial links, Telnet, and file transfers.
- Chapter 10 explains how to install, update, and remove add-on software.
- Chapter 11 helps when something does not work, and explains DVX's messages.
- The appendixes list the keyboard shortcuts (Appendix A) and the folders and settings files DVX uses (Appendix B).

The index at the end lists every topic, setting, and message.

1.5.3. Conventions

This guide shows the things you see and do in these ways:

What	How it looks	Meaning
A menu command	**File › Exit DVX**	Open the File menu and choose Exit DVX.

What	How it looks	Meaning
A button	**[OK]**	Click the OK button.
A key, or keys pressed together	`F1`, `Ctrl` + `Esc`	Press F1. Hold down Ctrl and press Esc.
The label of a box, list, check box, option button, or tab	**Computer name**	The box labelled Computer name on the screen. Labels are shown without the colon that follows them on the screen.
A window title or the name of a page	**Program Manager**, **Network** page	The window or page with that name.
A file, a folder, a command, or anything you type	`DVX.INI`, `C:\DVX\USER`, `SETUP`	Type it exactly as shown.
A message DVX shows	"Are you sure you want to exit DVX?"	The exact words on the screen.
A word that stands for something that changes	"*name* is already running."	In the message, *name* is replaced by the file name of a program, such as `NOTEPAD.APP`.

The examples assume that DVX is installed in `C:\DVX`, which is where Setup suggests putting it. If you chose another folder, use that folder instead. Your own settings and files are in the `USER` folder inside it, `C:\DVX\USER`.

To *click* means to press and release the left mouse button; to *double-click* means to click twice quickly. To *tick* a check box means to click it so a mark shows in it; to *untick* it means to click it again so the mark goes away. You can do almost everything with the keyboard as well (see Section 5.2).



A note gives extra information.



A tip shows an easier or quicker way.



An important note tells you something you must do for a step to work.



A warning tells you about something that can lose your work or your files.

Chapter 2. System Requirements

This chapter lists what your computer needs to run DVX, and the extra hardware DVX can use if you have it. Check it before you install DVX.

2.1. At a glance

What	You need	Better
Processor	An 80486DX or newer (a 486 with a math coprocessor)	A Pentium
Memory	4 MB of extended memory	8 MB or more
DOS	DOS 5.0 or later, such as MS-DOS or FreeDOS	
Video	A video card with a VESA BIOS (or a VESA driver) and a 640x480 mode at 256 colors or more	Modes with more colors and higher resolutions
Mouse	A two-button mouse and its DOS mouse driver	A wheel mouse with a driver that supports the wheel
Hard disk	About 9 MB for the smallest install, about 22 MB for everything	More for the add-ons on the CD and for your own files

Sound cards, MIDI equipment, network cards, modems, printers, and joysticks are all optional (see Section 2.6).

2.2. The computer

2.2.1. Processor

DVX needs an 80486DX or newer processor, that is, a 486 with a math coprocessor: a 486DX, DX2, or DX4, or any Pentium. A 486SX needs a 487 math coprocessor added. DVX does not run on a 386. A faster processor makes everything quicker. It matters most for music modules (MOD, S3M, XM, and IT files), which the computer mixes itself unless a Gravis UltraSound or a Sound Blaster AWE plays them on its own voices.

2.2.2. Memory

DVX needs 4 MB of extended memory (the memory above the first megabyte), and 8 MB or more is recommended. DVX brings what it needs to use that memory: you do not have to load anything extra for it.

Each running program uses memory. To leave more room for your programs:

- Leave out the optional parts of DVX you do not need (see Section 3.5). A part you leave out leaves more memory for your programs.
- Use a lower screen resolution or fewer colors (see Section 7.7).
- Close programs you are not using.

To see how much memory is in use now, open the Task Manager with `Ctrl` + `Esc`: its bottom line shows the memory in use and the total. **Help › System Information...** in the Program Manager shows how much memory was free when DVX started.

2.2.3. DOS

DVX needs DOS 5.0 or later, such as MS-DOS or FreeDOS. You start DVX from the DOS prompt.

DVX handles disks formatted with FAT32 and files larger than 2 GB. It uses long file names when a long-file-name driver, such as DOSLFN, is loaded before DVX; without one, it uses the usual short DOS names.

The drivers DVX uses, such as the mouse driver, a VESA driver, and a network packet driver, are DOS programs you load before you start DVX. The usual place for them is the file `AUTOEXEC.BAT` in the top folder of your start-up disk (normally `C:\AUTOEXEC.BAT`), which DOS runs each time the computer starts. Settings that DVX reads from DOS, such as `BLASTER` for a Sound Blaster, also go there, as `SET` lines.

2.3. Video

2.3.1. A VESA video card

DVX draws its screen in a graphics mode, which it sets through the video card's VESA BIOS (also called VBE). Nearly every video card made from about 1992 on has one. DVX needs:

- a VESA BIOS of any version, built into the card or added by a VESA driver (see Section 2.3.2), and
- at least one mode of 640x480 or more, with 256 colors or more.

DVX can use the card's modes with 256 colors, 32 thousand colors, 65 thousand colors, or 16 million colors. Of the 16 million color modes it uses those that store a pixel in 32 bits; it does not use modes that store a pixel in 24 bits.

You pick the resolution and colors on the **Video** page of the Control Panel, which lists every mode your card offers (see Section 7.7). Setup itself normally runs at 640x480, and after a new install DVX starts in the mode Setup used, because that mode is known to work on your computer. Your

monitor must be able to show the mode you choose; if it cannot, start DVX in safe video mode (see Section 3.13).

Smooth text, where the edges of letters are shaded, needs a mode with more than 256 colors.

Older cards whose VESA BIOS is version 1, or which cannot give DVX direct access to all of their video memory, work too, but the screen updates more slowly on them. A VESA driver such as UniVBE may make such a card faster.

2.3.2. When the card has no VESA BIOS

Many older cards have no VESA BIOS of their own, or only an incomplete one. They need a VESA driver, a small DOS program that is loaded before DVX:

- UniVBE (Scitech Display Doctor) works with most cards.
- Some cards came with their own VESA driver, such as S3VBE20 for S3 cards and M64VBE for ATI Mach64 cards. Look on the card's driver disk.

To use one:

1. Copy the driver to your hard disk, as its instructions say.
2. Load it before DVX. Either type its name at the DOS prompt each time before you start DVX or Setup, or add it to `AUTOEXEC.BAT` above the line that starts DVX, so it loads each time the computer starts.
3. Start Setup, or DVX.

If DVX finds no mode it can use, it does not start. It prints this message at the DOS prompt:

"DVX could not start: the video card offered no usable graphics mode. DVX needs a VESA video BIOS with a mode of at least 640x480 at 256 colors or more. Many older cards need their VESA driver loaded first: UniVBE (Scitech Display Doctor) works with most cards, and some cards came with their own, such as S3VBE20 for S3 cards and M64VBE for ATI Mach64 cards. The details are in DVX.LOG in the USER folder."

Setup needs the same kind of video. Without it, Setup says "DVX Setup needs a video card with a VESA video BIOS and a 640x480 mode at 256 colors or more; many older cards need their VESA driver loaded first, such as UniVBE (see README.TXT)."

For more help with the screen, see Section 11.3.

2.4. Mouse

DVX works with a two-button mouse through its DOS mouse driver. Load the mouse driver before you start DVX, usually from `AUTOEXEC.BAT`, or by typing its name at the DOS prompt.

Without a mouse driver DVX still starts, but the pointer does not move. You can still do almost everything with the keyboard (see Section 5.2).

A scroll wheel works when the mouse driver supports the wheel the way the CuteMouse driver does. To check, choose **Help › System Information…** in the Program Manager: it shows “Wheel: Yes (CuteMouse Wheel API)” when DVX can use the wheel, and “Wheel: No” when it cannot. Without wheel support everything else still works.

For more help with the mouse, see Section 11.4.

2.5. Disk space

How much room DVX needs depends on what you install. Setup shows the amount your choices need on its **What to install** page, in the line “DVX needs about *n* MB of disk space.”, which changes as you tick and untick the choices. Before it unpacks anything, Setup checks that the disk has that much room free.

The figures below are approximate:

What you install	About
Everything: all seven parts and the base set of fonts (Setup’s choice for a new install)	22 MB
All seven parts, without fonts	14 MB
DVX itself and the base set of fonts, without the optional parts	17 MB
DVX itself only, without the optional parts or fonts	9 MB
Everything, plus both add-ons on the CD	33 MB

The choices add roughly these amounts:

Choice	About
Base set of fonts	8 MB
DVX BASIC	2.7 MB
Databases	0.7 MB
Networking	0.3 MB
Communications	0.4 MB
Media	0.1 MB
Developer Tools	0.9 MB
Demos	0.2 MB

Choice	About
More Fonts (add-on on the CD)	8 MB
DVX General MIDI (add-on on the CD)	4 MB

When you upgrade, Setup counts only what the folder does not already have.

Leave room as well for your own files and settings, which DVX keeps in its `USER` folder (see Section B.1).

If the disk is too full, Setup says “There is not enough free space for DVX on that disk. DVX needs about *n* bytes; *n* bytes are free.” Free some space, or choose another disk, and try again.

2.6. Optional hardware

DVX works without any of the hardware in this section. Each item adds something when you have it.

Hardware	What it gives you	See
A sound card	Event sounds, and sound and music in the Media Player and other programs. Recording, on most cards.	Section 2.6.1
A MIDI port or a wavetable card	MIDI music on an external synthesizer, recorded instruments, and recording from a MIDI keyboard.	Section 2.6.2
A network card	Telnet, the secure link over a network, and the package server in Software.	Section 2.6.3
Serial ports and a modem	Dialling bulletin boards and other computers, serial links, file transfers, and serial printers.	Section 2.6.4
A printer	Printing from programs.	Section 2.6.5
A joystick	Games and BASIC programs that use one.	Section 2.6.6

2.6.1. Sound cards

DVX finds the sound hardware by itself. If `DVX.INI` names a sound driver, DVX tries that one first; otherwise, or if it does not start, DVX looks, in this order, for a Windows Sound System board, a Sound Blaster, a Gravis UltraSound, a sound device on the printer port, and the PC speaker. Without any sound hardware, DVX and its programs work the same, silently.

Hardware	Notes
Sound Blaster	The Sound Blaster 1.x, 1.5, 2.0, Pro, Pro 2, and 16, and the music chip of the AWE32 and AWE64. DVX reads the card's settings from the `BLASTER` line in `AUTOEXEC.BAT`, for example `SET BLASTER=A220 I5 D1 H5` (an AWE's setting adds `E620` for its music chip). The card's manual or setup program gives the numbers. A Sound Blaster 16 is also found without the `BLASTER` line, at port 220h or 240h; older Sound Blasters, and the music chip of an AWE, need it.
Windows Sound System	Windows Sound System boards and compatibles: Microsoft, Crystal CS4231 and CS4248, Aztech, and OPTi cards in Windows Sound System mode. DVX looks for them at their usual ports, 530h, 604h, E80h, and F40h.
Gravis UltraSound	The Gravis UltraSound, including the UltraSound MAX. DVX reads the card's settings from the `ULTRASND` line in `AUTOEXEC.BAT`, for example `SET ULTRASND=220,1,1,11,5`.
Printer-port sound devices	A Disney Sound Source or a Stereo-on-1 is found by itself. A Covox Speech Thing must be named in `DVX.INI`: in the `[audio]` section, set `lptDac = covox`.
PC speaker	Plays tones and beeps, but not recorded sounds. Setting `speakerPcm = true` in the `[audio]` section of `DVX.INI` makes it play recorded sounds as well, but that takes much of the computer's time.
FM music chip	The AdLib-style music chip on an AdLib or Sound Blaster card (OPL2 or OPL3, at port 388h) plays MIDI music with DVX's instrument banks.

Sound Blasters, Windows Sound System boards, and the Gravis UltraSound can also record, from a microphone, the line input, or a CD, as the card has them. The Sound Recorder uses this (see Section 8.8).

The **Sounds** page of the Control Panel shows the sound device in use, lets you choose another, and sets the volume (see Section 7.12). If there is no sound, see Section 11.7.

2.6.2. MIDI

DVX plays MIDI music in one of several ways, which you choose under **MIDI music** on the **Sounds** page of the Control Panel. With the first choice, "Automatic", DVX uses a Gravis UltraSound's or Sound Blaster AWE's recorded instruments when it has them, else the card's FM music chip, else its own built-in synthesizer, which needs no MIDI hardware at all. Changes to the sound driver and to MIDI take effect when DVX next starts.

- A MIDI port (an MPU-401 or compatible, such as a Sound Blaster 16's) drives an external

synthesizer, such as a Roland MT-32 or SC-55. `DVX.INI` tells DVX what is on the port: `mpuMode` in the `[audio]` section is `gm` for a General MIDI synthesizer, `mt32` for a Roland MT-32, or `raw` to send the music unchanged.

- A Gravis UltraSound or a Sound Blaster AWE32 or AWE64 plays MIDI music with recorded instruments. The DVX General MIDI add-on on the CD gives these cards a General MIDI set of instruments (see Section 3.6).
- A MIDI keyboard on the MIDI port can be recorded into MIDI files with the Sound Recorder. Choose “MIDI port” under **MIDI in** on the **Sounds** page.

2.6.3. Network card

DVX uses an Ethernet network card through the card’s DOS packet driver, which you load before DVX. You also need DVX’s Networking part. With them you can use Telnet and the secure link over a network in the Terminal, the package server in Software, and BASIC programs that use the network. Chapter 4 explains how to set it up.

2.6.4. Serial ports and modems

DVX uses the serial ports COM1 to COM4 and finds out by itself which kind of serial chip each one has (8250, 16450, 16550, or 16550A). The Terminal, in the Communications part, uses them for modems, direct serial links, and the secure link (see Chapter 9). The serial ports can also drive a serial printer.

2.6.5. Printers

DVX prints on printers connected to LPT1 to LPT3 or to a serial port, and can also print to a file. You choose the printer on the **Printer** page of the Control Panel (see Section 7.10). It knows these kinds of printer:

- Text only (any printer)
- Epson 9-pin and 24-pin printers (ESC/P), in black and in color
- HP LaserJet (PCL), and the HP LaserJet III or DeskJet at 300 dpi
- HP DeskJet 500C, and the DeskJet 550C and later, in color
- PostScript printers, in black and in color
- Apple ImageWriter II, in black and in color

2.6.6. Joysticks

DVX uses joysticks on the standard game port: two joysticks with two buttons each, or one joystick with four axes and four buttons, such as a flight stick with a throttle or rudder. When no joystick

is found, programs can use the keyboard as a joystick instead. You set this up on the **Game Controllers** page of the Control Panel (see Section 7.11).

Chapter 3. Installing DVX

DVX is installed with Setup, which copies DVX from the DVX CD or floppy disks onto your hard disk. It takes a few minutes. This chapter takes you through Setup page by page, then explains how to upgrade, repair, and remove DVX, how to start it, and what you see the first time it starts.

In short, a new install goes like this:

1. Start Setup from the CD or from Disk 1 (see Section 3.3).
2. Accept the licence.
3. Choose **[Install DVX]**.
4. Choose the folder for DVX, normally `C:\DVX`.
5. Choose the fonts, the parts of DVX, and the add-ons you want.
6. Click **[Install]** and wait while Setup unpacks DVX.
7. Click **[Finish]** to start DVX.

3.1. The DVX disks

DVX comes on a CD or on a set of floppy disks. Both hold the same DVX; only the CD also has the add-ons.

3.1.1. The CD

The top folder of the DVX CD holds:

File or folder	What it is
`SETUP.EXE`	Setup, with all of DVX packed inside it.
`README.TXT`	A short text file that says what DVX needs and how to install it.
`SETUP.INI`	The list of DVX's optional parts, which Setup reads.
`ADDONS`	The add-ons: More Fonts (`MOREFONT.DPK`) and DVX General MIDI (`DVXGM.DPK`), each with its signature file (`MOREFONT.SIG` and `DVXGM.SIG`). See Section 3.6.

You cannot run DVX from the CD itself: it holds Setup and DVX in packed form. Install DVX on your hard disk first.

3.1.2. The floppy disks

The floppy disks are 1.44 MB disks, numbered Disk 1, Disk 2, and so on. Disk 1 holds `SETUP.EXE`,

`README.TXT`, `SETUP.INI`, and the start of DVX; each of the other disks holds the next piece. Setup asks for each disk in turn. The last disks hold only the base set of fonts, so if you choose not to install the fonts, Setup does not ask for them.

The floppy disks have no add-ons. You can install the add-ons later from the package server with the Software program (see Section 10.3).

Setup never writes to the CD or the floppy disks, so you can keep the floppy disks write-protected.

DVX, its parts, its fonts, and its add-ons are also published on the package server, where the Software program finds updates to them (see Section 10.5).

3.2. Before you install

Check these things before you start Setup:

1. Your computer meets the requirements in Chapter 2.
2. The mouse driver is loaded (see Section 2.4). You can also use Setup with the keyboard alone.
3. If your video card needs a VESA driver, it is loaded (see Section 2.3.2). Setup uses the same graphics screen as DVX, so it needs the VESA driver too.
4. The hard disk has room for DVX: about 22 MB for everything (see Section 2.5). Setup tells you how much your choices need before it starts.

3.3. Running Setup

3.3.1. Starting Setup

To start Setup from the CD:

1. Put the DVX CD in the CD-ROM drive.
2. At the DOS prompt, type the letter of the CD-ROM drive followed by a colon, for example `D:`, and press `Enter`.
3. Type `SETUP` and press `Enter`.

```
D:
SETUP
```

To start Setup from the floppy disks:

1. Put Disk 1 in drive A:.

2. At the DOS prompt, type `A:` and press `Enter`.
3. Type `SETUP` and press `Enter`.

```
A:
SETUP
```

Setup changes the screen to graphics. On a dark blue background it shows a large gold DVX, the words “The DOS Visual eXecutive” and “Windows, programs, and games for your DOS computer”, and a window titled **DVX Setup**, which shows one page at a time.

You can use Setup with the mouse or the keyboard, as everywhere in DVX: `Tab` moves from one control to the next, `Alt` with an underlined letter chooses that control, and `Enter` or `Space` presses the button that has the focus.

Until Setup starts installing, every page has an **[Exit]** button, which quits Setup without installing anything. Closing the **DVX Setup** window with its Close box also quits Setup, and stops an install that is in progress.

3.3.2. The licence

The first page says “Welcome! Setup puts DVX on your hard disk in a few minutes.” and shows the licence that DVX is distributed under, the MIT licence, in a box you can scroll.

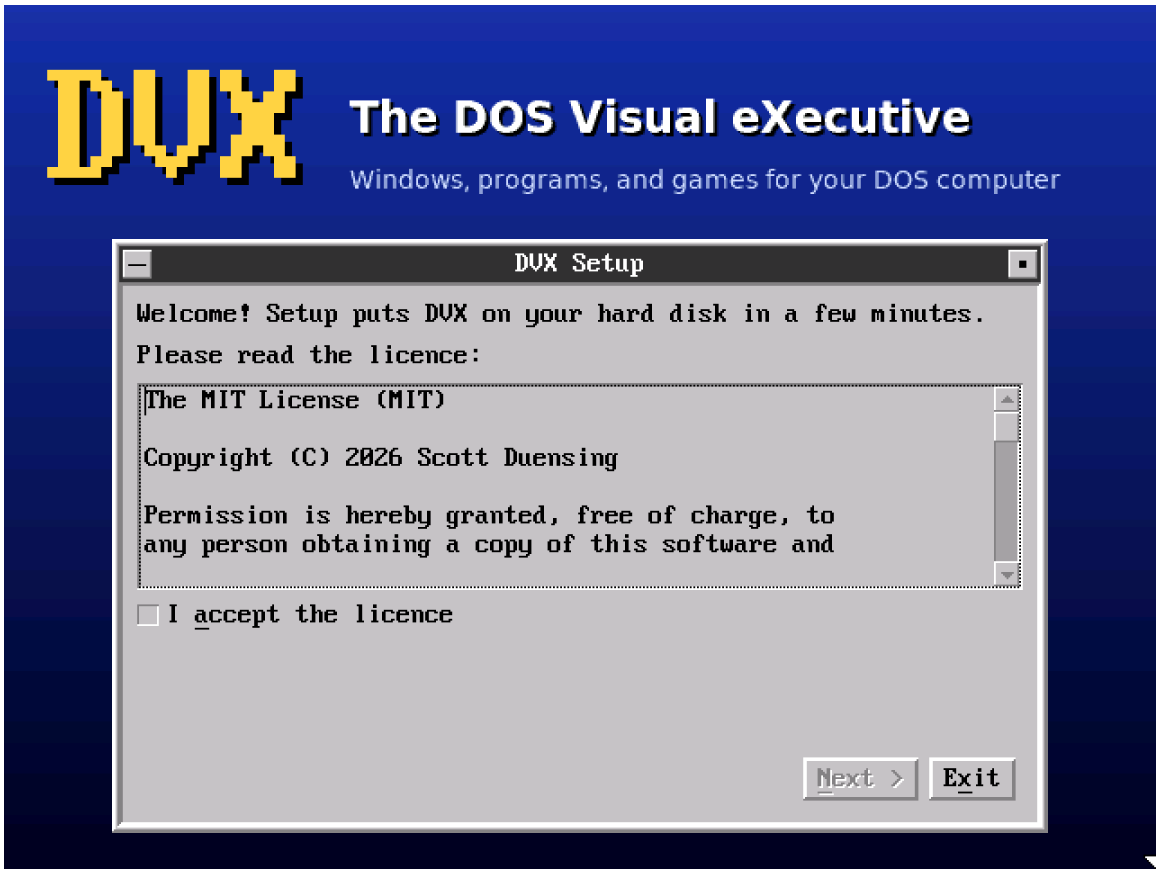


Figure 2. Setup's first page, with the licence

1. Read the licence.
2. Tick **I accept the licence**. The **[Next >]** button can only be used once the box is ticked.
3. Click **[Next >]**.

3.3.3. Choosing what to do

The next page asks "What would you like to do?" It has three choices, each with a picture and a button. Click either the picture or the button.

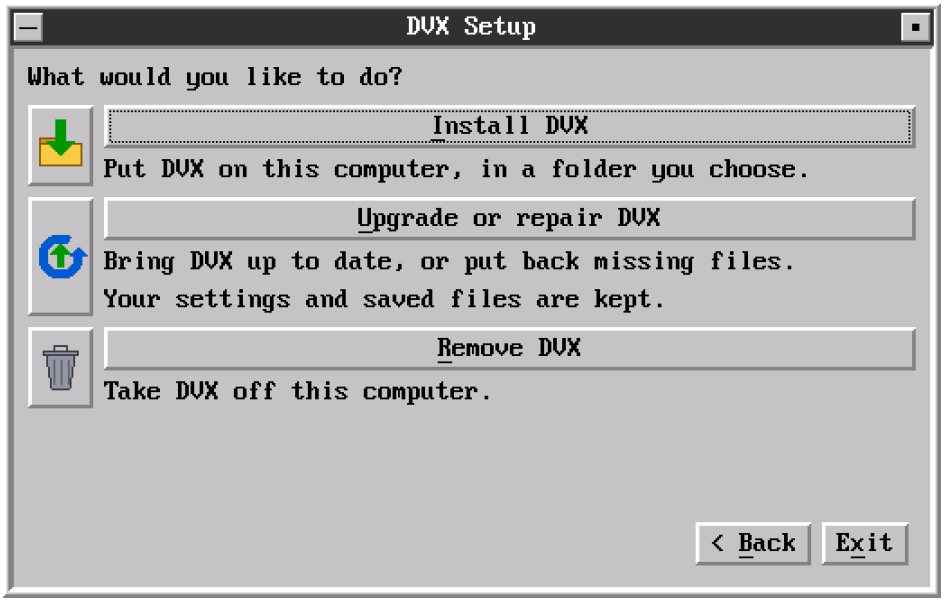


Figure 3. Setup's start page

Choice	What the page says	See
[Install DVX]	"Put DVX on this computer, in a folder you choose."	This section
[Upgrade or repair DVX]	"Bring DVX up to date, or put back missing files." "Your settings and saved files are kept."	Section 3.8
[Remove DVX]	"Take DVX off this computer."	Section 3.9

If DVX is already in the folder Setup suggests, the page also says "DVX is already installed in C:\DVX." (with your folder) and **[Upgrade or repair DVX]** has the focus. Otherwise **[Install DVX]** has the focus.

[< Back] returns to the licence.

3.3.4. Choosing the folder

After you choose **[Install DVX]**, Setup asks where to put DVX, in the box **Install DVX in this folder**. It suggests the folder `DVX` on the drive the computer started from, normally `C:\DVX`.

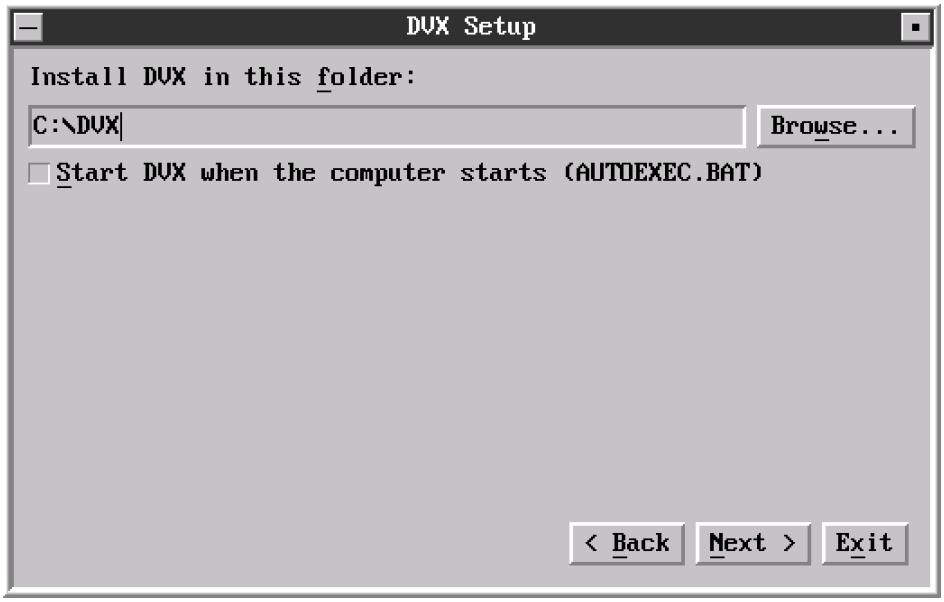


Figure 4. Choosing the folder for DVX

1. Keep the folder Setup suggests, or type another one. Type the whole path, starting with the drive, for example `D:\DVX`. To pick a folder from a list instead, click **[Browse...]**: the **Choose a Folder** dialog opens (see Section 5.6). The folder does not have to exist yet; Setup makes it when it starts installing.
2. If you want DVX to start each time the computer starts, tick **Start DVX when the computer starts (AUTOEXEC.BAT)**. Setup then offers to add DVX to `AUTOEXEC.BAT` at the end of the install (see Section 3.7.4). The box starts unticked. It appears only when Setup can tell which drive the computer started from.
3. Click **[Next >]**.

Setup checks the folder when you click **[Next >]**:

Message	What to do
“Type the folder to install DVX in.”	The box is empty. Type a folder.
“Type the whole path of the folder, starting with the drive, for example C:\DVX.”	Type the drive and the folder, such as `C:\DVX`, not just a folder name.
“Setup is reading DVX from *folder*. Choose a folder that is not this one and not inside it.”	You chose the folder Setup is running from, or a folder inside it. Choose a folder on your hard disk.
“DVX is already installed in *folder*. Upgrade or repair it instead, keeping your settings and saved files?”	The folder already holds DVX. Click **[Yes]** to upgrade it instead (see Section 3.8); the next page’s button then reads **[Upgrade]**. Click **[No]** to stay on this page and choose another folder.

Message	What to do
“Setup could not create the folder *folder*.”	This appears when installing starts. Check the drive and the folder name, or choose another folder.

3.3.5. Choosing what to install

The next page lists everything you can choose. It has three groups, each explained in a section of its own:

- **Fonts to install**: none, or the base set (see Section 3.4).
- **Parts of DVX to install**: the seven optional parts (see Section 3.5).
- **Add-ons to install**: the add-ons on the CD (see Section 3.6). This group appears only when you install from the CD.

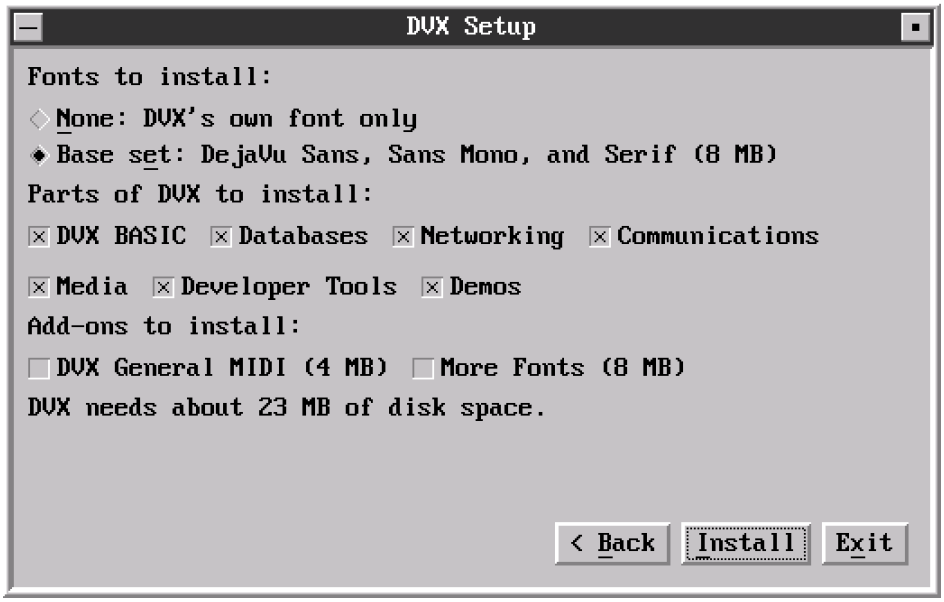


Figure 5. Choosing the fonts, parts, and add-ons

On a new install the page starts with the base set of fonts, every part ticked, and no add-ons.

Under the choices, the line “DVX needs about *n* MB of disk space.” changes as you tick and untick them.

1. Choose the fonts, parts, and add-ons you want.
2. Click **[Install]**.

[< Back] returns to the folder page.

Before it unpacks anything, Setup checks that the disk has room. If not, it says “There is not

enough free space for DVX on that disk. DVX needs about *n* bytes; *n* bytes are free." Free some space on the disk, or click **[< Back]** and choose a folder on another disk.

3.4. Choosing the fonts

Under **Fonts to install**, choose one of:

None: DVX's own font only

DVX uses its own built-in font for all text. This saves about 8 MB of disk space.

Base set: DejaVu Sans, Sans Mono, and Serif (8 MB)

Adds 12 font files: DejaVu Sans, DejaVu Sans Mono, and DejaVu Serif, each in regular, bold, italic, and bold italic, in sizes for the screen and for printing. A new install starts with this choice.

Without the base set, a program that asks for a font you did not install shows its text in DVX's own font instead, unless it carries that font itself. Some programs do, such as Welcome and the DVX Demo.

With the floppy disks, choosing **None** also means Setup does not ask for the last disks, which hold only the fonts.

You can add the base set later. Software lists it as "DVX Fonts" and can install it from the package server; or run Setup again, choose **[Upgrade or repair DVX]**, and choose **Base set** (see Section 3.8). Software also offers updates to the base set as they are published.

Every font file holds its own licence; the **[Licence...]** button of the Font dialog shows it. For many more typefaces, install the More Fonts add-on from the CD (see Section 3.6).

3.5. Choosing the parts

Under **Parts of DVX to install** there is a check box for each of DVX's seven optional parts. On a new install they all start ticked. Untick a part to leave it out. Rest the mouse pointer on a box to see what the part holds.

Box	What it holds (as Setup shows it)	About
DVX BASIC	"Write your own programs: the BASIC editor, compiler, and debugger, with its guides."	2.7 MB
Databases	"SQLite databases for BASIC programs, with the Data control and the DBGrid that show them."	0.7 MB
Networking	"Network cards (with their DOS packet driver), the web, and the package server."	0.3 MB

Box	What it holds (as Setup shows it)	About
Communications	“The Terminal: modems, serial and secure links, Telnet (with Networking), and file transfers.”	0.4 MB
Media	“The Media Player and the Sound Recorder.”	0.1 MB
Developer Tools	“The Icon, Resource, and Help Editors, Package Builder, and Widget Showcase, with DVXRES and DVXHLPC for the DOS prompt.”	0.9 MB
Demos	“The DVX Demo and the BASIC Demo.”	0.2 MB

A part you leave out takes no disk space and leaves more memory for your programs. The desktop and the everyday programs (see Section 1.2) are always installed.

No part needs another. You can install Communications without Networking, for example: the Terminal then works with modems and serial links, and only its Telnet and its secure link over a network need Networking.

To add or remove parts later, run Setup again and choose **[Upgrade or repair DVX]** (see Section 3.8). Software lists each part you installed as one package; its details name what the part holds, and Software can remove it (see Section 10.9).

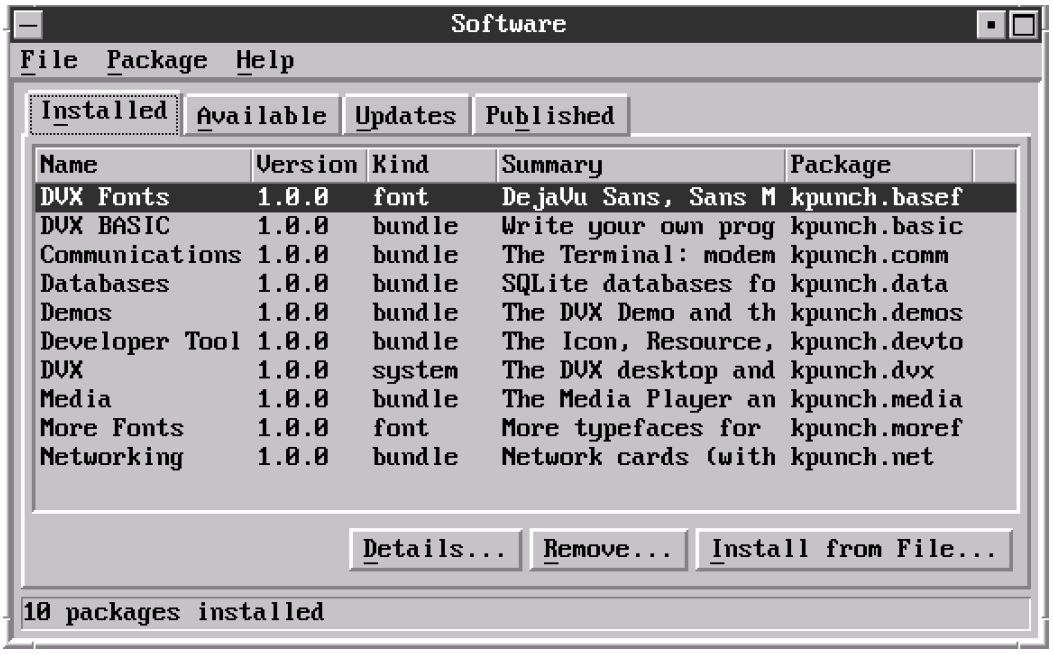


Figure 6. Software lists each installed part, the base fonts, and an add-on as packages

3.6. The add-ons on the CD

When you install from the CD, Setup also offers the add-ons in the CD’s `ADDONS` folder, under **Add-ons to install**. Each has a check box with its size. On a new install they start unticked: tick the

ones you want.

Add-on	What it holds (as Setup shows it)	File
DVX General MIDI (4 MB)	"General MIDI instruments for MIDI music on wavetable sound cards (Gravis UltraSound, Sound Blaster AWE32 and AWE64)."	`DVXGM.DPK`
More Fonts (8 MB)	"More typefaces for documents, programs, and games: condensed DejaVu, Arimo, Tinos, Cousine, display faces, and pixel fonts." That is more than forty more typefaces.	`MOREFONT.DPK`

DVX uses the DVX General MIDI instruments for MIDI music on a Gravis UltraSound or a Sound Blaster AWE32 or AWE64. Without them, those cards use their own instruments when they have them (see Section 7.12).

Setup offers only add-ons that are signed: each comes with a signature file (`.SIG`) beside it. An add-on that is not signed, or cannot be read, is not offered.

An add-on already in the folder shows "(installed)" instead of its size.

Setup installs the add-ons you tick after it has unpacked DVX, showing "Installing More Fonts" and so on. If one cannot be installed, Setup says "*name* could not be installed: *reason*" and goes on with the others.

Once installed, the add-ons are packages like any other: the Software program lists them and can remove them. To add one later:

1. Put the DVX CD in the drive.
2. Start Software from the Program Manager.
3. Choose **File › Install from File...**.
4. Go to the `ADDONS` folder of the CD and open `MOREFONT.DPK` or `DVXGM.DPK`.

See Section 10.3 for the rest of the steps. With the Networking part, Software can also install both add-ons from the package server.

3.7. Installing and finishing

3.7.1. While Setup installs

After you click **[Install]**, Setup says "Setup is installing DVX. This can take a few minutes." Under it are the name of the file being unpacked (with the floppy disks, "Disk *n*: *file*"), a progress bar, and a panel that shows a different feature of DVX every few seconds: "Windows, your way",

“Build your own programs”, “Games, sound, and music”, “Help on every screen”, and “Files and the world”.

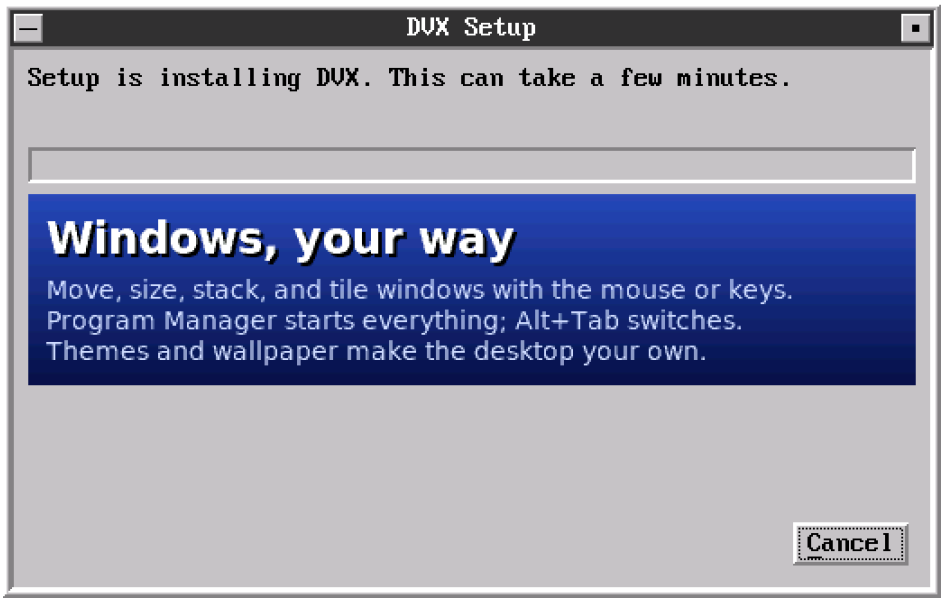


Figure 7. Setup unpacking DVX

When DVX itself is unpacked, Setup installs the add-ons you ticked. Setup checks every file as it unpacks it; if a file on the CD or a floppy disk is damaged, Setup stops and says so.

To stop, click **[Cancel]**. While Setup is unpacking DVX, it then returns to the **What to install** page and says what happened:

- On a new install, Setup removes everything it wrote: “Setup was cancelled. Nothing was installed in *folder*.”
- On an upgrade, DVX is left half-updated: “Setup was cancelled. DVX in *folder* is incomplete now; run Setup again to repair it.”

If you click **[Cancel]** while the add-ons are being installed, DVX itself is already in place. Setup says “Setup was cancelled: *name* and the add-ons after it are not as you chose. Software (in Program Manager) can install and remove them.” and goes on to finish the install and show the last page.

3.7.2. Changing floppy disks

With the floppy disks, Setup asks for each disk it needs:



Figure 8. Setup asking for the next floppy disk

Message	What to do
"Please insert Disk *n* of *total* in drive A: and choose OK."	Take out the disk in drive A:, put in the disk it asks for, and click **[OK]**.
"The disk in drive A: belongs to a different set of DVX disks. Please insert Disk *n* of *total* of this set and choose OK."	The disk is from another copy or version of DVX. Use the disks from one set only.
"This is not Disk *n*. Please insert Disk *n* of *total* in drive A: and choose OK."	Check the number on the disk and put in the right one.
"The disk in drive A: cannot be read. Please insert Disk *n* of *total* and choose OK."	Make sure the disk is pushed fully in, then click **[OK]**. If it still cannot be read, the disk may be damaged.

Clicking **[Cancel]** in any of these stops the install, as described above.

3.7.3. DVX's settings file

When the files are unpacked on a new install, or on an upgrade with **Start over** ticked, Setup writes DVX's settings file, `DVX.INI`, into the `USER` folder. It sets DVX's screen mode to the mode Setup itself is running in, normally 640x480, because that mode is known to work on your computer. You can choose a higher resolution later in the Control Panel (see Section 7.7).

If the file cannot be written, Setup says "DVX was installed, but the settings file in *folder* could not be written."

3.7.4. Starting DVX when the computer starts

If you ticked **Start DVX when the computer starts (AUTOEXEC.BAT)** on the folder page, and `AUTOEXEC.BAT` does not start DVX already, Setup says "Setup will add this line to the end of C:\AUTOEXEC.BAT, so DVX starts when the computer starts:", shows the line, for example `C:\DVX\DVX.EXE` (with your folder), and asks "The file as it is now is saved as C:\AUTOEXEC.DVX first. Add the line?" When there is no `AUTOEXEC.BAT` yet, Setup says instead "There is no C:\AUTOEXEC.BAT yet. Setup will make one with this line, so DVX starts when the computer starts:", shows the line, and asks "Add the line?"

- Click **[Yes]** to add it. Setup first saves the file as it was, as `AUTOEXEC.DVX` beside it, and then adds the line at the end. If there is no `AUTOEXEC.BAT` yet, Setup makes one, with nothing to save first.
- Click **[No]** to leave `AUTOEXEC.BAT` as it is.

The line names DVX by its short DOS name, which DOS needs, so a folder with a long name appears in its short form.



The drivers DVX uses (the mouse driver, a VESA driver, a network packet driver) must be loaded by lines above the line that starts DVX. Setup adds its line at the end, after the lines already there. If you add a driver to `AUTOEXEC.BAT` later, put it above the DVX line.

To stop DVX starting with the computer, delete the line from `AUTOEXEC.BAT` with a text editor (for example, type `EDIT C:\AUTOEXEC.BAT` at the DOS prompt), or let Setup remove it when you remove DVX.

3.7.5. The last page

When everything is done, Setup shows “DVX is ready!” and “Your new desktop is waiting.”, the folder DVX is in (“DVX is installed in C:\DVX.”), and how to start it (“To start it from the DOS prompt, type C:\DVX\DVX.EXE”).

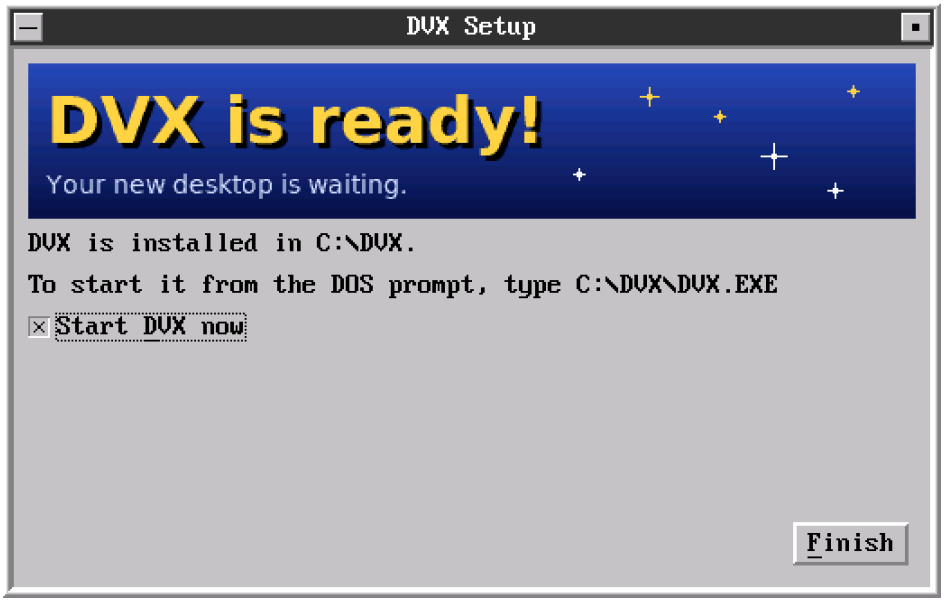


Figure 9. The last page of Setup

- With **Start DVX now** ticked (as it starts), click **[Finish]**: Setup closes and starts DVX. When you later exit DVX, you are back at the DOS prompt.
- Untick **Start DVX now** and click **[Finish]** to return to the DOS prompt without starting DVX.



When Setup starts DVX for you, Setup stays in memory until you exit DVX. To give DVX all of the computer's memory, untick **Start DVX now** and start DVX from the DOS prompt instead (see Section 3.12).

What you see the first time DVX starts is described in Section 3.14.

3.8. Upgrading or repairing DVX

Run Setup again and choose **[Upgrade or repair DVX]** to:

- install a new version of DVX over the old one,
- put back DVX files that are missing or damaged,
- add or remove the base set of fonts, parts of DVX, or add-ons from the CD, or
- start over with fresh settings.

To upgrade or repair DVX:

1. Start Setup from the CD or from Disk 1 of the DVX you want to install (see Section 3.3.1). The copy of Setup in the DVX folder can only remove DVX.
2. Tick **I accept the licence** and click **[Next >]**.
3. Choose **[Upgrade or repair DVX]**. When DVX is in the folder Setup suggests, Setup says so and gives this choice the focus.

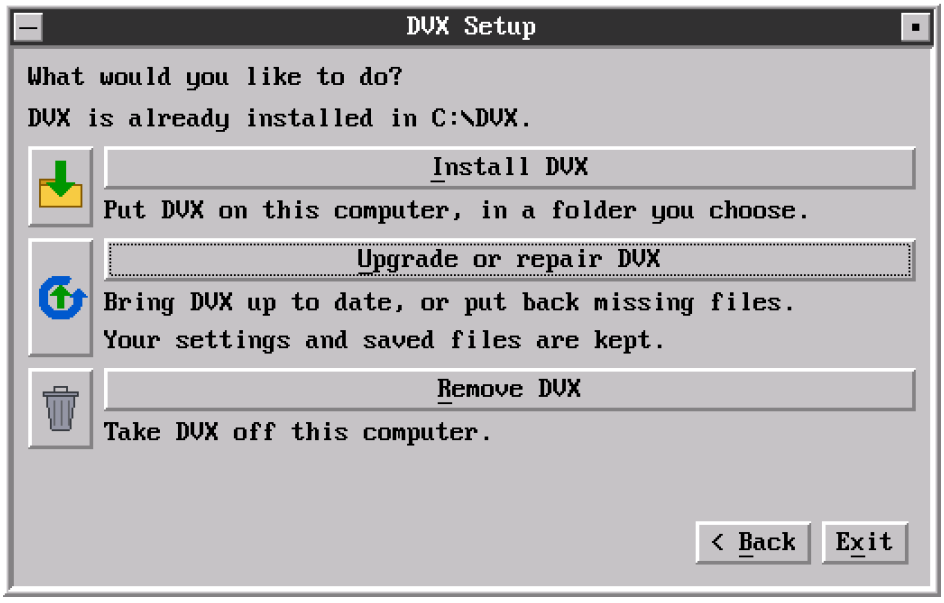


Figure 10. Setup has found DVX in C:\DVX

4. On the folder page, check that the box **Upgrade or repair DVX in this folder** holds the folder DVX is in. Tick **Start over: also remove my settings and saved files** only if you want to

throw away your settings and saved files (see below). Tick **Start DVX when the computer starts (AUTOEXEC.BAT)** if you want that. Click **[Next >]**.

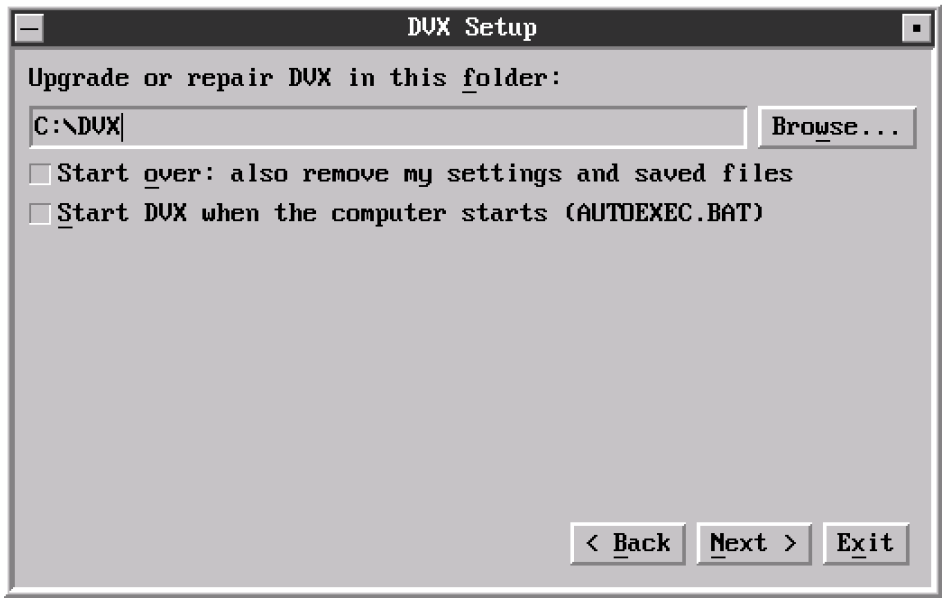


Figure 11. Upgrading DVX in C:\DVX

5. The **What to install** page starts with the fonts, parts, and add-ons the folder already has, and the parts group is headed **Parts of DVX to have (an unticked one is removed)**. Tick what you want to add and untick what you want to remove. Choose **None** under **Fonts to install** to remove the base set of fonts. An add-on the folder has shows “(installed)”; untick it to remove it.

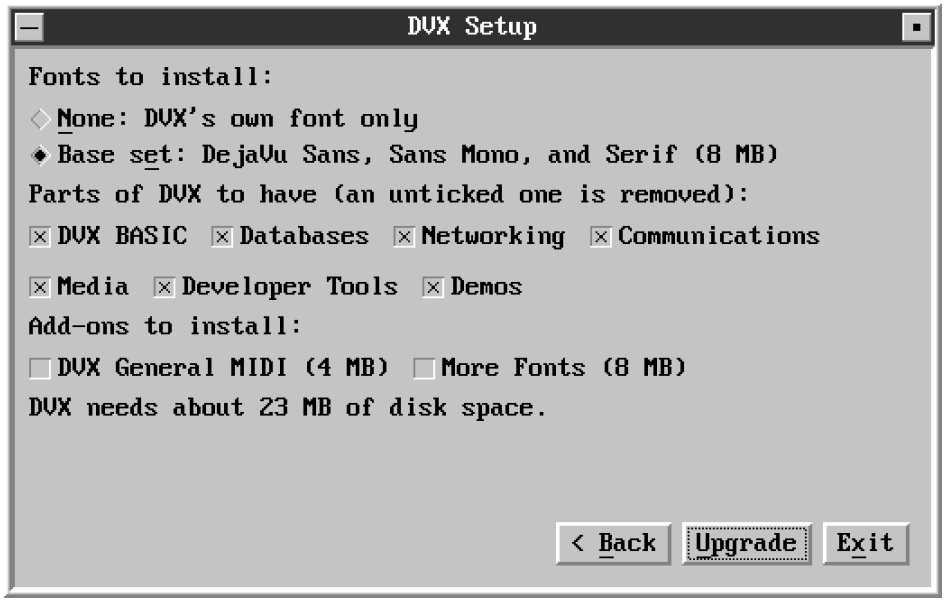


Figure 12. Choosing what to keep, add, and remove

6. Click **[Upgrade]**. Setup unpacks DVX, removes what you left out, installs or removes add-ons, and shows the last page (see Section 3.7.5).

Setup writes every DVX file again, so an upgrade also repairs DVX. Files that the new DVX no longer has, and the fonts and parts you left out, are removed. When Setup checks the free space, it counts only what the folder does not have already.

Your settings and saved files, in the `USER` folder, are kept: an upgrade does not touch them. Because your settings are kept, the Welcome window does not appear again after an upgrade.

With **Start over** ticked, Setup removes the old `USER` folder after unpacking (only if it holds a `DVX.INI` file) and writes fresh settings, as on a new install. DVX then starts as it did the first time, with the Welcome window.



Start over deletes everything in the `USER` folder: your settings, your Program Manager groups, and the files programs saved there. Copy the folder somewhere safe first if you want to keep anything from it.

Messages you may see:

Message	Meaning
"DVX is not installed in *folder*. To put DVX there, choose Back, then Install DVX."	There is no DVX in that folder. Choose the folder DVX is in, or go back and choose **[Install DVX]**.
"Other software in *folder* needs these parts, so Setup keeps them: *parts*."	You unticked a part that other installed software needs, so Setup keeps it.
"These files in *folder* changed since they were installed, so Setup left them:", the files, and "Delete them too?"	A part or add-on you unticked, or an add-on Setup upgraded, had files that changed after they were installed, such as data you edited. Setup does not delete them unless you click **[Yes]**. **[No]** leaves them where they are.
"These files in *folder* could not be deleted, so Setup left them:", the files, and "A program may be using them, or the disk may be write-protected."	Some files of a part or add-on Setup removed could not be deleted. Delete them yourself with File Manager.
"Your old settings and saved files in *folder* could not all be removed."	With **Start over** ticked, some files in the `USER` folder could not be deleted. Delete them yourself.

With the Networking part you can also bring DVX up to date without Setup: the **Updates** page of the Software program lists newer versions published on the package server, and **[Update All]** installs them. The new DVX runs from the next time you start DVX (see Section 10.5).

3.9. Removing DVX

Setup removes DVX as well. You can run it from the DVX CD or Disk 1, or use the copy of Setup that is in the DVX folder.

1. Start Setup in one of these ways:
   - From the CD or Disk 1 (see Section 3.3.1). Tick **I accept the licence**, click **[Next >]**, and choose **[Remove DVX]**.
   - From the DVX folder: type `C:\DVX\SETUP` at the DOS prompt. This copy of Setup opens straight at the remove page, for its own folder only (see below).
2. On the remove page, check that the box **Remove DVX from this folder** holds the folder DVX is in.
3. To delete your settings and saved files too, tick **Also remove my settings and saved files (the USER folder)**. Leave it unticked to keep them.
4. Click **[Remove]**.
5. If `AUTOEXEC.BAT` starts DVX, Setup says "C:\AUTOEXEC.BAT starts DVX with the line", shows the line, for example `C:\DVX\DVX.EXE`, and asks "Remove that line? (The file as it is now is saved as AUTOEXEC.DVX first.)" Click **[Yes]** to remove the line, or **[No]** to leave it.
6. Setup removes DVX and says "DVX was removed from *folder*." Click **[OK]**; Setup ends.

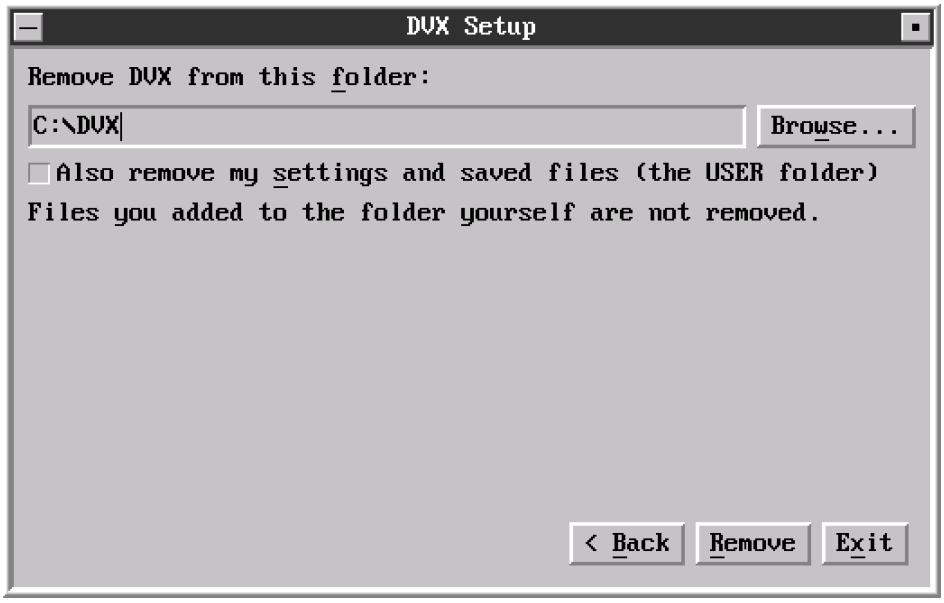


Figure 13. Removing DVX



Setup does not ask whether you are sure: clicking **[Remove]** removes DVX at once. If you ticked the `USER` folder box, your settings and every file saved in the `USER` folder are deleted too. Copy anything you want to keep first.

Setup removes, in this order:

1. the files of add-on packages that the Software program installed,
2. every file Setup put in the folder,
3. the `USER` folder, only if you ticked the box,
4. the folders left empty, including the DVX folder itself.

“Files you added to the folder yourself are not removed.” Those files, and the folders that hold them, stay.

If you keep the `USER` folder somewhere else with the `DVXUSER` setting (see Section 3.11), Setup removes that folder only if you tick the box and it holds a `DVX.INI` file.

Messages you may see:

Message	What to do
“DVX is not installed in *folder* (or it was not installed by this Setup).”	Setup found no record of an install there. Check the folder name. Setup can only remove a DVX that Setup installed, because it removes the files on its list.
“*n* file(s) in *folder* could not be removed. Close any program using them and choose Remove DVX again.”	Close any program that uses files in the folder, then run Setup again and choose **[Remove DVX]**.

The copy of Setup in the DVX folder has no DVX inside it, so it can only remove DVX, and only from its own folder. It opens at the remove page with the folder filled in and fixed (no **[Browse...]** or **[< Back]**), and the note “To install or upgrade DVX, run SETUP from its CD or Disk 1.”

If this copy of Setup is run from a folder where DVX is not installed, it prints “DVX Setup: there is no DVX package (or it is damaged) beside *path*, and DVX is not installed in its folder.” and stops.

3.10. Setup’s command-line switches

You can give Setup switches after its name at the DOS prompt, for example:

```
SETUP /AUTO=C:\DVX /PARTS=BASIC,COMM /LOG=C:\SETUP.LOG
```

Upper and lower case are the same in the names after the switches.

Switch	What it does
`/AUTO=folder`	Installs DVX in that folder without asking any questions (see Section 3.10.1).
`/FONTS=NONE` or `/FONTS=BASE`	Chooses the fonts: none, or the base set. Without it, Setup keeps the fonts the folder already has, or chooses the base set on a new install.
`/PARTS=ALL`, `/PARTS=NONE`, or `/PARTS=names`	Chooses the parts of DVX, by these names, separated by commas: `BASIC` (DVX BASIC), `DATA` (Databases), `NET` (Networking), `COMM` (Communications), `MEDIA` (Media), `DEVTOOLS` (Developer Tools), and `DEMOS` (Demos). Without it, Setup keeps the parts the folder already has, or chooses them all on a new install.
`/ADDONS=ALL`, `/ADDONS=NONE`, or `/ADDONS=names`	Chooses the add-ons by their file names, separated by commas: `MOREFONT` (More Fonts) and `DVXGM` (DVX General MIDI). Without it, Setup keeps the add-ons the folder already has (none on a new install).
`/LOG=file`	Writes Setup's record of what it did to that file, for example `/LOG=C:\SETUP.LOG`. Without it, Setup keeps no record on disk.

Without `/AUTO`, the switches `/FONTS`, `/PARTS`, and `/ADDONS` set the choices the **What to install** page starts with; you can still change them there.

If `/FONTS=` is followed by anything else, Setup prints "DVX Setup: /FONTS= takes NONE or BASE." and stops.

3.10.1. Installing without questions

With `/AUTO=folder`, Setup installs DVX in that folder without waiting for you:

- the licence is taken as accepted,
- a folder that already has DVX is upgraded, and its `USER` folder is kept,
- `AUTOEXEC.BAT` is not changed.

The screen still switches to graphics and shows Setup's pages briefly while it works. Setup shows no messages; any problem is written only to the log, so give `/LOG` as well.

When it ends, Setup returns the exit code 0 if DVX was installed and 1 if it was not, which a batch file can test with `IF ERRORLEVEL 1`:

```
D:
SETUP /AUTO=C:\DVX /FONTS=BASE /PARTS=ALL /LOG=C:\SETUP.LOG
```

```
IF ERRORLEVEL 1 ECHO DVX was not installed. See C:\SETUP.LOG.
```

3.11. Where DVX puts its files

Setup puts DVX in the folder you chose, for example `C:\DVX`:

File or folder	What it holds
`DVX.EXE`	DVX itself. This is what you run to start DVX.
`SETUP.EXE`	A copy of Setup, which can remove DVX (see Section 3.9).
`SETUP.LST`	Setup's list of the files it installed. Setup needs it to remove DVX; do not delete it.
`SYSTEM`, `LIBS`, `WIDGETS`, `APPS`, `SHARED`	DVX's own files: its tools for the DOS prompt, its libraries and controls, its programs, and the fonts, sounds, themes, desktop pictures, instrument banks, and screen savers every program shares. DVX only reads these folders.
`USER`	Everything that changes while you use DVX: your settings (`DVX.INI`), the log of the last start (`DVX.LOG`), your own fonts, sounds, themes, and pictures, each program's settings and saved files, and the Terminal's downloads.

To back up your work and settings, copy the `USER` folder.

To keep the `USER` folder somewhere else (on another disk, or one for each person who uses the computer), set `DVXUSER` to that folder before starting DVX, for example with this line in `AUTOEXEC.BAT`:

```
SET DVXUSER=D:\MYDVX
```

Setup uses `DVXUSER` too: it writes a new install's settings file there.

The folders and the settings files are described fully in Section B.1 and Section B.2.

3.11.1. Running DVX from a CD-ROM or a write-protected disk

A copy of an installed DVX folder can also be run from a disk DVX cannot write to, such as a CD-ROM you made or a write-protected disk. DVX then cannot save into its `USER` folder:

- If there is a `TEMP` folder (set by the `TEMP` or `TMP` setting in `AUTOEXEC.BAT`), DVX keeps your settings and files in a folder named `DVXUSER` inside it, and says once: "DVX is running from a disk it cannot write to, such as a CD-ROM, so your settings are kept in the TEMP folder. To keep them

somewhere else, set DVXUSER to a folder on your hard disk before starting DVX." The first time, the settings there start as a copy of the `DVX.INI` in the `USER` folder on that disk.

- If there is no `TEMP` folder, DVX says: "DVX cannot save anything: it is running from a disk it cannot write to, such as a CD-ROM, and there is no TEMP folder. Settings you change are kept until you exit DVX. To keep them, set DVXUSER to a folder on your hard disk before starting DVX, or install DVX with SETUP." The first time you save a change after that, DVX reminds you: "Your changes cannot be saved to disk, so they last only until you exit DVX. To keep them, set DVXUSER to a folder DVX can write to before starting DVX."

The same happens when you set `DVXUSER` (see Section 3.11) to a folder DVX cannot write to; the messages then name that folder: "DVX cannot write to *folder*, the folder DVXUSER names, so your settings are kept in the TEMP folder. To keep them somewhere else, set DVXUSER to a folder DVX can write to before starting DVX.", or, with no `TEMP` folder, "DVX cannot save anything: it cannot write to *folder*, the folder DVXUSER names, and there is no TEMP folder. Settings you change are kept until you exit DVX. To keep them, set DVXUSER to a folder DVX can write to before starting DVX."

To keep everything on your hard disk, install DVX there with Setup.

3.12. Starting DVX

To start DVX:

1. Make sure the drivers DVX uses are loaded: the mouse driver, and the VESA driver and network packet driver if you use them.
2. At the DOS prompt, change to the DVX folder and type `DVX`:

   ```
   C:
   CD \DVX
   DVX
   ```

   You can also start DVX from any folder by typing its whole path, for example `C:\DVX\DVX`.

If you ticked **Start DVX when the computer starts (AUTOEXEC.BAT)** in Setup and clicked **[Yes]** when Setup offered to add its line, DVX starts by itself each time the computer starts.

3.12.1. DVX's command-line switches

You can add these switches after `DVX`. Upper and lower case are the same. Put `/SAFE` before `/RUN=`: everything after `/RUN=` belongs to the program it names.

Switch	What it does
`DVX /SAFE`	A safe start: DVX starts in safe video mode and without the libraries and controls that add-ons installed (see Section 3.13). Holding down a `Shift` key while DVX starts does the same.
`DVX /RUN=program arguments`	Starts that program once the desktop is up. For example, `DVX /RUN=APPS\KPUNCH\NOTEPAD\NOTEPAD.APP` starts Notepad. A path like this one, without a drive, is found from the DVX folder. Anything you type after the program, separated by a space, is given to it, for example a document for it to open: `DVX /RUN=APPS\KPUNCH\NOTEPAD\NOTEPAD.APP C:\LETTERS\TODO.TXT`.
`DVX /RUN=document`	Opens that document in the program set up for its kind of file once the desktop is up. For example, `DVX /RUN=C:\LETTERS\TODO.TXT` opens the file in Notepad. The kinds of file are set on the **File Types** page of the Control Panel (see Section 7.8).

If the program or document cannot be found, DVX says “Cannot find *file*.” If no program is set up for a document’s kind of file, it says “No program is set up to open *file*. Choose one on the File Types page of the Control Panel.” If a program’s file is there but cannot be started, for example because it is damaged, DVX says “Failed to load *file*:” followed by the reason.

3.12.2. What you see while DVX starts

While DVX loads, you see a title screen with a bar that fills from left to right. Sometimes the bar fills a second time. That happens after programs or parts of DVX were added or removed, while DVX brings its help files up to date. It only takes a moment.

The screen then changes to the DVX desktop, and these appear in turn:

1. the **Safe Video Mode** question, if DVX started in safe video mode (see Section 3.13),
2. the **Program Manager** window,
3. the start-up sound,
4. a message if DVX is running from a disk it cannot write to (see Section 3.11.1),
5. an **Add-ons** message if an add-on could not be loaded (see below),
6. the **Welcome** window, the first time DVX starts (see Section 3.14),
7. the program or document named with `/RUN=`, if any.

The programs in the Program Manager’s **Startup** group also start once the desktop is up (see

Section 6.3).

If an add-on's library or control cannot be loaded (for example, it was made for another version of DVX, or it needs something that is not installed), DVX starts without it. A message titled **Add-ons** then lists each one as "*file* was not loaded: *reason*." and ends "The Software program can reinstall or remove an add-on." The rest of DVX works as usual. See Section 11.11.

If one of DVX's own files cannot be loaded, DVX does not start. It prints "FATAL: *file* could not be loaded: *reason*." and "Run Setup and choose Upgrade or repair to fix DVX." Do that (see Section 3.8).

If DVX cannot find a video mode it can use, it prints a message and does not start (see Section 2.3.2 and Section 11.2).

If a program crashes while DVX starts, for example a program in the **Startup** group, DVX ends that program with the **Application Error** message and goes on starting. If something goes wrong inside DVX itself while it starts, DVX returns to DOS with "DVX stopped while starting: something went wrong inside DVX itself. Start DVX again with a safe start: hold down a Shift key while it starts, or type DVX /SAFE. If DVX still stops, run Setup and choose Upgrade or repair to fix DVX." (see Section 11.2).

3.12.3. Leaving DVX

To leave DVX, choose **File › Exit DVX** in the Program Manager, or close the Program Manager window. DVX asks "Are you sure you want to exit DVX?" Click **[Yes]** to close every program and return to DOS. See Section 5.16 for what happens to programs with unsaved work.

3.13. Safe start and safe video mode

3.13.1. Safe video mode

If the screen mode DVX is set to use does not work on your computer (for example, after you changed video cards), DVX starts in safe video mode instead: 640x480 with 65 thousand colors, or the nearest mode your card has. It then asks, in a box titled **Safe Video Mode**:

"The screen mode DVX is set to use (*resolution*, *n*-bit color) does not work on this computer, so DVX started in safe video mode (*resolution*, *n*-bit color). Use this mode from now on?"

Each *resolution* is a width and height in pixels, such as 640x480.

- Click **[Yes]** to keep the safe mode from now on. If it cannot be saved, DVX says "The screen mode could not be saved. Change it in the Control Panel instead."
- Click **[No]** to leave the setting alone. DVX tries the old mode again the next time it starts.

You can choose another mode at any time on the **Video** page of the Control Panel (see Section 7.7).

3.13.2. Safe start

If DVX starts but you cannot read the screen (for example, your monitor cannot show the mode DVX is set to use), or DVX stopped starting after you installed an add-on, start DVX in safe mode:

- hold down a `Shift` key while DVX starts, from the moment you press `Enter` until the desktop appears, or
- type `DVX /SAFE` at the DOS prompt.

A safe start does two things:

- DVX starts in safe video mode and asks: “DVX started in safe video mode (*resolution*, *n*-bit color) as you asked. Use this mode from now on instead of *resolution*, *n*-bit color?” Click **[Yes]** to keep the safe mode, or **[No]** to keep your usual mode for the next start.
- DVX leaves out every library and control that add-on packages installed, in case one of them is what stops DVX from starting. DVX’s own parts load as usual. If any were left out, a message titled **Add-ons** says “DVX was started in safe mode, so no add-on libraries or widgets were loaded.” and “The Software program can reinstall or remove an add-on.”

To use the add-ons again, start DVX the usual way. If an add-on is what stopped DVX from starting, remove it with the Software program during the safe start (see Section 10.4).

3.14. The first start

The first time DVX starts after a new install, the **Welcome to DVX** window opens in front of the Program Manager. Its banner says “Welcome to DVX!” and “Your desktop for DOS. Here is where to start.”

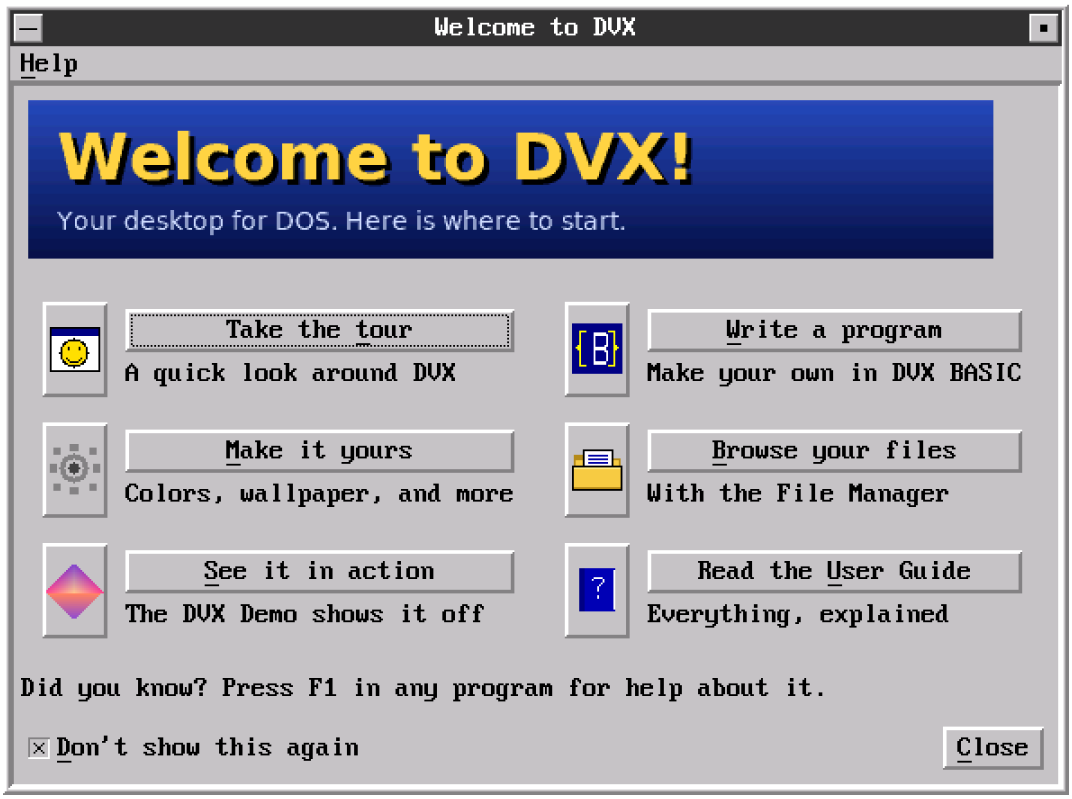


Figure 14. The Welcome window

3.14.1. The Welcome tiles

The window has six tiles, each with a picture, a button, and a line under it. Click the picture or the button:

Button	Line under it	What it does
[Take the tour]	"A quick look around DVX"	Shows a tour of DVX in seven pages (see below).
[Make it yours]	"Colors, wallpaper, and more"	Starts the Control Panel (see Chapter 7).
[See it in action]	"The DVX Demo shows it off"	Starts the DVX Demo. Shown only when the Demos part is installed.
[Write a program]	"Make your own in DVX BASIC"	Starts DVX BASIC. Shown only when the DVX BASIC part is installed.
[Browse your files]	"With the File Manager"	Starts the File Manager (see Section 8.3).
[Read the User Guide]	"Everything, explained"	Opens the DVX user guide in DVX Help (see Section 5.11).

Under the tiles, a tip that starts "Did you know?" changes every few seconds, for example "Did you know? Press F1 in any program for help about it."

3.14.2. The tour

The tour shows one page at a time in place of the tiles, with “Page *n* of 7” and the buttons **[< Previous]**, **[Next >]**, and **[End the tour]**. Its pages are “A quick tour of DVX”, “Program Manager”, “Windows”, “Your files”, “Make it yours”, “Write your own programs”, and “Help is always there”.

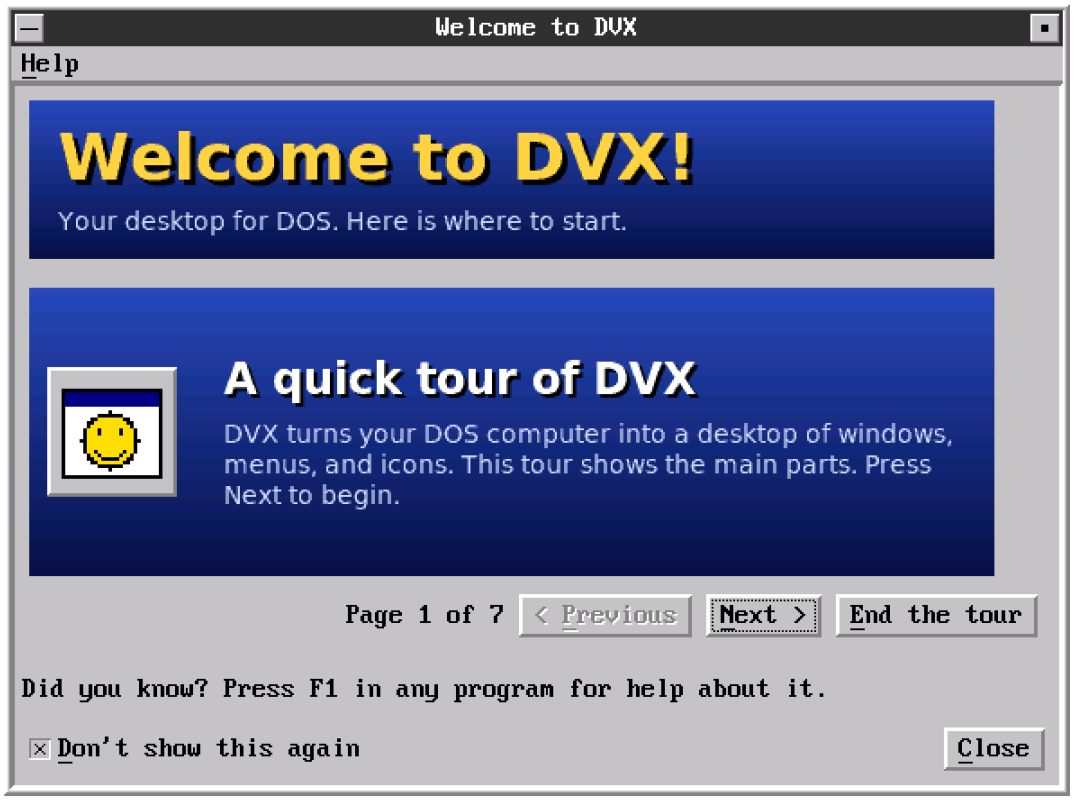


Figure 15. The first page of the tour

3.14.3. Closing Welcome and seeing it again

At the bottom of the window, **Don’t show this again** starts ticked. If you close the window with it ticked, Welcome does not open the next time DVX starts. Untick it before you close the window if you want Welcome every time DVX starts. **[Close]** closes the window.

To see Welcome again later, start it from the **Installed Programs** group in the Program Manager. The **Help** menu of the Welcome window has **Help › Contents** (F1) and **Help › About Welcome...**.

3.14.4. The Program Manager the first time

Behind the Welcome window is the Program Manager. The first time DVX starts, it has three groups:

- **Installed Programs**, which always lists every program installed in DVX,
- **Main** and **Startup**, two empty groups of your own. Programs you put in **Startup** start each

time DVX starts.

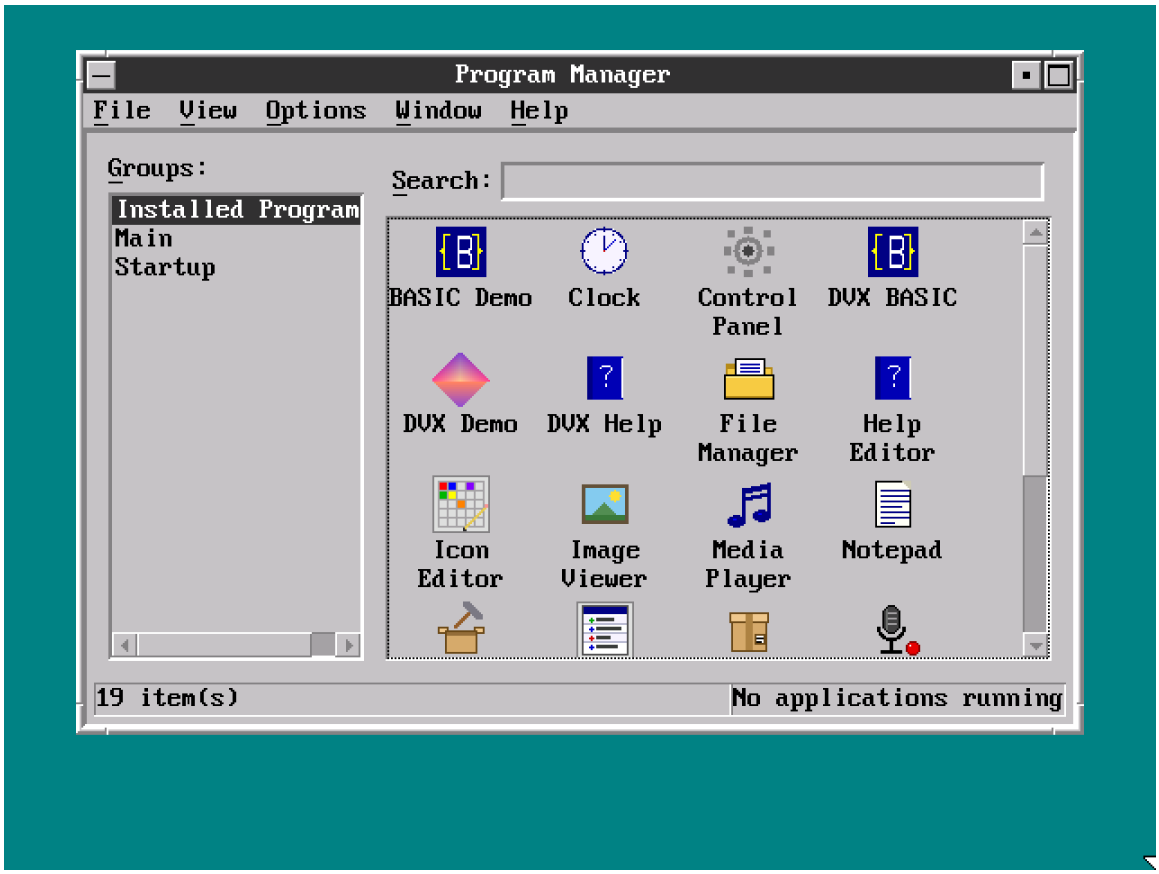


Figure 16. The Program Manager the first time DVX starts

See Chapter 6 to start programs and arrange your groups, and Chapter 5 to learn to work with windows.

DVX starts in the screen mode Setup used, normally 640x480. To use a higher resolution or more colors, choose one on the **Video** page of the Control Panel (see Section 7.7).

Chapter 4. Setting Up Networking

With a network card, DVX can reach other computers on your network and on the Internet. This chapter explains what you need, how to load the card's driver, how to set up DVX's network settings, and how to check that the network works. If you have no network card, you can skip it: DVX works the same without one.

4.1. What networking gives you

With the network set up, you can:

- connect to bulletin boards and other computers over the network with Telnet in the Terminal, and use the Terminal's secure link over the network (see Section 9.5 and Section 9.7),
- install, update, and publish software from the package server with the Software program, on its **Available**, **Updates**, and **Published** pages (see Section 10.6),
- run BASIC programs that use the network or fetch pages from the web.

Modems and serial links in the Terminal do not need the network.

4.2. What you need

To use a network, you need:

- **A network card with its DOS packet driver.** The card must be an Ethernet card. The packet driver is a small DOS program for your card, usually on the card's driver disk, that lets DOS programs use the card. It follows the Packet Driver specification; the card's manual or driver disk says whether it has one. DVX uses only packet drivers for Ethernet cards.
- **The Networking part of DVX.** Setup installs it unless you untick **Networking** on the **What to install** page (see Section 3.5).
- **Your network's settings.** Most networks give out the settings by themselves (DHCP), so there is nothing to type. Otherwise, ask whoever runs the network for an address, a subnet mask, a gateway, and name servers for this computer.

To use Telnet, you also need the Communications part, which holds the Terminal.

4.2.1. Adding the Networking part

If the Networking part is not installed:

- the **Network** page of the Control Panel shows only "Networking is not installed.",
- the Software program's package server pages say "The package server needs DVX's

Networking part. To add it, run Setup from DVX's CD or Disk 1 and choose Upgrade or repair.",

- the Terminal says "Telnet and the secure link over the network need Networking, which is not installed. Setup can add it."

To add it:

1. Run Setup from the DVX CD or Disk 1.
2. Choose **[Upgrade or repair DVX]** and the folder DVX is in.
3. On the **What to install** page, tick **Networking**. Leave the other choices as they are.
4. Click **[Upgrade]**.

See Section 3.8 for each step.

4.3. Loading the packet driver

The packet driver must be loaded before DVX starts, every time. The usual way is to load it from `AUTOEXEC.BAT`, on a line above the line that starts DVX.

A packet driver's command line usually names three things: the software interrupt it uses to talk to programs (normally `0x60`), and the card's interrupt (IRQ) and I/O port. The order and the exact form depend on the driver: look in the card's manual or the driver's own instructions. For example, for an NE2000 card at I/O port 300h, using IRQ 3, on software interrupt 60h, the line is:

```
NE2000.COM 0x60 3 0x300
```

To add the packet driver to `AUTOEXEC.BAT`:

1. Copy the packet driver from the card's driver disk to a folder on your hard disk, for example `C:\NET`.
2. At the DOS prompt, open `AUTOEXEC.BAT` in a text editor, for example by typing `EDIT C:\AUTOEXEC.BAT`.
3. Add the packet driver's line above the line that starts DVX, if there is one.
4. Save the file and restart the computer.

The end of `AUTOEXEC.BAT` might then look like this (your drivers' names, folders, and settings will differ):

```
REM The mouse driver
C:\MOUSE\MOUSE.COM
REM The network card's packet driver
```

```
C:\NET\NE2000.COM 0x60 3 0x300
REM Start DVX
C:\DVX\DVX.EXE
```

You can also type the packet driver's command at the DOS prompt before you start DVX; it then stays loaded until the computer is restarted.

DVX looks for the packet driver by itself on the software interrupts 60h to 80h, and uses the first one it finds. Load the driver on an interrupt in that range. If you have more than one packet driver loaded, you can tell DVX which one to use (see **Packet driver** in Section 4.4).

Without a packet driver DVX works as usual, but only this computer can be reached.

While DVX runs a DOS program, the network stops. It starts again the next time a program uses it.

4.4. Network settings

DVX's network settings are on the **Network** page of the Control Panel. This section explains the settings you need; Section 7.9 describes the page itself.

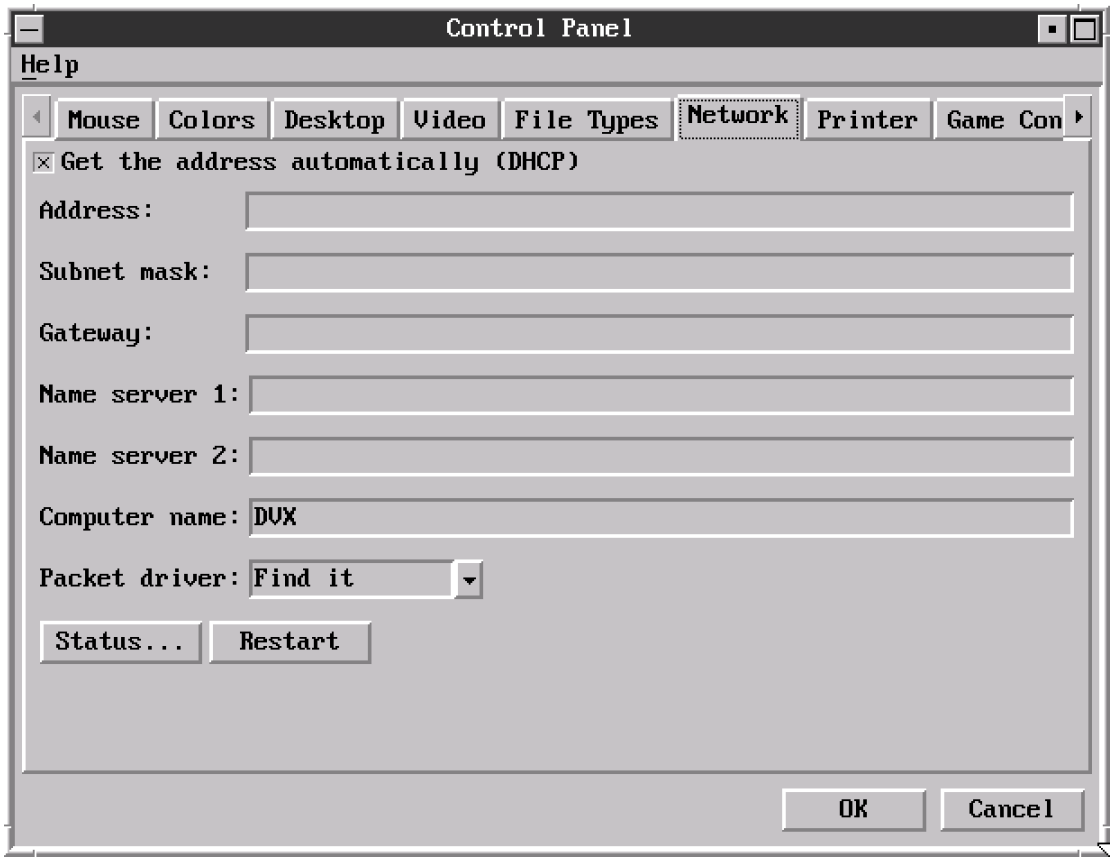


Figure 17. The Network page of the Control Panel

To change the network settings:

1. Start the Control Panel from the Program Manager.
2. Click the **Network** tab. If the tabs do not all fit, the arrows beside them show the others.
3. Change the settings, as described below.
4. Click **[OK]**. The settings are saved. If they changed, the network restarts with them, and any connections that were open are closed.

4.4.1. Getting the address automatically (DHCP)

Get the address automatically (DHCP) is ticked to begin with. The network then gives DVX its address, subnet mask, gateway, and name servers. Most networks work this way, so try it first.

Right after the network starts, a program that connects or looks up a name waits up to 20 seconds for the address to arrive, instead of failing at once.

4.4.2. Setting the address yourself

If your network gives out no addresses, untick **Get the address automatically (DHCP)** and fill in:

Address

The address of this computer, such as `192.168.1.10`. It must be one no other computer on the network uses.

Subnet mask

Which addresses are on your own network, usually `255.255.255.0`.

Gateway

The router that leads to other networks and the Internet, such as `192.168.1.1`. Leave it empty if there is none.

These three boxes can be used only when **Get the address automatically (DHCP)** is unticked.

4.4.3. Name servers

A name server turns a name, such as a bulletin board's name, into an address.

Name server 1, Name server 2

Leave them empty to use the name servers the network gives out with DHCP. Fill them in, for example with `192.168.1.1`, to use those name servers instead, even with DHCP.

When you set the address yourself, there is no DHCP to give out name servers, so type at least one here; otherwise names cannot be looked up, and you can reach other computers only by their numeric addresses.

4.4.4. Computer name and packet driver

Computer name

This computer's name on the network, `DVX` to begin with. It may be up to 63 characters long and use letters, digits, and hyphens, but it may not start or end with a hyphen. DVX sends it to the DHCP server.

Packet driver

"Find it", the first choice, makes DVX look for the packet driver by itself. Choose one of "Interrupt 60h" to "Interrupt 80h" only if DVX does not find the packet driver, or if you have more than one and want a particular one.

4.4.5. When a setting is not valid

When you click **[OK]** with a setting that is not valid, a warning box titled **Network** says what is wrong, and the Control Panel stays open so you can fix it:

Message	What to fix
"The computer name may only use letters, digits and hyphens"	**Computer name** has another character in it, starts or ends with a hyphen, or is empty.
"A name server is not a valid address (like 192.168.1.1)"	**Name server 1** or **Name server 2** is not an address of four numbers separated by dots. Correct it, or empty the box.
"The address is not a valid address (like 192.168.1.10)"	**Address** is empty or not an address of four numbers.
"The subnet mask is not valid (like 255.255.255.0)"	**Subnet mask** is empty or not a valid mask.
"The gateway is not a valid address (like 192.168.1.1)"	**Gateway** is not an address of four numbers. Correct it, or empty the box.

The address, subnet mask, and gateway are checked only when **Get the address automatically (DHCP)** is unticked.

The settings are kept in the `[network]` section of `DVX.INI` (see Section B.2).

4.5. Checking that it works

The network starts by itself the first time a program uses it, with the saved settings. To start it yourself and watch it come up:

1. Load the packet driver and start DVX.
2. Start the Control Panel and click the **Network** tab.
3. Click **[Status...]**. The **Network Status** window opens. It is updated every second, and it can stay open after you close the Control Panel.
4. Click **[Restart]**. The network starts with the saved settings. (If you have just changed the settings, click **[OK]** first to save them; that restarts the network too.)
5. Wait until the first line of the **Network Status** window says “Connected”.

The **Network Status** window has these lines:

Line	What it shows
What the network is doing	One of the states in the next table.
“Address *a* mask *m* gateway *g*”	The address, subnet mask, and gateway in use. A dash means none yet.
“Name servers *first second*”	The name servers in use.
“Card *name address*”	The packet driver’s name for the card, and the card’s hardware address.
“Received *n* packets (*n* bytes, *n* lost) sent *n* (*n* bytes)”	How much has been received and sent. “Lost” counts arrivals DVX was too busy to take; for a connection, the other computer sends them again.

The first line shows one of these states:

State	Meaning
“Connected”	The network is working. DVX has its address.
“Waiting for a DHCP server”	DVX has found the card and is waiting for the network to give it an address. If it stays this way, check the cable, or set the address yourself (see Section 4.4.2).
“No packet driver found: load one (for example NE2000.COM) before DVX”	DVX found no packet driver on the interrupts 60h to 80h. Exit DVX, load the packet driver (see Section 4.3), and start DVX again.
“Networking is not started”	No program has used the network yet. Opening the **Network Status** window does not start it: click **[Restart]**, or start a program that uses the network.

When the status says “Connected”, try the network out: connect to a bulletin board with Telnet in the Terminal (see Section 9.5), or look at the **Available** page of the Software program (see Section

10.6).

`DVX.LOG`, in the `USER` folder, also records whether DVX found a packet driver and which address it got (see Section B.6).

4.6. If the network does not work

Check these first:

- The **Network** page says “Networking is not installed.”: add the Networking part (see Section 4.2.1).
- The status says “No packet driver found”: the packet driver was not loaded before DVX, or it uses an interrupt outside 60h to 80h. Check the line in `AUTOEXEC.BAT` and the driver’s own messages when the computer starts.
- The status stays at “Waiting for a DHCP server”: the cable may be loose, or the network may give out no addresses. Set the address yourself.
- Names cannot be found, but numeric addresses work: check the name servers.

For more, see Section 11.9.

Chapter 5. Using the Desktop

This chapter explains the parts of DVX that work the same in every program: the screen, the mouse and the keyboard, windows, menus, dialog boxes and the controls inside them, the Open and Save dialog boxes, the clipboard, and the keys that work everywhere. It also covers the Task Manager, help, the screen saver, desktop sounds, programs that use the whole screen, DOS programs, and how to leave DVX. Each program's own commands are described in its own chapter or help.

5.1. The screen after start-up

While DVX loads, it shows a title screen with a bar that fills from left to right. The bar can fill a second time after programs or parts of DVX were added or removed, while DVX brings its help files up to date. Then the screen changes to the DVX desktop.

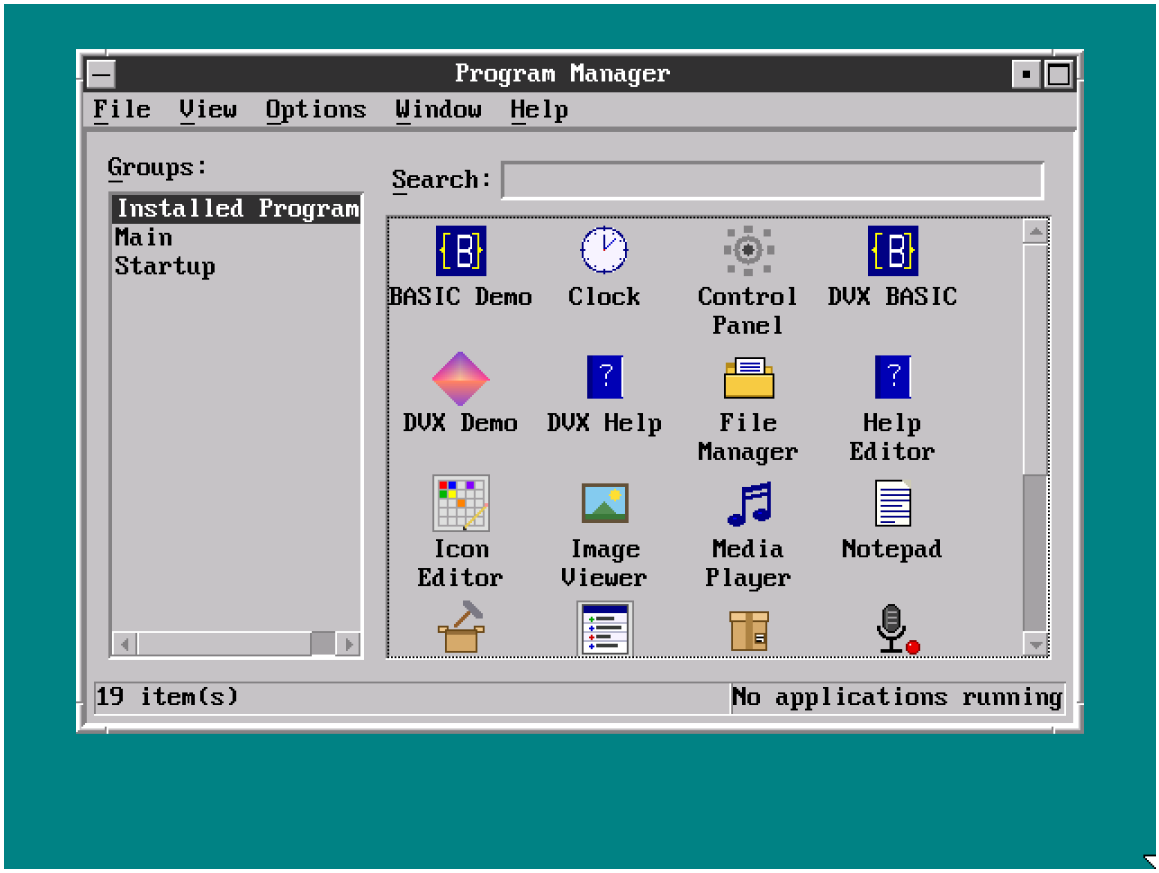


Figure 18. The DVX screen after start-up

The *desktop* is the background behind all the windows. It is teal unless you choose other colors or a picture (wallpaper); see Section 7.5 and Section 7.6. Clicking or right-clicking the desktop itself does nothing. Windows of programs you minimize wait as small icons along the bottom of the desktop (see Section 5.3.6).

The window near the top of the screen is Program Manager. It opens when DVX starts and stays open the whole time DVX runs: it is where you start your programs, and closing it leaves DVX. Chapter 6 describes it in full.

Right after the desktop appears, a few more things can happen, in this order:

1. If DVX started in safe video mode, a **Safe Video Mode** message asks whether to keep that mode (see Section 3.13).
2. Program Manager opens.
3. The start-up sound plays, if your computer has sound hardware (see Section 5.13).
4. If DVX runs from a disk it cannot write to, such as a CD-ROM, a message says what happens to the settings you change (see Chapter 11).
5. If an add-on could not be loaded, an **Add-ons** message lists it and why; it ends "The Software program can reinstall or remove an add-on." (see Section 11.11).
6. The **Welcome to DVX** window opens. Its **Don't show this again** check box starts ticked, so the window appears only once; untick the box before you close the window to see it at every start (see Section 8.10).
7. A program named on the DVX command line with `/RUN=`, for example `DVX /RUN=APPS\KPUNCH\NOTEPAD\NOTEPAD.APP`, starts.
8. The programs in Program Manager's **Startup** group start (see Section 6.3).

5.2. Using the mouse and the keyboard

You can do almost everything in DVX with either the mouse or the keyboard. DVX uses your DOS mouse driver, which must be loaded before you start DVX (see Section 11.4 if the pointer does not move).

5.2.1. The mouse

Moving the mouse moves the pointer on the screen. These are the mouse actions this guide uses:

Action	How to do it
Point	Move the pointer over something.
Click	Press and release the left mouse button once.
Double-click	Click the left button twice, quickly. How quickly is set on the Mouse page of Control Panel (see Section 7.4); it starts at half a second.
Drag	Point at something, hold the left button down while you move the mouse, then let go.

Action	How to do it
Right-click	Press and release the right mouse button. Inside a window, this opens a short menu of commands for what is under the pointer, when the program has one (see Section 5.4.4).

The scroll wheel. If your mouse has a wheel and your mouse driver supports it, turning the wheel scrolls the active window: the window you are working in, not the window under the pointer. Inside that window it scrolls the highlighted control (such as a list or a text box), otherwise the window itself. Scrolling a list or a tree does not change which item is selected. On a drop-down list whose list is closed, the wheel changes the choice instead, one choice a notch. Each notch scrolls three lines unless you change it on the Mouse page of Control Panel.

Tooltips. Hold the pointer still for half a second over a button or other control that has a tip, and a small box below the pointer says what it does. The tip goes away as soon as you move the mouse or press a button. Minimized windows show their titles this way too. No tips appear while a menu is open.

The pointer. The pointer changes shape to show what is going on:

Pointer	Meaning
Arrow	The normal pointer.
Double arrow (left-right, up-down, or diagonal)	The pointer is on the edge or corner of a window, and dragging changes the window's size (see Section 5.3.4).
Hourglass	A program is loading or DVX is busy. Wait for the arrow to come back: while the hourglass shows, clicks and keys are ignored, and keys typed then are thrown away.
Crosshair, or a circle with a line through it	Some programs use these, for example while you drag something.

5.2.2. The keyboard

Only one window at a time takes what you type: the *active* window. Its title bar is drawn in different colors from the others: with the standard colors, it is dark with white letters, and the others are grey.

Inside the active window, one control has the *keyboard focus*: the button, box, or list that your keys go to. It shows a dotted rectangle, or a blinking cursor in a text box. Click a control to give it the focus, or press `Tab` to move to the next control and `Shift` + `Tab` to move back. Moving to a control this way also scrolls it into view.

Letters that are underlined in menu names, buttons, and labels are shortcuts. Hold down `Alt` and press the underlined letter to open that menu, press that button, or move to that control. Pressing and releasing `Alt` by itself does nothing; hold it while you press the letter. In a menu that is already open, press a command's underlined letter without `Alt` (see Section 5.4.2).

Other keys that work the same everywhere:

- `Enter` or the Space bar presses the highlighted button.
- `Esc` closes a menu or a drop-down list, or cancels a dialog box (or presses **[Cancel]** in a window that has one, such as Control Panel).
- `F1` opens help for the program you are using (see Section 5.11).
- `F10` opens the menu bar of the active window (see Section 5.4).
- `Alt` + `Tab` switches to the next window (see Section 5.3.2).

Section 5.9 lists every key that works in all programs.

5.3. Windows

Every program shows its work in one or more windows. You can move them around the screen, change their size, make them fill the screen, put them away as icons, and close them.

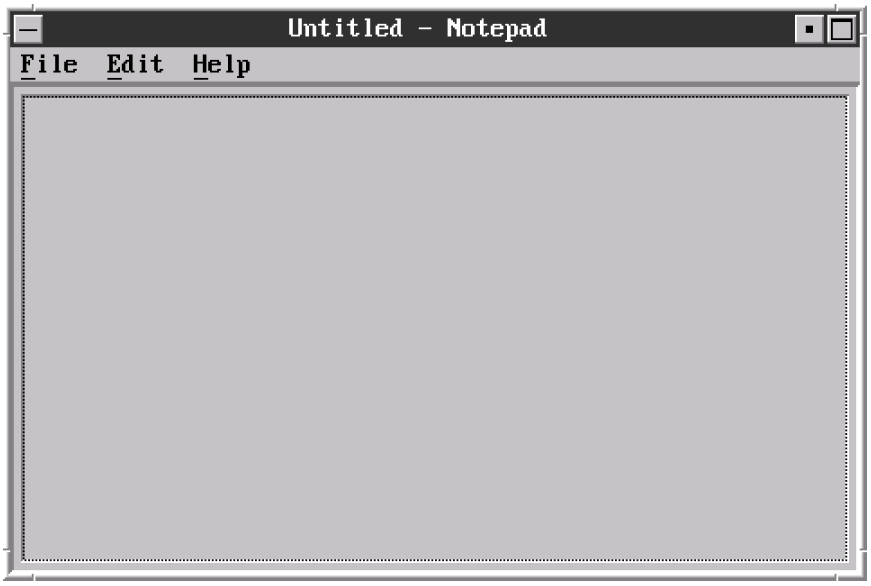


Figure 19. A window, with its title bar, menu bar, and frame

5.3.1. Parts of a window

A window has these parts:

Title bar

The bar across the top, with the window's name in the middle. A title too long to fit is cut short. The title bar of the active window stands out in different colors from the others.

Close box

The small button at the left end of the title bar, showing a short horizontal bar. Click it once to open the window menu (see Section 5.3.9); double-click it to close the window.

Minimize button

The button with a small filled square, at the right end of the title bar. It puts the window away as an icon (see Section 5.3.6). Dialog boxes do not have one.

Maximize button

The button at the far right of the title bar, showing a box outline. It makes the window fill the screen; when the window fills the screen, the button shows a smaller box and puts the window back (see Section 5.3.5). Only windows that can change size have this button.

Menu bar

Under the title bar, in many windows: the names of the window's menus, such as File, Edit, and Help (see Section 5.4).

Frame

The raised border around the window. On a window that can change size, small grooves cross the frame near each corner; drag the frame to change the window's size (see Section 5.3.4).

Scroll bars

Along the right and bottom edges, when there is more to see than fits in the window (see Section 5.3.8).

5.3.2. The active window and switching windows

Click anywhere in a window (its contents, title bar, frame, menu bar, or scroll bars) to bring it to the front and make it the active window. Right-clicking inside the window's contents does the same. A window a program opens comes to the front and becomes active by itself; if it would land exactly on top of another window, DVX moves it a little down and to the right so you can see both.

With the keyboard:

- `Alt` + `Tab` sends the active window to the back and makes the next window active. No list appears: each press switches at once, so press it again until the window you want is in front.
- `Shift` + `Alt` + `Tab` goes the other way: it brings the window at the back to the front.

`Alt` + `Tab` skips minimized windows, and does nothing while a dialog box is open (see Section 5.5.1).

The Task Manager can also switch to any program (see Section 5.10).

When you close or minimize the active window, the window in front of the others becomes active.

5.3.3. Moving a window

To move a window, drag its title bar. The window moves with the pointer once you have moved the mouse a few pixels, so a double-click on the title bar does not move it.

DVX keeps the window where you can reach it: its top edge cannot go above the top of the screen, its title bar cannot go below the bottom of the screen, and at least 50 pixels of it stay on the screen at the left and right.

To move a window with the keyboard, choose **Move** from its window menu (see Section 5.3.9.1).

5.3.4. Changing the size of a window

To change the size of a window, point at its frame and drag:

- Drag the left or right edge to change the width.
- Drag the top or bottom edge to change the height.
- Drag a corner to change the width and the height together.

The pointer turns into a double arrow when it is on a spot you can drag: left-right on the side edges, up-down on the top and bottom edges, and diagonal at the corners. You can grab an edge anywhere along the frame and up to two pixels inside it.

The grooves across the frame near each corner show where the corners begin: anywhere on the frame between a corner and its grooves, dragging changes the width and the height together.

A window cannot be made smaller than its title bar buttons and the start of its title, nor narrower than its menu bar, and it cannot be made larger than the screen (some programs set a smaller limit). When you reach a limit, the edge stops, and the pointer stays on it.

Dialog boxes, and some other windows, always keep the same size; their frames have no grooves and do not change the pointer.

To change the size with the keyboard, choose **Size** from the window menu (see Section 5.3.9.1).

5.3.5. Maximizing and restoring a window

To make a window fill the whole screen, click its Maximize button. Some programs limit how large their windows can be; such a window grows as much as the program allows, starting from

the top left corner of the screen.

To put a maximized window back to the size and place it had before, click the same button again (it now shows a smaller box: the Restore button).

Double-clicking the title bar of a window that can change size does the same as the Maximize or Restore button. The window menu has **Maximize** and **Restore** commands too.

A maximized window covers the icons of minimized windows. It cannot be moved or have its size changed: dragging its title bar or its frame does nothing, and the window menu's **Move** and **Size** are grey. Restore it first. After you change the screen resolution (see Section 7.7), no window counts as maximized any more.

5.3.6. Minimizing a window

To put a window away without closing it, click its Minimize button, or choose **Minimize** from its window menu. The program keeps running.

The window becomes a square icon along the bottom of the screen. The icons line up from left to right; when a row is full, a new row starts above it. An icon shows the program's own picture, or, for a program without one, a small copy of the window's contents that keeps up to date while the window is minimized. Hold the pointer still over an icon to see the window's title.

To bring the window back, double-click its icon: the window comes back where it was, in front of the others, and becomes active. A single click on an icon does nothing, and icons have no right-click menu. You can also use the Task Manager: select the program and click **[Switch To]** (see Section 5.10).

Icons lie underneath all windows. If a window covers an icon, move or minimize that window to reach it. While a dialog box is open, icons cannot be restored.

Dialog boxes cannot be minimized: they have no Minimize button, and the window menu's **Minimize** command is grey.

5.3.7. Closing a window

Any of these closes a window:

- Double-click the Close box at the left end of the title bar.
- Click the Close box once, then choose **Close** from the window menu.
- Press `Alt` + `F4` while the window is active.
- Choose the program's own command, such as **File › Exit**, if it has one.

A program with unsaved work usually asks whether to save it first (see Section 5.5.2). Closing a

program's last window usually ends the program.

While a dialog box is open, `Alt` + `F4` closes only the dialog box. Closing a dialog box with its Close box is the same as choosing **[Cancel]**.

5.3.8. Scroll bars

A scroll bar shows that a window, list, or box holds more than fits, and lets you see the rest:

- Click the arrow at either end to move one step (for example, one line). Hold the mouse button down on the arrow to keep moving: after a moment, the steps repeat until you let go.
- Click the empty track on either side of the box to move one page. Hold the button down to keep moving a page at a time, until the box reaches the pointer.
- Drag the box in the middle to move to any place.

If you move the pointer off the window, list, or box while you hold the button down, the scrolling pauses until you move back. * Turn the mouse wheel to scroll the active window (see Section 5.2.1).

5.3.9. The window menu

Every window has a window menu with commands for the window itself. To open it, click the Close box once, or press `Alt` + `Space` (press `Alt` + `Space` again to close it). The menu opens just below the Close box.

Command	What it does
Restore	Puts a maximized window back to its earlier size and place. Grey unless the window is maximized.
Move	Moves the window with the arrow keys (see Section 5.3.9.1). Grey while the window is maximized.
Size	Changes the window's size with the arrow keys. Grey while the window is maximized, and for windows that cannot change size.
Minimize	Puts the window away as an icon. Grey for dialog boxes.
Maximize	Makes the window fill the screen. Grey while the window is maximized, and for windows that cannot change size.
Screenshot...	Saves a picture of the whole screen in a file (see Section 5.8).
Window Shot...	Saves a picture of the inside of this window in a file (see Section 5.8).
Close	Closes the window.

Grey commands cannot be chosen. To choose a command with the keyboard, press `Up` or `Down` to

highlight it and press `Enter`, or press its underlined letter. `Esc` closes the menu. With the mouse, click a command; a click anywhere outside the menu closes it, and that click also acts on whatever you clicked.

Moving and sizing with the keyboard

After you choose **Move** or **Size** from the window menu, the arrow keys move the window or change its size, 8 pixels at a time:

- **Move**: each arrow key moves the window 8 pixels in its direction. The window stays on the screen, as when you drag it.
- **Size**: `Right` and `Down` make the window wider and taller; `Left` and `Up` make it narrower and shorter. Only the right and bottom edges move.

Press `Enter` to keep the new place or size, or `Esc` to put the window back as it was. Other keys are ignored until you do, except `Alt` + `Tab` (which ends moving or sizing), `Alt` + `F4`, `Ctrl` + `Esc`, `Ctrl` + `F12`, `Ctrl` + `Shift` + `F12`, `F1`, and `F10`.

5.3.10. Arranging windows

Program Manager's **Window** menu arranges every window on the screen at once. Minimized windows stay icons; every other window is moved and resized, Program Manager's own window included:

Cascade

Makes every window two thirds of the screen's width and height and stacks them like a staircase from the top left corner, each one a title bar's height further down and to the right, so that every title bar shows. When the next window would run off the screen, the staircase starts again at the corner.

Tile

Divides the screen into a grid of tiles that fills it, one window to a tile. The grid is about as many columns wide as it is rows high: two windows go side by side, three or four in two columns, five to nine in three columns, and so on. When the last row has fewer windows than the others, its windows are wider, so that the row is still filled.

Tile Horizontally

Puts the windows one above the other, from top to bottom, each as wide as the screen and all the same height.

Tile Vertically

Puts the windows side by side, from left to right, each as tall as the screen and all the same width.

Tiles are never made smaller than 80 by 60 pixels. With so many windows that they would be, the last windows overlap at the right or bottom edge of the screen.



If a window is lost behind the others, `Alt` + `Tab` brings each window to the front in turn, and **Window › Cascade** brings every window into view.

5.4. Menus

Many windows have a menu bar under the title bar, with names such as File, Edit, and Help. Each name opens a menu of commands.



Figure 20. An open menu

5.4.1. Using menus with the mouse

Click a menu name to open its menu; the name looks pressed in while its menu is open. Then click a command to choose it.

- While a menu is open, move the pointer along the menu bar to open the other menus.
- Click the open menu's name again to close it.
- Point at a command with a small triangle to open its submenu. Moving the pointer back to the first menu closes the submenu.
- Click anywhere outside the menu to close it without choosing anything. That click does nothing else.

5.4.2. Using menus with the keyboard

Press `F10` to open the first menu of the active window (press it again to close the menu), or hold `Alt` and press the underlined letter of a menu name. If a menu name and a control in the same window have the same underlined letter, `Alt` and that letter open the menu.

When a menu opens from the keyboard, no command is highlighted yet: press `Down` to highlight the first one. Then:

Key	What it does
`Up`, `Down`	Move the highlight to the previous or next command. The highlight wraps around from the bottom to the top and skips the lines between groups.
`Right`	Opens the submenu of the highlighted command; otherwise opens the next menu on the menu bar.
`Left`	Closes the open submenu; otherwise opens the previous menu on the menu bar.
`Enter`	Chooses the highlighted command, or opens its submenu. With nothing highlighted, closes the menu.
A letter	Chooses the command with that underlined letter (you do not need `Alt` in an open menu). If no command has that letter, opens the menu on the menu bar that has it.
`Esc`	Closes the open submenu, or the menu.

While a menu is open, the window and its controls get no keys: what you type goes to the menu, apart from the few keys that work everywhere, such as `Alt` + `Tab` and `F1` (see Section 5.9).

5.4.3. Marks in menus

Some commands show extra marks:

Mark	Meaning
Three dots (…) after the command	The command opens a dialog box where you give more details before anything happens.
A key name at the right edge, such as `Ctrl` + `Esc` or `F5`	A shortcut: press those keys to give the command without opening the menu.
A tick mark before the command	An option that is turned on. Choose the command again to turn it off.
A filled diamond before the command	The chosen one of a group of options, of which only one can be chosen, such as Program Manager's **View › Large Icons**, **View › Small Icons**, and **View › List**. Choose another option of the group to change it; choosing the marked one again leaves it chosen.
A small triangle at the right edge	The command opens a submenu.
Grey command	The command cannot be used right now.

Mark	Meaning
Line between commands	Separates groups of related commands.

5.4.4. Context menus

Many programs show a short menu when you right-click inside a window. The menu opens at the pointer and holds commands for the thing you right-clicked (or for the window). Right-clicking also brings the window to the front.

Choose a command with the left mouse button, or with the keyboard as in any menu. Click outside the menu or press `Esc` to close it. A second right-click while the menu is open does nothing.

Right-clicking an item in a list does not always select it: in most lists, select the item with the left button first, then right-click. Program Manager's icons are selected by a right-click.

Right-clicking a title bar, a frame, or the desktop does nothing.

5.5. Dialog boxes and controls

A *dialog box* is a small window that asks you a question, or asks for details before a command is carried out. Windows and dialog boxes are built from the same few kinds of *controls* (buttons, check boxes, lists, and so on), which work the same in every program.

5.5.1. How dialog boxes work

Dialog boxes open in the middle of the screen. They have no Minimize or Maximize button, and they always keep the same size.



While a dialog box is open, you must answer it before you can use anything else on the desktop, in any program. The dialog box stays in front; clicks on other windows are ignored, minimized windows cannot be restored, `Alt` + `Tab` does nothing, and Program Manager's shortcut keys do nothing. `Ctrl` + `Esc` and `F1` still open the Task Manager or help, but the dialog box comes back in front, and the new window can be used only once the dialog box is answered.

Keys in a dialog box:

- `Enter` presses the main button, usually **[OK]**, **[Open]**, **[Save]**, or **[Yes]**, whichever control has the focus, except these, which use `Enter` themselves: a button (`Enter` presses that button), an open drop-down list (`Enter` takes the highlighted choice and closes the list), and a text box that holds several lines (`Enter` starts a new line). On a check box, an option button, a closed drop-down list, a list, or a number box, `Enter` presses the main button and leaves the control as it is.

- `Esc` presses **[Cancel]** (or the last button of a message box) and closes the dialog box without making changes. When a drop-down list is open, `Esc` first closes the list.
- `Tab` and `Shift` + `Tab` move between the controls; `Alt` and an underlined letter goes straight to a control or presses a button.
- Closing a dialog box with its Close box (or `Alt` + `F4`) is the same as **[Cancel]**.

Some windows that are not dialog boxes have **[OK]** and **[Cancel]** buttons too, such as Control Panel. `Enter` and `Esc` work there the same way: `Enter` presses **[OK]** (except on the controls above that use `Enter` themselves), and `Esc` presses **[Cancel]**.

In most dialog boxes with **[OK]** and **[Cancel]**, `Alt` + `C` presses **[Cancel]**.

5.5.2. Message boxes

A *message box* shows a short message, usually with a picture, and a row of buttons. Click a button to answer.

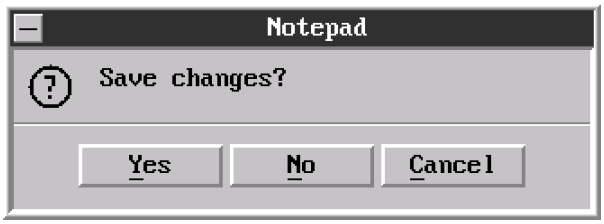


Figure 21. A message box asking a question

The picture shows what kind of message it is:

- An "i" in a circle: information.
- An "!" in a triangle: a warning.
- An "X" in a circle: an error.
- A "?" in a circle: a question.

The buttons are **[OK]**; **[OK]** and **[Cancel]**; **[Yes]** and **[No]**; **[Yes]**, **[No]**, and **[Cancel]**; or **[Retry]** and **[Cancel]**. Their underlined letters are O, C, Y, N, and R. `Enter` presses the first button and `Esc` presses the last. Closing a message box with its Close box answers **[Cancel]**; in a box with only **[Yes]** and **[No]**, that is neither answer.

When you close a program, or start a new file, while you have unsaved work, most programs ask “Save changes?”:

- **[Yes]** saves your work first.
- **[No]** throws the changes away.
- **[Cancel]** goes back to your work without doing anything.

Each kind of message box plays its own desktop sound, if sounds are set (see Section 5.13).

5.5.3. Controls

This section describes each kind of control and how to use it with the mouse and with the keyboard. With the keyboard, first give the control the focus: press `Tab` until it shows the dotted rectangle, or press `Alt` and the underlined letter of its label.

Buttons

Click a button to use it: the button acts when you let go of the mouse button over it. With the keyboard, press the Space bar or `Enter` while the button has the focus, or press `Alt` and its underlined letter.

Check boxes

A check box turns one option on or off; an X in the box means the option is on. Click the box or its label, press the Space bar while it has the focus, or press `Alt` and its underlined letter. As with a button, the box changes when you let go of the mouse button over it: while you hold the button down the box shows pressed, and moving the pointer off it before you let go leaves it as it was. `Enter` never changes a check box: in a dialog box, or a window with a main button, it presses that button, and anywhere else it does nothing.

Option buttons

Option buttons come in groups, and only one in a group can be chosen; a diamond marks the chosen one. Click the one you want: it is chosen when you let go of the mouse button over it, as a button acts (move the pointer off it before you let go to change nothing). With the keyboard, `Up` or `Left` chooses the one before, and `Down` or `Right` the one after (they stop at the ends of the group); the Space bar, or `Alt` and its underlined letter, chooses an option button. `Enter` never chooses one: in a dialog box, or a window with a main button, it presses that button, and anywhere else it does nothing.

Text boxes

Click in a text box and type. What you type is always inserted at the cursor; there is no overtype mode. A text box that holds several lines works like a small editor.

With the mouse, click to place the cursor, drag across text to select it, double-click to select a word, and triple-click to select the whole line.

Key	What it does
`Left`, `Right`	Move one character.

Key	What it does
`Ctrl` + `Left`, `Ctrl` + `Right`	Move one word.
`Home`, `End`	Go to the start or end of the line.
`Up`, `Down`	In a box of several lines: move one line.
`Page Up`, `Page Down`	In a box of several lines: move one boxful of lines.
`Ctrl` + `Home`, `Ctrl` + `End`	In a box of several lines: go to the start or end of the text.
`Shift` with a moving key	Select text as you move.
`Backspace`	Delete the character before the cursor, or the selected text.
`Del`	Delete the character at the cursor, or the selected text.
`Enter`	In a box of several lines: start a new line.
`Ctrl` + `A`	Select all the text.
`Ctrl` + `X`, `Ctrl` + `C`, `Ctrl` + `V`	Cut, copy, and paste (see Section 5.7).
`Ctrl` + `Z`	Undo the last change. Press it again to redo the change. Only the last change can be undone.

A box for a password shows other characters in place of what you type, and does not let you cut or copy its text.

In most windows `Tab` moves to the next control. A few large text boxes take `Tab` themselves to type a tab; click another control to move on.

Number boxes

A number box has small up and down arrows beside it. Click an arrow to go up or down one step, or press `Up` or `Down`; `Page Up` and `Page Down` go ten steps. You can also type a number and press `Enter` to take it, or `Esc` to throw away what you typed. In a dialog box, `Enter` presses the main button, with the number you typed.

Lists

A list shows several items. Click an item to select it, and double-click it (or press `Enter`) to open or use it. In a dialog box, or a window with a main button (such as Control Panel's **[OK]**), `Enter` presses the main button instead. With the keyboard:

- `Up`, `Down`, `Page Up`, `Page Down`, `Home`, and `End` move through the list.
- `Left` and `Right` scroll a wide list sideways.
- Typing the first letters of an item quickly, one after another, jumps to the first item that starts with them, counting from the item you are on: in a list of names, `B` then `O` goes to Bob. Typing

the same letter again moves on to the next item that starts with it, going round to the top after the last one. After a pause of a second, the next letter starts again. If no item starts with the letters typed, the list stays where it is.

Some lists let you select several items at once:

- Hold `Ctrl` while you click to add an item to the selection, or to take it out.
- Hold `Shift` while you click to select every item between the last one you clicked and this one.
- Hold `Shift` while you press the arrow keys to extend the selection.
- Press the Space bar to select the item at the cursor, or take it out.
- Press `Ctrl` + `A` to select every item.

In some lists you can change the order of the items by dragging them.

Lists with columns. Some lists show their items in columns, with a heading above each column. Click a heading to sort the list by that column; click it again to sort it the other way. Drag the line between two headings to make a column wider or narrower.

Drop-down lists

A drop-down list shows the current choice, with an arrow button beside it. Click it to open the list of choices, then click the one you want. Clicking anywhere else closes the list without changing the choice.

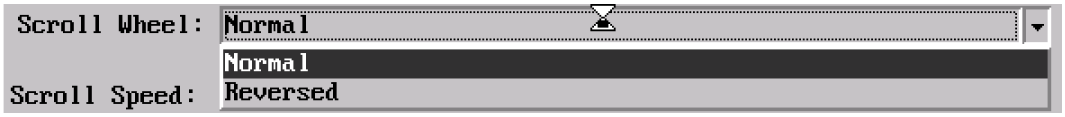


Figure 22. An open drop-down list

With the keyboard, while the drop-down list has the focus:

- `Up` and `Down` change the choice without opening the list.
- Typing the first letters of a choice chooses it, the same way as in a list (see Section 5.5.3.6).
- `F4`, `Alt` + `Down`, or `Alt` + `Up` opens the list. `Alt` and the underlined letter of the list's label also opens it. The Space bar and `Enter` do not: in a dialog box, or a window with a main button, `Enter` presses that button.
- In the open list, `Up` and `Down` move the highlight; `Enter`, the Space bar, `F4`, `Alt` + `Down`, or `Alt` + `Up` takes the highlighted choice and closes the list (in a dialog box too: `Enter` then does not press the main button); `Esc` closes the list without changing the choice.

Some drop-down lists also let you type your own entry, such as the **Open** box of the Run dialog box (see Section 6.7). Type in the box as in a text box. `Up` and `Down` put the choice before or after the

current one in the box without opening the list, and `F4`, `Alt` + `Down`, or `Alt` + `Up` opens the list. In the open list of such a box, `Up` and `Down` put each choice in the box as they move to it.

Sliders

A slider sets a value by the position of a knob along a track. Drag the knob, or click the track to move the knob there. With the keyboard, `Left` or `Up` lowers the value one step and `Right` or `Down` raises it; `Page Up` and `Page Down` move a tenth of the way; `Home` and `End` go to the lowest and highest values.

Tabs

Some windows hold several pages, with a row of tabs along the top like the tabs of file folders. Click a tab to show its page, or press `Alt` and the tab's underlined letter. When the row of tabs has the focus, `Left` and `Right` move to the tab beside the current one, and `Home` and `End` to the first and last tabs. When there are more tabs than fit, small arrow buttons at the ends of the row scroll the tabs into view.

Trees

A tree shows items inside other items, like folders inside folders. Click the small box beside an item to open it (+) or close it (-), or double-click the item. With the keyboard:

- `Up` and `Down` move through the items.
- `Right` opens a closed item, or moves into an open one.
- `Left` closes an open item, or moves to the item it is in.
- `Enter` opens or closes an item that holds others, or uses an item that does not.
- Typing the first letters of an item jumps to it, the same way as in a list (see Section 5.5.3.6); only the items you can see (in open branches) count.

5.5.4. Dialog boxes that many programs share

Besides message boxes and the Open and Save dialog boxes (see Section 5.6), several programs use these same dialog boxes:

Input boxes

A question and one text box to type the answer in, with **[OK]** and **[Cancel]**.

Number boxes

A question and a number box, with **[OK]** and **[Cancel]**.

Lists to choose from

A question and a list. Select an item and click **[OK]**, or double-click the item, or press `Enter`. **[OK]** does nothing until an item is selected.

Font

The **Font**, **Font style**, and **Size** lists, the **Underline** and **Strikeout** check boxes, a **Sample** of the chosen font, and a **[Licence...]** button that shows the font's licence.

Color

A palette of colors to pick from, **Red**, **Green**, and **Blue** sliders with number boxes for mixing your own, and a preview of the color.

5.6. Opening and saving files

Every program that opens or saves files uses the same dialog boxes: **Open** to open a file, **Save As** to save one, and **Choose a Folder** where a program needs a folder rather than a file. (A program can give them a title of its own, such as **Save Screenshot**.) The **Browse...** buttons in programs open these dialog boxes too.

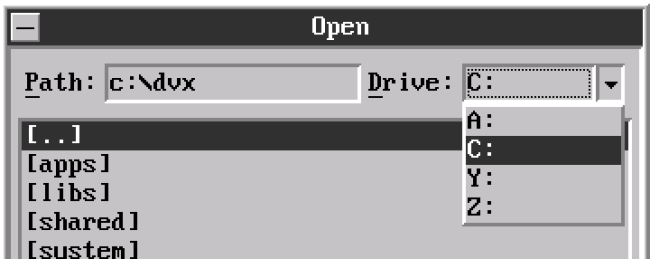


Figure 23. The top of the Open dialog box, with the Drive list open

5.6.1. Parts of the dialog box

From top to bottom, the dialog box has these parts:

Path

The folder you are looking at. Type another folder here and press `Enter` to go there (see Section 5.6.5).

Drive

Beside the Path box: the drive of the folder you are looking at. Choose another drive to go to its top folder (see Section 5.6.7).

The list

The folders, in square brackets such as `[DOCS]`, then the files, each in alphabetical order. `[..]` takes you up one folder. Only files that match the **Filter** are listed; folders always are.

Filter

Chooses which kinds of files the list shows, for example “Text Files (*.txt)”. Choosing another filter lists the folder again. Only some programs offer filters, and the Choose a Folder dialog box has none.

File name

The name of the file to open or save. The Choose a Folder dialog box has **Folder name** here.

Buttons

[Open] in the Open dialog box, **[Save]** in the Save As dialog box, or **[OK]** in the Choose a Folder dialog box; and **[Cancel]**.

With the keyboard, `Alt` + `P` goes to the **Path** box and `Alt` + `N` to the **File name** (or **Folder name**) box; `Alt` + `D` opens the **Drive** list and `Alt` + `I` the **Filter** list.

5.6.2. Opening a file

To open a file:

1. Choose the program’s open command, usually **File › Open...**.
2. Go to the folder that holds the file: double-click a folder in the list to look inside it, or double-click [. .] to go up one folder.
3. Click the file. Its name appears in the **File name** box.
4. Click **[Open]**.

Double-clicking the file (or selecting it and pressing `Enter`) opens it at once. You can also type the file’s name in the **File name** box and click **[Open]**.

The Open dialog box opens only a file that is there. If you type the name of a file that does not exist, a box titled **File Not Found** says “*name* does not exist. Check the file name and try again.” Click **[OK]** and choose again. To start a new file, use the program’s command for a new file (usually **File › New**) and give it its name when you save it.

A program that makes new files from its Open dialog box, such as DVX BASIC with **File › Add File...**, asks instead: a **Confirm Create** message says “*name* does not exist. Do you want to create it?” Click **[Yes]** to go on with a new file of that name, or **[No]** to choose again.

5.6.3. Saving a file

To save a file under a new name:

1. Choose the program’s save command, usually **File › Save As...**.
2. Go to the folder you want, as in the Open dialog box.

3. Type a name in the **File name** box.
4. Click **[Save]**.

If you leave off the ending of the name (such as `.txt`), the dialog box adds the ending of the chosen filter. Nothing is added when the filter is `*.*`.

If a file of that name is already there, a **Confirm Save** message asks "*name* already exists. Do you want to replace it?" Click **[Yes]** to replace the old file, or **[No]** to choose another name.

5.6.4. Choosing a folder

The **Choose a Folder** dialog box works like the Open dialog box, but lists folders only. Go into the folder you want and click **[OK]**: with the **Folder name** box empty, that folder is the one chosen.

To choose a folder that does not exist yet, type its name in the **Folder name** box (or a full path, such as `C:\GAMES\NEW`) and click **[OK]**; the program makes the folder when it needs it. When a program suggests a folder that does not exist yet, the dialog box opens at the nearest folder above it that does, with the rest of the path already in the **Folder name** box.

If the name cannot be a folder, an **Invalid Folder** message says why, for example "*path* is a file, not a folder."

5.6.5. Typing a path

You can type where to go instead of clicking through folders:

- In the **Path** box, type a folder and press `Enter`. It can be a full path (`C:\DOCS`), a folder inside the one shown (`LETTERS`), `..` for the folder above, or a drive letter and colon (`D:`). If there is no such folder, nothing happens.
- In the **File name** box, type a name with a folder or drive in front of it, such as `..\NOTES.TXT` or `C:\DOCS\NOTES.TXT`, and click **[Open]** or **[Save]**. The dialog box goes to that folder and then opens or saves the file there, as if you had typed just its name. If the folder does not exist, an **Invalid Path** message says "The folder does not exist."
- Type the name of a folder in the **File name** box and click **[Open]** or **[Save]** to go into that folder.

You can type `/` in place of `\` anywhere you type a path in DVX: `C:/DOCS/NOTES.TXT` works the same as `C:\DOCS\NOTES.TXT`. Once the dialog box has gone to a folder, the Path box shows its full path with `\`.

5.6.6. File names

DVX uses long file names on disks and DOS versions that support them, and the usual DOS names otherwise: up to eight characters, then a dot and an ending of up to three, such as `LETTER01.TXT`.

If a name breaks the rules, an **Invalid Filename** message says which rule:

Message	Meaning
“Filename must not be empty.”	Type a name.
“Filename must be 255 characters or fewer.”	A long file name is too long.
“Filename must be 1-8 characters before the extension.”	On a disk without long file names, the part before the dot must have from one to eight characters.
“Filename may contain only one dot.”	On a disk without long file names, a name has at most one dot.
“Extension must be 3 characters or fewer.”	On a disk without long file names, the ending is too long.
“Filename contains invalid characters.”	The name has a character that file names cannot have.
“Filename must not end with a dot or a space.”	Remove the dot or space at the end.
“That name is reserved.”	On a disk with long file names, the name is `.` or `..`, which DOS keeps for a folder itself and the folder above it.
“That name is a reserved device name.”	DOS uses that name for a device (for example `CON`, `PRN`, or `NUL`).
“The name is too long for this folder.” or “The path is too long.”	The folder and the name together are too long. Choose a shorter name, or a folder nearer the top of the drive.

5.6.7. Drives

The **Drive** list shows every drive DOS knows about, as `A:`, `C:`, and so on, and always shows the drive you are looking at. Choose a drive to go to its top folder. The list does not check whether each drive has a disk in it.

If the drive you choose cannot be read, for example a floppy drive with no disk in it, a **Drive Not Ready** message says “Drive *X*: is not ready.” and the dialog box stays where it was. Put a disk in and choose the drive again.



Figure 24. The message for an empty drive

5.7. Copying and pasting

The *clipboard* is a holding place for text. Cut or Copy puts text on it, and Paste takes it back out. There is one clipboard for every program, so you can copy text in one program and paste it into another. The clipboard keeps its text until you cut or copy something else, so you can paste the same text many times.

Key	Command	What it does
`Ctrl` + `X`	Cut	Removes the selected text and puts it on the clipboard.
`Ctrl` + `C`	Copy	Puts a copy of the selected text on the clipboard.
`Ctrl` + `V`	Paste	Puts the clipboard's text where the cursor is. If text is selected, the pasted text replaces it.

These keys work in every text box. The older DOS keys `Shift` + `Del`, `Ctrl` + `Ins`, and `Shift` + `Ins` do not. Many programs have the same commands in their **Edit** menu, and some on a right-click menu. Password boxes do not let you cut or copy.

To copy text from one program to another:

1. Select the text in the first program, by dragging across it or with `Shift` and the arrow keys.
2. Press `Ctrl` + `C`.
3. Switch to the other program: click its window, or press `Alt` + `Tab`.
4. Click where the text should go, and press `Ctrl` + `V`.

5.8. Saving a picture of the screen

DVX can save a picture of the screen, or of one window, in a picture file:

- `Ctrl` + `F12`, or **Screenshot...** in any window menu, saves a picture of the whole screen. A **Save Screenshot** dialog box asks for the file.
- `Ctrl` + `Shift` + `F12`, or **Window Shot...** in a window menu, saves a picture of the inside of the active window (or of the window whose menu you used), without its title bar, frame, and menu bar. A **Save Window Screenshot** dialog box asks for the file.

The picture is taken the moment you press the keys, before the dialog box appears, so the picture shows the screen as it was. With the window menu's **Screenshot...**, the picture shows the screen without the open menu.

To save the picture:

1. Press `Ctrl` + `F12` (or `Ctrl` + `Shift` + `F12`).
2. In the dialog box, go to the folder where you want the picture.
3. Type a name for the picture, such as `MYSCREEN.PNG`.
4. Click **[Save]**.

The picture goes in the folder and file you chose. A name ending in `.bmp` saves a BMP picture; any other name saves a PNG picture. If you leave off the ending, the ending of the chosen **Filter** is added: "PNG Images (*.png)" (the first choice) or "BMP Images (*.bmp)". Image Viewer can show either kind (see Section 8.6).

If something goes wrong, a message says "Not enough memory to capture the image." or "The image could not be saved."

These keys do not work while a program uses the whole screen (see Section 5.14); the program gets the keys instead.

5.9. Keys that work in every program

These keys work the same in every program:

Key	What it does
`Alt` + `Tab`	Switch to the next window: the active window goes to the back. Minimized windows are skipped. Does nothing while a dialog box is open.
`Shift` + `Alt` + `Tab`	Switch the other way: the window at the back comes to the front.
`Alt` + `F4`	Close the active window. While a dialog box is open, close only the dialog box.
`Ctrl` + `Esc`	Open the Task Manager, or bring it to the front (see Section 5.10).
`F1`	Open help for the program you are using (see Section 5.11).
`F10`	Open the first menu of the active window, or close the open menu.
`Alt` + `Space`	Open or close the window menu of the active window.
`Alt` + a letter	Open the menu whose underlined letter you typed; otherwise move to, or press, the control with that underlined letter.

Key	What it does
`Tab`, `Shift` + `Tab`	Move to the next or previous control.
`Enter`	Press the highlighted button, or the main button of a dialog box or of a window that has one (such as Control Panel's **[OK]**).
`Esc`	Close a menu or a drop-down list, or press **[Cancel]** in a dialog box or a window that has one (such as Control Panel).
`Ctrl` + `F12`	Save a picture of the whole screen (see Section 5.8).
`Ctrl` + `Shift` + `F12`	Save a picture of the inside of the active window.
Shortcut keys of Program Manager items	Start that item, whichever window is in front (see Section 6.4.4).

`Alt` + `Tab`, `Alt` + `F4`, `Ctrl` + `Esc`, `Ctrl` + `F12`, and `Alt` + `Space` do the same with `Ctrl`, `Alt`, or `Shift` held as well: `Ctrl` + `Alt` + `F4` closes the active window, and `Ctrl` + `Shift` + `Esc` and `Ctrl` + `Alt` + `Esc` open the Task Manager. DVX acts on these keys before any program sees them, so no program and no Program Manager item can use them (see Section 6.4.4).

The keys for editing text are listed in Section 5.5.3.4, and the clipboard keys in Section 5.7. Programs have shortcut keys of their own, shown at the right edge of their menus and listed in their help.

While a program uses the whole screen, only `Alt` + `Tab`, `Shift` + `Alt` + `Tab`, `Alt` + `F4`, and `Ctrl` + `Esc` work as described here; every other key goes to the program (see Section 5.14).

5.10. Task Manager

The Task Manager lists every program that is running. Use it to switch to a program, to stop a program that has stopped responding, or to start another program.

To open it, press `Ctrl` + `Esc` from any program (even one that uses the whole screen), or choose **Help › Task Manager** in Program Manager. There is only one Task Manager: if it is already open, `Ctrl` + `Esc` brings it to the front. The Task Manager is part of DVX itself, so it works even when Program Manager is not running.

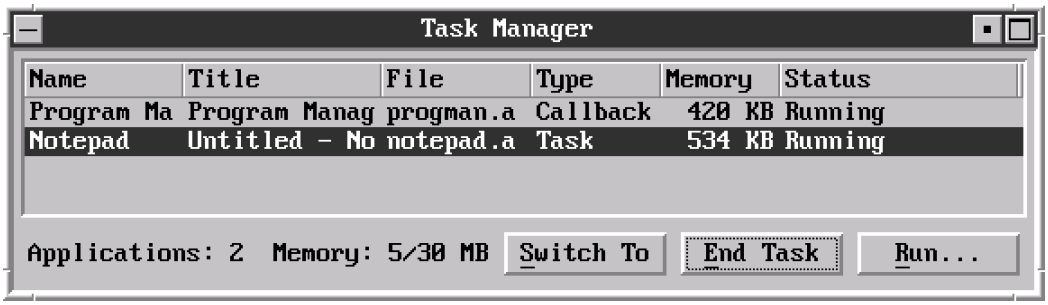


Figure 25. The Task Manager

5.10.1. The list of programs

Each row is one running program. The Task Manager does not list itself; Program Manager is listed, and should be left running, because it is the desktop. The columns are:

Name

The program's name.

Title

The title of the program's first window.

File

The name of the program's file.

Type

"Task" for a program that keeps running on its own between the things you do, or "Callback" for one that runs only when something happens in its windows, such as a click or a key press. You do not need to do anything about it.

Memory

How much memory the program is using, in KB, or in MB from 1 MB up.

Status

"Running", or "Not responding" for a program that has been busy for 5 seconds or more without coming back to DVX. A program that is only waiting for you to answer one of its own dialog boxes is not counted as not responding. While the Task Manager is open, it checks every second.

The list is a list with columns: click a heading to sort by that column (see Section 5.5.3.6). It keeps itself up to date as programs start and end.

The line at the bottom says how many programs are running and how much memory is in use, for example "Applications: 2 Memory: 4/30 MB": 4 MB of the computer's 30 MB are in use.

5.10.2. The buttons

No program is selected when the Task Manager opens, and the buttons do nothing until you select one: click a row first (or use `Up` and `Down`).

Switch To

Brings the selected program's front window forward and makes it active. A minimized window is restored; a maximized window stays maximized. Double-clicking a row, or pressing `Enter` on it, does the same.

End Task

Ends the selected program at once. The other programs keep running, and the selection moves to the row that took its place. Program Manager is the exception (see below).

Run...

Opens the **Run** dialog box to start a program or open a document by typing its name (see Section 6.7). Unlike Program Manager's, this Run dialog box does not list the commands you ran before.



End Task does not ask first, and does not give the program a chance to save. Any unsaved work in that program is lost.

Ending Program Manager exits DVX, so DVX asks first, in a box titled **Exit DVX**: "Are you sure you want to exit DVX?" Click **[No]** to leave everything running. Click **[Yes]** to exit DVX as **File › Exit DVX** does: every other program is closed as if you had closed it, and asks about work it has not saved (see Section 5.16). If you click **[Cancel]** in one of those questions, DVX keeps running, with Program Manager. A Program Manager that has stopped responding is ended at once instead, and DVX then exits the same way.

5.10.3. When a program stops responding

If a program stops reacting to the mouse and the keyboard:

1. Press `Ctrl` + `Esc` to open the Task Manager.
2. Wait a few seconds. The program's **Status** changes to "Not responding".
3. Click the program's row.
4. Click **[End Task]**.

If the whole screen is frozen and even the pointer does not move, DVX cannot recover: restart the computer. See also Section 11.13.

If a program makes a serious mistake, DVX ends it and shows an **Application Error** message: "'*name*' has caused a fault and will be terminated." Click **[OK]**. Your other programs keep running, but unsaved work in the program that was ended is lost.

5.11. Getting help

Help opens in the **DVX Help** window. There are three ways to open it:

- Press `F1`. Help opens for the program whose window is active, at the page that program chooses for what you are doing. A program without help of its own, or a window that belongs to DVX itself such as the Task Manager, opens the general DVX help instead.

- Choose **Help › Contents** (or a similar command) in a program's **Help** menu.
- In Program Manager, `F1` and **Help › Contents** open Program Manager's own help, and **Help › DVX Help** opens the general DVX help: a short guide to the desktop, settings, and troubleshooting.

If DVX Help is already open, `F1` shows the new page in the same window and brings it to the front. `F1` in the DVX Help window shows help about DVX Help itself. If a help file cannot be read, a message says "Could not open help file."

Section 8.9 explains the DVX Help window: the table of contents, links, Back and Forward, the index, and searching.

The **Help** menu of most programs also has an **About** command, which shows the program's name and copyright.

5.12. The screen saver

A screen saver fills the screen with a moving picture after the computer has not been used for a while. No screen saver is set when DVX is installed. Choose one, and how many minutes to wait (from 1 to 60; 10 at first), on the Desktop page of Control Panel (see Section 7.6). Section 8.12 describes the screen savers that come with DVX.

The screen saver starts when no key has been pressed and the mouse has not moved for the number of minutes you chose. It never starts while a dialog box is open or while a program uses the whole screen. After a screen saver ends, the next one starts no sooner than the same wait.

To bring your work back, press any key or move the mouse. Keys and mouse movements in the first second after the screen saver starts are ignored, so a nudge of the mouse just as it starts does not end it at once.

5.13. Desktop sounds

DVX plays a short sound when certain things happen, if your computer has sound hardware. These are the events, with their names on the Sounds page of Control Panel and the sounds DVX comes with:

Event	When it plays	Sound at first
Default beep	A program beeps, or a message box without a picture opens.	`beep.wav`
Start DVX	The desktop has loaded.	`startup.wav`
Exit DVX	DVX is about to return to DOS. DVX waits up to 5 seconds for the sound to finish.	`exit.wav`

Event	When it plays	Sound at first
Error	An error message opens.	`error.wav`
Warning	A warning message opens.	`warning.wav`
Question	A question opens.	`question.wav`
Information	An information message opens.	`info.wav`
Open window	A program opens a window (not a dialog box).	none
Close window	A program closes a window (not a dialog box).	none

Dialog boxes, programs that use the whole screen, and screen savers make no open or close sound. To choose other sounds, turn one off, or set the volume, see Section 7.12. Without sound hardware, DVX works the same, silently.

5.14. Programs that use the whole screen

Some programs, games especially, can use the whole screen instead of a window. How you switch a program to the whole screen depends on the program; see its help. Your other programs keep running meanwhile.

While such a program has the screen, it gets the mouse and every key except these, which DVX keeps:

- `Alt` + `Tab` and `Shift` + `Alt` + `Tab` switch to another window, which brings the desktop back.
- `Ctrl` + `Esc` opens the Task Manager, which brings the desktop back.
- `Alt` + `F4` asks the program to close.

All other keys, `F1`, `Ctrl` + `F12`, and Program Manager's shortcut keys included, go to the program. The same is true of some games that run in a window and take every key.

When the program is no longer the active window (because you pressed `Alt` + `Tab` or `Ctrl` + `Esc`, a dialog box opened, or the program's window was minimized), the desktop comes back and the program waits. When its window is active again, the program fills the screen again. If its screen mode cannot be set again, the program goes back to a window.

While a program has the whole screen, no tooltips appear, the screen saver does not start, and the screen resolution cannot be changed.

5.15. Running DOS programs

DVX can also run ordinary DOS programs: files whose names end in `.EXE`, `.COM`, or `.BAT`, such as games, editors, and batch files. You can start one:

- from a Program Manager item (see Section 6.8, which also explains the item's settings);
- with Program Manager's **File › Run…** or the Task Manager's **[Run…]** (see Section 6.7);
- by opening a document whose file type is set to open in a DOS program (see Section 7.8), for example by double-clicking it in File Manager.

A DOS program needs the computer to itself, so DVX closes your other programs first. If any program other than Program Manager is running, a **Run DOS Program** message names them and asks: "Running *name* closes these programs first:" followed by the list, then "Each one asks about unsaved work as it closes. Continue?"

- Click **[Yes]** to go on. Each program then closes as if you had closed it yourself, and a program with unsaved work asks whether to save it.
- Click **[No]** to keep everything as it is. The DOS program does not run.

If you choose **[Cancel]** when a program asks about saving its work, that program stays open and the DOS program does not run; programs that had already closed stay closed. When nothing but Program Manager is running, the DOS program runs without asking.

While the DOS program runs:

- The screen changes to the usual 80-column DOS text screen (the program may then change it).
- The program has the keyboard, the mouse, and the sound card to itself.
- The program runs in the working folder of its Program Manager item, or else in the folder it is in. A program file with a long name is started by its short DOS name.
- DVX stays in memory, so the program has less memory than it would have without DVX. A program that needs a great deal of memory is best started from DOS after you leave DVX.

When the program ends, the DVX screen comes back with the pointer where it was. If the Program Manager item has **Wait for a key when a DOS program ends** ticked, DVX first shows "Press any key to return to DVX." on the DOS screen and waits for a key, so you can read what the program printed. The programs that were closed stay closed; start them again when you need them. Program Manager looks for programs that may have been installed or removed while the DOS program ran.

Messages:

- "Cannot find *path*." (title **Run DOS Program**): the program was given with a folder, and there is no such file.
- "DVX could not run *name*." followed by the reason (title **Run DOS Program**): DVX could not start the program at all.

5.16. Exiting DVX

To leave DVX and return to the DOS prompt:

1. Choose **File › Exit DVX** in Program Manager, or close the Program Manager window (with its Close box, `Alt` + `F4`, or **Close** in its window menu).
2. An **Exit DVX** message asks “Are you sure you want to exit DVX?” Click **[Yes]** (or press `Enter`). **[No]**, `Esc`, or the message’s Close box keeps DVX running.

DVX then closes every running program, one program at a time. Each window comes to the front and is closed as if you had closed it yourself, so a program with unsaved work asks whether to save it:

- **[Yes]** saves the work and **[No]** throws it away; either way the program closes and DVX goes on to the next one.
- **[Cancel]** keeps that program open and stops the exit. DVX keeps running: programs that had already closed stay closed, and the others keep running. Finish or save your work, then choose **File › Exit DVX** again.

If a program shows nothing and has not closed its window after 5 seconds, an **Exit DVX** message says “'*name*' is not responding to the request to close. End it and continue exiting DVX?” Click **[Yes]** to end the program (its unsaved work is lost) and go on, or **[No]** to stop the exit and stay in DVX.

When every program has closed, the Exit DVX sound plays (DVX waits up to 5 seconds for it) and DVX returns to DOS.

When a program asks DVX to close another program, the same happens for that one program; a program that does not close brings a **Close Program** message: “'*name*' is not responding to the request to close. End it?”

Chapter 6. Program Manager

Program Manager is the DVX desktop: it opens when DVX starts, stays open the whole time DVX runs, and is where you find and start your programs. Its window shows your programs as icons, sorted into groups. One group, Installed Programs, always lists every program installed in DVX; you can make groups of your own and fill them with the programs and documents you use most, each with its own name, icon, and shortcut key. Program Manager can also start DOS programs, run a command you type, arrange the windows on the screen, and leave DVX.

6.1. The Program Manager window

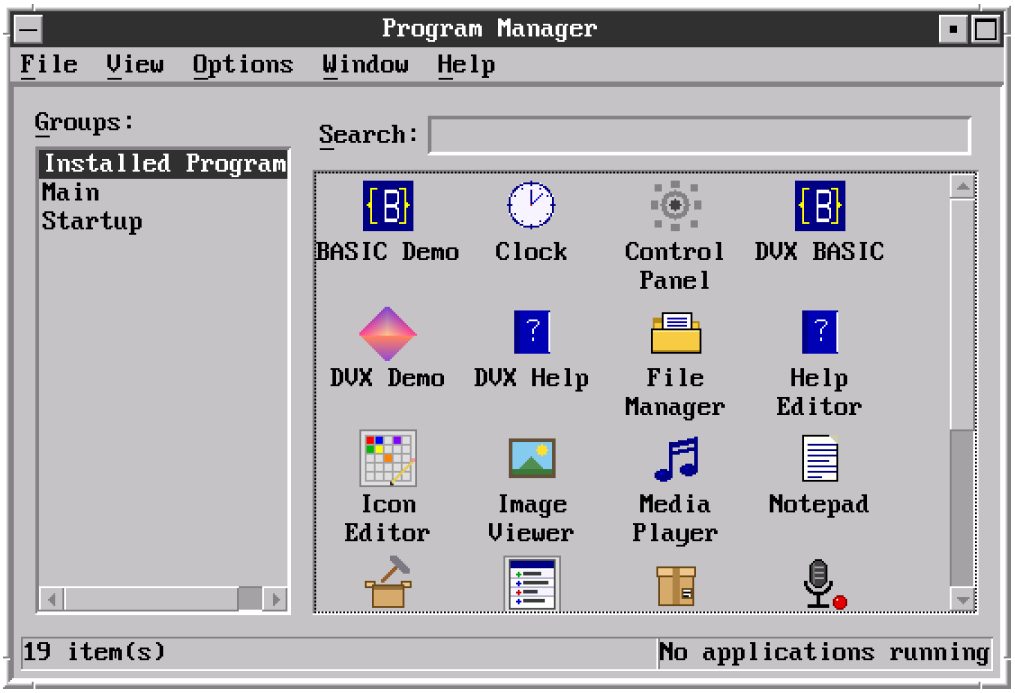


Figure 26. The Program Manager window

The window is titled **Program Manager**. It opens near the top of the screen, centered from left to right, each time DVX starts; DVX does not remember where you moved it or how large you made it. It has these parts:

Menu bar

The **File**, **View**, **Options**, **Window**, and **Help** menus (see Section 6.10).

Groups

The list on the left: your program groups. Click a group to show its items (see Section 6.3). `Alt` + `G` moves to the list.

Search

The box at the top right: type here to find programs in every group (see Section 6.6). `Alt` + `S`

moves to the box.

The icon area

The items of the selected group: programs and documents, each shown as an icon with its name (see Section 6.4). Double-click one to start it. The scroll bar beside it, or the mouse wheel, scrolls through the items when they do not all fit.

Status bar

The line at the bottom. Its left part describes the selected item (its description, or its program file if it has none), or, with nothing selected, says how many items are shown, such as “19 item(s)”. Its right part says how many other programs are running, not counting Program Manager itself: “No applications running”, “1 application running”, “2 applications running”, and so on.

`Tab` moves between the Groups list, the Search box, and the icon area.

When there is nothing to show, the icon area says why: “This group is empty. Use File > New Item to add a program.”, “No programs match the search.”, or, in Installed Programs, “No programs are installed.”



Program Manager is the desktop. Closing its window (with its Close box, `Alt` + `F4`, or **Close** in its window menu) asks whether to exit DVX, just as **File › Exit DVX** does (see Section 5.16). To put Program Manager out of the way without leaving DVX, minimize it instead.

6.2. Starting programs

To start a program, use any of these:

- Double-click its icon.
- Select its icon and press `Enter`.
- Select its icon and choose **File › Open**, or right-click the icon and choose **Open**.
- Press the item’s shortcut key, from any program (see Section 6.4.4).

While the program loads, the pointer is an hourglass. The program opens in a window of its own, and Program Manager stays open behind it (unless you ask it to step aside; see Section 6.9). To start a program that has no icon, use **File › Run...** (see Section 6.7).

An item can also open a document, such as a text file or a picture. DVX starts the program set up for that kind of file and gives it the document (see Section 7.8).

Most programs can run only once at a time. If you start a program that is already running, an **Error** message says “*file* is already running.”, with the name of the program’s file; find its window

with `Alt` + `Tab` or the Task Manager instead. A few programs that open documents take the new document instead of showing this message. Some programs can run more than once, each copy in its own window.

If a program was made for another version of DVX, a message says “This program was built for a different version of DVX and cannot run.” Get a copy of the program made for your version of DVX.

6.3. Groups

A *group* is a set of items you keep together, such as Games or Writing. The same program can be in several groups. The Groups list on the left shows every group; click one to show its items.

6.3.1. The groups on a new installation

The first time DVX runs, Program Manager has three groups, with Installed Programs selected:

Installed Programs

Always the first group. It lists every program installed in DVX, in alphabetical order (Program Manager itself is not listed). It keeps itself up to date: when Program Manager’s window comes back to the front after programs were installed or removed, or after a DOS program ran, Program Manager looks again, and **View › Refresh** looks at once. You cannot change this group: you cannot add, move, rename, delete, or drag its items, or change their properties. To put one of its programs in a group of your own, copy it (see Section 6.4.8).

Main

An empty group of your own.

Startup

An empty group of your own with a special job: every item in it starts by itself each time DVX starts, once the desktop is up. Put a program there to have it start with DVX, and delete its item from Startup to stop that (the program stays installed). Program Manager finds this group by its name, in capitals or small letters: if you rename or delete it, nothing starts by itself until you make a group named Startup again.

After the first time, Program Manager opens with the group that was selected when DVX last ran.

6.3.2. Making a group

To make a group:

1. Choose **File › New Group...**.
2. In the **New Group** dialog box, type the group’s name in the **Group name** box.

3. Click **[OK]**.

The new group appears at the end of the Groups list, selected and empty.

Every group needs a name, and no two groups can have the same name (capitals and small letters count as the same): otherwise a message says “A group needs a name no other group has.”You can have up to 64 groups of your own. With 64 already, **File › New Group...** does not ask for a name: a **New Group** message says “There is no room for another group: Program Manager holds up to 64 groups of your own. Delete a group to make room for a new one.”

6.3.3. Renaming a group

To rename a group:

1. Click the group in the Groups list.
2. Choose **File › Rename Group...**.
3. In the **Rename Group** dialog box, type the new name in the **New name** box, and click **[OK]**.

The same rule about names applies. Installed Programs cannot be renamed.

6.3.4. Deleting a group

To delete a group and all its items:

1. Click the group in the Groups list.
2. Choose **File › Delete Group**.
3. A **Delete Group** message asks “Delete the group "*name*" and its *n* item(s)? The programs themselves are not removed.” Click **[Yes]**.

Only the items are deleted: the programs and documents they start stay where they are. Installed Programs cannot be deleted.

Right-click the Groups list for a short menu with **New Group...**, **Rename Group...**, and **Delete Group**. Right-clicking does not select the group under the pointer: these commands act on the group that is already selected, so click the group first.

6.4. Items

Each icon in a group is an *item*. An item says what to start (a program, a DOS program, or a document) and how: with what arguments, in which folder, with which icon, and with which shortcut key. Deleting an item never deletes the program. A group holds up to 256 items; when it is full, a message says “That group is full.”

6.4.1. Selecting items

Click an item to select it: its name is highlighted, and the status bar shows its description. Clicking empty space in the icon area clears the selection. With the keyboard, when the icon area has the focus:

- The arrow keys move between the icons.
- `Home` and `End` go to the first and last icons.
- `Page Up` and `Page Down` move up or down by as many rows as the icon area shows.
- Typing the first letters of a name quickly, one after another, goes to the icon that starts with them; the same letter again goes on to the next icon starting with it (see Section 5.5.3.6).

6.4.2. Adding an item

To add a program or document to one of your groups:

1. Click the group in the Groups list.
2. Choose **File › New Item...**. (If Installed Programs is selected, or a search is showing, a **New Item** list first asks which **Group** the item goes in.)
3. In the **New Program Item** dialog box, type the program's file in the **Program** box, or click the **[Browse...]** beside it and choose the file.
4. Fill in the other boxes you need (see Section 6.4.3). Only **Program** is required.
5. Click **[OK]**.

The new item appears in the group, selected.

6.4.3. Item properties

To change an item, select it and press `Alt` + `Enter`, or choose **File › Properties...**, or right-click it and choose **Properties...**. The **Program Item Properties** dialog box has the same boxes as the New Program Item dialog box:

Name

The name shown under the icon. Leave it empty to use the program's own name.

Program

The program to start, with its folder, for example `C:\GAMES\PINBALL.EXE`. It can be a DVX program (a file ending in `.APP`), a DOS program (see Section 6.8), or a document, which opens in the program set up for its kind of file. Click **[Browse...]** beside it to choose the file in a **Choose Program** dialog box, which starts in DVX's `APPS` folder and offers the filters "Programs (*.app)", "DOS programs (*.exe;*.com;*.bat)", and "All Files (*.*)".If you leave this box empty, a message

says “Type the program or document this item opens.”

Arguments

Extra information the program gets when it starts, such as the name of a file to open. Put a name with spaces in double quotes.

Working folder

The folder where files named in **Arguments** are looked for. For example, with the working folder `C:\LETTERS` and the argument `JUNE.TXT`, the program gets `C:\LETTERS\JUNE.TXT`. A DOS program runs in this folder; when the box is empty, it runs in its own folder. Click **[Browse...]** beside it to choose the folder in a **Choose Working Folder** dialog box.

Icon file

A different picture for the item: a DVX program file (its icon is used) or a picture file (BMP, PNG, JPEG, or GIF). Leave it empty for the usual icon (see Section 6.4.5). Click **[Browse...]** beside it to choose the file in a **Choose Icon** dialog box, whose filters are “Icons (*.app;*.bmp;*.png;*.jpg;*.gif)” and “All Files (*.*)”.

Shortcut key

Keys that start the item from any program, such as `Ctrl+Alt+N` (see Section 6.4.4). Leave it empty for none.

Run minimized

Starts the program with its windows minimized to icons. It does not apply to DOS programs.

Wait for a key when a DOS program ends

For a DOS program: when it ends, DVX shows “Press any key to return to DVX.” and waits for a key, so you can read what the program printed.

The picture beside the check boxes shows the item’s icon. It changes when you choose a program or an icon file with **[Browse...]**.

With the keyboard, `Alt` and an underlined letter moves to a box, ticks or clears a check box, or presses a button: N, P, A, W, I, and S for the boxes, M and K for the check boxes, and B, E, and R for the three **[Browse...]** buttons, from top to bottom.

Items in Installed Programs cannot be changed: for them, Properties shows a **Properties** message with the program’s name, its file (“Program: *file*”), and its description.

6.4.4. Shortcut keys

An item’s shortcut key starts it from any program, whichever window is in front, so you can start your favourite programs without going back to Program Manager. Type the shortcut in the item’s **Shortcut key** box as the key names joined with `+`, for example `Ctrl+Alt+N` or `Ctrl+Shift+F5` (capitals

and small letters are the same).

A shortcut key is:

- `Ctrl`, together with `Alt` or `Shift` or both, and
- one of these keys: a letter, a digit, `F1` to `F12`, or one of `Backspace`, `Del` (or `Delete`), `Down`, `End`, `Enter`, `Esc`, `Home`, `Ins` (or `Insert`), `Left`, `PgDn`, `PgUp`, `Right`, `Space`, `Tab`, and `Up`.

Anything else brings the message “A shortcut key is Ctrl with Alt or Shift, and a letter, a digit, F1 to F12, or one of Backspace, Del, Down, End, Enter, Esc, Home, Ins, Left, PgDn, PgUp, Right, Space, Tab, and Up, for example Ctrl+Alt+P.”

A few of these keys belong to DVX, which acts on them first in every program, so they could never start an item. The **Shortcut key** box refuses them, with the message “*keys* cannot be a shortcut key: it *does*.”, which says what the keys do:

- `Ctrl` + `Alt` + `F4`: “closes the active window” (as `Alt` + `F4` does);
- `Ctrl` + `Alt` + `Tab`: “switches to another window” (as `Alt` + `Tab` does);
- `Ctrl` + `Alt` + `Space`: “opens the window menu” (as `Alt` + `Space` does);
- `Ctrl` + `Shift` + `Esc` and `Ctrl` + `Alt` + `Esc`: “opens the Task Manager” (as `Ctrl` + `Esc` does);
- `Ctrl` + `Alt` + `F12`: “saves a picture of the screen”, and `Ctrl` + `Shift` + `F12`: “saves a picture of the active window’s contents” (see Section 5.8);
- `Ctrl` + `Alt` + `Del`: “restarts the computer”.

The same keys with `Shift` held as well are refused too.

If an item already has shortcut keys that are not allowed (any more), for example because `PROGMAN.INI` was changed by hand or DVX now keeps those keys for itself, Program Manager removes the key when it starts, keeps the rest of the item, and tells you once: “"*item*" no longer has its shortcut key *keys*. *reason* Choose another one in the item’s Properties.”, where the reason is one of the two messages above.

Shortcut keys work while Program Manager is running, even while it is minimized. They do not work while a menu, a window menu, or a dialog box is open, or while a program uses the whole screen. When a program uses the same keys for one of its own commands, the item’s shortcut key wins.

Two items should not share one shortcut key: only one of them would start. The Properties dialog box refuses a key another item already has, with the message “*keys* is already the shortcut for "*name*".” A copy of an item (see Section 6.4.8) has no shortcut key, so the original’s key keeps starting the original; give the copy a key of its own in its Properties if you like.

6.4.5. Icons

An item shows the first of these that it has:

1. the picture in its **Icon file** box;
2. the program's own icon;
3. for a DOS program, the standard DOS icon;
4. for a document, the icon of the program that opens it, or, for a picture, the picture itself;
5. otherwise, a raised square with the first letter of the item's name.

6.4.6. Renaming an item

To rename an item, select it and press `F2`, or choose **File › Rename…**. In the **Rename** dialog box, type the new name in the **New name** box and click **[OK]**. An empty name leaves the item as it was. (You can also change the name in the **Name** box of the item's properties.)

6.4.7. Moving an item to another group

To move an item to another of your groups:

1. Select the item.
2. Press `F7`, or choose **File › Move…**.
3. In the **Move Item** dialog box, click the group in the **Group** list, and click **[OK]**.

The list shows your own groups except the item's current group. Items of Installed Programs cannot be moved (copy them instead).

6.4.8. Copying an item to a group

To put a copy of an item in one of your groups, for example a program from Installed Programs:

1. Select the item.
2. Press `F8`, or choose **File › Copy…**.
3. In the **Copy Item** dialog box, click the group in the **Group** list, and click **[OK]**.

The copy has the same properties as the original, except its shortcut key: a copy has none (see Section 6.4.4).

If you have no group to move or copy the item to, a message says "There is no other group. Make one with File > New Group first."

6.4.9. Deleting an item

To delete an item from a group:

1. Select the item.
2. Press `Del`, or choose **File › Delete**.
3. A **Delete Item** message asks “Delete "*name*" from the group "*group*"? The program itself is not removed.” Click **[Yes]**.

Only the icon goes; the program or document stays where it is. Items of Installed Programs cannot be deleted; to remove a program from DVX, use the Software program (see Section 10.4).

Right-click an item for a short menu with **Open**, **Move...**, **Copy...**, **Delete**, **Rename...**, **Properties...**, and **New Item...**. Right-clicking selects the item under the pointer first.



`Enter`, `Del`, and `F2` work only while the icon area has the keyboard focus. `F5`, `F7`, `F8`, and `Alt` + `Enter` work anywhere in the Program Manager window.

6.5. Views and arranging icons

The **View** menu chooses how the items are shown. A diamond marks the view in use:

Large Icons
: A large picture, with the name under it (on up to two lines). This is the view at first.

Small Icons
: A small picture, with the name beside it.

List
: One item per line, with its name and its description (or its program file).

In your own groups, you can drag an item with the mouse to another place. How the items are placed depends on **View › Auto Arrange**, which has a tick mark while it is on:

- With **Auto Arrange** on (as at first), the items always sit in order, row after row. Dragging an item moves it to a new place in that order, and the others make room.
- With **Auto Arrange** off, an item stays where you drop it, even with gaps around it, and trades places with an item already there. **View › Arrange Icons** lines all the items up again in order; it is grey when it does not apply.

In the List view, dragging always changes the order. Items cannot be dragged in Installed Programs, or while a search is showing.

There is no sort command: Installed Programs is always in alphabetical order, and your own groups keep the order you give them.

View › Refresh (or `F5`) looks at once for programs that were installed or removed, and updates Installed Programs.

Program Manager saves your groups, items, their places, the view, the options, and the commands you ran as soon as you change them, and they are all there again the next time you start DVX.

6.6. Searching for a program

To find a program, click the **Search** box (or press `Alt` + `S`) and type part of its name. As you type, the icon area shows the items of every group whose name, description, or file name contains what you typed, in capitals or small letters. A program that is in several groups appears once for each group.

To end the search, empty the Search box, or click a group in the Groups list.

While a search is showing, you can start the items found and use the **File** menu's commands on them, but you cannot drag them; **File › New Item...** asks which group the new item goes in.

6.7. Running a command

File › Run... starts a program that has no icon, or opens a document by its name:

1. Choose **File › Run...**.
2. In the **Run** dialog box, type the program or document in the **Open** box, followed by any arguments, or click **[Browse...]** to choose the file.
3. Click **[OK]**.

What you can type:

- A program file, with its folder, for example `C:\DVX\APPS\KPUNCH\NOTEPAD\NOTEPAD.APP` or `C:\GAMES\PINBALL.EXE`, optionally followed by arguments. Put a name that has spaces in double quotes.
- A DOS program without a folder, such as `EDIT.COM`, which is looked for as at the DOS prompt.
- A document, for example `C:\DOCS\NOTES.TXT`. It opens in the program set up for its kind of file (see Section 7.8).

The **Open** box is a drop-down list that remembers the last ten commands you ran, newest first, and starts with the newest one already filled in. Open the list (click its arrow, or press `F4` or `Alt` + `Down`) and choose a command to run it again, or press `Up` and `Down` to step through the commands in the box itself, or type over it. **[OK]** with an empty box does nothing.

[Browse...] opens a **Browse** dialog box that starts in DVX's `APPS` folder, with the filters "Programs (*.app)", "DOS programs (*.exe;*.com;*.bat)", and "All Files (*.*)". The file you choose goes in the Open box, in quotes if its name has a space.

Messages (title **Run**):

- "Cannot find *name*.": there is no such document.
- "No program is set up to open *name*. Choose one on the File Types page of the Control Panel.": DVX does not know which program opens this kind of file (see Section 7.8).

The Task Manager's **[Run...]** button opens the same dialog box, without the list of earlier commands (see Section 5.10). A DOS program started from Run behaves as described in Section 5.15.

6.8. DOS program items

An item can start an ordinary DOS program (a file ending in `.EXE`, `.COM`, or `.BAT`), such as a game, an editor, or a batch file. The program has the whole computer to itself while it runs; when it ends, DVX comes back.

6.8.1. Setting up a DOS program item

To add a DOS program to one of your groups:

1. Click the group, and choose **File › New Item...**.
2. In the **Program** box, type the program's file with its folder, for example `C:\GAMES\PINBALL.EXE`. Or click **[Browse...]**, choose "DOS programs (*.exe;*.com;*.bat)" in the **Filter** list, and find the file.
3. Type a **Name** for the item.
4. If the program needs them, type its **Arguments** (as you would type them after the program's name at the DOS prompt) and its **Working folder**.
5. Tick **Wait for a key when a DOS program ends** for a program that prints something and stops, so you can read it before DVX comes back.
6. If you like, choose an **Icon file** and a **Shortcut key**.
7. Click **[OK]**.

The settings that matter for a DOS program:

Program

The `.EXE`, `.COM`, or `.BAT` file. A batch file runs as it would at the DOS prompt, so it can run several programs in turn.

Arguments

What the program gets after its name, as at the DOS prompt.

Working folder

The folder the program runs in, as if you had changed to it with `CD` before starting the program. Empty: the folder the program is in.

Icon file

Without one, the item shows the standard DOS icon.

Shortcut key

Works as for any item (see Section 6.4.4).

Run minimized

Does not apply to DOS programs.

Wait for a key when a DOS program ends

When the program ends, DVX shows “Press any key to return to DVX.” on the DOS screen and waits for a key before the DVX screen comes back.

6.8.2. What happens when it runs

Start the item as any other. Then:

1. If programs other than Program Manager are running, a **Run DOS Program** message names them and asks whether to close them and go on. Each one then closes as if you had closed it, asking about unsaved work. If you choose **[No]**, or keep a program open by choosing **[Cancel]** when it asks about saving, the DOS program does not run.
2. The screen changes to the DOS screen, and the program runs with the keyboard, the mouse, and the sound card to itself.
3. When it ends (after you press a key, if the item waits for one), the DVX screen comes back, with Program Manager. The programs that were closed stay closed.

DVX stays in memory while the program runs, so a program that needs a great deal of memory is best started from DOS after you leave DVX. Section 5.15 gives the details and the messages.

6.9. Options

The **Options** menu has two settings, each with a tick mark while it is on. Both are off at first.

Minimize on Run

Program Manager minimizes itself to an icon each time you start an item (other than one set to

Run minimized), start an item with its shortcut key, or run a command with **File › Run...**. Items of the Startup group do not minimize it.

Restore when Alone

When Program Manager is minimized and the last other program ends, Program Manager comes back by itself.

6.10. Menus

This section lists every command of Program Manager's menus. Commands that need a selected item are grey when none is selected; commands that change an item or a group are grey for Installed Programs.

6.10.1. File menu

Command	What it does
New Item...	Adds an item to the selected group (see Section 6.4.2).
New Group...	Makes a group (see Section 6.3.2).
Open (`Enter`)	Starts the selected item.
Move... (`F7`)	Moves the selected item to another of your groups (see Section 6.4.7).
Copy... (`F8`)	Copies the selected item to one of your groups (see Section 6.4.8).
Delete (`Del`)	Deletes the selected item from its group (see Section 6.4.9).
Rename... (`F2`)	Renames the selected item (see Section 6.4.6).
Properties... (`Alt` + `Enter`)	Shows or changes the selected item's properties (see Section 6.4.3).
Rename Group...	Renames the selected group (see Section 6.3.3).
Delete Group	Deletes the selected group and its items (see Section 6.3.4).
Run...	Starts a program or opens a document by its name (see Section 6.7).
Exit DVX	Leaves DVX, after asking you first (see Section 5.16).

Open, **Copy...**, and **Properties...** need a selected item; **Move...**, **Delete**, and **Rename...** need a selected item in one of your own groups; **Rename Group...** and **Delete Group** need one of your own groups selected.

6.10.2. View menu

Command	What it does
Large Icons, **Small Icons**, **List**	How the items are shown; a diamond marks the one in use (see Section 6.5).
Auto Arrange	Keeps the items in order, row after row. A tick mark shows that it is on.
Arrange Icons	Lines the items up again, when **Auto Arrange** is off.
Refresh (`F5`)	Looks for programs that were installed or removed.

6.10.3. Options menu

Command	What it does
Minimize on Run	Minimizes Program Manager each time you start a program (see Section 6.9).
Restore when Alone	Brings Program Manager back when no other program is running.

6.10.4. Window menu

The commands of the **Window** menu arrange every window on the screen that is not minimized, Program Manager's included. Section 5.3.10 describes what each one does.

Command	What it does
Cascade	Stacks the windows like a staircase from the top left corner.
Tile	Arranges the windows in a grid that fills the screen.
Tile Horizontally	Puts the windows one above the other, each as wide as the screen.
Tile Vertically	Puts the windows side by side, each as tall as the screen.

6.10.5. Help menu

Command	What it does
Contents (`F1`)	Opens Program Manager's own help.
DVX Help	Opens the general DVX help, a short guide to the desktop, settings, and troubleshooting (see Section 5.11).
About DVX...	Shows the DVX version number (1.0.0), the name "DOS Visual eXecutive", the copyright, and the web address of Kangaroo Punch Studios.
System Information...	Opens a **System Information** window (see below).

Command	What it does
Task Manager (`Ctrl` + `Esc`)	Opens the Task Manager (see Section 5.10).

The **System Information** window shows details about your computer, in sections headed **CPU**, **Memory**, **DOS**, **Video**, **Mouse**, and **Disk Drives**, then **Log**. You can scroll the text but not change it, and you can change the size of the window. DVX gathers this information each time you open the window, so the free memory, the screen mode, and the free disk space are those of that moment. The **Log** section says where DVX's log file is, or, when DVX can write no log file, shows the latest lines of the log, which DVX then keeps in memory (see Section B.6). If no information could be gathered, a message says "No system information available."

6.10.6. Right-click menus

Right-clicking an item selects it and opens a menu with **Open**, **Move...**, **Copy...**, **Delete**, **Rename...**, **Properties...**, and **New Item...**. Right-clicking empty space in the icon area opens the same menu for the item that was already selected.

Right-clicking the Groups list opens a menu with **New Group...**, **Rename Group...**, and **Delete Group**, which act on the selected group.

6.11. Keyboard shortcuts in Program Manager

These keys work in the Program Manager window:

Key	What it does
`Tab`, `Shift` + `Tab`	Move between the Groups list, the Search box, and the icon area.
`Alt` + `G`	Go to the Groups list.
`Alt` + `S`	Go to the Search box.
Arrow keys, `Home`, `End`, `Page Up`, `Page Down`	Move between the icons.
A letter or digit	Go to the next icon whose name starts with it (in the icon area).
`Enter`	Start the selected item (in the icon area).
`Del`	Delete the selected item (in the icon area).
`F2`	Rename the selected item (in the icon area).
`Alt` + `Enter`	Properties of the selected item.
`F5`	Look for programs that were installed or removed.
`F7`	Move the selected item to another group.

Key	What it does
`F8`	Copy the selected item to a group.
`F1`	Open Program Manager's help.
`Ctrl` + `Esc`	Open the Task Manager.

The shortcut keys you give your items work in every program (see Section 6.4.4), and the keys of Section 5.9 work here too.

Chapter 7. Control Panel

Control Panel is where you change how DVX looks and works. It sets the mouse, the colors of every part of the screen, the picture behind the windows (the wallpaper), the screen saver, the screen resolution and number of colors, which program opens each kind of file, the network settings, the printer, game controllers (joysticks), and the sounds DVX makes and the sound hardware it uses.

Most changes show up as soon as you make them, so you can see what they do before you decide to keep them. This chapter first explains how to open Control Panel and how its **[OK]** and **[Cancel]** buttons work, then describes each of its nine pages in the order the window shows them.

7.1. Opening Control Panel

Control Panel is part of DVX itself, so it is always installed. To open it:

1. In Program Manager, click the **Installed Programs** group.
2. Double-click the **Control Panel** icon. (When the icon is selected, the status bar at the bottom of Program Manager says “System settings and preferences”.)

You can also open it from the Welcome window: click **[Make it yours]** (or the picture beside it). See Section 8.10.

Only one Control Panel can be open at a time. If it is already open, starting it again shows the message “*name* is already running.”, with Control Panel’s file name in place of *name*. Switch to the Control Panel window that is already open instead, for example with Task Manager (see Section 5.10).

7.2. The Control Panel window

The window is titled **Control Panel**. It opens in the middle of the screen, and you can make it larger by dragging its border.

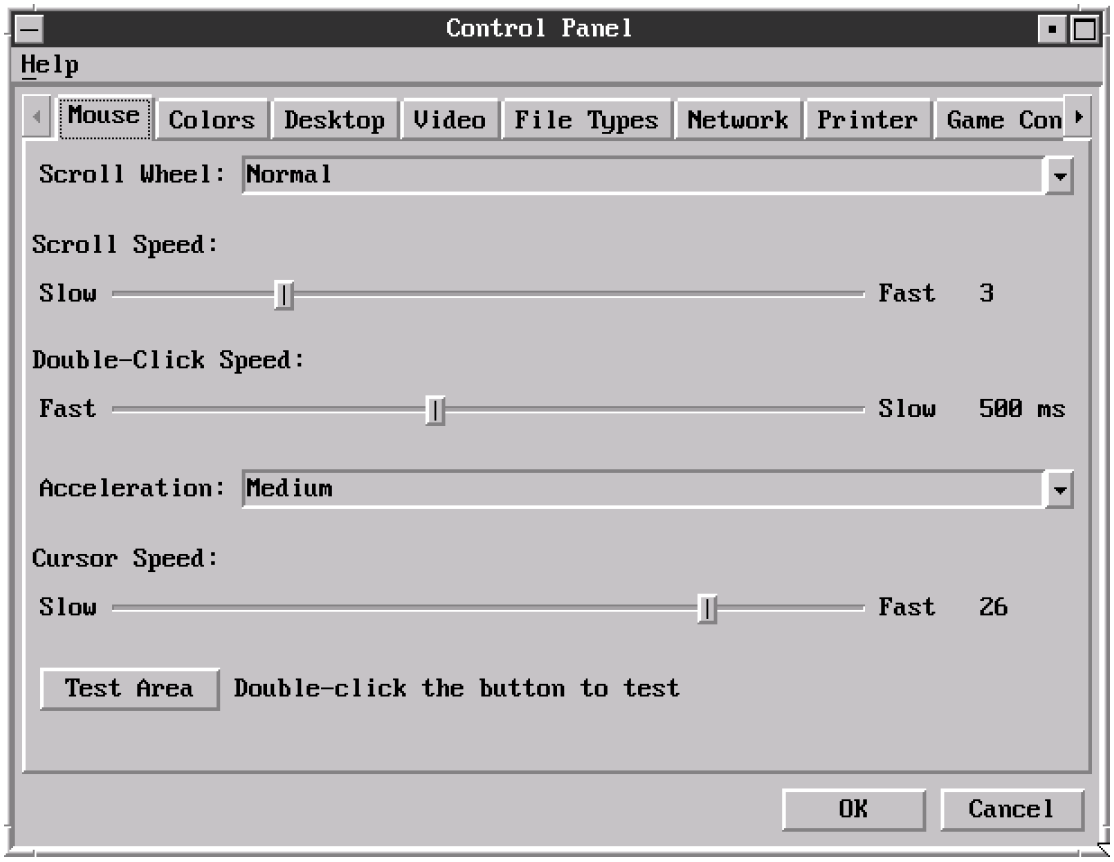


Figure 27. The Control Panel window, open at the Mouse page

The window has three parts:

- A menu bar with one menu, **Help**. **Help › Contents** (or F1) opens Control Panel's help in DVX Help. **Help › About Control Panel...** shows the program's name, what it does, and its copyright.
- A row of tabs, one for each page: **Mouse**, **Colors**, **Desktop**, **Video**, **File Types**, **Network**, **Printer**, **Game Controllers**, and **Sounds**. Click a tab to see its page. When the window is too narrow to show every tab, click the small arrows at the ends of the row to scroll to the others.
- The **[OK]** and **[Cancel]** buttons at the bottom right, which work for all the pages together (see Section 7.3).

There is no Apply button for the whole window. The **[Apply]** buttons on the Colors and Desktop pages, and **[Apply Mode]** on the Video page, only put the theme, picture, or screen mode chosen in their lists on the screen so you can see it. To keep it, you still click **[OK]**.

A few pages need parts of DVX that might be missing. When one is missing, its page shows a single line instead of its settings:

Page	Line shown when its part is missing
Network	“Networking is not installed.” Networking is an optional part of DVX; see Section 3.5 to add it.
Printer	“Printing is not installed.”
Game Controllers	“Game controller support is not installed.”
Sounds	“Sound is not installed.”

Printing, game controller support, and sound are part of DVX itself, so you see the last three lines only if some of DVX’s files are missing.

7.2.1. Using the keyboard

You can use Control Panel without a mouse:

Key	What it does
`F1`	Opens Control Panel’s help.
`Alt` + `H`	Opens the **Help** menu.
`Tab`	Moves to the next setting or button. `Space` or `Enter` presses the button that is highlighted.
`Enter`	Presses **[OK]**, as in a dialog box (see Section 5.5.1), when no button is highlighted. On a list, such as the list of video modes, it presses **[OK]** too: to use the item, double-click it or click its button.
`Esc`	Presses **[Cancel]**.
`Left` and `Right`	When the row of tabs is highlighted: shows the page of the previous or next tab (after the last tab comes the first).
`Home` and `End`	When the row of tabs is highlighted: shows the first or last page.

The tab names have no underlined letters. On the pages, some labels and buttons do: `Alt` with the underlined letter moves to that setting or presses that button. They are **Screen saver** (`Alt` + `V`), **Wait** (`Alt` + `W`), and **[Test]** (`Alt` + `T`) on the Desktop page; **[Add...]** (`Alt` + `A`), **[Change...]** (`Alt` + `C`), and **[Remove]** (`Alt` + `R`) on the File Types page; and **[Browse...]** (`Alt` + `B`) on the Printer page. Only the page showing is searched for the letter.

7.3. Trying out, keeping, and canceling changes

Control Panel lets you try most changes before you keep them. Some settings change the screen or the mouse the moment you change them; others wait until you click **[OK]**; and a few wait until DVX starts again. This table shows which is which:

When it takes effect	Settings
At once, while you try it out. **[OK]** keeps it; **[Cancel]** puts it back.	Every setting on the Mouse page. Colors and themes. The wallpaper and its **Mode**. The screen saver and its **Wait**. The video mode (once you click **[Keep]**; **[OK]** saves it only if you chose a mode on the Video page). **Smooth the edges of text**. Every setting on the Game Controllers page, including a calibration. **Volume** on the Sounds page.
When you click **[OK]**	Changes on the File Types page. Every setting on the Network page. Every setting on the Printer page except Page Setup. The sound for each event on the Sounds page.
For the next music that starts, after you click **[OK]**	**Modules**, **Instruments**, and **SoundFont** on the Sounds page.
The next time DVX starts, after you click **[OK]**	**Sound driver**, **MIDI music**, and **MIDI in** on the Sounds page.
At once, and kept even if you click **[Cancel]**	A theme saved with **[Save As...]** on the Colors page (the theme file stays saved). Page Setup changes (saved when you click **[OK]** in the **Page Setup** dialog). **[Restart]** on the Network page (the network restarts at once).

7.3.1. Clicking OK

When you click **[OK]**, Control Panel first checks the Network and Printer pages. If a setting there cannot work, a warning box titled **Network** or **Printer** says what is wrong, and Control Panel stays open so you can fix it (the messages are listed with those pages). Otherwise Control Panel:

1. Saves your settings, so DVX uses them again every time it starts. Only the settings you changed are saved: anything another program saved while Control Panel was open (Software's package server, for example), and anything you typed into `DVX.INI` meanwhile, stays as it is. The video mode is saved only if you chose one on the Video page.
2. Puts your File Types changes into effect.
3. Restarts the network with the new settings, if you changed them.
4. Starts using the new sounds for the events.
5. Closes.

DVX keeps most of these settings in the file `DVX.INI` in your USER folder. See Section B.2.

If your settings cannot be saved, for example because the disk is full, a box titled **Control Panel** says "The settings could not be saved: the disk may be full or write-protected. Control Panel stays open: click its OK to try again, or Cancel to undo the changes." Nothing is saved, and the settings

you tried out are still in use. Make room on the disk and click **[OK]** again, or click **[Cancel]**.If only the File Types changes cannot be saved, the box says “The file types could not be saved: the disk may be full or write-protected.”, and Control Panel closes with your other settings saved.

7.3.2. Clicking Cancel

Clicking **[Cancel]**, or closing the window, puts back the mouse settings, the colors, the wallpaper and its mode, the screen saver and its wait, the video mode, text smoothing, the game controller settings, and the volume as they were when you opened Control Panel. File Types, Network, Printer, and Sounds choices you had not saved are forgotten. Nothing is saved.

The exceptions are the ones in the last row of the table above: a theme file you saved, Page Setup changes, and a network restart cannot be undone with **[Cancel]**.

7.4. Mouse page

The Mouse page sets how fast the pointer moves, how quickly you must double-click, and how the scroll wheel works. It is the page Control Panel shows when it opens (see the picture in Section 7.2). Every change works at once, so you can try it with the mouse before you click **[OK]**.

Scroll Wheel

Normal or **Reversed**. **Reversed** makes the wheel scroll the other way. It is **Normal** unless you change it.

Scroll Speed

How many lines each click of the wheel scrolls, from 1 (at the **Slow** end of the slider) to 10 (at the **Fast** end). The number is shown at the right. It starts at 3.

Double-Click Speed

How quickly you must click twice for DVX to count it as a double-click, from 200 to 900 milliseconds (thousandths of a second). This slider has **Fast** at the left and **Slow** at the right; toward **Slow** gives you more time. The time is shown at the right, such as `500 ms`, the setting it starts at.

Acceleration

Off, **Low**, **Medium**, or **High**. With acceleration, moving the mouse quickly makes the pointer travel farther. It starts at **Medium**.

Cursor Speed

How far the pointer moves when you move the mouse. Toward **Fast** moves it farther. The number at the right is the slider’s position, from 2 to 32; it starts at 26.

[Test Area]

Double-click this button to test the double-click speed. Each time it sees a double-click, the text beside it, “Double-click the button to test”, changes to “Double-click detected! (*n*)”, with *n* counting up.

7.4.1. Adjusting the double-click speed

1. Click the **Mouse** tab.
2. Double-click the **[Test Area]** button the way you usually double-click.
3. If the text beside it does not change to “Double-click detected!”, drag the **Double-Click Speed** slider toward **Slow** and try again. If DVX takes two separate clicks for a double-click, move it toward **Fast**.
4. Click **[OK]** to keep the setting.



If the pointer is hard to control, set **Acceleration** to **Off** and adjust **Cursor Speed** until it feels right. Then turn acceleration back on if you like.



The scroll wheel works only with a mouse driver that supports wheels, such as CuteMouse (CTMOUSE). With another driver, **Scroll Wheel** and **Scroll Speed** do nothing, and everything else works as usual. See Section 11.4.

7.5. Colors page

The Colors page sets the color of every part of the screen: the desktop, title bars, menus, buttons, and so on. You can change the colors one at a time, or all at once with a theme, a saved set of all the colors. Every change shows at once.

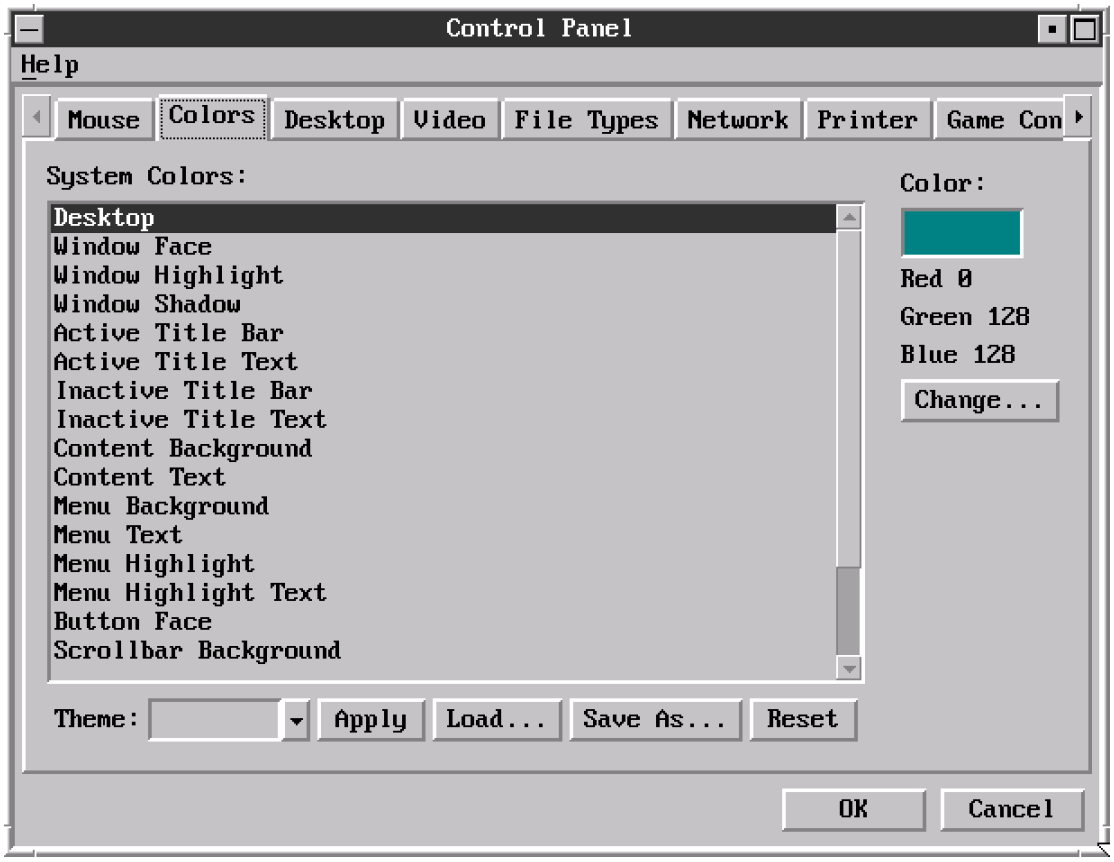


Figure 28. The Colors page

System Colors

The list of the parts of the screen that have a color: **Desktop**, **Window Face**, **Window Highlight**, **Window Shadow**, **Active Title Bar**, **Active Title Text**, **Inactive Title Bar**, **Inactive Title Text**, **Content Background**, **Content Text**, **Menu Background**, **Menu Text**, **Menu Highlight**, **Menu Highlight Text**, **Button Face**, **Scrollbar Background**, **Scrollbar Foreground**, **Scrollbar Trough**, **Cursor Color**, and **Cursor Outline**. Click a name to see its color at the right. Double-click a name to change its color.

Color

The selected part's color, with its amounts of red, green, and blue below it (`Red 0`, `Green 128`, `Blue 128`, for example). Each amount goes from 0 (none of that color) to 255 (full).

[Change...]

Opens the color box for the selected part (described below). Double-clicking the name does the same.

Theme

The themes you can choose from, by name, in alphabetical order. DVX comes with four: **cde** (the colors of CDE), **geos** (GEOS Ensemble), **hotdog** (Hot Dog Stand: yellow, red, and black), and **win31** (Windows 3.1). Themes you save yourself are listed too. The list shows nothing until you

choose a theme in it.

[Apply]

Uses the colors of the theme chosen in the **Theme** list.

[Load...]

Opens a **Load Theme** box, where you can choose a theme file (a file ending in .THM) in any folder, such as one on a floppy disk. Its colors are used at once.

[Save As...]

Saves the current colors as a new theme file. The **Save Theme** box starts in the THEMES folder in your USER folder; a theme saved there appears in the **Theme** list.

[Reset]

Puts back DVX's standard colors: a teal desktop, grey windows, and charcoal title bars.

7.5.1. The color box

[Change...] opens a box titled with the name of the part you are changing. It has:

- A grid of 48 basic colors (8 across and 6 down). Click one to choose it.
- **Red**, **Green**, and **Blue** rows, each with a slider and a number box from 0 to 255, for mixing a color of your own. Drag a slider or type a number.
- A preview of the color you are making.
- **[OK]**, which changes the part to the new color at once, and **[Cancel]**, which leaves it as it was.

The underlined letters are R, G, and B for the three rows, O for **[OK]**, and C for **[Cancel]**.

7.5.2. Choosing a theme

1. Click the **Colors** tab.
2. Choose a theme in the **Theme** list.
3. Click **[Apply]**. The whole screen changes to the theme's colors.
4. Click **[OK]** to keep the colors, or **[Cancel]** to go back to the ones you had.

To use a theme file that is not in the list, click **[Load...]** instead of choosing from the list, find the file, and click **[Open]**. To go back to DVX's own colors, click **[Reset]**.

7.5.3. Changing a color and saving your own theme

1. On the **Colors** page, click a name in the **System Colors** list, such as **Desktop**, and click **[Change...]** (or double-click the name).
2. In the color box, click one of the basic colors, or set **Red**, **Green**, and **Blue**. Watch the preview.
3. Click **[OK]** in the color box. The part changes color at once.
4. Repeat for any other parts you want to change.
5. To keep this set of colors as a theme, click **[Save As...]**. In the **Save Theme** box, type a name in **File name**, such as `MYCOLORS`, and click **[Save]**. If you do not type an ending, DVX adds `.THM`. The new theme appears in the **Theme** list.
6. Click **[OK]** on Control Panel to keep the colors.

If the name is too long to add `.THM` to, DVX says “Theme file name is too long.” If the file cannot be written, for example because the disk is full, it says “Could not save the theme file.”



A theme file you save stays saved even if you then click **[Cancel]**. **[Cancel]** only puts the screen’s colors back.

7.6. Desktop page

The Desktop page has two parts: the wallpaper, a picture shown on the desktop behind all the windows, and, in the bottom row, the screen saver. Every change on this page shows at once.

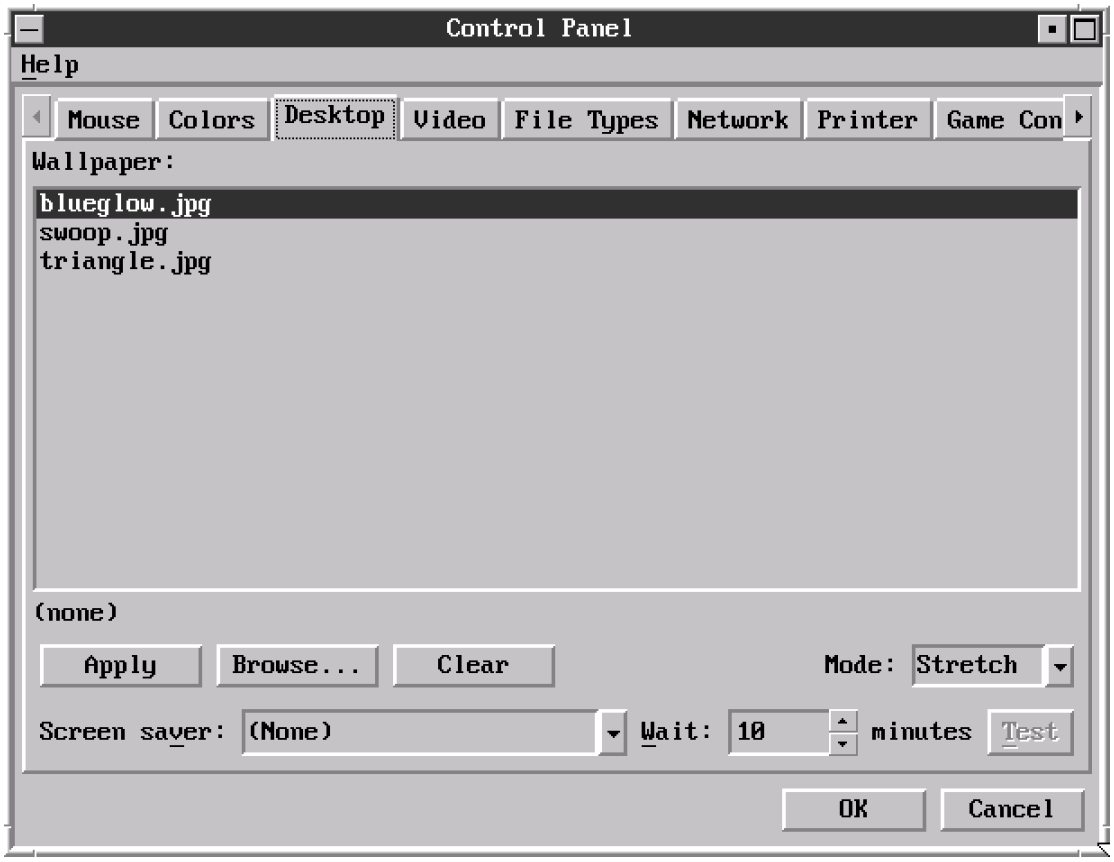


Figure 29. The Desktop page

7.6.1. Wallpaper

Wallpaper

The pictures you can choose from, by file name, in alphabetical order. DVX comes with three: `blueglow.jpg`, `swoop.jpg`, and `triangle.jpg`. Double-click a picture to put it on the desktop at once.

The line under the list

Shows the picture in use, or `(none)`.

[Apply]

Puts the picture selected in the list on the desktop.

[Browse...]

Opens a **Choose Wallpaper** box, where you can pick any BMP, JPEG, PNG, or GIF picture in any folder. The picture goes on the desktop at once.

[Clear]

Removes the picture, leaving the plain desktop color (the **Desktop** color on the Colors page).

Mode

How the picture fills the screen. **Stretch** (the usual setting) stretches the picture to fill the whole screen. **Tile** repeats the picture across the screen like floor tiles. **Center** shows the picture once, in the middle of the screen.

If DVX cannot load a picture, it says “Could not load wallpaper image.” and the desktop stays as it was.



To have your own pictures in the **Wallpaper** list, copy them into a folder named WPAPER in your USER folder (make the folder if it is not there). **[Browse...]** also starts in that folder when it exists.

To set the wallpaper:

1. Click the **Desktop** tab.
2. Click a picture in the **Wallpaper** list and click **[Apply]**, or double-click the picture. To use a picture from another folder, click **[Browse...]** instead and choose it.
3. Choose **Stretch**, **Tile**, or **Center** in the **Mode** list.
4. Click **[OK]** to keep the wallpaper.

7.6.2. Screen saver

A screen saver fills the screen with a moving picture when the computer has not been used for a while, and goes away when you press a key or move the mouse. The screen saver row has three settings:

Screen saver

(None), for no screen saver, then each screen saver by its name. **(None)** is chosen until you choose a screen saver. DVX comes with four:

Screen saver	What it shows
Blank Screen	A black screen.
Marquee	The words “The DOS Visual eXecutive” drifting across the screen, bouncing off the edges and changing color.
Mystify	Two four-cornered outlines bouncing around the screen, each leaving a trail of outlines behind it and changing color every few seconds.
Starfield	Stars flying out of the middle of the screen, as if you were moving through them.

Screen savers that come with add-ons are listed too. See Section 8.12.

Wait

The number of minutes, from 1 to 60, with no key pressed and no mouse movement before the screen saver starts. It starts at 10.

[Test]

Starts the chosen screen saver now, so you can see it. Press a key or move the mouse to end it. **[Test]** is greyed out while **(None)** is chosen.

The screen saver does not start while a message or dialog box is waiting for an answer, or while a program (such as a game) is using the whole screen. The key you press or the mouse movement that wakes the screen does nothing else, so it cannot change your work. See Section 5.12.

To choose and test a screen saver:

1. Click the **Desktop** tab.
2. Choose a screen saver in the **Screen saver** list (`Alt` + `V`).
3. Set **Wait** (`Alt` + `W`) to the number of minutes the computer must be idle before it starts.
4. Click **[Test]** (`Alt` + `T`) to see it. Press a key or move the mouse to end it.
5. Click **[OK]** to keep it.

To turn the screen saver off, choose **(None)** and click **[OK]**.

7.7. Video page

The Video page sets the screen mode: how many dots (pixels) the screen has across and down, and how many colors they can show. It also turns text smoothing on and off.

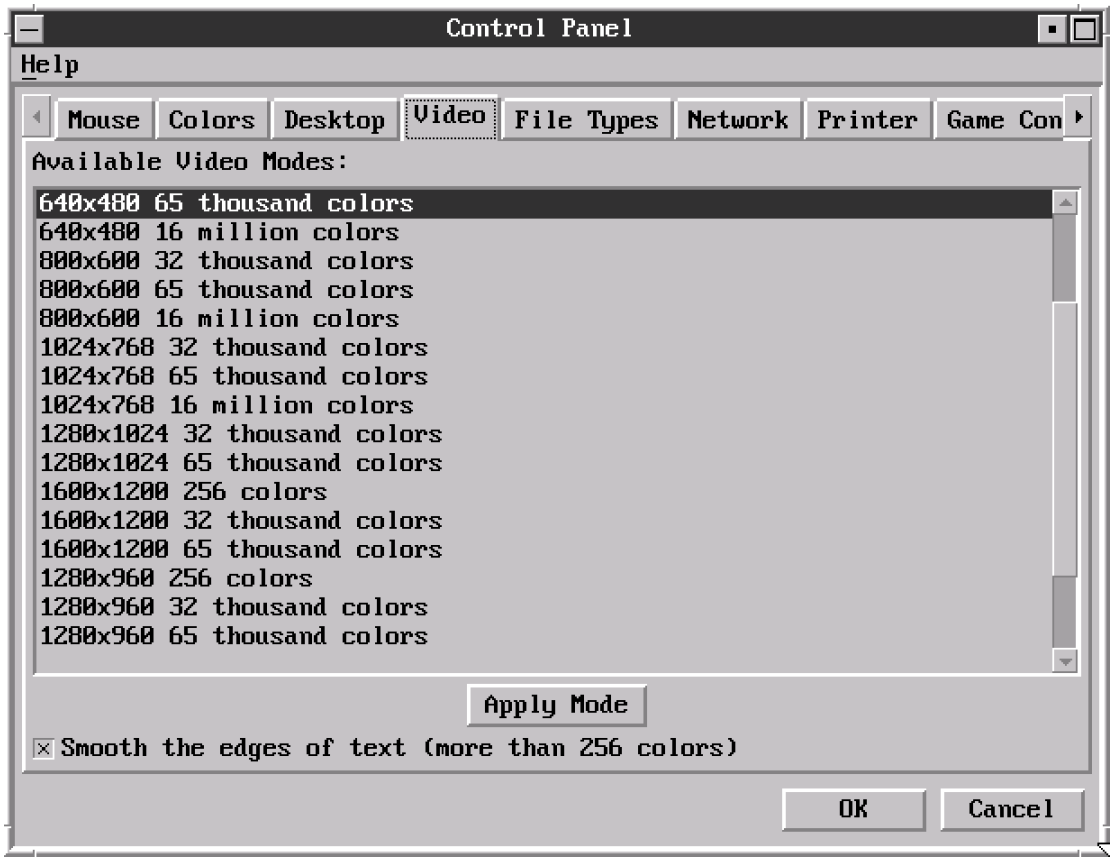


Figure 30. The Video page

Available Video Modes

The modes your video card offers that DVX can use, from 640x480 up, such as `800x600 65 thousand colors`. The first two numbers are the width and height of the screen in dots; the rest says how many colors the screen can show: `256 colors`, `32 thousand colors`, `65 thousand colors`, or `16 million colors+`. The mode you are using now is selected when the page opens.

[Apply Mode]

Switches the screen to the mode selected in the list and asks whether to keep it (see below). Double-clicking a mode does the same. Choosing the mode you are already using does nothing.

Smooth the edges of text (more than 256 colors)

Softens the jagged steps on the curves and slants of letters by drawing their edges in shades between the text color and the background, the way printed text looks. It is on unless you turn it off, and the change shows at once in every window. Smoothing needs a mode with more than 256 colors; in a 256-color mode text is drawn sharp whatever the box says. Only the fonts and sizes that come smoothed are drawn this way; the system font is always sharp.



Higher resolutions fit more on the screen but make everything smaller. More colors make pictures look better but can make DVX slower on older computers, and use more memory.

7.7.1. Changing the video mode

1. Click the **Video** tab.
2. Click a mode in the **Available Video Modes** list and click **[Apply Mode]**, or double-click the mode.
3. The screen switches to the new mode. A box titled **Keep this mode?** asks “Keep this display mode?” and counts down: “The old mode comes back in 15 seconds.”
4. To keep the new mode, click **[Keep]** (`Alt` + `K`, or just `Enter`) before the countdown ends. To go back to the old mode, click **[Revert]** (`Alt` + `R`, or `Esc`), close the box, or just wait.
5. Click **[OK]** on Control Panel to use the new mode every time DVX starts.

If you click **[Cancel]** on Control Panel instead, the screen goes back to the mode it was in when you opened Control Panel.

[OK] saves the video mode only if you chose one in the list. So after DVX has started in safe video mode, clicking **[OK]** to keep other changes does not make the safe mode the one DVX starts in. To start in the mode you are using now from then on, click it in the list, click **[Apply Mode]**, and then click **[OK]**.

7.7.2. If the new mode does not work

- If the screen goes blank or you cannot read it, do nothing. After 15 seconds the old mode comes back by itself.
- If DVX cannot switch to the mode at all, it says “Failed to change video mode.” and the screen stays as it was. Choose another mode.
- If DVX starts one day and cannot use the mode you saved (for example, after you change the video card), it starts in safe video mode, 640x480, and asks whether to use that mode from now on. You can also start DVX in safe video mode yourself by holding down a `Shift` key while it starts. See Section 3.13 and Section 11.3.

7.8. File Types page

When you open a document, for example by double-clicking it in File Manager or Program Manager, DVX starts the program set up for its kind of file. The kind of file is its extension: the letters after the dot, such as TXT in NOTES.TXT. The File Types page shows which program opens each kind, and lets you change it.

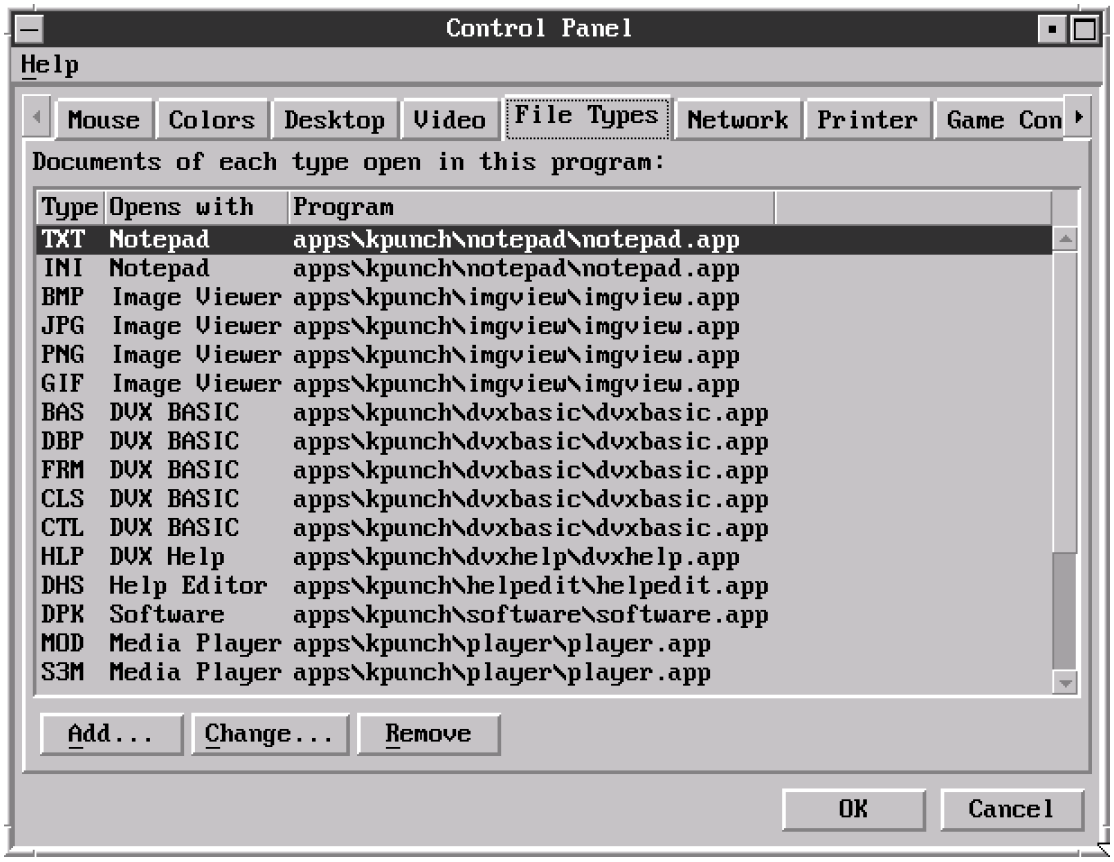


Figure 31. The File Types page

The list under “Documents of each type open in this program:” has three columns:

Type

The extension, such as TXT.

Opens with

The name of the program that opens it, such as Notepad.

Program

The program’s file, as DVX keeps it (for example `apps\kpunch\notepad\notepad.app`), followed by its arguments, if it has any, after a comma.

Under the list are three buttons:

[Add...]

(`Alt` + `A`) Opens the **Add File Type** box to set up a new extension. If the extension is already listed, it gets the new program.

[Change...]

(`Alt` + `C`) Opens the **Change File Type** box to pick a different program for the extension selected in the list. Double-clicking a row does the same.

[Remove]

(Alt + R) Forgets the extension selected in the list. The program itself is not removed.

Your changes on this page are put into effect when you click **[OK]** on Control Panel. **[Cancel]** forgets them.

7.8.1. The Add File Type and Change File Type boxes

Extension

(Alt + E) The extension, one to eight letters or digits, such as `TXT`, without the dot. Capital and small letters count as the same. This box is greyed out when you change an existing type.

Program

(Alt + P) The program that opens this kind of file. Type it, or click **[Browse...]** (Alt + B) beside it to choose it in a **Choose Program** box. That box starts in DVX's folder of programs and offers `Programs (*.app)`, `DOS programs (*.exe;*.com;*.bat)`, and `All Files (*.*)` in its **Filter** list.

Arguments

(Alt + A) Optional text that is given to the program along with the document. As the box says, "In the arguments, %1 stands for the document." Leave it empty to just give the program the document.

[OK] (Alt + O) accepts the type and **[Cancel]** (Alt + C) closes the box without changing anything.

The program can be a DOS program (a .EXE, .COM, or .BAT file). Opening a document of that type then runs the DOS program with DVX stepped aside, as described in Section 5.15.

If something is missing, a box titled **File Types** says "An extension is one to eight letters or digits, such as TXT." or "Type the program that opens this type."

7.8.2. Changing which program opens a kind of file

1. Click the **File Types** tab.
2. To change an extension that is already listed, click it and click **[Change...]** (or double-click it). To set up a new one, click **[Add...]** and type the extension in **Extension**.
3. Type the program in **Program**, or click **[Browse...]** and choose it.
4. If the program needs them, type its arguments in **Arguments**, using `%1` for the document.
5. Click **[OK]** in the box.
6. Click **[OK]** on Control Panel.

To make DVX forget an extension, click it, click **[Remove]**, and click **[OK]** on Control Panel.

7.8.3. File types DVX sets up

When DVX is installed, these kinds of files open in these programs:

Extensions	Open in
TXT, INI	Notepad
BMP, JPG, PNG, GIF	Image Viewer
BAS, DBP, FRM, CLS, CTL	DVX BASIC
HLP	DVX Help
DHS	Help Editor
DPK	Software
MOD, S3M, XM, IT, MID, RMI, WAV, VOC	Media Player

DVX BASIC, Help Editor, and Media Player come with optional parts of DVX (see Section 3.5).

7.9. Network page

The Network page holds the settings DVX uses to reach other computers and the Internet through a network card, for example for Terminal's Telnet sessions and for Software's package server. It is there only when the Networking part of DVX is installed; otherwise it says "Networking is not installed."

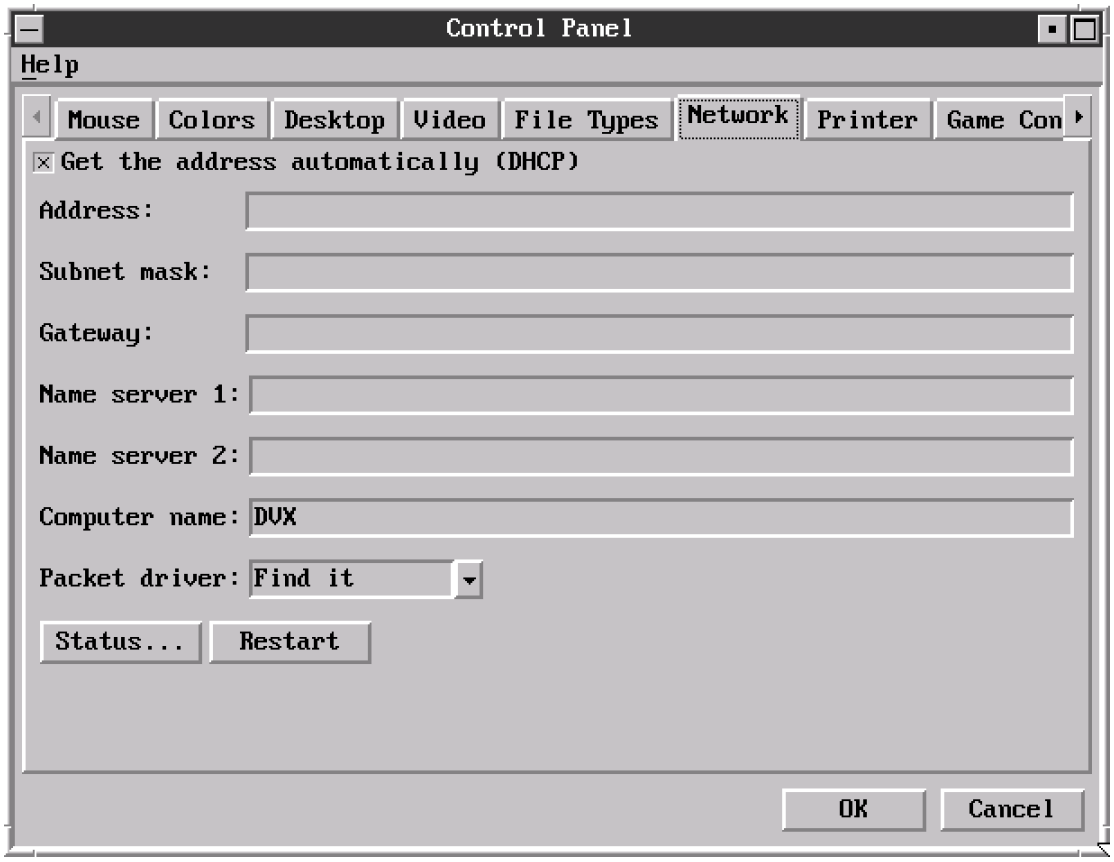


Figure 32. The Network page

DVX uses the network card through its packet driver: a small program for your card, usually supplied with it, that is started before DVX (for an NE2000 card, for example, `NE2000.COM 0x60 3 0x300` in AUTOEXEC.BAT). Without one, DVX works as usual, but no other computer can be reached. For setting up networking from start to finish, see Section 4.4.

Get the address automatically (DHCP)

The network gives DVX its address, subnet mask, gateway, and name servers. Most networks work this way, so this box is checked unless you clear it. While it is checked, **Address**, **Subnet mask**, and **Gateway** are greyed out.

Address

Only when the box above is cleared: this computer's own address on the network, such as 192.168.1.10.

Subnet mask

Only when the box above is cleared: the subnet mask, usually 255.255.255.0.

Gateway

Only when the box above is cleared: the address of the router to other networks and the Internet. It may be left empty.

Name server 1 and Name server 2

Computers that turn names such as bbs.example.org into addresses. With DHCP, leave them empty to use the ones the network gives out; if you fill them in, DVX uses them instead. With a fixed address, DVX has only the name servers you type here: leave both empty and names cannot be looked up.

Computer name

This computer's name on the network. It may use letters, digits, and hyphens, must not start or end with a hyphen, and must be shorter than 64 characters. It is `DVX` unless you change it.

Packet driver

Find it, the usual choice, makes DVX look for the packet driver by itself at interrupts 60h to 80h. Choose one of **Interrupt 60h** to **Interrupt 80h** only if it is not found; pick the interrupt your packet driver was started with. If `DVX.INI` names an interrupt outside 60h to 80h, the list shows it with "(cannot be used)" after it, for example "Interrupt 3Ch (cannot be used)"; choose **Find it** or an interrupt from the list before you click **[OK]**.

[Status...]

Opens the **Network Status** window (see below), or brings it to the front.

[Restart]

Restarts the network with the saved settings, for example after a packet driver has been started. Connections that are open are closed. This happens at once, even if you then click **[Cancel]**.

The settings on this page are saved when you click **[OK]** on Control Panel. If they changed, the network then restarts with them, and connections that were open are closed.

7.9.1. The Network Status window

The **Network Status** window shows what the network is doing, updated every second:

- What the network is doing: "Connected", "Waiting for a DHCP server", "Networking is not started", or "No packet driver found: load one (for example NE2000.COM) before DVX".
- The address, subnet mask, and gateway in use (a - for one that is not set), and the name servers.
- The network card: its packet driver's name and its hardware address.
- How many packets and bytes have been received and sent. "lost" counts packets that arrived while DVX was too busy to take them.

7.9.2. Problems that stop OK

If a network setting cannot work, clicking **[OK]** shows a warning box titled **Network** with one of these messages, and Control Panel stays open:

- “The computer name may only use letters, digits and hyphens”
- “The packet driver interrupt must be between 0x60 and 0x80” (the **Packet driver** list shows an interrupt marked “(cannot be used)”)
- “A name server is not a valid address (like 192.168.1.1)”
- Only when the address is not automatic: “The address is not a valid address (like 192.168.1.10)”, “The subnet mask is not valid (like 255.255.255.0)”, or “The gateway is not a valid address (like 192.168.1.1)”

7.9.3. Giving the computer a fixed address

1. Click the **Network** tab and clear **Get the address automatically (DHCP)**.
2. Type the **Address** and **Subnet mask**, and the **Gateway** if your network has one.
3. Type **Name server 1**, and **Name server 2** if your network has a second one. Without a name server, names such as bbs.example.org cannot be looked up.
4. Click **[OK]**. The network restarts with the new settings.
5. To check it, open Control Panel again, click the **Network** tab, and click **[Status...]**.

7.10. Printer page

The Printer page tells DVX about your printer. Every program prints to the printer set here. The page’s settings are saved when you click **[OK]** on Control Panel.

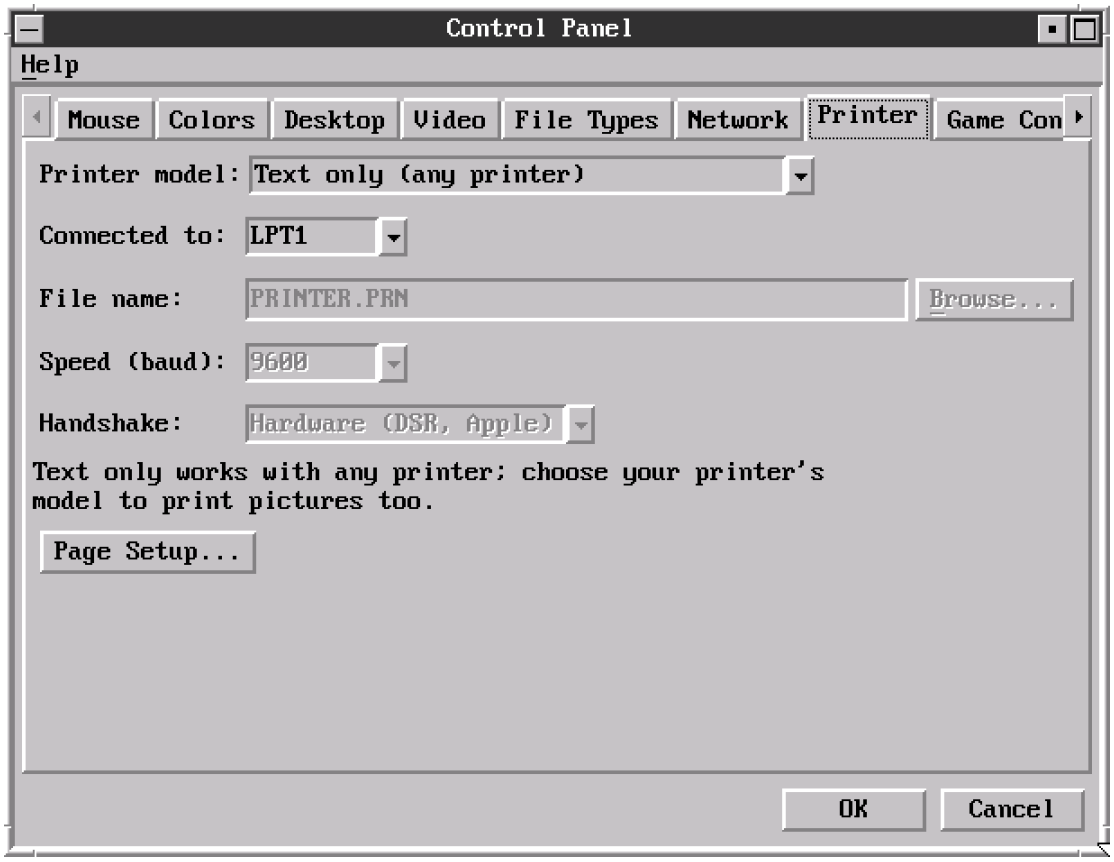


Figure 33. The Printer page

Printer model

The kind of printer you have. **Text only (any printer)**, the usual setting, works with any printer but prints only text. Choose one of the others if your printer is one of them or works like one; then pictures can be printed too, in shades of grey on the models without color. As the page says, "Text only works with any printer; choose your printer's model to print pictures too." The models are listed in the table below.

Connected to

The port the printer is plugged into: **LPT1** (the usual setting), **LPT2**, or **LPT3** for a parallel printer, or **COM1** to **COM4** for a serial printer, such as the ImageWriter II. Choose **File** to print into a file instead.

File name

Only when **Connected to** is **File**: the file that printouts go into. Each printout replaces it. It starts as `PRINTER.PRN`. A name without a folder, such as `PRINTER.PRN`, is in your USER folder (see Section B.1.2), so printing to a file works even when DVX runs from a CD-ROM. Type a name, or click **[Browse...]** (`Alt` + `B`) to choose it in a **Print to File** box, which starts in the folder the file is in.

Speed (baud)

Only for a serial printer (**COM1** to **COM4**): how fast the port sends: 300, 1200, 2400, 4800, 9600, 19200, or 38400. Set it to match the printer's own setting; 9600, the usual setting, suits most.

Handshake

Only for a serial printer: how the printer tells the computer to wait. **Hardware (DSR, Apple)**, the usual setting, suits Apple's ImageWriter cable; **Hardware (CTS)** a cable that wires the printer's ready line to CTS; **XON / XOFF** a printer set to send those characters; and **None** no handshake at all.

[Page Setup...]

Opens the **Page Setup** dialog (see below).

Printer model	Choose it for
Text only (any printer)	Any printer, when you only print text.
Epson 9-pin (ESC/P) and **Epson 24-pin (ESC/P)**	An Epson dot matrix printer with 9 or 24 pins, or one that works like it (most dot matrix printers do).
HP LaserJet (PCL)	An older LaserJet, such as the LaserJet II or Plus.
HP LaserJet III or DeskJet (300 dpi)	Laser and ink jet printers made since about 1990. Most laser and ink jet printers work like a LaserJet. This model prints pictures sharper and faster than **HP LaserJet (PCL)**.
Epson 9-pin color (ESC/P) and **Epson 24-pin color (ESC/P)**	A dot matrix printer with a color ribbon.
HP DeskJet 500C (color)	A DeskJet that holds one color cartridge.
HP DeskJet 550C and later (color)	A DeskJet that holds a black and a color cartridge.
PostScript and **PostScript (color)**	A PostScript printer (often an Apple LaserWriter, or a printer with a PostScript option). Text prints on it too, and pages that programs draw are drawn by the printer itself, as sharp as it can print.
Apple ImageWriter II and **Apple ImageWriter II (color)**	An ImageWriter II on a serial port; the color model for one with the four-color ribbon.

If you choose **File** and leave **File name** empty, clicking **[OK]** shows a box titled **Printer**: "Type the name of the file to print to, or connect the printer to a port."

7.10.1. Page Setup

The **Page Setup** dialog sets how text is laid out on the page when it is printed. Programs that print

text, such as Notepad, use it too. Its changes are saved as soon as you click **[OK]** in the dialog, even if you then click **[Cancel]** on Control Panel.

Setting	At first	What it does
Lines per page	0	How many lines fit on a sheet, from 10 to 200. 0 means the printer's usual page length (66 lines, or 60 on the LaserJet, DeskJet, and PostScript models).
Characters per line	80	How many characters fit across a sheet, from 20 to 255.
Top margin (lines) and **Bottom margin (lines)**	3 each	Lines at the top and bottom of each page that the document's text stays out of, from 0 to 200. The header prints in the middle line of the top margin and the footer in the middle line of the bottom margin, so with a top margin of 0 there is no header, and with a bottom margin of 0 no footer.
Left margin and **Right margin**	5 each	Blank characters at the left and right of each line, from 0 to 255.
Tab width	8	How far apart tab stops are, from 1 to 16 characters.
Header	`&f`	A line printed in the top margin of every page.
Footer	`Page &p`	A line printed in the bottom margin of every page.
Wrap long lines (otherwise they are cut off)	On	Lines too long for the page continue on the next line; when it is off, they are cut off.

In the header and footer, these codes are replaced when the page is printed: `&f` the file name, `&p` the page number, `&n` the number of pages, `&d` the date, and `&t` the time. `&l`, `&c`, and `&r` put the text after them at the left, centre, or right. For example, the footer `&cPage &p of &n` prints "Page 2 of 5" in the middle of the line.

If a setting cannot work, a box titled **Page Setup** says why: "Lines per page must be 0 (the printer's usual length) or from 10 to 200.", "Characters per line must be from 20 to 255.", "Margins cannot be negative.", "Tab width must be from 1 to 16.", "The top and bottom margins leave no room for text.", or "The left and right margins leave less than 10 characters for text." If the settings cannot be saved, it says "The page setup could not be saved."

7.10.2. Setting up a printer and printing a test page

1. Click the **Printer** tab.
2. Choose your printer in **Printer model**.
3. Choose the port it is plugged into in **Connected to**. For a serial printer, also set **Speed (baud)** and **Handshake** to match the printer. To print into a file, choose **File** and type a **File name**.
4. If you like, click **[Page Setup...]**, set the margins, header, and footer, and click **[OK]**.
5. Click **[OK]** on Control Panel.
6. To print a test page, open Notepad, type a line or two, and choose **File › Print...**. The **Print** dialog shows the model you chose (“Printer model:”) and starts with your port in **Print to**. Click **[Print]**.

If the printer does not print, see Section 11.8.

7.11. Game Controllers page

The Game Controllers page shows the joysticks DVX found, lets you try them out, and calibrates them so that programs, such as games, read them correctly. When no joystick is connected, the keyboard can stand in for one. Every change on this page works at once, so you can see it in the test picture.

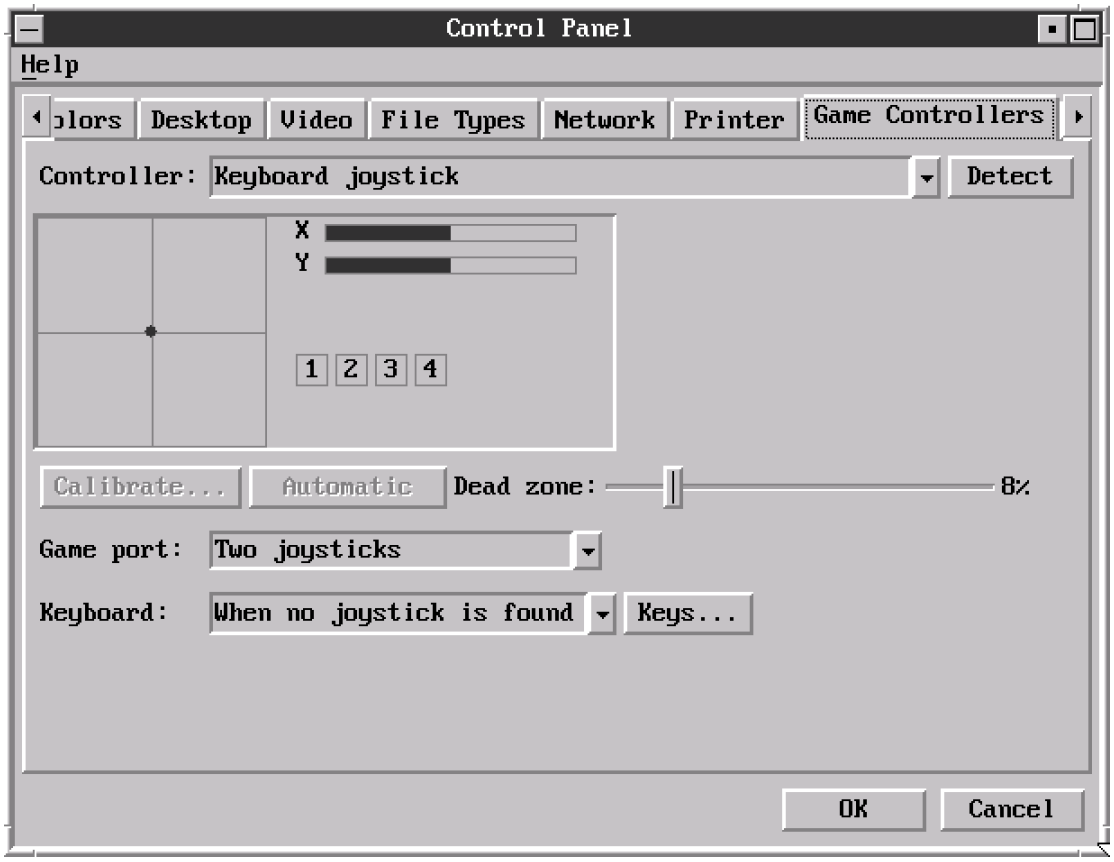


Figure 34. The Game Controllers page

Controller

The joystick shown in the picture and changed by the settings below. A joystick on the game port is listed as **Game port joystick 1** or **Game port joystick 2**, or as **Game port joystick (4 axes)** when **Game port** is set to **One joystick with 4 axes**. The keyboard is listed as **Keyboard joystick**.

[Detect]

Looks for joysticks again, for example after you plug one in. It works only while no program is using a joystick.

The test picture

Follows the joystick as you use it. The dot in the square shows where the stick points. The bars show each axis (**X**, **Y**, **3**, and **4**) from one end to the other. The numbered boxes light up while their button is held down. A hat switch, if the joystick has one, shows as “Hat: centred” or “Hat: *n* degrees”. “Not connected” means the joystick stopped answering: check its cable, then click **[Detect]**. “No game controllers found.” means DVX found none.

[Calibrate...]

Starts calibrating the joystick (see below). It is greyed out for the keyboard joystick.

[Automatic]

Forgets the calibration, so DVX learns the stick's range by itself again. It is greyed out for the keyboard joystick.

Dead zone

How far the stick can move from the middle and still count as the middle, from 0 to 50 percent. It starts at 8%. A worn stick that does not come back exactly to the middle needs a bigger dead zone.

Game port

Two joysticks, the usual setting, for two joysticks with two buttons each. **One joystick with 4 axes**, for a flight stick with a throttle or rudder, which uses the whole port and all four buttons. Changing it makes DVX look for joysticks again.

Keyboard

When to offer the keyboard as a joystick: **When no joystick is found** (the usual setting), **Always**, or **Never**. Changing it makes DVX look for joysticks again.

[Keys...]

Chooses the keys the keyboard joystick uses (see below).

If a program is using a joystick when you click **[Detect]** or change **Game port** or **Keyboard**, a box titled **Game Controllers** says "A program is using a game controller. Close it, then click Detect again."

A joystick on the game port works without calibrating: DVX takes where the stick rests when it is found as the middle, and learns how far it goes as you move it. For the best results, calibrate it once.

7.11.1. Calibrating a joystick

1. Click the **Game Controllers** tab and choose the joystick in **Controller**.
2. Click **[Calibrate...]**. A box titled **Calibrate** opens. A line in it shows the joystick's readings as you go.
3. When it says "Let the stick rest in the middle, then click Next.", let go of the stick and click **[Next]**.
4. When it says "Move the stick round all its edges, then click Next.", move the stick all the way round its edges, reaching every corner, and click **[Next]**. If it did not go far enough, the box says "Move the stick further, all the way to each edge."; do it again and click **[Next]**.
5. When it says "Press each button to test it, then click Finish.", press each button to see that it works, and click **[Finish]**. The calibration is used at once.

6. Click **[OK]** on Control Panel to keep it.

[Cancel] in the **Calibrate** box, at any step, leaves the old calibration as it was. In the box, `Enter` clicks **[Next]** (or **[Finish]**) and `Esc` clicks **[Cancel]**.

7.11.2. Using the keyboard as a joystick

1. On the **Game Controllers** page, set **Keyboard** to **Always**, or leave it at **When no joystick is found**.
2. Click **[Keys...]**. A box titled **Keyboard Joystick** opens.
3. For each of **Up**, **Down**, **Left**, **Right**, and **Button 1** to **Button 4**, choose a key in its list. You can choose the arrow keys, the left and right Ctrl, Shift, and Alt keys, Space, Enter, Tab, Backspace, Insert, Delete, Home, End, PgUp, PgDn, the keypad's 0 to 9, A to Z, and 0 to 9. At first they are the four arrow keys, Left Ctrl, Space, Left Shift, and Z.
4. Click **[OK]** in the box.
5. Click **[OK]** on Control Panel.

The keyboard joystick answers only while the program using it is the active one, so the keys you type into other programs do not move it.

7.12. Sounds page

The Sounds page chooses the sound DVX makes for each event, such as starting, ending, or showing a message, sets the overall volume, and says which sound hardware DVX uses and how it plays music. Without sound hardware, everything works the same, but silently.

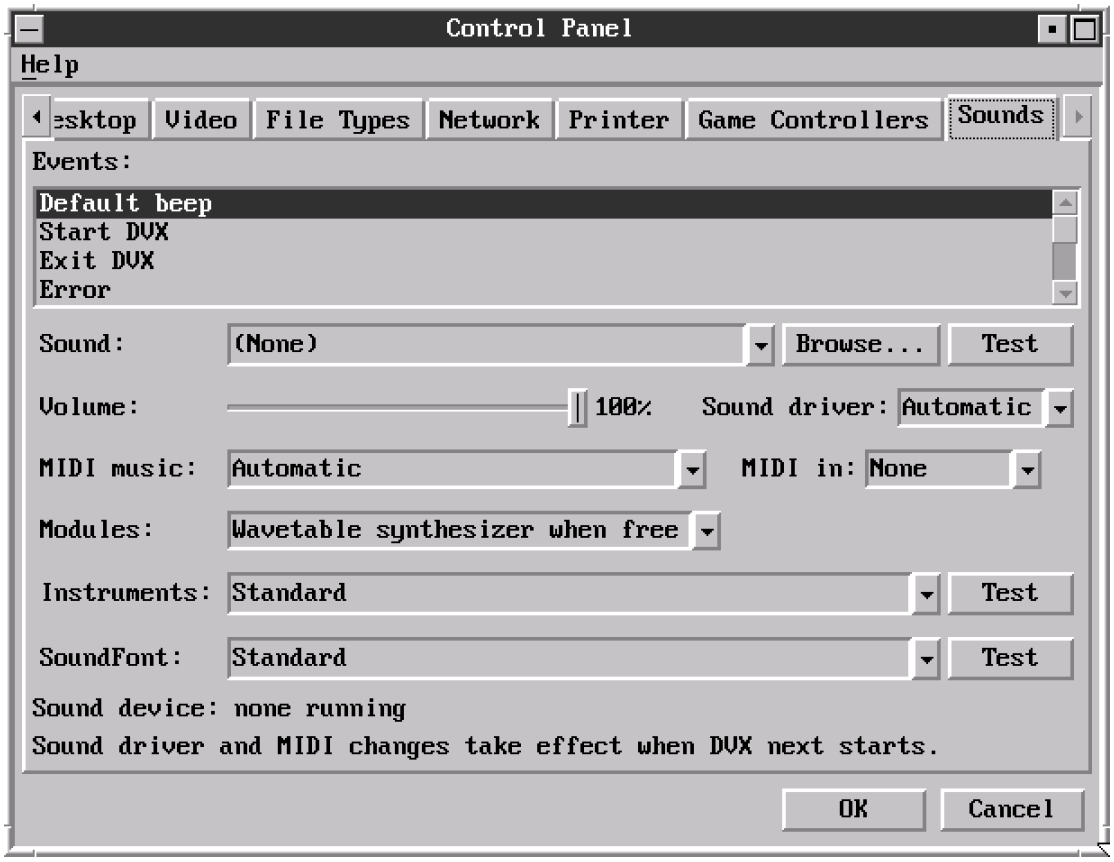


Figure 35. The Sounds page

7.12.1. Event sounds

Events

The events DVX has a sound for. Click one to see and change its sound. They are listed in the table below.

Sound

The sound of the selected event: **(None)** for silence, or one of the sound files listed, by name. The list has the WAV and VOC sounds that come with DVX, those in the SOUNDS folder in your USER folder, and any file you choose with **[Browse...]**.

[Browse...]

Opens a **Choose a Sound** box, where you can choose any sound file (WAV or VOC) for the selected event.

[Test]

Plays the sound shown, so you can hear it. If a sound cannot be played, a box titled **Sounds** says why.

Volume

How loud all sounds and music are, from 0 to 100 percent. It changes at once; **[Cancel]** puts it back.

Event	Sound at first	When it sounds
Default beep	beep.wav	A message without a picture, and whenever a program asks for a beep.
Start DVX	startup.wav	DVX has started.
Exit DVX	exit.wav	DVX is ending.
Error	error.wav	A message about an error.
Warning	warning.wav	A warning message.
Question	question.wav	A message that asks a question.
Information	info.wav	A message that tells you something.
Open window	(None)	A window opens (not the small windows that ask something).
Close window	(None)	A window closes.

DVX also comes with winopen.wav and winclose.wav, which you can choose for **Open window** and **Close window**.

To change or turn off the sound for an event:

1. Click the **Sounds** tab and click the event in **Events**.
2. Choose a sound in **Sound**, or **(None)** for silence. To use another sound file, click **[Browse...]** and choose it.
3. Click **[Test]** to hear it. Set **Volume** if you need to.
4. Click **[OK]**. The new sounds are used from then on.

7.12.2. Sound hardware and music

Sound driver

The sound hardware DVX uses. The list has **Automatic**, which finds it by itself (the usual choice), and then the sound drivers that are installed:

Driver	Sound hardware
wss	A Windows Sound System card.
sb	A Sound Blaster.

Driver	Sound hardware
gus	A Gravis UltraSound.
lpt	A small sound device plugged into the printer port: a Covox Speech Thing, a Disney Sound Source, or a Stereo-on-1.
speaker	The PC speaker.
null	No sound at all.

MIDI music

Where MIDI music plays:

- **Automatic**, the usual choice: the recorded instruments of a Gravis UltraSound or Sound Blaster AWE card when it has them, else the music chip on the sound card, else DVX's own synthesizer, which sounds much the same as the chip.
- **MIDI port (MPU-401)**: an external synthesizer connected to the sound card's MIDI port.
- **FM synthesizer chip**: the music chip on the sound card.
- **Built-in synthesizer**: DVX's own synthesizer.
- **Built-in SoundFont synthesizer**: recorded instruments played by the computer itself, on any sound card. It needs more memory and a faster computer.

MIDI in

Where MIDI input comes from, for programs that read a MIDI keyboard, such as Sound Recorder (see Section 8.8): **None** (the usual setting) or **MIDI port** (the MPU-401 port on the sound card, or one like it).

Modules

Where music modules (MOD, S3M, XM, and IT files) play. **Wavetable synthesizer when free**, the usual setting, plays them on the voices of a Gravis UltraSound or Sound Blaster AWE card when no other music is playing there and the module fits in the card's memory, which takes the computer little time; otherwise the computer mixes them itself. **Mixed in software** always has the computer mix them, which takes much more of a slow computer's time but plays every effect a module has.

Instruments

The instrument sounds MIDI music uses on the music chip and in the built-in synthesizer: **Standard** (DVX's own set, the usual setting), or another instrument bank. DVX also comes with two other banks, whose names in the list include DMXOPL and DMXOPL3. A bank installed by an add-on is shown by the add-on's name; one you put in the BANKS folder of your USER folder, by its file name.

SoundFont

The recorded instruments MIDI music uses on a Gravis UltraSound or Sound Blaster AWE card, and in the built-in SoundFont synthesizer: **Standard** (DVX's General MIDI SoundFont, an add-on that Software offers; see Section 10.3), a SoundFont you put in the BANKS folder of your USER folder, **Gravis UltraSound patches** (the card's own instruments, when its software is installed), or **Sound Blaster AWE ROM instruments** (the instruments built into the card, when Creative's software is installed). Without the Standard SoundFont, the card's own instruments are used when it has them.

[Test] (beside Instruments and SoundFont)

Plays a short tune on piano, guitar, violin, trumpet, and flute, using the instruments shown in that row, so you can hear them before you choose. You do not need to click **[OK]** first. If the tune cannot be played, a box titled **Instruments** says why.

Under these settings, a line says which sound hardware DVX is using now ("Sound device:" followed by its name), or "Sound device: none running". The last line is a reminder: "Sound driver and MIDI changes take effect when DVX next starts."

A new **Instruments**, **SoundFont**, or **Modules** choice is used by the next music that starts after you click **[OK]**. A new **Sound driver**, **MIDI music**, or **MIDI in** choice takes effect the next time DVX starts.

7.12.3. Choosing the sound device and MIDI music

1. Click the **Sounds** tab.
2. Choose your sound hardware in **Sound driver**, or leave it at **Automatic**.
3. Choose where MIDI music plays in **MIDI music**. If you have a MIDI keyboard, set **MIDI in** to **MIDI port**.
4. Click **[OK]**.
5. Exit DVX and start it again. The **Sound device** line on the Sounds page then names the sound hardware in use.

7.12.4. Choosing and testing instruments

1. Click the **Sounds** tab.
2. Choose an instrument bank in **Instruments** (for the music chip and the built-in synthesizer) or a SoundFont in **SoundFont** (for UltraSound and AWE cards and the built-in SoundFont synthesizer).
3. Click the **[Test]** beside it to hear the instruments. Try others until you find the one you like.
4. Click **[OK]**. The next music that starts uses them.



A few sound settings are not on this page. The mixing rate, the number of voices, what is connected to the MIDI port, and the settings of a Windows Sound System card or of a sound device on the printer port are kept in DVX.INI (see Section B.2). A Sound Blaster's port, IRQ, and DMA come from the BLASTER setting in AUTOEXEC.BAT, and a Gravis UltraSound's from the ULTRASND setting. See also Section 11.7.

7.13. Settings that are not in Control Panel

Control Panel has no page for the keyboard's repeat rate, the date and time, or the choice of fonts. Set the date and time with the DOS `DATE` and `TIME` commands before you start DVX. The only font setting is **Smooth the edges of text**, on the Video page.

Chapter 8. The Standard Programs

DVX comes with a set of programs for everyday work: a file manager, a text editor, a clock, a picture viewer, a help viewer, and more. This chapter describes each one: what it is for, how to start it, its window, its menus and keys, and how to do the common tasks. Program Manager, Control Panel, Software, Terminal, and the Task Manager have chapters or sections of their own (see Section 8.2.7).

8.1. Which programs you have

Some programs are part of DVX itself and are always installed. Others come with an optional part, which you choose on Setup's **What to install** page (see Section 3.5) or add later with Software (see Section 10.9). The table shows which part brings each program.

Program	What it is for	Comes with
File Manager	Browse, copy, move, rename, and delete files and folders	DVX (always installed)
Notepad	A simple text editor	DVX
Clock	A digital clock with the date	DVX
Image Viewer	Shows BMP, PNG, JPEG, and GIF pictures	DVX
DVX Help	Shows help: the DVX user guide and each program's own help	DVX
Welcome	Introduces DVX when it starts for the first time	DVX
The screen savers: Blank Screen, Marquee, Mystify, and Starfield	Cover the screen while the computer is not used	DVX
Program Manager, Control Panel, and Software	The desktop, the settings, and add-on software	DVX
Media Player	Plays music modules, MIDI files, and WAV and VOC sounds from a list	Media
Sound Recorder	Records sound from a microphone, a line input, or a CD into WAV files, and a MIDI keyboard into MIDI files	Media
Terminal	Connects to other computers and bulletin boards by serial cable, modem, secure link, or Telnet, with file transfers	Communications (Telnet and the secure link over a network also need Networking)

Program	What it is for	Comes with
DVX BASIC	Write your own programs	DVX BASIC
Icon Editor, Resource Editor, Help Editor, Package Builder, and Widget Showcase	Tools for people who make programs, help files, and add-on packages	Developer Tools
DVX Demo and BASIC Demo	Show what DVX and DVX BASIC can do	Demos

8.2. What all programs share

8.2.1. Starting a program

Every installed program except Program Manager itself has an icon in Program Manager's **Installed Programs** group, in alphabetical order. Double-click the icon to start the program. When you select an icon, the status bar shows a one-line description of the program. You can also start a program by opening one of its documents (see Section 8.2.4), or with Program Manager's **File › Run…** command (see Section 6.7).

8.2.2. Help for every program

Press `F1` for help about the program whose window is active. A program that has no help of its own opens the DVX user guide instead. If DVX Help is already open, the page appears in that window and the window comes to the front. See Section 5.11 and Section 8.9.

Most programs also have a Help menu. Its **Contents** item opens the program's help, the same as `F1`. Its **About** item shows a small box with the program's name, what it does, and its copyright; click **[OK]** to close it.

8.2.3. One copy or several

Most programs run only once at a time. If you start one of them again while it is running, DVX shows a box titled **Error** that says "*file* is already running.", where *file* is the name of the program's file. Switch to the open window instead, with `Alt` + `Tab` or the Task Manager (see Section 5.10). To open another document in Notepad or Image Viewer, use the **Open** command of the copy that is running. Media Player is different: a music file you open while it runs is added to its list (see Section 8.7.2). So is Software: a package (`.DPK` file) you open while it runs is installed by the open Software (see Section 10.3.1).

These programs can run several times at once, each in a window of its own: File Manager, Clock, Terminal, and DVX Help.

8.2.4. Opening documents

When you double-click a document in File Manager, or open one from Program Manager, DVX starts the program set for that kind of file and opens the document in it. As DVX is installed, these are:

Files ending in	Open in
.TXT and .INI	Notepad
.BMP, .JPG, .PNG, and .GIF	Image Viewer
.MOD, .S3M, .XM, .IT, .MID, .RMI, .WAV, and .VOC	Media Player
.HLP	DVX Help
.BAS, .DBP, .FRM, .CLS, and .CTL	DVX BASIC
.DHS	Help Editor
.DPK	Software

You can change the list on the File Types page of Control Panel (see Section 7.8).

8.2.5. Settings the programs remember

A program that remembers settings keeps them in a file in its own folder inside your user folder. For example, Media Player keeps `PLAYER.INI` in `USER\APPS\KPUNCH\PLAYER` in the DVX folder. Your DVX settings, which you make in Control Panel, are kept in `DVX.INI` in the `USER` folder. See Section B.1. The section on each program says what it remembers.

8.2.6. Menus and keys

Menus work the same in every program (see Section 5.4). A menu item with a round mark is one choice of a group: choosing it clears the others in the group. An item with a check mark turns on or off each time you choose it. A key shown at the right of a menu item is its shortcut. Each program's section lists its keys and says where they work.

A program whose window cannot be resized, such as Clock or Sound Recorder, has no maximize button.

8.2.7. Programs described elsewhere

- Program Manager, the desktop where you start programs: Program Manager.
- Control Panel, for the mouse, colours, desktop, video mode, file types, network, printer, game controllers, and sounds: Control Panel.
- Software, which installs, updates, and removes add-ons: Section 10.2.

- Terminal, which connects to other computers by serial cable, modem, secure link, or Telnet: Terminal.
- The Task Manager, which lists the running programs (`Ctrl` + `Esc`): Section 5.10.

8.3. File Manager

File Manager shows the files and folders on your disks and lets you open, copy, move, rename, and delete them. It is part of DVX and always installed.

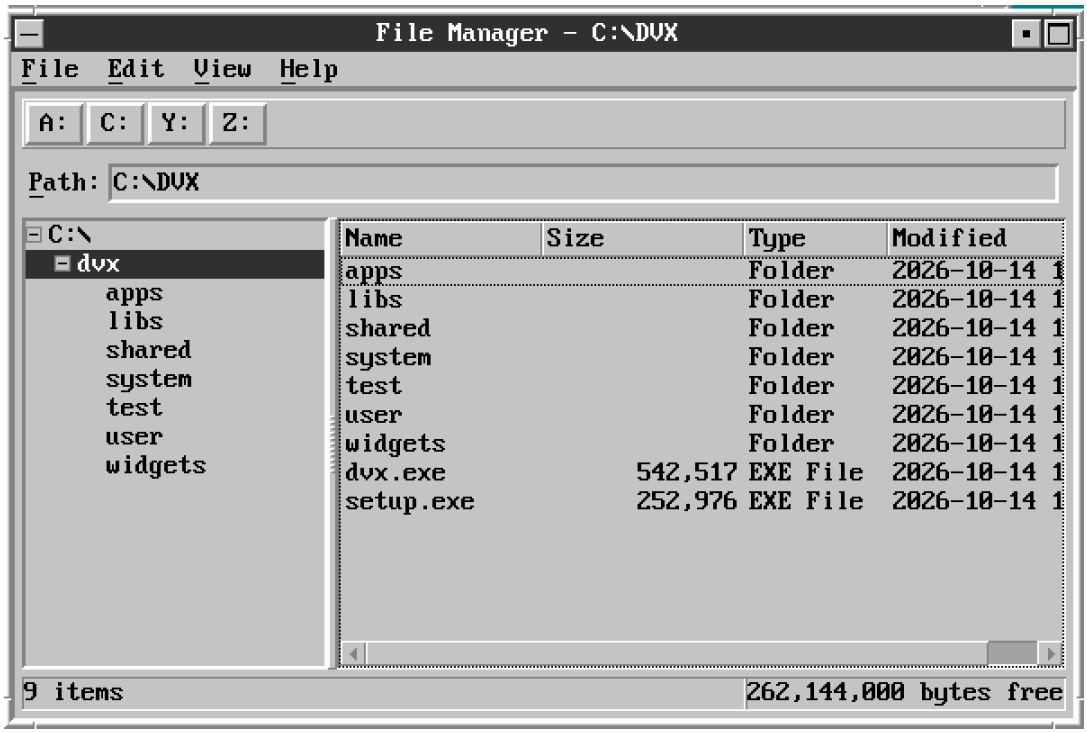


Figure 36. The File Manager window

8.3.1. Starting File Manager

Double-click **File Manager** in Program Manager, or click **[Browse your files]** in the Welcome window. File Manager opens on the current folder. A Program Manager item can name the folder to open in its arguments (see Section 6.4). If File Manager cannot show that folder, it says so and shows the top folder of the drive DVX is on instead.

You can have several File Manager windows open at once, for example one on the folder you copy from and one on the folder you copy to. Choose **File › New Window** to open another window on the folder you are looking at, or start File Manager again from Program Manager. Each new window opens a little lower and further right for every File Manager window already open.

8.3.2. The File Manager window

From top to bottom, the window has these parts:

Part	What it shows
Title bar	"File Manager -" and the folder you are looking at, for example **File Manager - C:\DVX**. While a filter is on, the filter follows the folder (see Section 8.3.8).
Menu bar	The File, Edit, View, and Help menus.
Drive bar	One button for each drive, such as **[A:]** and **[C:]**.
Path bar	The **Path** box, with the folder you are looking at. Type another folder here and press `Enter` to go to it.
Folder tree (left)	The folders from the top of the drive down to the current folder, the folders beside each one on the way, and the current folder's own folders. Click a folder, or move to it with the arrow keys, to show what it holds.
File list (right)	The folders and files in the current folder, in the columns Name, Size, Type, and Modified. Folders come first.
Status bar	On the left, how many items the folder holds ("*N* items"), or, when you have selected some, "*S* of *N* selected (*B* bytes)". On the right, the free space on the drive: "*free* bytes free".

The drive bar has a button for every drive the computer has, even an empty floppy or CD-ROM drive. On a computer whose one floppy drive answers to both A: and B:, only one of the two letters is shown, usually A:. Clicking a drive button goes to that drive's current folder, the folder DOS is set to on that drive, which is not always its top folder. If the drive has no disk in it, File Manager shows "Cannot open *path*." and "The folder does not exist or the drive is not ready."

In the file list, **Size** is in bytes with commas between thousands (1,234,567) and is blank for a folder. Files and disks over 2 GB, such as on a FAT32 disk, show their full size. **Type** says "Folder", "Program" (a DVX program, whose name ends in .APP), the file's ending followed by "File" (for example "TXT File" or "EXE File"), or just "File" when the name has no ending. **Modified** is the date and time the item last changed, as year-month-day and hours:minutes (2026-10-14 09:30). Hidden and system files are listed too.

The list has no ".." entry. To go up to the folder that holds this one, press `Backspace` or choose **View › Up One Level**.

The list starts sorted by name. Click a column heading to sort by that column, and click it again to reverse the order. You can also use the **Sort by** items on the View menu, and **Descending** to reverse. Folders always stay above the files. Drag the line between two column headings to change a column's width, and drag the bar between the folder tree and the file list to share the width between them.

8.3.3. Choosing files

Most commands work on the files and folders you select in the file list:

- Click an item to select it.
- Hold `Ctrl` and click to add an item to the selection, or to take it out.
- Hold `Shift` and click to select every item between the last one you clicked and this one.
- Press the arrow keys to move the highlight, and `Shift` with an arrow key to select as you go. Moving without `Shift` leaves the selection as it is.
- Press `Space` to select or unselect the highlighted item.
- Press `Ctrl` + `A`, or choose **Edit › Select All**, to select everything.
- Choose **Edit › Invert Selection** to select what was not selected and unselect the rest.
- Type a letter to jump to the next item whose name starts with that letter. Typing the letter again goes on to the next one, round to the top of the list.

When nothing is selected, a command works on the highlighted item.

When the folder tree has the focus, Rename, Delete, Copy, Cut, Properties, Copy To, and Move To work on the folder chosen in the tree. They do nothing on the top folder of a drive. Open does nothing while the tree has the focus.

8.3.4. Opening files and starting programs

Double-click an item, or select it and press `Enter`, or choose **File › Open**:

- A folder opens in the same window.
- A DVX program (a file ending in .APP) starts.
- A DOS program (a file ending in .EXE, .COM, or .BAT) runs with DVX stepped aside. First a box titled **Run DOS Program** says “Running *program* closes these programs first:”, lists the programs that are open, and asks “Each one asks about unsaved work as it closes. Continue?” File Manager itself is one of them. Click **[Yes]** to go on. When the DOS program ends, DVX comes back with Program Manager. See Section 5.15.
- Any other file opens in the program set for its kind of file (see Section 8.2.4).

If no program is set for that kind of file, File Manager says “No program is set to open *EXT* files.” (or “these files” for a file with no ending) and “File types are set in the Control Panel.” Set one on Control Panel’s File Types page (see Section 7.8). If the program cannot open the file, you see “*name* could not be opened.”

8.3.5. Copying and moving files and folders

There are two ways to copy or move files and folders. Folders are always copied or moved with everything in them.

To copy or move with the Copy To and Move To commands:

1. Select the files and folders.
2. Press `F8`, or choose **File › Copy To...**, to copy them. Press `F7`, or choose **File › Move To...**, to move them.
3. A Choose a Folder box opens on the current folder. Its title says what you are doing, for example **Copy REPORT.TXT To** or **Move 3 Items To**. Go into the folder the items should go to (see Section 5.6). To put them in a new folder, type its name in the **Folder name** box: File Manager makes it.
4. Click **[OK]**.

To copy or move between two File Manager windows, with the clipboard:

1. Choose **File › New Window**, and in the new window go to the folder the items should go to.
2. In the first window, select the files and folders. Choose **Edit › Copy** (`Ctrl` + `C`) to copy them, or **Edit › Cut** (`Ctrl` + `X`) to move them.
3. In the second window, choose **Edit › Paste** (`Ctrl` + `V`).

You can also paste in the same window after going to another folder. Copied files can be pasted again in other folders. After you paste files you cut, the clipboard is emptied.

Copy and Cut put the list of files on the DVX clipboard as text, so pasting into a text editor such as Notepad gives a first line `DVX-FILES COPY` (or `DVX-FILES CUT`) and then the full path of each file. You cannot drag files from one window or folder to another.

If you paste when the clipboard holds no files, a box titled **Paste** says “The clipboard holds no files. Use Copy or Cut in a File Manager window first.” If the folder you chose cannot be made, a box says “The folder *folder* cannot be made, or its drive is not ready.”

Each copy, move, or delete runs in a small window of its own, titled **Copying**, **Moving**, or **Deleting**, while you go on working. It shows the item being worked on, a bar that shows how far along the job is, and “*N* of *M* files”. Click **[Cancel]**, or close the window, to stop. A file that was only partly copied is removed; everything finished before that stays done. When the job ends, File Manager shows the folder again.

If the folder you copy or move to already has a file with the same name, a box says “*destination* already exists.” and asks “Replace it with *source*?”:

Button	What it does
[Yes]	Replace that file.
[No]	Keep the file that is there, and skip this one.
[Yes to All]	Replace this file and every other one without asking again.
[Cancel]	Stop the job.

If a file cannot be read or written, for example because the disk is full or write-protected, or was taken out of the drive, a box says what went wrong, such as “Cannot read *path*.”, “Cannot write *path*.”, or “Cannot create folder *path*.”, followed by the reason. The reason is usually one of “The disk is full.”, “Access denied (the file may be read-only or in use, the disk write-protected or not ready).”, “The file or folder was not found.”, “The path is too long.”, or “A file or folder with that name already exists.” Choose **[Retry]** to try again (for example after putting the disk back), **[Skip]** to leave this item out and go on, or **[Cancel]** to stop. In these boxes `Enter` presses the first button, and `Esc` or closing the box chooses **[Cancel]**.

A folder cannot be copied or moved into itself or into one of its own folders, and a file or folder cannot be copied into the folder it is already in; File Manager tells you if you try (“*path* cannot be copied onto itself.”, “*path* cannot be copied into itself.”, or “*path* cannot be moved into itself.”).

Some details of copying and moving:

- A copy keeps the date and attributes of the original, with the Archive attribute set.
- Moving to another folder on the same disk is quick, unless a file of the same name is there already. Moving to another disk copies the items and then removes the originals.
- Moving an item to the folder it is already in does nothing.
- When you skip some files while moving a folder, the folder itself is not removed.
- If an item cannot be found, or its new path would be too long, File Manager says “*path* cannot be found, or the destination path would be too long. It is skipped.”

8.3.6. Making folders, renaming, and deleting

To make a folder:

1. Go to the folder that should hold the new one.
2. Choose **File › New Folder…**.
3. In the **New Folder** box, type the name of the new folder over the suggested one. The suggestion is New Folder on a disk that takes long names and NEWFOLDR on one that does not.
4. Press `Enter`. File Manager makes the folder and selects it.

To rename a file or folder:

1. Select one file or folder.
2. Press `F2`, or choose **File › Rename...**.
3. In the **Rename** box ("New name for *old name*:"), type the new name.
4. Press `Enter`.

If more than one item is selected, File Manager says "Select one file or folder to rename." You can rename an item just to change the capitals in its name, or to its own short 8.3 name (the name DOS shows for it, such as `LONGNA~1.TXT`), which then takes the place of its long name. A name in capitals that fits the 8.3 form is shown in small letters (see Section 11.12.3).

To delete files and folders:

1. Select them.
2. Press `Del`, or choose **File › Delete**.
3. File Manager asks "Delete *path*?" (for one item) or "Delete these *N* items?". Click **[Yes]**.

Folders are deleted with everything in them. If a file is read-only, File Manager asks again: "*path* is read-only." and "Delete it anyway?", with **[Yes]**, **[No]**, **[Yes to All]**, and **[Cancel]**.



File Manager removes deleted files and folders from the disk at once. It does not keep them anywhere, so you cannot get them back from File Manager. Check the selection before you click **[Yes]**.

8.3.7. File and folder names

What a name may be depends on the disk:

- On a disk that takes long file names (when a long file name driver such as DOSLFN was loaded before DVX), a name can have up to 255 characters, including spaces, several dots, and the characters + , ; = [ ], for example Letter to Mom.final.txt. It cannot end with a dot or a space.
- Otherwise names follow the DOS rules: one to eight characters, then, if you like, a dot and up to three more (for example REPORT.TXT). Spaces and + , ; = [ ] are not allowed.
- On every disk the characters `" * / : < > ? \ |` and device names such as CON, PRN, or LPT1 are not allowed.

When a name is not allowed, a box titled **New Folder** or **Rename** says why: "Filename must not be empty.", "Filename must be 255 characters or fewer.", "That name is reserved.", "Filename contains invalid characters.", "Filename must not end with a dot or a space.", "That name is a reserved device name.", "Filename must be 1-8 characters before the extension.", "Filename may

contain only one dot.”, “Extension must be 3 characters or fewer.”, or “The name is too long for this folder.” Other problems show “Cannot create *name*.” or “Cannot rename *old* to *new*.” with the reason.

8.3.8. Showing only some files

To list only some of the files in a folder:

1. Choose **View › Filter...**.
2. In the **Filter** box (“Show only files matching:”), type a pattern, such as `*.TXT`. A `*` stands for any characters and a `?` for any one character; capitals do not matter. To give several patterns, separate them with semicolons, commas, or spaces, for example `*.TXT;*.BAT`.
3. Press `Enter`.

Folders are always listed. While a filter is on, the title bar shows it after the folder, for example `File Manager - C:\DOCS\*.TXT`. To show every file again, choose **View › Filter...** and type `*.*`, or leave the box empty.

8.3.9. Properties and attributes

Select one or more items and press `Alt` + `Enter`, or choose **File › Properties**. The **Properties** box shows:

Line	What it shows
Name	The item’s name, or the number of items selected.
Location	The folder that holds the item (the first item, when several are selected).
Size	The total size in bytes, counting everything inside folders. If some items could not be read, it says “(some items could not be read)”.
Contains	How many files and folders there are.
Modified	The date and time the item last changed. This line is there only when one item is selected.

A big folder takes a while to count. Until the count is done, the size and the numbers grow and are marked “so far”. You can change the attributes or close the box meanwhile.

The **Attributes** frame has four check boxes:

Read-only

The file cannot be changed or deleted by programs until this is cleared.

Hidden

The file is left out of normal DOS directory listings. (File Manager still lists it.)

System

The file belongs to the operating system.

Archive

The file has changed since it was last backed up.

When several items are selected, the boxes start as they are for the first one. Click **[OK]** to give every selected item the four attributes as the boxes show them, or **[Cancel]** (`Esc`) to leave them as they were. If some cannot be changed, a box says "The attributes of some items could not be changed."

8.3.10. File Manager menus

The File Manager menus and their keys:

Menu	Item	Key	What it does
File	Open	`Enter`	Opens the highlighted item (see Section 8.3.4).
File	New Folder…		Makes a folder in the current folder.
File	Copy To…	`F8`	Copies the selection to a folder you choose.
File	Move To…	`F7`	Moves the selection to a folder you choose.
File	Rename…	`F2`	Renames the one selected item.
File	Delete	`Del`	Deletes the selection, after asking.
File	Properties	`Alt` + `Enter`	Shows the size, date, and attributes of the selection.
File	New Window		Opens another File Manager window on this folder.
File	Exit		Closes this File Manager window.
Edit	Cut	`Ctrl` + `X`	Puts the selection on the clipboard, to be moved.
Edit	Copy	`Ctrl` + `C`	Puts the selection on the clipboard, to be copied.
Edit	Paste	`Ctrl` + `V`	Copies or moves the files on the clipboard into the current folder.
Edit	Select All	`Ctrl` + `A`	Selects everything in the file list.

Menu	Item	Key	What it does
Edit	Invert Selection		Selects what was not selected and unselects the rest.
View	Refresh	F5	Reads the folder again, to show changes made elsewhere.
View	Filter…		Shows only the files that match a pattern.
View	Up One Level	Backspace	Goes to the folder that holds this one.
View	Sort by Name, Sort by Size, Sort by Type, Sort by Date		Sorts the list by that column (round mark; Name at first).
View	Descending		Reverses the order (check mark).
Help	Contents	F1	Opens the File Manager help.
Help	About File Manager…		Shows the program's name and copyright.

8.3.11. File Manager keys

These keys work in File Manager:

Key	What it does
Enter	In the file list, opens the highlighted item. In the **Path** box, goes to the folder typed there.
Backspace	Goes up one folder (in the file list or the folder tree).
Del	Deletes the selection (in the file list or the folder tree).
F2	Rename.
F5	Refresh.
F7	Move To.
F8	Copy To.
Alt + Enter	Properties.
Ctrl + A, Ctrl + C, Ctrl + X, Ctrl + V	Select all, copy, cut, and paste files, when the file list has the focus.
Space	Selects or unselects the highlighted item.
Shift with an arrow key	Selects as you move.

Key	What it does
Letters	Typed quickly, one after another, jump to the item whose name starts with them; the same letter again jumps to the next item starting with it (see Section 5.5.3.6).
`F1`	Help.

In the **Path** box, `Del`, `Backspace`, and the `Ctrl` keys edit the text instead. When the folder tree has the focus, `Del`, `Ctrl` + `C`, and `Ctrl` + `X` delete, copy, or cut the folder chosen in the tree, `Ctrl` + `V` pastes into it, and `Backspace` goes up a level.

8.3.12. Closing File Manager

Choose **File › Exit**, or close the window. If a copy, move, or delete is still running, File Manager says “File operations are still running.” and asks “Stop them and close?” Click **[Yes]** to stop them and close, or **[No]** to keep the window open.

File Manager does not remember its settings: each window starts sorted by name, with no filter. If there is not enough memory to start a copy, move, or delete, File Manager says “Not enough memory to start the operation.”

8.4. Notepad

Notepad is a simple text editor for notes, lists, letters, and small text files such as settings files and batch files. It is part of DVX and always installed.

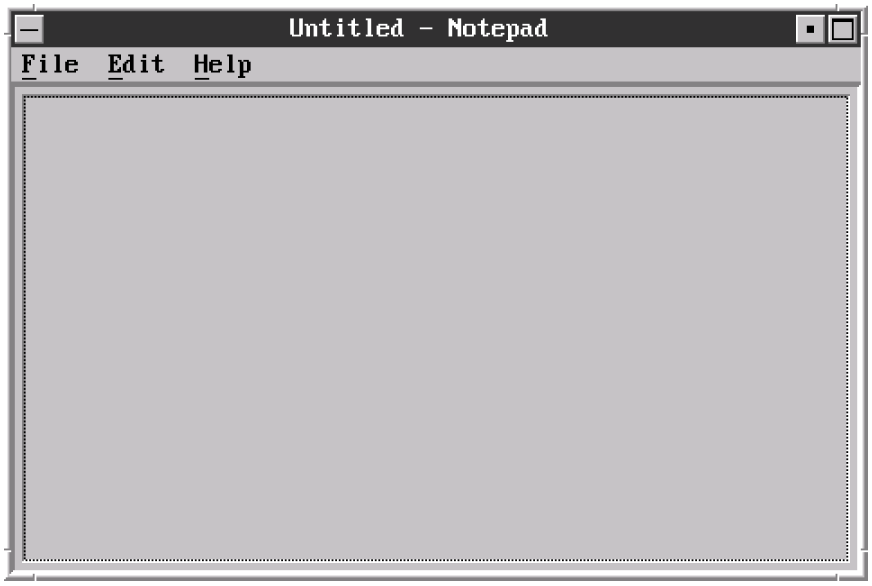


Figure 37. Notepad with a new, empty page

8.4.1. Starting Notepad

Double-click **Notepad** in Program Manager. To start Notepad with a file open, double-click a .TXT or .INI file in File Manager or Program Manager, or give the file's name in the arguments of a Program Manager item (see Section 6.4).

Only one Notepad runs at a time. While Notepad is open, opening a text file from File Manager or Program Manager shows the "already running" message (see Section 8.2.3); use **File › Open...** in Notepad instead.

8.4.2. The Notepad window

The title bar shows the file's path followed by "- Notepad", or **Untitled - Notepad** for a new page. While there are changes you have not saved, an asterisk and a space come first, as in *** Untitled - Notepad**. Below the menu bar (File, Edit, and Help), the typing area fills the window. You can resize and maximize the window.

Notepad does not wrap lines: a long line goes on past the right edge, and the page scrolls sideways to show it. The `Tab` key puts a tab in the text, with tab stops every four characters.

8.4.3. Typing and editing

These keys and mouse actions work in the typing area:

Key or action	What it does
Arrow keys	Move one character or one line.
`Ctrl` + `Left`, `Ctrl` + `Right`	Move one word.
`Home`, `End`	Move to the start or end of the line.
`Page Up`, `Page Down`	Move one screenful.
`Ctrl` + `Home`, `Ctrl` + `End`	Move to the start or end of the text.
`Shift` with any of these keys, or drag with the mouse	Select text.
Double-click, triple-click	Select a word, or a whole line.
`Ctrl` + `A`	Select all the text.
`Ctrl` + `X`, `Ctrl` + `C`, `Ctrl` + `V`	Cut, copy, and paste.
`Ctrl` + `Z`	Undo the last change. Press it again to redo the change.
`Tab`	Put a tab in the text.
Mouse wheel, scroll bars	Move through a long text.
`F1`	Help.

The Edit menu has the same Cut, Copy, Paste, and Select All commands. The clipboard is shared by all programs, so you can copy text in Notepad and paste it into another program (see Section 5.7).



Notepad has no Find, Replace, Word Wrap, or Font command, and no Undo item on its menus (use `Ctrl` + `Z`).

8.4.4. Opening and saving files

Notepad uses the Open and Save As boxes that every program shares (see Section 5.6).

To write and save a new file:

1. Type your text.
2. Choose **File › Save**. The first time, this works like Save As.
3. In the **Save As** box, go to the folder you want, type a name in the **File name** box, and click **[Save]**. If you leave off the ending, the box adds the one from its **Filter** (.txt).

To open a file:

1. Choose **File › Open...**.
2. The **Open** box first lists text files (`Text Files (*.txt)`). For any other file, such as an .INI or .BAT file, choose `All Files (*.*)` in the **Filter** box.
3. Pick the file and click **[Open]**. If you type the name of a file that does not exist, the box says so and lets you choose again (see Section 5.6): to start a new file, choose **File › New** instead, and give it its name when you save it.

To save a copy under another name, choose **File › Save As...**. Notepad then works with the new file. To start a new, empty page, choose **File › New**.

When you choose New, Open..., or Exit, or close the window, while there are changes you have not saved, a box titled **Notepad** asks “Save changes?”:

- **[Yes]** saves first. If the save fails or you cancel it, Notepad stays as it was.
- **[No]** throws the changes away.
- **[Cancel]** goes back to the text.

8.4.5. File size and line ends

A new page holds up to 65,536 characters. When you open a file, Notepad makes room for the whole file and 65,536 more characters, up to 262,144 characters in all. A file bigger than that is not opened at all: Notepad says “*path* is too big for Notepad.” and keeps the text you had.

Notepad reads files whose lines end either in a carriage return and a line feed (as most DOS programs write them) or in a line feed only. It saves every line with a carriage return and a line feed, as DOS text files have them, and adds a line end after the last line.

Notepad writes the whole text into a new file beside the old one first, and puts it in the old one's place only when all of it was written. A save that fails, because the disk is full for example, leaves the file on the disk as it was. While it saves, the disk needs room for both copies. A read-only file is never replaced.

Notepad is made for plain text. A file that holds characters no text has (NUL characters, as in a program or a picture) is not opened: Notepad says "*path* is not a text file, so Notepad did not open it." and keeps the text you had.

8.4.6. Printing from Notepad

Before you print, make sure your printer's model is chosen on the Printer page of Control Panel (see Section 7.10).

To print the text:

1. Choose **File › Print...**.
2. In the **Print** box, check **Print to** and **Copies**, and choose the pages.
3. Click **[Print]**.

The **Print** box has these settings:

Setting	What it does
Print to	Where the printout goes: LPT1, LPT2, LPT3, COM1, COM2, COM3, COM4, or File. It starts at the port set in **Connected to** on the Printer page of Control Panel; a choice made here is used for this printout only.
File name and **[Browse...]**	When **Print to** is File, the file to print to; it starts with the file name set on the Printer page of Control Panel, and is grayed for the other choices. A name without a folder, such as `PRINTER.PRN`, is in your USER folder. **[Browse...]** opens a box titled **Print to File** that lists `Printer Files (*.prn)` and starts in the folder of the file.
Copies	How many copies, 1 to 99.
Pages	**All** (with the number of pages), or **These pages From** one page **to** another.
Printer model	The model chosen in Control Panel, shown as "Printer model: *model*".

If you choose File and leave the name empty, the box says "Type the name of the file to print to." If the first page comes after the last one, it says "The first page to print comes after the last one."

While Notepad prints, a small window titled **Printer** says “Printing *what* on *where*…”. Click its **[Cancel]** button to stop. If the printer has a problem, for example it is out of paper, a box asks you to choose **[Retry]** or **[Cancel]**. If printing fails, you see “The document could not be printed.”

File › Page Setup… sets how text is laid out on the paper. These settings are saved for next time, and other programs that print text use them too.

Setting	What it does
Lines per page	How many lines fit on a sheet: 0, or 10 to 200. 0 means the printer’s usual page length.
Characters per line	How many characters fit across, 20 to 255.
Top margin (lines), **Bottom margin (lines)**	Blank lines at the top and bottom of each page, 0 to 200.
Left margin, **Right margin**	Blank characters at the left and right, 0 to 255.
Tab width	The space between tab stops in the printout, 1 to 16.
Header, **Footer**	A line printed at the top or bottom of every page.
Wrap long lines (otherwise they are cut off)	When ticked, a line too long for the page goes on to the next line; when clear, the rest of it is not printed.

The header and footer can hold these codes:

Code	What it prints
`&f`	The file’s name with its path, or “Untitled” for a page not yet saved.
`&p`	The page number.
`&n`	The number of pages.
`&d`, `&t`	The date and the time.
`&l`, `&c`, `&r`	Put what follows at the left, in the centre, or at the right.

For example, the footer `&cPage &p of &n` prints “Page 1 of 3” in the middle of the first page of three, and the header `&l&f&rPage &p` prints the file name at the left and the page number at the right. If the settings cannot work together, a box titled **Page Setup** says why, and you can change them.

8.4.7. Notepad menus

None of Notepad’s menu items has a shortcut key; the editing keys work in the typing area (see Section 8.4.3).

Menu	Item	What it does
File	New	Starts a new, empty page (asks to save changes first).
File	Open…	Opens a file (asks to save changes first).
File	Save	Saves to the current file; the first time, asks for a name.
File	Save As…	Saves under a new name, and goes on working with the new file.
File	Page Setup…	Sets how printed pages are laid out.
File	Print…	Prints the text.
File	Exit	Closes Notepad (asks to save changes first).
Edit	Cut, Copy, Paste	Cut or copy the selected text, or paste at the cursor.
Edit	Select All	Selects all the text.
Help	Contents	Opens the Notepad help.
Help	About Notepad…	Shows the program's name and copyright.

Notepad remembers nothing of its own between uses. The Page Setup settings are DVX's shared printing settings, and the **Print** box starts each time with the printer port set on the Printer page of Control Panel.

8.4.8. Notepad messages

Notepad may show these messages, in boxes titled **Notepad**:

- "Could not open *path* (error *N*)." The file could not be read; the text you had stays.
- "Could not save *path* (error *N*)." The file could not be written or replaced, for example because it is read-only (error 75), its folder does not exist (error 76), or the disk is full (error 61); see Section 11.12 for the other numbers. The text stays unsaved, and the asterisk stays in the title bar. The file on the disk is left as it was: save again on another disk, or after making room.
- "*path* is not a text file, so Notepad did not open it." The file holds characters no text has (see Section 8.4.5).
- "*path* is too big for Notepad." The file is bigger than Notepad can hold (see Section 8.4.5).

8.5. Clock

Clock shows the time and today's date in a small window. It is part of DVX and always installed.

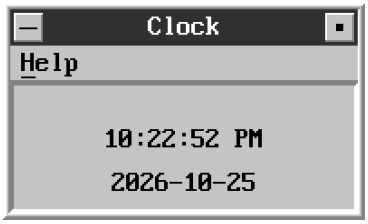


Figure 38. The Clock window

Double-click **Clock** in Program Manager. The window opens near the top right corner of the screen. The time is shown with hours from 1 to 12 and AM or PM, such as 3:07:42 PM, and the date as year-month-day, such as 2026-09-27. Both change every second.

You can run more than one Clock. Each new Clock opens a little lower and further left for every Clock already open; when the next one would run off the screen, it goes back to the corner.

The time and date come from the computer's clock. To correct them, use the DOS `TIME` and `DATE` commands before you start DVX. Clock has no settings: there is no 24-hour display, alarm, or clock face.

The Clock window cannot be resized, so it has no maximize button. You can move it, minimize it, and close it; closing it ends that Clock. Its only menu is Help, with **Contents** (`F1`), which opens the Clock help, and **About Clock...**, which shows the program's name and copyright.

8.6. Image Viewer

Image Viewer shows pictures saved as BMP, PNG, JPEG, or GIF files. It never changes the picture file. It is part of DVX and always installed.

8.6.1. Starting Image Viewer

Double-click **Image Viewer** in Program Manager. To start it with a picture, double-click a .BMP, .JPG, .PNG, or .GIF file in File Manager or Program Manager, or give the picture's name in the arguments of a Program Manager item (see Section 6.4).

Only one Image Viewer runs at a time. To look at another picture while it is open, use **File › Open...** in Image Viewer.

8.6.2. Looking at a picture

To open a picture, choose **File › Open...**, or double-click anywhere in the picture area. The **Open Image** box first lists pictures (`Images (*.bmp;*.png;*.jpg;*.gif)`); choose `All Files (*.*)` to see every file. Pick a picture and click **[Open]**.

The picture area fills the window. The title bar shows the picture's path followed by "- Image Viewer". A picture that fits is shown at its real size, in the middle. A bigger picture is shrunk to fit,

keeping its shape; a picture is never enlarged. To see a large picture in more detail, make the window bigger or maximize it. A GIF file shows its first picture only.

Image Viewer has no zoom, scroll, next picture, or rotate commands.

8.6.3. Printing a picture

The printer model chosen on the Printer page of Control Panel must be one that prints pictures (see Section 7.10). If it prints text only, a box titled **Print** says "The printer model chosen in the Control Panel prints text only. To print pictures, choose your printer's model on the Control Panel's Printer page."

To print the picture you are looking at:

1. Choose **File › Print...**.
2. In the **Print** box, choose **Print to** and **Copies**. The box is the same as Notepad's (see Section 8.4.6), without the **Pages** frame.
3. Click **[Print]**.

The picture is printed as large as fits on the page, keeping its shape, one page for each copy. On a colour printer model it prints in colour; on a model with black ink only, it prints in black dots whose spacing makes the shades.

If the printer has a problem, a box asks you to choose **[Retry]** or **[Cancel]**. If printing fails you may see "The picture could not be printed.", "Not enough memory to print the picture.", or "Cannot read the picture *path*."

8.6.4. Image Viewer menus and messages

None of Image Viewer's menu items has a shortcut key. Press `Alt` + `F` or `Alt` + `H` to open a menu from the keyboard.

Menu	Item	What it does
File	Open...	Opens a picture.
File	Print...	Prints the picture you are looking at.
File	Close	Closes Image Viewer.
Help	Contents	Opens the Image Viewer help (also `F1`).
Help	About Image Viewer...	Shows the program's name and copyright.

Image Viewer may show these messages, in boxes titled **Image Viewer**:

- "Could not load *path*." The picture could not be read. The window is left empty.

- “Open a picture first.” You chose Print… with no picture open.

Image Viewer remembers nothing between uses.

8.7. Media Player

Media Player plays music and sounds from a list, one after another: music modules, MIDI music, and recorded sounds. It comes with the Media part.



Figure 39. Media Player, ready to play

8.7.1. What Media Player plays

Media Player plays these kinds of files:

Kind	Files ending in	Notes
Music modules	.MOD, .S3M, .XM, .IT	
MIDI music	.MID, .RMI	Type 0, type 1, and type 2 MIDI files (the songs in a type 2 file play one after another). A damaged track plays up to where it breaks.
Recorded sound	.WAV	Uncompressed sound only: 8-bit or 16-bit, mono or stereo, 4,000 to 48,000 Hz. A file that was cut short plays what is there.
Recorded sound	.VOC	8-bit or 16-bit sound. Compressed (Creative ADPCM) VOC files are refused.

WAV and VOC files are read from the disk as they play, so even a long recording needs little memory. Media Player does not play music CDs.

8.7.2. Starting Media Player

Double-click **Media Player** in Program Manager. You can also double-click a music or sound file (one of the kinds above) in File Manager or Program Manager: Media Player starts and plays it.

Only one Media Player runs at a time. If it is already open when you open a music or sound file, the file is added to the end of its list (unless it is there already) and plays, and Media Player's window comes to the front. So double-clicking one file after another in File Manager builds up a list.

8.7.3. The Media Player window

From top to bottom:

Part	What it shows
Title line (bold)	"Nothing is playing" when no track is loaded. Otherwise the music's own title (modules, and MIDI files that have one), or else the file's name. The window's title bar shows it too, followed by "- Media Player".
Information line	What kind of file it is and what plays it, for example "Module (XM) - Sound device" or "MIDI music (MID) - OPL3 FM synthesizer at 388h". After a failure it shows the reason.
Position slider	Where the music is. Drag it to go to another place. It is grayed when nothing is loaded.
Time	The time played and the whole length, in minutes and seconds, such as 1:23 / 4:56.
Buttons	**[Previous]**, **[Play]** (it says **[Pause]** while music plays), **[Stop]** (grayed when nothing is loaded), and **[Next]**.
Volume	A slider from 0 to 100. It is at 100 the first time; after that, where you left it.
Track list	The files to play, by name. Without Shuffle they play in this order.

You can resize and maximize the window; the list grows with it. Rest the pointer on a slider to see what it does.

8.7.4. Playing music

To play one file:

1. Choose **File › Open...** (`Ctrl` + `O`).

2. In the **Open** box, pick the file. The box lists music and sound files first; choose `All Files (*.*)` to see every file. It starts in the folder you used last.
3. Click **[Open]**. The file plays at once and is added to the end of the list, unless it is there already.

To play a track from the list, double-click it, or select it and press `Enter`.

The controls:

Control	What it does
[Play] / **[Pause]**	Plays the selected track. While music plays the button says **[Pause]** and pauses it; click it again to go on from the same place. With nothing selected, it plays the loaded track, or else the first track to play (with Shuffle on, the first of the mixed-up order); with an empty list it does nothing.
[Stop]	Stops the music and goes back to the start of the track.
[Previous]	More than three seconds into a track, goes back to its start; otherwise goes to the track before. On the first track it starts that track again, or, with Repeat List on, goes to the last track.
[Next]	Goes to the next track. On the last track it does nothing, unless Repeat List is on.
Position slider	Drag it to go to another place in the track. Or click it and use the keys: the arrow keys move 1 second, `Page Up` and `Page Down` a tenth of the track, `Home` and `End` to the start or the end. The music jumps there once the slider has stood still a moment.
Volume	Drag it to make the music quieter or louder, or click it and use the arrow keys (1 step) or `Page Up` and `Page Down` (10 steps).

When a track ends, the next one plays. After the last track Media Player stops, unless Repeat List is on. If the next track cannot be played (when a track ends, or when you click **[Next]** or **[Previous]**), Media Player tries the one after it (or, going back, the one before), until one plays or every track has been tried. Then one message names all the tracks it could not play and says why. A track you choose yourself, by double-clicking it, with **[Play]**, or with Open…, only gives the message.

8.7.5. Making a play list

To build a list of tracks:

1. Choose **File › Add File…** to add one file to the end of the list, or **File › Add Folder…** to add every music and sound file in a folder (not in the folders inside it), sorted by name.

2. Repeat for more files and folders. A file is listed only once: Add File and Add Folder leave out files that are in the list already, and those stay where they are.
3. To change the order, select a track and press `Ctrl` + `Up` or `Ctrl` + `Down` (or choose **File › Move Up** or **File › Move Down**).
4. To take a track out, select it and press `Del` (or choose **File › Remove**). If it is the track that is loaded, the music stops, and **[Next]** then plays the track that came after it.

File › Clear List empties the list. The track that is playing goes too, so the music stops. Taking tracks out of the list never deletes the files.

Media Player remembers the list, the track you had selected, the volume, the Repeat and Shuffle choices, and the folder you last used. It saves them in `PLAYER.INI` in its folder in your user folder when it closes. The next time it starts, the list is there, ready to play.

8.7.6. Repeat and shuffle

The Play menu has three Repeat choices, one of which is always chosen, and Shuffle, which you turn on and off:

Repeat Off

Play the list once and stop. This is the choice at first.

Repeat List

After the last track, start the list again.

Repeat Track

Play the same track over and over. It takes effect at once.

Shuffle

Play the tracks in a mixed-up order, starting with the current track. Each track plays once before any plays again, unless you play one again yourself, and that holds when you add, move, or take out tracks too: tracks you add are mixed in among the ones still to come. When you pick a track yourself, the tracks that have not played yet still come later in the round. With Repeat List each new round has a new order.

8.7.7. Where the music plays

Media Player plays through your sound card, as set on the Sounds page of Control Panel (see Section 7.12). The end of the information line says what plays the music:

- Modules and recorded sounds play on any sound card that plays recorded sound (“Sound device”). With a Gravis UltraSound or a Sound Blaster AWE32 or AWE64, modules can play on the card’s own voices; the **Modules** setting on the Sounds page chooses this.

- MIDI music plays where the **MIDI music** setting on the Sounds page says: on a MIDI port (an external keyboard or sound module), on the FM synthesizer chip (for example “OPL3 FM synthesizer at 388h”), on a wavetable card, or on DVX’s own built-in synthesizers (“FM software synthesizer” or “SoundFont software synthesizer”).

A change to the sound driver or the MIDI choice takes effect the next time DVX starts. While Sound Recorder records sound, most music cannot play: music already playing waits and goes on when the recording stops, and a new track cannot start until then (Media Player gives the reason “No sound device can play this music”). MIDI music sent to a MIDI port, and modules played on the card’s own voices, can still play.

8.7.8. Media Player menus

The Media Player menus and their keys:

Menu	Item	Key	What it does
File	Open…	`Ctrl` + `O`	Opens a file and plays it at once, adding it to the end of the list unless it is there already.
File	Add File…		Adds a file to the end of the list, without playing it, unless it is there already.
File	Add Folder…		Adds every music and sound file in a folder that is not in the list yet, sorted by name.
File	Move Up	`Ctrl` + `Up`	Moves the selected track one place up.
File	Move Down	`Ctrl` + `Down`	Moves the selected track one place down.
File	Remove	`Del`	Takes the selected track out of the list (the key works in the list).
File	Clear List		Empties the list; the music stops.
File	Exit		Closes Media Player.
Play	Play / Pause	`Ctrl` + `P`	Plays, pauses, or goes on.
Play	Stop	`Ctrl` + `S`	Stops and goes back to the start of the track.
Play	Previous	`Ctrl` + `B`	The start of the track, or the track before.
Play	Next	`Ctrl` + `F`	The next track.
Play	Repeat Off, Repeat List, Repeat Track		How the list repeats (round mark).
Play	Shuffle		Plays the list in a mixed-up order (check mark).
Help	Contents	`F1`	Opens the Media Player help.

Menu	Item	Key	What it does
Help	About Media Player…		Shows the program's name, the kinds of files it plays, and its copyright.

Besides the keys in the table, `Enter` in the list plays the selected track, and `Alt` + `V`, `Alt` + `A`, `Alt` + `S`, and `Alt` + `N` press the **[Previous]**, **[Play]**, **[Stop]**, and **[Next]** buttons.

8.7.9. Media Player messages

When a track cannot be loaded or played, a box titled **Media Player** says "Media Player cannot play *file*." and gives the reason. When several tracks in a row cannot be played, one box names them all (the first five, then how many others, as in "Media Player cannot play *file*, *file*, and *n* other tracks.") and gives each reason once:

Reason	What it means
"The file could not be read"	The file is missing, or the disk cannot be read.
"Not a music or sound file (MOD, S3M, XM, IT, MIDI, WAV, or VOC)"	Media Player does not play this kind of file.
"The music file is damaged or incomplete"	The file is damaged or was cut short.
"No sound device can play this music"	Nothing set up on the Sounds page of Control Panel can play it. Check the settings there (see Section 7.12). You also see this while Sound Recorder is recording sound.
"The instrument bank for MIDI music is missing or damaged"	Check the **Instruments** and **SoundFont** settings on the Sounds page of Control Panel.
"Not enough memory"	There is not enough free memory. Close some programs and try again.
"Unsupported sound format (only uncompressed 8- and 16-bit sound can be played)"	The WAV or VOC file is compressed, or its sound is not 8-bit or 16-bit, mono or stereo, at 4,000 to 48,000 Hz.

Add Folder may also say "The folder *folder* cannot be read." or "There are no music or sound files in *folder*."

8.8. Sound Recorder

Sound Recorder records sound from your sound card's microphone, line, or CD input, plays it back, and saves it as a WAV file, which Media Player and other programs can play. It also records what you play on a MIDI keyboard into a MIDI file. It comes with the Media part.



Figure 40. Sound Recorder, ready to record

8.8.1. Starting Sound Recorder

Double-click **Sound Recorder** in Program Manager. No kind of file opens in Sound Recorder by double-clicking (WAV files open in Media Player); to play a file in Sound Recorder, use its **File › Open…** command. Only one Sound Recorder runs at a time.

8.8.2. The Sound Recorder window

The window cannot be resized. From top to bottom:

Part	What it shows
Name line (bold)	“New recording” before you record, “New recording (not saved)” after, or the name of the file you saved or opened. The title bar shows it too, followed by “- Sound Recorder”.
State line	“Recording from the microphone…” (or the line input, the CD, or the MIDI keyboard), “Playing”, or “Stopped”. If the sound card cannot record at all, it says “This computer’s sound card cannot record.”
Time	The length recorded so far, or the length of the recording, in minutes, seconds, and tenths, such as 0:12.5.
Level bar	How loud the sound coming in is. For a MIDI recording, how hard the last key was struck.
Buttons	**[Record]**, **[Stop]**, and **[Play]**. Record is grayed while recording, or when the chosen input cannot record; Stop works only while recording or playing; Play works when there is something to play and nothing else is going on.
Format line	What the sound card is really recording, such as “22,050 Hz, 8-bit, mono”, or “MIDI” for a MIDI recording. It is empty for a file you opened.

8.8.3. Recording sound

To record sound:

1. On the Options menu, choose the input: **Microphone**, **Line In** (a tape player, a radio, or another device plugged into the sound card), or **CD Audio** (a music CD in the CD-ROM drive).
2. On the Options menu, choose the quality (see below).
3. Click **[Record]**. The time counts up, and the level bar shows how loud the sound is coming in: speak or play a little louder if it barely moves, and a little softer if it stays at the end.
4. Click **[Stop]** when you are done.
5. Click **[Play]** to hear it.
6. Choose **File › Save As...** to keep it (see Section 8.8.5).

While Sound Recorder records sound, no other program can play sound on the sound card: sounds already playing wait and go on when the recording stops. Only MIDI music sent to a MIDI port, and music modules played on the card's own voices, still play. Only one recording can be made at a time in all of DVX.

If Microphone, Line In, or CD Audio is grayed on the Options menu, your sound card does not have that input (for MIDI Keyboard, see Section 8.8.4). If the input you used last time is not there, Sound Recorder chooses Microphone. If **[Record]** cannot be clicked, the sound card cannot record at all.

The quality decides how good the recording sounds and how much disk space it takes:

Options menu item	Sounds like	Space for a minute	Format
Telephone Quality	A telephone call; fine for speech	About 470 KB	8,000 Hz, 8-bit, mono
Radio Quality	An AM radio; good for speech and most sounds	About 1.3 MB	22,050 Hz, 8-bit, mono
CD Quality	A music CD, in stereo	About 10 MB	44,100 Hz, 16-bit, stereo

Radio Quality is the choice at first. Your sound card records at the nearest it can to what you choose (an older card cannot record in stereo, for example); the format line shows what it records.

Until you save it, a recording is kept in Sound Recorder's folder in your user folder, so that disk needs room for it. It is removed when Sound Recorder closes.

8.8.4. Recording a MIDI keyboard

A MIDI keyboard (or another MIDI instrument) plugged into the sound card's MIDI port can be recorded too:

1. On the Sounds page of Control Panel, set **MIDI in** to the MIDI port, click **[OK]**, and start DVX again (see Section 7.12). Until then **MIDI Keyboard** is grayed on the Options menu.
2. In Sound Recorder, choose **Options › MIDI Keyboard**.
3. Click **[Record]** and play. What you play sounds at once on the computer's music synthesizer, and the level bar shows how hard you strike the keys.
4. Click **[Stop]** when you are done, and **[Play]** to hear it again.
5. Choose **File › Save As...**. The recording is saved as a MIDI file (.MID), which takes very little disk space.

The quality does not matter for a MIDI recording, and other programs can still play sounds while you record. If nothing can play the notes, the recording still goes on, silently.

8.8.5. Saving and opening recordings

To save a recording, choose **File › Save As...** (or **File › Save**, `Ctrl` + `S`). In the **Save As** box, go to a folder and type a name. A name typed without an ending gets .wav for a sound recording or .mid for a MIDI recording. The box starts in the folder you used last. **File › Save** can be chosen only for a recording you have not saved yet. **File › Save As...** can be chosen whenever there is something to play, and saves the recording, or the file you opened, under a new name.

If you have not saved a recording, Sound Recorder asks "Save changes?" before you record again, choose New or Open..., or close it. If you choose New, Open..., or Exit while it is still recording, the recording stops first and is kept, and then you are asked. **[Yes]** opens the **Save As** box (if you cancel that, you stay where you were), **[No]** throws the recording away, and **[Cancel]** goes back.

To play a recording you made before, choose **File › Open...** (`Ctrl` + `O`), pick a WAV or MIDI file, click **[Open]**, and then click **[Play]**. The **Open** box lists `Recordings (*.wav;*.mid)` first; choose `All Files (*.*)` to open a VOC or RMI file. Sound Recorder refuses other kinds of file, such as music modules. **File › New** (`Ctrl` + `N`) starts over with no recording.

Sound Recorder remembers the quality, the input, and the folder you last used, in `RECORDER.INI` in its folder in your user folder.

8.8.6. Sound Recorder menus and keys

The Sound Recorder menus and their keys:

Menu	Item	Key	What it does
File	New	`Ctrl` + `N`	Starts over with no recording (stops a recording and asks about an unsaved recording first).
File	Open…	`Ctrl` + `O`	Opens a WAV or MIDI file to play (stops a recording and asks about an unsaved recording first).
File	Save	`Ctrl` + `S`	Saves a recording not yet saved, asking for its name.
File	Save As…		Saves the recording, or the file you opened, under a new name.
File	Exit		Stops recording or playing, asks about an unsaved recording, and closes.
Options	Telephone Quality, Radio Quality, CD Quality		The recording quality (round mark).
Options	Microphone, Line In, CD Audio, MIDI Keyboard		The input to record from (round mark).
Help	Contents	`F1`	Opens the Sound Recorder help.
Help	About Sound Recorder…		Shows the program's name, what it does, and its copyright.

`Alt` + `R`, `Alt` + `T`, and `Alt` + `P` press the **[Record]**, **[Stop]**, and **[Play]** buttons.

8.8.7. Sound Recorder messages

All are in boxes titled **Sound Recorder**.

Message	When
"Sound Recorder cannot record." and a reason	The recording could not start.
"Sound Recorder cannot record from the MIDI keyboard." and a reason	The MIDI input could not be opened.
"The recording could not be written." and a reason	A MIDI recording could not be written to the disk when the recording stopped.
"The recording could not all be written." and a reason	A sound recording did not finish writing, for example because the disk is full. The recording cannot then be played or saved.

Message	When
“Sound Recorder cannot play this recording.” and a reason	Playing failed.
“Sound Recorder could not save *path*.”	Save As could not write the file.
“Sound Recorder cannot open *file*.” and a reason	The file could not be opened. The reason “It is not a WAV or MIDI file.” means it is another kind of file.

The reasons include “The synthesizer or sound device is being used by another program (or is recording)”, “The sound device cannot record from that input”, “No sound device could be started”, and “The file could not be written”.

8.9. DVX Help

DVX Help is the window that shows help: the DVX user guide and every program’s own help. A table of contents is on the left, the page you are reading on the right, and underlined words are links to other pages. You can look things up with Index or Search. DVX Help is part of DVX and always installed.

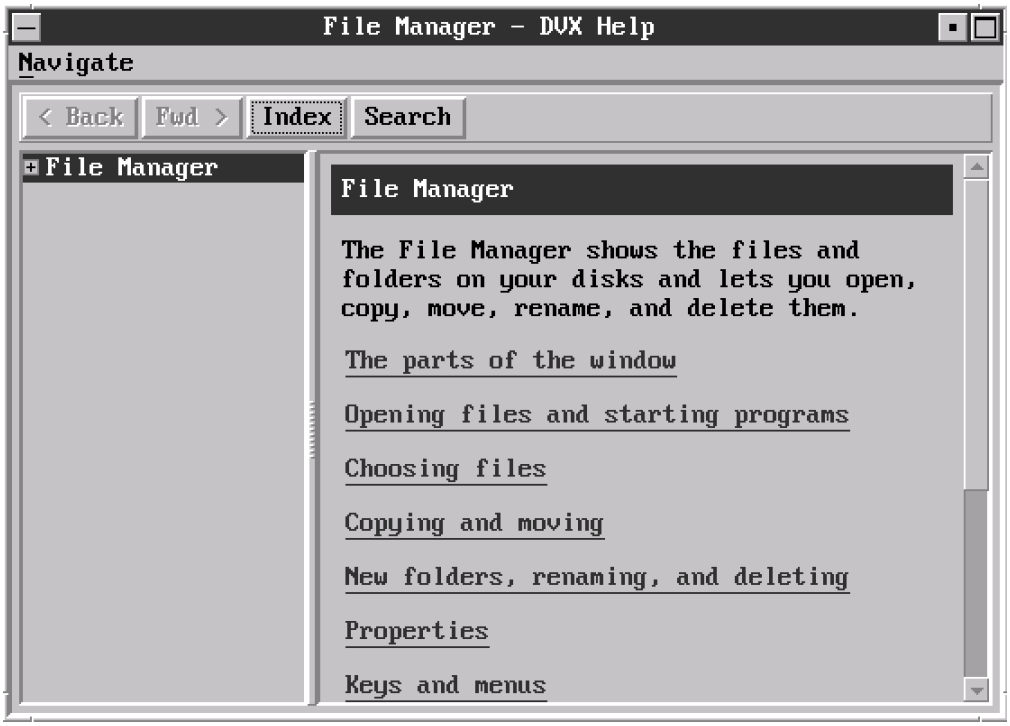


Figure 41. DVX Help showing the File Manager help

8.9.1. Opening DVX Help

There are several ways to open DVX Help:

- Press `F1` in any program for help about that program. A program that has no help of its own opens the DVX user guide.
- Choose **Contents** on a program's Help menu.
- To read the DVX user guide, choose **Help › DVX Help** in Program Manager, or click **[Read the User Guide]** in the Welcome window.
- Double-click a help file (a file ending in .HLP) in File Manager.
- Double-click **DVX Help** in Program Manager. Started this way, DVX Help shows its own help: how to use DVX Help. Its later pages, under **Writing Help Files (for Developers)**, are for people who write help files; you can skip them.

If DVX Help is already open, `F1` and the Help menus show the new page in the same window and bring it to the front. Starting DVX Help from its icon, or opening a .HLP file, can open a second DVX Help window; it opens a little below and to the right of the one before, so it does not hide it.

8.9.2. The DVX Help window

You can resize and maximize the window. Its parts are:

- The Navigate menu.
- A toolbar with four buttons: **[< Back]**, **[Fwd >]**, **[Index]**, and **[Search]**. **[< Back]** and **[Fwd >]** are grayed when there is nowhere to go.
- On the left, the table of contents. Click a page's name to show it. Click the small box with a plus sign beside a name, or double-click the name, to see the pages under it.
- On the right, the page. The text wraps to the width of the page. Pages can have headings, lists, notes and tips, tables, pictures, and links.
- Between them, a bar you can drag to make the table of contents wider or narrower.

The title bar shows the title of the page followed by "- DVX Help".

8.9.3. Reading pages and following links

Links are underlined. Click a link to go to its page. From the keyboard, press `Tab` to move from link to link (and to the other parts of the window), and `Enter` or `Space` to follow the link that is selected.

To scroll the page from the keyboard, first click the page anywhere but on a link. Then `Up` and `Down` scroll a line, `Page Up` and `Page Down` a screenful, and `Home` and `End` go to the top and the bottom.

In the table of contents, `Up` and `Down` move to the entry above or below and show its page; `Right` opens a branch (or moves into it) and `Left` closes it (or moves to the branch above); `Enter` opens or closes a branch; and typing the first letters of an entry quickly jumps to it, as in any tree (see Section 5.5.3.10).

8.9.4. Going back and forward

Click **[< Back]** or press `Alt` + `Left` to go back to the page you saw before. Click **[Fwd >]** or press `Alt` + `Right` to go forward again. DVX Help remembers the last 64 pages for as long as the window is open. Showing a different help file in the same window, such as another program's help, starts the list again.

8.9.5. Looking things up in the index

To look up a subject:

1. Click **[Index]**, or choose **Navigate › Index...**.
2. The **Index** box ("Select a topic:") lists the help file's index words in alphabetical order. Pick one and click **[OK]**, or double-click it.
3. The page about it opens.

If the help file has no index, DVX Help says "No index available."

8.9.6. Searching

To find every page that mentions some words:

1. Click **[Search]**, or press `Ctrl` + `F`.
2. In the **Search Help** box ("Search for:"), type one or more words, separated by spaces.
3. Press `Enter`.
4. If exactly one page matches, it opens at once. If more match, the **Search Results** box says "*n* topics found:"; pick a page from the list and click **[OK]** (or double-click it).

A page matches when its title or text contains all the words you typed, in any order; capitals do not matter. Parts of words work too: "scroll" also finds "ScrollPane". Index words that contain the whole search text match as well. If none of the words you type has three letters or digits in a row, DVX Help looks only at page titles and index words. If nothing matches, DVX Help says "No matching topics found."

If you press `F1` while the Index or Search box is open, the help about DVX Help itself is shown once the box closes.

8.9.7. DVX Help menu and keys

DVX Help has one menu, Navigate. It has no Help menu: press `F1` for help about DVX Help itself. The keys work even though the menu does not show them.

Navigate item	Key	What it does
Back	`Alt` + `Left`	Goes back to the page shown before.
Forward	`Alt` + `Right`	Goes forward again after Back.
Index...		Opens the index.
Search...	`Ctrl` + `F`	Opens the Search Help box.
Exit	`Esc`	Closes DVX Help.

DVX Help cannot print pages or copy their text, and it has no bookmarks, find-in-page, or text size setting. To read another help file, open the .HLP file itself from File Manager. DVX Help remembers nothing once its window is closed.

If a help file cannot be opened, DVX Help says “Could not open help file.” When it is already open, it keeps showing the file it had.

8.10. Welcome

Welcome introduces DVX when it starts for the first time. It shows what DVX can do and where to start, with tiles that start programs and a short tour. It is part of DVX and always installed.

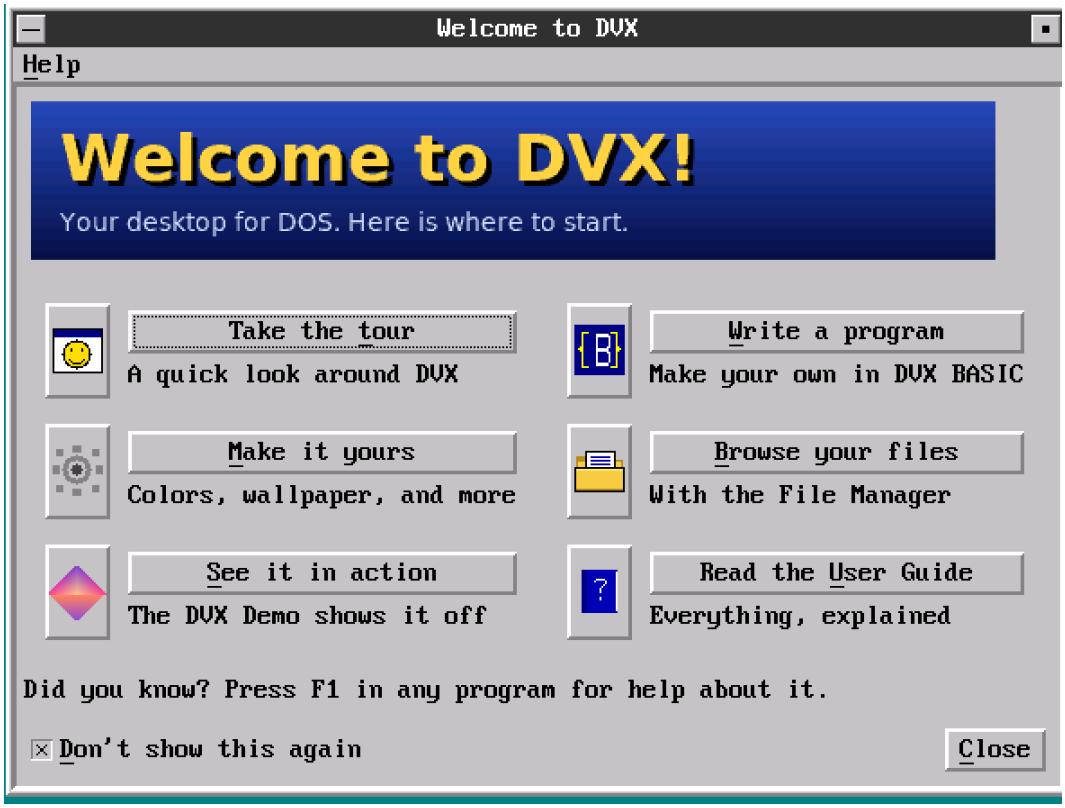


Figure 42. The Welcome window

8.10.1. When Welcome appears

Welcome opens when the desktop is ready, after any notices DVX shows at start. The check box **Don't show this again** is ticked when the window opens. When you close the window (with **[Close]**, the Close box, or `Alt` + `F4`):

- If the box is ticked, DVX starts straight to the desktop from then on.
- If you clear the box, Welcome appears again every time DVX starts.

To see Welcome again later, double-click **Welcome** in Program Manager.

8.10.2. The Welcome window

At the top a banner says "Welcome to DVX!" and "Your desktop for DOS. Here is where to start." Below it are up to six tiles, each a picture and a button with a line under it. Clicking the picture does the same as clicking the button.

Button	Line under it	What it does
[Take the tour]	A quick look around DVX	Shows the tour (see below).
[Make it yours]	Colors, wallpaper, and more	Starts Control Panel.
[See it in action]	The DVX Demo shows it off	Starts DVX Demo. This tile is shown only when the Demos part is installed.
[Write a program]	Make your own in DVX BASIC	Starts DVX BASIC. This tile is shown only when the DVX BASIC part is installed.
[Browse your files]	With the File Manager	Starts File Manager.
[Read the User Guide]	Everything, explained	Opens the DVX user guide in DVX Help.

Under the tiles a tip line changes every six seconds. It goes round six tips, such as "Did you know? Press F1 in any program for help about it." and "Did you know? Ctrl+Esc opens the Task Manager." At the bottom are the **Don't show this again** check box and the **[Close]** button. The window cannot be resized.

Hold `Alt` and press a button's underlined letter to press it: `Alt` + `T` for the tour, `Alt` + `M`, `Alt` + `S`, `Alt` + `W`, `Alt` + `B`, and `Alt` + `U` for the other tiles, `Alt` + `D` for the check box, and `Alt` + `C` for **[Close]**. Welcome's one menu, Help, has **Contents** (`F1`) and **About Welcome...**.

8.10.3. Taking the tour

Click **[Take the tour]**. The tour takes the place of the tiles. Each of its seven pages shows a

picture, a title, and a few lines of text. Under the page you see “Page *n* of 7” and three buttons: **[< Previous]** (`Alt` + `P`), **[Next >]** (`Alt` + `N`), and **[End the tour]** (`Alt` + `E`). **[< Previous]** is grayed on the first page and **[Next >]** on the last. **[End the tour]** brings the tiles back.



Figure 43. A page of the tour

Page	Title	What it says
1	A quick tour of DVX	DVX turns your DOS computer into a desktop of windows, menus, and icons.
2	Program Manager	Programs live in groups; double-click an icon to start one, or type its name in Search.
3	Windows	How to move a window, change its size, switch windows with `Alt` + `Tab`, and close one with `Alt` + `F4`.
4	Your files	File Manager shows your disks and folders; double-click a file to open it.
5	Make it yours	Control Panel sets colors and themes, wallpaper, the mouse, sounds, joysticks, printers, and the screen.
6	Write your own programs	What DVX BASIC is for. When DVX BASIC is not installed, the page says it is an optional part you can add by running Setup again.

Page	Title	What it says
7	Help is always there	Press F1 in any program for help; DVX Help holds every guide, with an index and a search.

8.11. DVX Demo and BASIC Demo

The Demos part brings two programs that show what DVX can do. Neither changes your files.

8.11.1. DVX Demo

DVX Demo shows the kinds of windows and controls DVX offers. Start it from Program Manager, or click **[See it in action]** in the Welcome window. It opens all its windows at once. Each can be moved, resized, minimized, and closed on its own; DVX Demo ends when its last window closes.

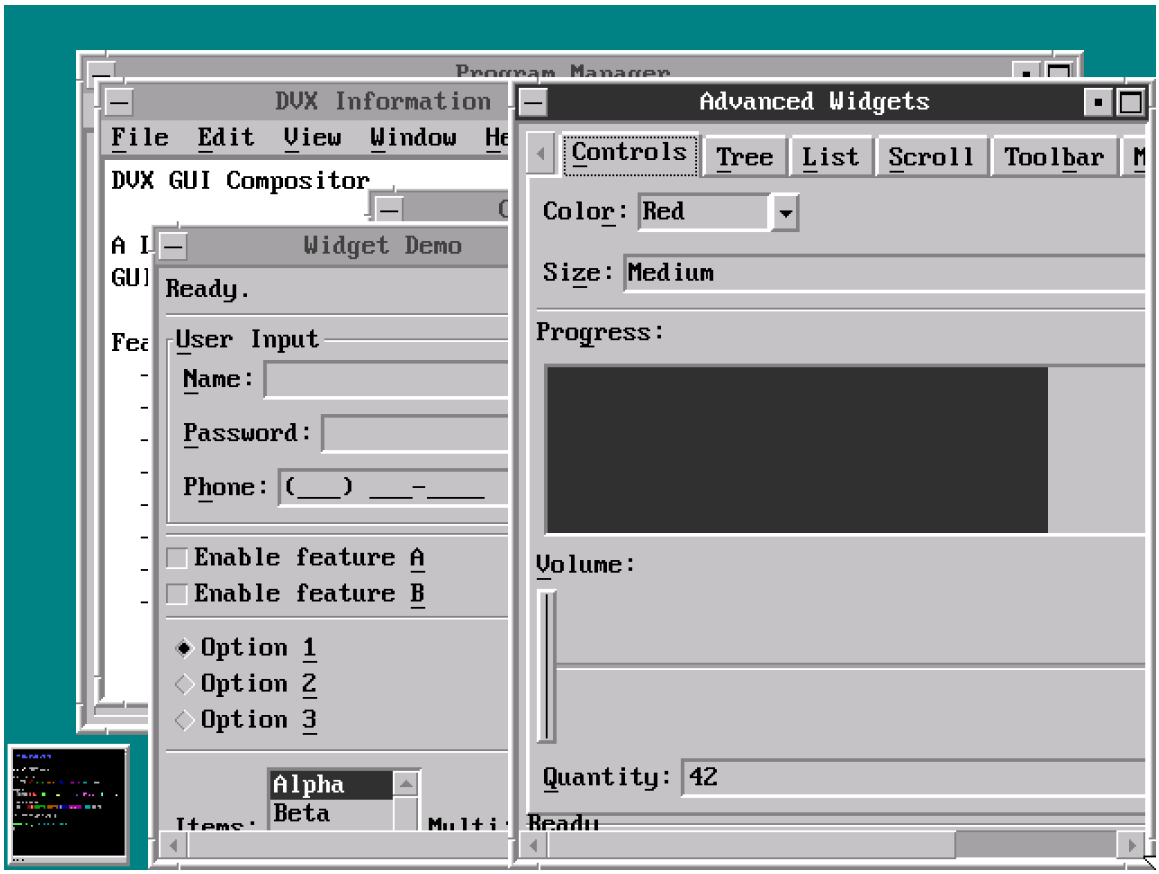


Figure 44. DVX Demo's windows

Window	What it shows
DVX Information	A short description of DVX, with a full menu bar, shortcut keys, and a menu when you right-click.
Color Gradient	A smooth fade of colour that fills the window.

Window	What it shows
Pattern	A blue and white checkerboard with scroll bars that move the pattern.
Widget Demo	A small form with text boxes (a **Password** box that hides the letters, and a **Phone** box that takes only digits), check boxes, option buttons, two lists, and **[OK]** and **[Cancel]**. Drag an item in the **Items** list to move it; select several items in the **Multi** list with `Ctrl` and `Shift`. **[OK]**, or `Enter` (unless another button is highlighted), puts "Button clicked!" in the status line; **[Cancel]**, or `Esc`, closes the window.
Advanced Widgets	Many more controls on eleven tabs: Controls, Tree, List, Scroll, Toolbar, Media, Editor, Split, Disabled, Fonts, and Rich Text. On the Controls tab, rest the pointer on a control to see its tip. On the Editor tab you can draw with the mouse; on the Rich Text tab you can make words bold, italic, or underlined (`Ctrl` + `B`, `Ctrl` + `I`, `Ctrl` + `U`); on the Fonts tab, **[Choose Font...]** opens the font box.
ANSI Terminal	A sample text terminal showing colours, bold, reverse, blinking, and line-drawing characters. It is not connected to anything. It starts minimized at the bottom of the screen; double-click its icon to open it. This window is there only when the Communications part is installed.

The DVX Information window's menus mostly show a message saying what you chose:

- File: **New** (`Ctrl` + `N`) shows a message. **Open...** (`Ctrl` + `O`) and **Save** (`Ctrl` + `S`) open the real file boxes, titled **Open File** and **Save As**, then show the name you chose; nothing is opened or saved. **Exit** (`Ctrl` + `Q`) asks "Close this window?" and, if you click **[Yes]**, closes the DVX Information window.
- Edit: **Cut**, **Copy**, and **Paste** show messages.
- View: **Terminal** opens another ANSI Terminal window, which also starts minimized (only with Communications installed); **Controls** opens another Advanced Widgets window; **Toolbar** and **Status Bar** show check marks, and **Small**, **Medium**, and **Large** show round marks, but they change nothing else; the **Zoom** submenu shows messages; **Debug Layout** draws coloured outlines around the boxes that hold and arrange the controls in every DVX window, to show how windows are laid out (choose it again to turn it off).
- Window: **Cascade**, **Tile Grid**, **Tile Horizontal**, and **Tile Vertical** arrange all the open windows.
- Help: **Contents** (`F1`) and **About...**.

Right-clicking in the DVX Information window shows **Cut**, **Copy**, **Paste**, and **Properties...**, which show messages. Closing the DVX Information window asks "Close this window?" first; the other windows close without asking. DVX Demo remembers nothing.

8.11.2. BASIC Demo

BASIC Demo, whose window is titled **DVX BASIC Feature Tour**, is a guided tour of what programs written in DVX BASIC can do. It is a good place to start if you are curious about writing your own programs.

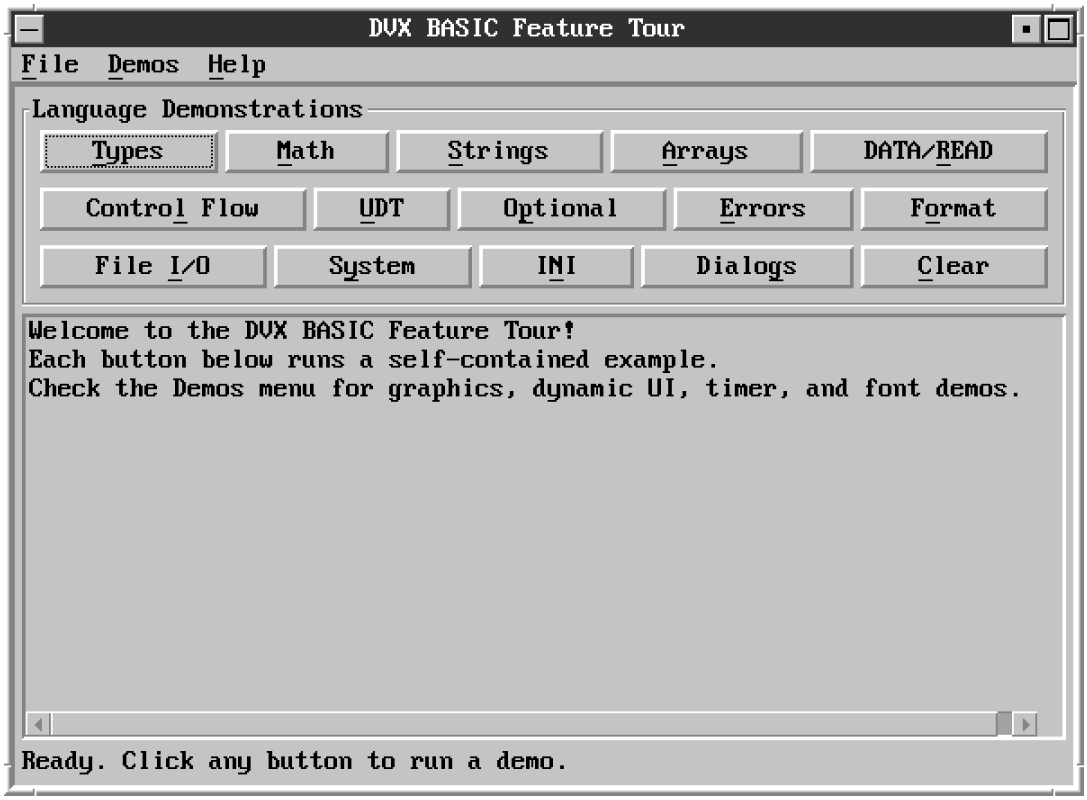


Figure 45. BASIC Demo

Fourteen of the fifteen buttons in the **Language Demonstrations** frame each run a small example and show the results in the text area below; the status line says when it is done. The buttons are Types, Math, Strings, Arrays, DATA/READ, Control Flow, UDT (records), Optional, Errors, Format, File I/O, System, INI, Dialogs, and Clear (which empties the text area). The File I/O and INI examples write a small file in BASIC Demo's folder in your user folder and delete it when they finish. Dialogs shows several kinds of question boxes.

The menus:

- File: **Clear OutArea** empties the text area. **Save OutArea...** saves the text area to a text file you name. **Exit** closes BASIC Demo and every window it opened.
- Demos: **Run All Text Demos** runs every example that writes to the text area, including Objects (all but Dialogs). **Graphics...** opens a window with a drawing (**[Draw]** draws it again, **[Clear]** wipes it). **Dynamic Form...** opens a window built entirely by the program, with a counter. **Timer...** opens a window that counts twice a second. **Fonts...** opens a window with styled text, a **[Choose Font...]** button, and **[Bold]**, **[Italic]**, and **[Underline]** buttons for a text box. **Objects** makes two shapes and lists them. **Print Report...** prints a one-page sample

sales report with a table and a bar chart; the printer model chosen on the Printer page of Control Panel must be one that prints pictures (see Section 7.10); otherwise BASIC Demo says "To print the report, choose your printer's model on the Control Panel's Printer page."

- Help: **Contents** (`F1`) and **About...**.

Choosing Graphics..., Dynamic Form..., Timer..., or Fonts... while that window is already open does nothing. You can resize the BASIC Demo window. It remembers nothing.

8.12. Screen savers

A screen saver covers the screen with a moving picture, or a blank one, when you have not used the keyboard or mouse for a while. Four screen savers come with DVX and are always installed:

Name	What it shows
Blank Screen	A black screen.
Marquee	The words "The DOS Visual eXecutive" drifting across the screen, bouncing off the edges and changing colour as they go.
Mystify	Two four-cornered outlines bouncing around the screen, each leaving a trail, and changing colour every few seconds.
Starfield	Stars flying out from the middle of the screen, as if you were moving through them; nearer stars are brighter and bigger.

No screen saver is chosen when DVX is installed. To choose one, and how long DVX waits before starting it, use the **Screen saver** and **Wait** settings on the Desktop page of Control Panel; **[Test]** there starts the chosen saver at once (see Section 7.6). The screen savers have no settings of their own and no password.

The screen saver starts after the chosen number of minutes with no key press or mouse movement. It does not start while a message or dialog box is waiting for an answer, or while a program, such as a game, is using the whole screen. It ends at the next key press or mouse movement. The key or click that wakes the screen goes to the screen saver, never to the program underneath, so it cannot change your work. See also Section 5.12.

Program Manager does not list screen savers. More screen savers can come as add-ons, which Software installs (see Section 10.1). You can also copy a screen saver program into a folder named `SAVERS` in your user folder; if there is no such folder, make one.

8.13. Developer tools

These programs are for people who write their own programs, help files, and add-on packages. DVX BASIC comes with the DVX BASIC part; the others come with the Developer Tools part. Each

runs only once at a time, and each has its own detailed help: press F1 or choose **Contents** on its Help menu (in DVX BASIC, **DVX BASIC Help**). In the tools other than DVX BASIC, the menu items have no shortcut keys: open the menus with Alt and the underlined letters.

8.13.1. DVX BASIC

DVX BASIC is a programming environment in the style of Visual Basic 3 for writing your own DVX programs. It has a code editor, a designer where you draw your program's windows, a project system, and a debugger. Start it from Program Manager, from the **[Write a program]** tile in the Welcome window, or by double-clicking a project (.DBP) or a BASIC source file (.BAS, .FRM, .CLS, or .CTL) in File Manager.

DVX BASIC works in several windows: the main window along the top of the screen with the menus, toolbar, and status line; the Code window; a designer window for the form you are working on; the Project, Toolbox, and Properties windows; Output and Immediate along the bottom; and Locals, Call Stack, Watch, and Breakpoints for debugging. Some open only when needed, such as the Toolbox and Properties with a form, and Locals and Call Stack when a program pauses. The Window menu opens or brings forward any of them except the designer, which **View › Designer** (Shift + F7) shows.

To make a small program:

1. Choose **File › New Project...**, type the project's name, click **[OK]**, and choose where to save the project. The new project has no files yet.
2. Choose **File › Add File...** (Ctrl + O), type a new name such as FORM1.FRM in the project's folder, and answer **[Yes]** when asked whether to create it. A blank form opens in the designer.
3. Click a control in the Toolbox, then click the form to place it. Change its settings in the Properties window, and double-click it to write the code that runs when it is used.
4. Press F5 to run the program. Save with **File › Save Project** and **File › Save All**.
5. Choose **File › Make Executable...** to save the program as a .APP file that starts like any other program. A program saved in a folder below DVX's APPS folder appears in Program Manager's **Installed Programs** when you go back to Program Manager; one saved elsewhere can be started from File Manager or with **File › Run...** in Program Manager.

In the code editor, **Edit › Find...** (Ctrl + F) and **Edit › Replace...** (Ctrl + H) find and replace text in a function, an object, a file, or the whole project; F3 finds the next one. The Run menu has the debugger: F9 sets or clears a breakpoint, Shift + F5 runs with breakpoints, and F8 steps one statement at a time. **File › Make Package...** makes an add-on package of your program for others to install (see Section 10.7). **Help › DVX BASIC Help** (F1) opens the language reference, the guide to DVX BASIC, and the control reference.

8.13.2. Icon Editor

Icon Editor draws small square pictures, such as program icons, one dot at a time. It comes with the Developer Tools part. Its window, which cannot be resized, has the enlarged picture on the left with a grid, and on the right a **Preview** at real size, the **Color** you draw with, and a **Palette** of 32 colours.

Choose the size on the Size menu (16 x 16, 24 x 24, or 32 x 32 dots; 32 x 32 at first); choosing a size starts a new, empty picture, after asking if you have unsaved changes. Click a colour in the palette, then click or drag on the grid to paint. The Tools menu chooses the Pencil, the Eraser (which paints light gray), or the Color Picker (which takes a dot's colour, then goes back to the Pencil). **File › Save...** always asks for a name and saves a PNG picture, or a BMP picture if the name ends in .BMP. **File › Open...** opens a square BMP or PNG picture of 16, 24, or 32 dots. **File › Print...** prints the picture. There is no Undo: paint over a mistake.

8.13.3. Help Editor

Help Editor writes help files for DVX Help. It comes with the Developer Tools part. You type the help source (a .DHS file) with commands for titles, headings, lists, and links. **Build › Compile** saves the source and makes the help file (.HLP) beside it; if there are mistakes, a **Compile failed** box lists them. **Build › Preview** compiles and shows the result in DVX Help. **Help › Help File Format** explains the commands. Double-click a .DHS file in File Manager to open it in Help Editor.

8.13.4. Resource Editor

Resource Editor looks at and changes the resources inside program files (.APP), control add-ons (.WGT), and libraries (.LIB): a program's icon, name, author, description, and so on, which Program Manager shows. It comes with the Developer Tools part. Choose **File › Open...** and pick the file; the list shows each resource's **Name**, **Type**, and **Size**. The Resource menu adds text or a file, edits text, saves a resource out to a file (**Extract...**), and removes a resource. Common resource names are icon32, name, description, author, publisher, copyright, version, and helpfile.



Resource Editor writes every change into the file at once. There is no Save and no Undo, so work on a copy of the file. Do not change or remove resources you do not know: in programs written in DVX BASIC, the resources named MODULE, FORM0, FORM1, and so on hold the program itself.

8.13.5. Package Builder

Package Builder makes packages: single .DPK files that hold something to add to DVX, such as a program, a library or control, fonts, sounds, themes, desktop pictures, screen savers, or MIDI instruments, for others to install with Software. It comes with the Developer Tools part. Its window has five pages: **Package** (the name, package name, version, kind, summary, and oldest

DVX version it works with), **Credits**, **Needs** (other packages this one needs), **Files** (the folder that holds the package's files), and **Signing** (the key to sign it with, or **Not signed**, and **[New Key...]** to make a key). Click **[Build Package...]** to make the package. **File › Save** keeps your answers as a template (.INI) to open next time. See Section 10.7 and Section 10.8.

8.13.6. Widget Showcase

Widget Showcase is a window with tabs (Text, Picks, Range, Lists, and About) where you can try the standard kinds of controls that DVX BASIC programs use. It comes with the Developer Tools part. Rest the pointer on a control to see what it is; the status bar at the bottom says what the last control did. Hold `Alt` and press a tab's underlined letter to switch tabs. Nothing you do changes any files.

8.13.7. Tools for the DOS prompt

These programs run at the DOS prompt, not in DVX. They are in DVX's `SYSTEM` folder.

Program	Comes with	What it does
BASCOMP	DVX BASIC	Compiles a DVX BASIC project into a program: `BASCOMP project.dbp [-o output.app] [-release]`
DVXRES	Developer Tools	Lists, adds, gets, and strips the resources in a program file, like Resource Editor.
DVXHLPC	Developer Tools	Compiles help source into a help file, like Help Editor's Compile command.
DVXPKG	DVX (always installed)	Builds a package from a Package Builder template, makes signing keys, and signs, checks, shows, installs, removes, and lists packages. Type `DVXPKG` with nothing after it to see its commands.

Chapter 9. Terminal

Terminal connects your computer to bulletin board systems (BBSes) and to other computers. It reaches them through a serial port and a cable, through a modem and a phone line, or over the network with Telnet. It can also carry the connection over the secure link, which encrypts everything you send and receive. Terminal shows the other computer's screen in color, plays the music some bulletin boards send, and sends and receives files with the XMODEM, YMODEM, and ZMODEM protocols.

Terminal keeps a phone book of the places you connect to. Each entry, called a session, remembers how to connect and how the screen looks, so connecting again is a matter of picking the session from the list and clicking **[Connect]**.

9.1. What you need

Terminal is in the Communications part of DVX, which Setup describes as "The Terminal: modems, serial and secure links, Telnet (with Networking), and file transfers." If Terminal is not in Program Manager's **Installed Programs** group, this part was left out when DVX was installed. To add it, run Setup again from DVX's CD or Disk 1, choose **Upgrade or repair DVX**, and tick **Communications** on the **What to install** page (see Section 3.5).

Most of Terminal works without the Networking part. Only two things need it: Telnet, and the secure link over the network. Connecting by serial port or by modem, and the secure link over a serial cable, work without Networking. If you try to connect over the network without it, Terminal says "Telnet and the secure link over the network need Networking, which is not installed. Setup can add it." Networking also needs a network card with its packet driver, set up as Chapter 4 explains.

What else you need depends on how you connect:

- By serial port: a free serial port (COM1, COM2, COM3, or COM4) and a cable to the other computer.
- By modem: a modem on one of those serial ports, and a phone line.
- By Telnet: the Networking part and a working network connection.
- By the secure link: a computer at the other end that runs a secure-link proxy (see Section 9.7), reached by a serial cable or over the network.

9.2. Starting Terminal

To start Terminal, double-click **Terminal** in Program Manager's **Installed Programs** group. The window opens near the upper left corner of the screen. Its title is the name of the session you used last. The first time you start Terminal, the phone book holds one session, **Direct COM1**,

which connects straight to COM1 at 9600 bps.

You can run more than one Terminal at a time, for example one for each serial port. They share one phone book: a change you make in one Terminal is kept when another saves its own (see Section 9.8.8).

You can also start Terminal so that it connects to a Telnet address at once; see Section 9.5.4.

9.3. The Terminal window

The Terminal window has a menu bar at the top, the terminal screen in the middle, and a status bar at the bottom. Its title is the name of the current session. You cannot change the window's size by dragging its border, and it has no maximize button: the window sizes itself to fit the terminal screen, which you set with **Columns** and **Rows** (see Section 9.4.4.5).

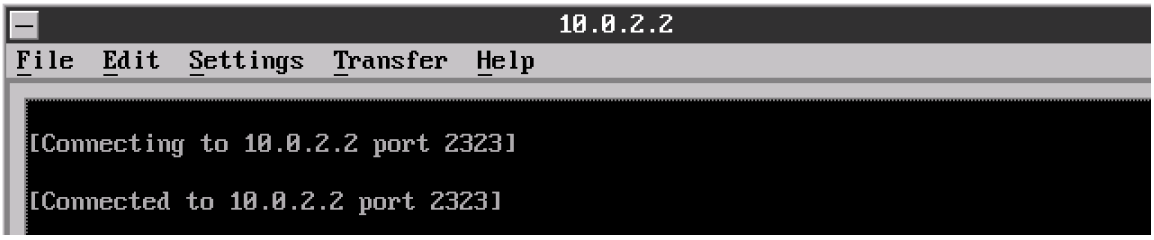


Figure 46. Terminal connected to a host by Telnet

Part	What it shows
Menu bar	The **File**, **Edit**, **Settings**, **Transfer**, and **Help** menus (see Section 9.3.1).
Terminal screen	The other computer's screen. Click it and type. The scroll bar at its right side scrolls back through lines that have scrolled off the top.
Status bar, left	What the connection is doing, for example "Connected to COM1 at 9600 bps". Before you connect, it says "Not connected: choose File > Phone Book".
Status bar, right	The line settings and the transfer protocol. For a serial port, a modem, or the secure link over a serial cable it shows the port, the speed, and the data bits, parity, and stop bits, for example `COM1 9600 8N1 ZMODEM` (8 data bits, no parity, 1 stop bit). Over the network it shows the host and port, for example `bbs.example.org:23 ZMODEM`. While Terminal captures to a file, `Capture` is added.

Each time the connection's status changes, Terminal also writes it on the screen in square brackets, for example "[Connected to COM1 at 9600 bps]". The brackets tell Terminal's own notes apart from what the other computer sends.

9.3.1. Menus

Some menu items are greyed when they cannot be used: most connection and transfer commands work only while you are connected, and several are not available while a file transfer runs.

Table 1. File menu

Item	What it does
File › Phone Book…	Opens the phone book, where you choose, add, change, and delete sessions (see Section 9.4). Connecting from the phone book first ends the connection you have. Not available while a file transfer runs.
File › Connect	Connects with the current session. Available only when you are not connected and no file transfer runs.
File › Disconnect	Ends the connection; a modem hangs up. While a modem dials, it stops the dialing. Not available while a file transfer runs.
File › Capture to File…	Starts saving everything the other computer sends to a file. Choose it again to stop. A check mark shows while Terminal captures (see Section 9.8.7).
File › Exit	Closes Terminal. If you are connected or a file transfer runs, Terminal asks first.

Table 2. Edit menu

Item	What it does
Edit › Copy	Copies the text selected on the screen to the clipboard (see Section 5.7). Does nothing when no text is selected.
Edit › Paste	Sends the text on the clipboard to the other computer, as if you typed it. Available only while you are connected and no file transfer runs.
Edit › Clear Screen	Clears the screen. What was on it goes into the scrollback.
Edit › Send Break	Sends a break signal, which some systems use to interrupt what they are doing. Available only while you are connected by serial port or modem.

Table 3. Settings menu

Item	What it does
Settings › Colors	A submenu with **Standard**, **Green screen**, **Amber screen**, and **Black on white**. A round mark shows the current session's colors. Choosing one changes the screen at once and saves it with the session (see Section 9.8.2).
Settings › Session Settings…	Opens the **Session Settings** dialog box for the current session (see Section 9.4.4).

Item	What it does
Settings › Local Echo	Turns local echo on and off: with a check mark, Terminal also shows what you type (see Section 9.8.3). Saved with the session.
Settings › ANSI Music	Turns ANSI music on and off: with a check mark, Terminal plays the music the other computer sends (see Section 9.8.5). Saved with the session.
Settings › Transfer Options...	Opens the **Transfer Options** dialog box (see Section 9.6.7).

Table 4. Transfer menu

Item	What it does
Transfer › Send Files...	Sends files with the protocol that has the round mark (see Section 9.6.1). Available only while you are connected and no file transfer runs.
Transfer › Receive Files...	Receives files with the protocol that has the round mark (see Section 9.6.2). Available only while you are connected and no file transfer runs.
XMODEM, **XMODEM-1K**, **YMODEM**, **ZMODEM**	The protocol to use for file transfers. The one you choose gets a round mark. Terminal remembers it for all sessions. At first it is **ZMODEM**.

Table 5. Help menu

Item	What it does
Help › Contents	Opens Terminal's help in DVX Help. `F1` does the same (see Section 5.11).
Help › About Terminal...	Shows Terminal's name, what it does, and its copyright.

9.3.2. Using the terminal screen

Click the screen and type. While you are connected, the keys you press go to the other computer, including `Ctrl` combinations, `Tab`, `Esc`, `Backspace`, and `Enter` (while a file transfer runs, `Esc` cancels it instead). The arrow keys, `Home`, `End`, `PgUp`, `PgDn`, and `Del` are sent as the ANSI key codes that bulletin boards understand. When you are not connected, or while a file transfer runs, what you type is ignored.

A few keys never reach the other computer. The function keys and `Ins` are not sent, and neither are letters with accents and other characters outside the plain US character set. DVX keeps `F1`, `F10`, `Alt` with a letter, `Alt` + `Tab`, `Alt` + `F4`, `Alt` + `Space`, `Ctrl` + `Esc`, and `Ctrl` + `F12` for itself, so these work in Terminal as they do everywhere else.

To copy text from the screen, drag across it with the mouse. Double-clicking selects a word, and

triple-clicking selects a line. Then choose **Edit › Copy** or press `Ctrl` + `C`. Without a selection, `Ctrl` + `C` goes to the other computer as usual. Spaces at the ends of lines are left out, and one copy holds at most about 4 KB of text.

To send text from the clipboard to the other computer, choose **Edit › Paste** or press `Ctrl` + `V`. Terminal sends it as if you typed it, with each line end sent as `Enter`.

To look back at lines that have scrolled off the top, use the scroll bar, the mouse wheel, or `Shift` + `PgUp` and `Shift` + `PgDn`. Typing or pasting takes you back to the live screen. See Section 9.8.6.

9.3.3. Keys in Terminal

Key	What it does
`F1`	Opens Terminal's help.
`Alt` + `F`	Opens the **File** menu.
`Alt` + `E`	Opens the **Edit** menu.
`Alt` + `S`	Opens the **Settings** menu.
`Alt` + `T`	Opens the **Transfer** menu.
`Alt` + `H`	Opens the **Help** menu.
`Ctrl` + `C`	With text selected on the screen, copies it. Without a selection, it is sent to the other computer.
`Ctrl` + `V`	Sends the text on the clipboard to the other computer.
`Shift` + `PgUp`, `Shift` + `PgDn`	Pages back and forward through the scrollback.
`Enter`	In the **Phone Book**, **Session Settings**, **Secure Link Passphrase**, and **Transfer Options** dialog boxes, presses the default button (**[Connect]** or **[OK]**).
`Esc`	In the same dialog boxes, presses **[Cancel]**. While a file transfer runs, in the **File Transfer** window or in the Terminal window, cancels the transfer; after the transfer, in the **File Transfer** window, closes it.

9.4. The Phone Book

The phone book is Terminal's list of saved sessions. A session holds everything about one place you connect to: its name, how to connect, the modem, secure link, and network settings, and how the screen looks. The phone book holds up to 32 sessions. The first time you start Terminal it holds one, **Direct COM1**.

To open the phone book, choose **File › Phone Book...**. The **Phone Book** dialog box lists every

session by name, with the current session selected. Every change you make in it is saved at once.

Button	What it does
[New...]	Adds a session (see Section 9.4.1).
[Edit...]	Changes the selected session (see Section 9.4.2). If it is the session in the Terminal window, the window takes the changes too.
[Delete]	Removes the selected session, after asking (see Section 9.4.3).
[Connect]	Makes the selected session the current one and connects with it. If you are connected, Terminal ends that connection first. Double-clicking a session, or pressing `Enter`, does the same.
[Cancel]	Closes the phone book without connecting. `Esc` does the same.

9.4.1. Adding a session

To add a session:

1. Choose **File › Phone Book...**.
2. Click **[New...]**. The **New Session** dialog box opens. The new session is named **New session** and starts with the settings for a direct serial connection on COM1.
3. Type a name in **Name**.
4. Choose how to connect in **Connect with**, and fill in the pages that this way of connecting uses (see Section 9.4.4).
5. Click **[OK]**. The session is added at the end of the list and selected.
6. To connect now, click **[Connect]**.

If the phone book already holds 32 sessions, Terminal says “The phone book is full. Delete an entry first.”

9.4.2. Changing a session

To change the session that is open in the Terminal window, choose **Settings › Session Settings...**, make your changes, and click **[OK]**. Changes to how the screen looks take effect at once. Changes to the connection take effect the next time you connect; if you are connected, a note on the screen says “[New connection settings take effect the next time you connect]”.

To change another session in the phone book:

1. Choose **File › Phone Book...**.
2. Select the session and click **[Edit...]**.

3. Make your changes in the **Edit Session** dialog box and click **[OK]**.

If you change the session that is open in the Terminal window this way, the window takes the changes too, as with **Settings › Session Settings…**, whether you then click **[Connect]** or **[Cancel]**.

9.4.3. Deleting a session

To delete a session:

1. Choose **File › Phone Book…**.
2. Select the session and click **[Delete]**.
3. Terminal asks “Delete "*name*" from the phone book?” Click **[Yes]**.

The phone book always keeps at least one session: when only one is left, **[Delete]** does nothing.

You can delete the session that is open in the Terminal window. The window keeps it, connected or not, until you choose another session, but changes you make to it are no longer saved.

9.4.4. Session settings

One dialog box holds all of a session’s settings. It is titled **Session Settings** when you open it from the **Settings** menu, and **New Session** or **Edit Session** when you open it from the phone book. Its settings are on five pages: **Connection**, **Modem**, **Secure Link**, **Network**, and **Screen**. Click a page’s tab to see it. Click **[OK]** to keep your changes, or **[Cancel]** to leave the session as it was. When you click **[OK]**, a value outside its allowed range is brought into range, and an empty **Name** becomes **Direct COM1**.

Every page can be filled in whatever way you connect, but Terminal uses only the settings for the way you chose in **Connect with**:

Connect with	Settings Terminal uses
Serial port	The **Connection** page.
Modem	The **Connection** page and the **Modem** page.
Secure link	Over a serial cable: the **Connection** page and the **Secure Link** page. Over the network: the **Secure Link** page and the **Network** page.
Telnet	The **Network** page.

Every session also uses its **Name** and the **Screen** page.

The Connection page

Name

The session's name, up to 31 characters. It is shown in the phone book and in the Terminal window's title.

Connect with

How to connect: **Serial port** (a cable to the other computer), **Modem** (dials a phone number), **Secure link** (the encrypted link to a secure-link proxy; see Section 9.7), or **Telnet** (over the network; it needs Networking). A new session starts with **Serial port**.

Port

The serial port: **COM1**, **COM2**, **COM3**, or **COM4**. Used for a serial port, a modem, and the secure link over a serial cable. At first **COM1**.

Speed (bps)

The speed in bits per second: 300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, or 115200. Both sides must use the same speed. At first 9600.

Data bits

5, 6, 7, or 8. Almost always 8, which is the default.

Parity

None, **Even**, **Odd**, **Mark**, or **Space**. Almost always **None**, which is the default.

Stop bits

1 or 2. Almost always 1, which is the default.

Flow control

How each side tells the other to pause: **None** (the default), **XON/XOFF**, or **RTS/CTS**. RTS/CTS is best when the cable and the other side support it, especially at high speeds and for file transfers. A secure link over a COM port cannot use XON/XOFF (see Section 9.7.2).

The Modem page

Setup command

Sent to the modem before dialing, up to 63 characters. At first `ATZ`. Leave it empty to send nothing and dial at once.

Dial command

Put in front of the phone number, up to 15 characters: usually `ATDT` for tone dialing (the default) or `ATDP` for pulse dialing.

Phone number

The number to dial, up to 47 characters. Leave it empty to type modem commands yourself (see Section 9.5.2).

Redial tries

How many more times to dial when the line is busy, nobody answers, or there is no carrier: 0 to 99. At first 3.

Redial wait (s)

How many seconds to wait before dialing again: 1 to 300. At first 30.

The Secure Link page

Passphrase

The secret you share with the secure-link proxy at the other end, up to 63 characters. It shows as mask characters while you type. Use the same passphrase as the other end, or leave it empty when the other end uses none. Terminal saves it scrambled (see Section 9.7.1).

Ask for the passphrase when connecting (never save it)

Terminal asks for the passphrase each time you connect and never saves it. When the dialog box opens with this ticked, the **Passphrase** box is empty, and clicking **[OK]** with it ticked removes any passphrase saved with the session.

Connect over the network (the host and port on the Network page)

The secure link goes over the network, to the host and port on the **Network** page, instead of through the serial port. This needs the Networking part.

The page reminds you: “Use the same passphrase as the host, or none on both sides.”

The Network page

Host name

The computer to connect to over the network, up to 63 characters: a name such as `bbs.example.org`, or an address such as `192.168.1.20`.

Port

Its port number, 1 to 65535. Usually 23 for Telnet, which is the default. A secure-link proxy usually listens on 2323.

Telnet uses these settings, and so does the secure link when **Connect over the network (the host and port on the Network page)** is ticked on the **Secure Link** page.

The Screen page

Columns

The width of the terminal screen: 40 to 132 columns. At first 80.

Rows

The height of the terminal screen: 10 to 60 rows. At first 25. A screen of 80 columns by 25 rows suits most bulletin boards. When you change **Columns** or **Rows**, the screen is rebuilt at once: the screen and the scrollback start empty, and the window changes size to fit.

Scrollback lines

How many lines that have scrolled off the top you can scroll back to: 100 to 10,000. At first 1,000 (see Section 9.8.6).

Colors

Standard, **Green screen**, **Amber screen**, or **Black on white**, the same as **Settings › Colors** (see Section 9.8.2).

Answerback

The text Terminal sends when the other computer asks who you are, up to 31 characters. Leave it empty to send nothing (see Section 9.8.4).

Local echo (show what you type)

The same as **Settings › Local Echo**. Off at first (see Section 9.8.3).

Play ANSI music the other side sends

The same as **Settings › ANSI Music**. On at first (see Section 9.8.5).

9.5. Connecting and disconnecting

To connect, choose **File › Phone Book...**, select a session, and click **[Connect]**. To connect again with the session that is already in the window, choose **File › Connect**. The status bar, and the notes in square brackets on the screen, show what is happening. Connecting never holds up DVX: while a modem dials or a secure link is set up, you can use the menus and other programs. **File › Connect** stays greyed until the connection ends.

9.5.1. Connecting by serial port

Use a serial connection for a cable straight to another computer. To set one up:

1. Choose **File › Phone Book...** and click **[New...]**.
2. Type a **Name**, and choose **Serial port** in **Connect with**.
3. In **Port**, choose the serial port the cable is plugged into.

4. Set **Speed (bps)**, **Data bits**, **Parity**, and **Stop bits** to the same values as the other computer.
5. If the cable and the other computer support it, choose **RTS/CTS** in **Flow control**.
6. Click **[OK]**, then **[Connect]**.

The port opens at once, and the status bar says, for example, “Connected to COM1 at 9600 bps”. From then on, what you type goes to the other computer, and what it sends appears on the screen. If the screen fills with random characters, the speed, data bits, parity, or stop bits do not match the other side.

If the port cannot be opened, or stops working, Terminal says why:

Message	What it means
“COM*n* could not be opened: there is no serial port there”	The computer has no serial port at that address. Choose another **Port** in the session’s settings.
“COM*n* could not be opened: it is already in use”	Another program, or another Terminal window, is using that port. Close it first.
“COM*n* could not be opened: its interrupt could not be found”	DVX could not find the interrupt (IRQ) the port uses.
“COM*n* could not be opened: a setting is not supported”	The port cannot use one of the session’s line settings.
“COM*n* could not be opened: it did not respond”	The port did not respond.
“COM*n* stopped working”	The port failed while you were connected.

See also Section 11.10.

9.5.2. Dialing with a modem

To call a bulletin board or another computer with a modem:

1. Choose **File › Phone Book…** and click **[New…]**.
2. Type a **Name**, and choose **Modem** in **Connect with**.
3. In **Port**, choose the serial port the modem is on, and choose a **Speed (bps)**.
4. On the **Modem** page, type the **Phone number**. If your modem needs it, change **Setup command**, **Dial command**, **Redial tries**, or **Redial wait (s)**.
5. Click **[OK]**, then **[Connect]**.

Watch the status bar while Terminal calls:

1. Terminal sends the setup command to the modem (“Setting up the modem on COM1”) and waits up to 5 seconds for the modem to answer OK.
2. It dials, for example “Dialing 555-0100 (try 1 of 4)”. The last number is the number of redial tries plus one. Terminal waits up to a minute for the call to go through.
3. If the line is busy, nobody answers, or there is no carrier, Terminal waits the redial time and dials again. The status bar says, for example, “The line is busy: dialing again in 30 seconds” (or “No answer: …” or “No carrier: …”). After the last try, the connection ends with that reason.
4. When the call goes through, the status bar shows the modem’s own message, for example “Connected (CONNECT 14400)”.

Everything the modem says (OK, CONNECT, BUSY, and so on) also appears on the screen. To stop dialing, or to hang up, choose **File › Disconnect**; the status bar then says “Hung up”. If the other end hangs up, Terminal says “Carrier lost: the call ended”.

Message	What to do
“The modem on COM*n* did not answer”	The modem did not answer the setup command within 5 seconds. Check that the modem is on and connected to the chosen port, and that the setup command is right.
“The modem refused the setup command *command*”	The modem answered ERROR to the setup command. Check **Setup command** on the **Modem** page.
“No dial tone: check the phone line”	Terminal stops at once. Check that the phone line is plugged into the modem.
“The modem refused the dial command”	The modem answered ERROR when Terminal dialed. Check **Dial command** and **Phone number** on the **Modem** page.

To type commands to the modem yourself, leave **Phone number** empty. When you connect, Terminal opens the port, sends the setup command, and says “Modem ready on COM1: type AT commands”. Then type a command such as `ATDT5550100` and press `Enter`.

9.5.3. Connecting by Telnet

Telnet connects to a bulletin board or another computer over the network. It needs the Networking part and a working network connection (see Section 4.4). To set up a Telnet session:

1. Choose **File › Phone Book…** and click **[New…]**.
2. Type a **Name**, and choose **Telnet** in **Connect with**.
3. On the **Network** page, type the **Host name** and set **Port** (usually 23).
4. Click **[OK]**, then **[Connect]**.

The status bar says “Connecting to *host* port *n*” and then “Connected to *host* port *n*”. Terminal gives up if the other computer does not answer within 30 seconds. Terminal tells the other computer that it is an ANSI terminal and how many columns and rows the screen has, and tells it again whenever you change the size. If every letter you type appears twice, turn off **Settings › Local Echo**.

When the other computer ends the session, Terminal says so, for example “[bbs.example.org closed the connection]”.

Message	What to do
“Enter the host name on the Network page of Session Settings first.”	The session has no host name. Type one on the **Network** page.
“The host *host* was not found”	Check the host name, and that a name server is set up on the Network page of Control Panel (see Section 7.9).
“*host* refused the connection on port *n*”	The computer is there, but nothing answers on that port. Check the port number.
“*host* did not answer”	Check the address, and that the network is working (Control Panel’s Network page, **[Status...]**).
“*host* cannot be reached: check the network settings”	DVX has no network address yet, or no gateway to that network. See the Network page of Control Panel.
“The connection to *host* failed”	The connection could not be made.
“The connection to *host* was lost”	The connection broke while you were connected.

See also Section 11.9.

9.5.4. Starting Terminal with a Telnet address

You can start Terminal with a Telnet address, such as `telnet://bbs.example.org`, or `telnet://bbs.example.org:2323` for a port other than 23. Terminal then makes that host’s session the current one, adding a Telnet session named after the host if the phone book has none, and connects at once. A session matches when it is a Telnet session with the same host name and port.

To start Terminal this way, give the address as an argument: type Terminal’s program file followed by the address in Program Manager’s **File › Run...** box, for example `C:\DVX\APPS\KPUNCH\TERMINAL\TERMINAL.APP telnet://bbs.example.org`, or put the address in the **Arguments** box of a Program Manager item that starts Terminal (see Section 6.7 and Section 6.4). If the phone book is full and has no session for that address, Terminal starts without connecting.

9.5.5. Disconnecting and closing Terminal

To end a connection, choose **File › Disconnect**. The status bar says “Disconnected”, or “Hung up”

for a modem. **File › Disconnect** also stops a modem that is dialing and a secure link that is being set up. It is not available while a file transfer runs: cancel the transfer first (see Section 9.6.5). If the connection breaks during a transfer, the transfer is cancelled.

To close Terminal, choose **File › Exit** or close its window. If you are connected (or still connecting), Terminal says “You are connected.” and asks “Disconnect and close?” If a file transfer runs, it says “A file transfer is running.” and asks “Cancel it and close?” Click **[Yes]** to close, or **[No]** to keep Terminal open.

9.6. Sending and receiving files

Terminal sends files to the other computer (uploading) and receives files from it (downloading). Both sides must use the same file transfer protocol, the set of rules the two computers follow while a file moves. Terminal knows four:

Protocol	Notes
XMODEM	One file at a time, in 128-byte blocks. Works almost everywhere. You choose the name for a received file, and the file is padded to a whole block, so it can come out slightly longer than the original.
XMODEM-1K	XMODEM with 1024-byte blocks, so it is faster. When a block fails three times, Terminal sends it again as 128-byte blocks.
YMODEM	Several files at once, with their names and exact sizes. Received files go into the download folder.
ZMODEM	The best choice when the other side has it: fast, several files at once, recovers quickly from line noise, can continue an interrupted download, and can start a download by itself.

To choose the protocol, choose it on the **Transfer** menu; it gets a round mark, and the right side of the status bar shows it. Terminal remembers your choice for all sessions. At first it is **ZMODEM**.

9.6.1. Sending files

To send (upload) files:

1. Choose the protocol on the **Transfer** menu.
2. Start the receive on the other computer first. On a bulletin board this is usually a menu choice.
3. Choose **Transfer › Send Files…**.
4. In the **Send File** dialog box, choose the file and click **[Open]** (see Section 5.6).
5. With YMODEM or ZMODEM, Terminal asks “Add another file to send in the same batch?” Click

[Yes] to choose another file in the **Add Another File** dialog box, or **[No]** to start sending. One batch holds up to 16 files.

The **File Transfer** window shows how the transfer is going (see Section 9.6.4). Terminal waits up to a minute for the other computer to start receiving. If it does not, the transfer ends with “The receiver did not start”. The other computer gets your file’s long name where the protocol has room for it.

9.6.2. Receiving files

To receive (download) files:

1. Choose the protocol on the **Transfer** menu.
2. Start the send on the other computer.
3. Choose **Transfer › Receive Files...**.
4. With XMODEM or XMODEM-1K, the **Receive File As** dialog box asks for a name. It starts in the download folder. Type a name and click **[Save]**. YMODEM and ZMODEM need no name: they save the files under the names the sender gives, in the download folder.

If the other computer does not start sending within about a minute, the transfer ends with “The sender did not start”.

The download folder is the DOWNLOAD folder in your user folder, for example `C:\DVX\USER\DOWNLOAD`, unless you choose another one in Transfer Options (see Section 9.6.7 and Section B.1). Terminal makes the folder when it needs it. If it cannot, the screen shows “[The download folder *folder* could not be created.]”

ZMODEM downloads usually start by themselves. While **Start ZMODEM downloads automatically** is ticked in Transfer Options, as it is at first, Terminal starts receiving into the download folder as soon as the other computer starts a ZMODEM send. You do not need to choose anything, whichever protocol has the round mark.

9.6.3. Names of received files

With YMODEM and ZMODEM the sender gives each file’s name, and Terminal makes it safe for your disk:

- Folder names in the sender’s name are dropped.
- When the download folder’s disk takes long file names, files keep the names the sender gives. A character that a file name cannot hold becomes _.
- Otherwise names are changed to fit DOS: they are shortened to eight characters and a three-letter extension, made upper case, and spaces are dropped. Other characters a DOS name

cannot hold become _.

- A file that arrives with no name is saved as `RECEIVED`. A name that DOS keeps for a device, such as `CON`, gets a _ in front.

9.6.4. The File Transfer window

When a transfer starts, the **File Transfer** window opens in the middle of the screen. From top to bottom it shows:

- Which way the files go and how, for example “Sending with ZMODEM” or “Receiving with YMODEM”.
- Which file is moving, for example “File 2 of 3: *name*”, or “File 1: (waiting for the other side)” before the first file starts.
- A bar for the current file, with “*x* of *y* bytes” (or “*x* bytes” when the size is not known). When Terminal continues an interrupted download, “(continued from *z*)” is added after it.
- A bar for the whole batch, with “All files: *x* of *y* bytes”.
- While the transfer runs, “Retries: *n*”: how many times a damaged block had to be sent again. When the transfer ends, the result instead, for example “Transfer complete”.

The Terminal window stays usable while a transfer runs, but what you type is not sent. While a transfer runs, these menu items are not available: **File › Phone Book...**, **File › Connect**, **File › Disconnect**, **Edit › Paste**, **Edit › Send Break**, **Transfer › Send Files...**, and **Transfer › Receive Files...**.

When the transfer ends, the window shows the result and its **[Cancel]** button becomes **[Close]**. Click **[Close]**, or press `Esc`, to put the window away. The result also appears on the terminal screen, for example “[Download: Transfer complete]” or “[Upload: Cancelled]”.

9.6.5. Cancelling a transfer

To stop a transfer, click **[Cancel]** in the **File Transfer** window, click the window’s close box, or press `Esc` in the **File Transfer** window or in the Terminal window. Terminal stops the transfer, tells the other side, and shows “Cancelled”.

A cancelled or failed ZMODEM download keeps the part that arrived, so you can continue it later (see Section 9.6.6). XMODEM and YMODEM remove a file that did not arrive completely.

9.6.6. When a file already exists

When a YMODEM or ZMODEM download would replace a file that is already in the download folder, Terminal does what **If a file exists** in Transfer Options says. With **Ask me**, as it is at first, the **File Transfer** window asks “*name* already exists (*n* bytes). What should happen to it?” and

shows four buttons:

Button	What happens
[Continue it]	Continues an interrupted download: only the missing part is sent. This works only with ZMODEM, and only when your copy is shorter than the sender's file; otherwise the button is greyed.
[Keep both]	The new file is saved under a new name, with `~1` (up to `~99`) added to the name, for example `README~1.TXT`.
[Replace]	The old file is replaced.
[Skip]	The file is not saved. ZMODEM skips it; YMODEM receives it and throws it away.

To continue an interrupted ZMODEM download, start the same download again on the other computer, and click **[Continue it]** when Terminal asks. If **If a file exists** is set to **Continue a partial download**, Terminal continues it without asking.

With XMODEM and XMODEM-1K you choose the file name yourself, and **If a file exists** does not apply. If the file you choose already exists, the **Receive File As** dialog box asks "*name* already exists. Do you want to replace it?" Click **[Yes]** to replace it, or **[No]** to choose another name.

9.6.7. Transfer options

Choose **Settings › Transfer Options...** to open the **Transfer Options** dialog box. Its settings apply to all sessions. Click **[OK]** to keep your changes, or **[Cancel]** to leave them as they were.

Download folder

Where YMODEM and ZMODEM downloads go, and where the **Receive File As** box starts for XMODEM. Type the folder, or click **[Browse...]** to choose it in the **Download Folder** dialog box. Terminal makes the folder when it needs it. Leave the box empty to use the DOWNLOAD folder in your user folder.

If a file exists

What a YMODEM or ZMODEM download does when a file of the same name is already there: **Ask me** (the default), **Keep both (rename the new)**, **Continue a partial download**, **Replace the old file**, or **Skip the file** (see Section 9.6.6). With **Continue a partial download**, a file that cannot be continued is kept as with **Keep both (rename the new)**.

Start ZMODEM downloads automatically

Terminal starts receiving as soon as the other side starts a ZMODEM send. On at first.

Ask the other side to continue interrupted uploads (ZMODEM)

When you send a file again after an upload was interrupted, the other side continues its partial

copy instead of starting again. Off at first. Leave it off unless you are sending the same file again.

Escape all control characters (for links that lose them)

For ZMODEM over connections that lose or change control characters. Transfers are slower, so turn it on only when transfers keep failing. Off at first.

On a serial port or modem without flow control, ZMODEM downloads ask the sender to pause every 2 KB so that nothing is lost. Use RTS/CTS flow control for full speed.

9.6.8. Transfer results and messages

The **File Transfer** window, and the note on the screen, end with one of these results:

Result	What it means
“Transfer complete”	Every file arrived.
“Transfer complete (the end was not confirmed)”	Every block arrived, but the other side did not confirm the end of the transfer.
“Cancelled”	You cancelled the transfer, or the connection ended while it ran.
“Cancelled by the sender”, “Cancelled by the receiver”	The other side cancelled the transfer.
“The receiver ended the transfer”	The other side ended a ZMODEM upload.
“The receiver did not start”	The other computer did not start receiving within a minute. Start the receive on the other computer before, or right after, you choose **Transfer › Send Files…**.
“The sender did not start”, “The sender stopped”	The other computer did not start sending within about a minute, or (with ZMODEM) did not send the next file of a batch.
“Too many errors”	A block still did not get through after 10 retries (Terminal waits up to 10 seconds for each answer). Use RTS/CTS flow control, a lower speed, or XMODEM-1K. For ZMODEM, try **Escape all control characters (for links that lose them)**.
“Lost block sequence”	A block went missing, and the transfer stopped.
“Cannot open *file*”, “Cannot read the file”	The file to send could not be opened or read.
“Cannot create the file”, “Cannot write the file”	A received file could not be created or written, for example because the disk is full or cannot be written to.

Result	What it means
“A file larger than 2 GB cannot be transferred”	Files larger than 2 GB cannot be sent or received.

If a transfer cannot begin, a message box titled **File Transfer** says why, for example “Cannot open *file*”. If DVX cannot start another transfer at the moment, it says “No file transfer can be started now.”

9.7. The secure link

The secure link encrypts everything that passes between your computer and the other end of the connection, so that someone listening in on the cable or the network cannot read it. At the other end, a program called a secure-link proxy takes the encrypted connection and connects you on to the bulletin board.

The secure link works only with a secure-link proxy at the other end, not with an ordinary bulletin board. The proxy runs on another computer, which you reach either by a serial cable or over the network (the network needs the Networking part). Whoever runs that computer can tell you what to set: the speed and other line settings for a cable, or the host name and port for the network, and the passphrase, if it uses one.

The proxy, called secproxy, comes with the DVX SDK (`sdk.zip`, in its `bin` folder) and runs on a Linux computer. The SDK’s `secproxy.md` tells how to start it for a serial cable or for the network, and how to give it a passphrase.

9.7.1. Passphrases

A passphrase is a secret that both ends know. The link is encrypted whether or not you use one. With the same passphrase on both sides, the link is also checked: Terminal makes sure the other end knows the passphrase, so nobody in between can pretend to be the proxy. Use exactly the same passphrase as the proxy, or none on both sides.

You can keep the passphrase with the session, or have Terminal ask for it each time:

- A passphrase typed in **Passphrase** on the **Secure Link** page is saved with the session, scrambled so that it cannot be read at a glance. Someone who copies Terminal’s settings file and knows how DVX scrambles it can still read it.
- With **Ask for the passphrase when connecting (never save it)** ticked, Terminal never saves the passphrase. Each time you connect, the **Secure Link Passphrase** dialog box asks for it. Type it in **Passphrase for the secure link** and click **[Connect]**, or press `Esc` to cancel without connecting.

If other people use your computer, choose to be asked. A passphrase you type when asked is used

only while Terminal sets up the link, and then forgotten.

9.7.2. Setting up a secure link session

To set up a session for the secure link:

1. Choose **File › Phone Book...** and click **[New...]**.
2. Type a **Name**, and choose **Secure link** in **Connect with**.
3. For a serial cable, choose the **Port** the cable is on, and set **Speed (bps)** and **Flow control** (**None** or **RTS/CTS**) to match the other end. Leave **Data bits**, **Parity**, and **Stop bits** at 8, **None**, and 1, which is what the secure-link proxy uses. The secure link cannot use **XON/XOFF**, because it sends those characters as part of its data: with **XON/XOFF** chosen, **[OK]** says "A secure link over a COM port cannot use XON/XOFF flow control. Choose None or RTS/CTS." and the dialog box stays open.
4. For the network instead, tick **Connect over the network (the host and port on the Network page)** on the **Secure Link** page. Then, on the **Network** page, type the proxy's **Host name** and set **Port** to the proxy's port, usually 2323. (**Port** starts at 23, so change it.)
5. On the **Secure Link** page, type the **Passphrase**, or tick **Ask for the passphrase when connecting (never save it)**. If the proxy uses no passphrase, leave the box empty.
6. Click **[OK]**, then **[Connect]**.

9.7.3. What you see when you connect

Over a serial cable the status bar says "Setting up the secure link on COM1". Over the network it says "Connecting to *host* port *n* for the secure link" and then "Setting up the secure link with *host*". When the link is ready, it says "Secure link established", or "Secure link established (passphrase checked)" when both ends use the same passphrase.

Then press `Enter`. The proxy answers "SecLink proxy ready." and connects you to the bulletin board.



Figure 47. The secure link established, with the passphrase checked

From then on, you use Terminal as with any other connection. **Edit › Send Break** is not available over the secure link.

9.7.4. When the secure link does not connect

Message	What it means
“The passphrase does not match the host’s”	The two ends use different passphrases, and the connection ends. Use exactly the same passphrase as the proxy, or none on both sides.
“The host did not answer the secure link”	The other end did not answer within 30 seconds. Check that the secure-link proxy is running, and, over a cable, that the speed and flow control match and the line uses 8 data bits, no parity, and 1 stop bit.
“The secure link could not be set up”	The link could not be set up for another reason.
“COM*n* could not be opened for the secure link”	The serial port could not be opened. Check **Port** on the **Connection** page.
“The secure link cannot use XON/XOFF flow control: choose None or RTS/CTS”	The session uses **XON/XOFF** over a COM port, which the secure link cannot use. This happens only when the setting was made outside Session Settings, for example by editing Terminal’s settings file. Choose **None** or **RTS/CTS** in **Flow control**.
“Out of memory for the secure link”	There was not enough memory to set up the link. Close some programs and try again.
“The secure link was lost”	The link broke after it was established.

Over the network, the messages about the host in Section 9.5.3, such as “*host* refused the connection on port *n*”, can also appear.

9.8. Terminal settings

This section explains how Terminal shows the other computer’s screen, and the settings that change it. Most of them belong to a session and are on the **Screen** page of the session’s settings (see Section 9.4.4.5); the most used ones are also on the **Settings** menu.

9.8.1. Terminal emulation

Terminal works as an ANSI terminal, the kind bulletin boards expect. It understands the ANSI codes for moving the cursor, clearing the screen or a line, scrolling part of the screen (for example under a status line that stays put), the 16 text colors, blinking text, and ANSI music. It shows the PC character set, so the line-drawing characters bulletin boards use for boxes and menus look as intended. There is no other emulation to choose.

When the other computer asks what kind of terminal it is talking to, where the cursor is, or how

big the screen is, Terminal answers by itself. Over Telnet it also tells the other computer that it is an ANSI terminal, and how many columns and rows the screen has.

9.8.2. Colors

To change the screen's colors, choose one on the **Settings › Colors** submenu, or in **Colors** on the **Screen** page:

Standard
: The usual ANSI colors.

Green screen
: Shades of green, like an old green monitor.

Amber screen
: Shades of amber, like an old amber monitor.

Black on white
: Black text on a white background, with the colors darkened so they show up on white.

The colors belong to the session and change at once.

9.8.3. Local echo

Many computers send back each character you type, so that it appears on your screen; some do not. With local echo on, Terminal shows what you type itself, with `Enter` as a new line. Turn it on with **Settings › Local Echo** if nothing appears when you type; turn it off if every letter appears twice. Local echo belongs to the session and is off at first.

9.8.4. Answerback

Some systems ask a terminal to identify itself by sending a special character, Ctrl+E (called ENQ). Terminal answers with the text in **Answerback** on the **Screen** page, and does not show the character. When **Answerback** is empty, Terminal sends nothing.

9.8.5. ANSI music and the bell

Some bulletin boards play tunes on their menus and welcome screens. This is called ANSI music. Terminal plays it through your sound card, or through the PC speaker when there is no sound card (see Section 7.12 for choosing the sound hardware). While a tune plays, the screen waits for it to end before it shows more, as the bulletin board intended; only a tune the bulletin board sends as background music plays while the screen goes on. A mistake in a tune is ignored.

To turn ANSI music off or on, choose **Settings › ANSI Music**, or use **Play ANSI music the other**

side sends on the **Screen** page. It belongs to the session and is on at first. Turning it off also stops a tune that is playing.

When the other computer rings the bell (by sending the character Ctrl+G), Terminal beeps, at most once every half second.

9.8.6. Scrollback

Lines that scroll off the top of the screen are kept in the scrollback, up to the number in **Scrollback lines** on the **Screen** page (1,000 at first, and up to 10,000). To look back, use the scroll bar at the right side of the screen, the mouse wheel, or `Shift` + `PgUp` and `Shift` + `PgDn`. Typing or pasting takes you back to the live screen.

Edit › Clear Screen, and a bulletin board that clears the screen, move the old screen into the scrollback. Lines that scroll inside part of the screen, such as under a status line that stays put, are not kept. Changing **Columns** or **Rows** empties the scrollback.

9.8.7. Capturing to a file

To save everything the other computer sends in a file:

1. Choose **File › Capture to File...**.
2. In the **Capture to File** dialog box, choose a folder, type a file name, and click **[Save]** (see Section 5.6).

Terminal adds everything it receives to the end of the file, exactly as it arrives, including the codes for colors and cursor movement. A check mark shows next to **File › Capture to File...**, the right side of the status bar shows `Capture`, and the screen shows "[Capturing to *file*]". To stop, choose **File › Capture to File...** again; the screen shows "[Capture stopped]". The files you send or receive in a file transfer are not captured.

If you choose a file that already exists, the dialog box asks "*name* already exists. Do you want to replace it?" Click **[Yes]** to go on: Terminal adds the new text at the end of the file and keeps what was there. If the file cannot be opened, Terminal says "The capture file could not be opened."

9.8.8. Where Terminal keeps its settings

Terminal keeps the phone book (every session with all its settings), the session you used last, the protocol, and the transfer options in the file `TERMINAL.INI`, in Terminal's folder in your user folder: `USER\APPS\KPUNCH\TERMINAL` (see Section B.1). It saves the file at once whenever you change a session, a color, local echo, ANSI music, the protocol, or a transfer option. A passphrase is saved scrambled, and never when the session asks for it at each connect.

When more than one Terminal is running, they share this file. Each time a Terminal saves, it

reads the file again first and changes only what you changed in that Terminal, so the other Terminals' changes are kept, even to the same session. The phone book shows the other Terminals' changes each time you open it. A session that another Terminal renames or deletes is no longer the window's session: the window keeps its settings, but its changes are not saved until you choose a session again.

If Terminal cannot save the file, the screen shows "[The phone book could not be saved]".

If the file is there but cannot be read (it is damaged, or its disk failed), Terminal starts with the usual session, **Direct COM1**, and says "The phone book *file* cannot be read. Terminal goes on, but does not save changes to the phone book, so the sessions in the file are not lost." It then never saves over the file, so you can still restore it from a backup. Delete the file, or put a good copy in its place, and start Terminal again.

9.9. When something goes wrong in Terminal

The messages for each way of connecting are listed in Section 9.5.1, Section 9.5.2, Section 9.5.3, and Section 9.7.4; the file transfer results are in Section 9.6.8. These problems come up most often:

What you see	What to try
The screen shows random characters.	The speed, data bits, parity, or stop bits do not match the other side. Change them on the **Connection** page.
Nothing appears when you type.	Turn on **Settings › Local Echo**.
Every letter appears twice.	Turn off **Settings › Local Echo**.
"Telnet and the secure link over the network need Networking, which is not installed. Setup can add it."	Run Setup and add the Networking part (see Section 3.5).
Transfers stop with "Too many errors".	Use RTS/CTS flow control, a lower speed, or XMODEM-1K. For ZMODEM, try **Escape all control characters (for links that lose them)**.
"The receiver did not start"	Start the receive on the other computer before, or right after, you choose **Transfer › Send Files...**.
"The passphrase does not match the host's"	Use exactly the same passphrase as the secure-link proxy, or none on both sides.

See also Section 11.10 and Section 11.9.

Chapter 10. Managing Add-ons

An add-on is anything you add to DVX after it is installed: a program, a library or widget that other programs use, fonts, sounds, themes, desktop pictures, screen savers, help files, or MIDI instruments. You add, update, and remove add-ons with the Software program. This chapter explains what add-ons are, how to install them from a file or from the package server over the network, how to keep them and DVX itself up to date, how to publish your own, how DVX checks who made them, and how to add or remove the optional parts of DVX after Setup.

10.1. Add-ons and packages

Every add-on comes as a package: one file whose name ends in `.DPK`. A package holds the add-on's files, a list of those files with the size and a fingerprint of each, and a description of the package: its name, version, and kind, who published and wrote it, and which other packages it needs. DVX checks every file against that list as it unpacks the package.

DVX itself, its base fonts, and its optional parts are packages too. That is why Software lists them beside your add-ons, and why the package server can keep them up to date.

10.1.1. Kinds of packages

Each package is of one kind. Software shows the kind, in these words, in its **Kind** column and in a package's details:

Kind	What the package holds
`app`	A program. It appears in Program Manager's Installed Programs group.
`library`	A library: something other programs use to do their work. It works from the next time DVX starts.
`widget`	A widget: a kind of control that other programs use in their windows. It works from the next time DVX starts.
`font`	Fonts.
`bank`	MIDI instruments.
`theme`	Themes.
`wallpaper`	Desktop pictures.
`sound`	Sounds.
`saver`	A screen saver.
`help`	A help file.

Kind	What the package holds
`bundle`	No files of its own: a bundle stands for a set of other packages. Each optional part of DVX is a bundle (see Section 10.9).
`system`	DVX itself. Only DVX's own package has this kind.

10.1.2. Names, package names, and versions

Three things identify a package:

Name

The name people see, such as Chess.

Package name

Who made the package and what it is, with a dot between, such as `acme.chess`. Each part is 1 to 8 lower-case letters, digits, or underscores (_). Two packages with the same package name are the same package. Software shows the package name in its **Package** column, which tells apart two packages that have the same name.

Version

Numbers with dots between them, such as 1.0.0. A higher version is a newer one.

Package names that start with `kpunch.` belong to DVX's own packages, such as `kpunch.dvx` (DVX itself) and `kpunch.basefont` (DVX Fonts, the base set of fonts). Only packages signed with DVX's own key may use such a name (see Section 10.8).

A package can need other packages, each at an oldest version that will do. Software installs what a package needs along with it, and removes a package only together with the packages that need it.

DVX itself is listed as a package named DVX, with the summary "The DVX desktop and its programs.", the publisher Kangaroo Punch Studios, and the licence MIT. The base fonts are the package DVX Fonts, with the summary "DejaVu Sans, Sans Mono, and Serif in every style, in sizes for the screen and for printing."

10.1.3. Where add-ons are installed

Add-ons are installed into the DVX folder (for example `C:\DVX`), never into your user folder. So an add-on is installed for everyone: every user folder used with that DVX folder sees it. There is no way to install a package for one user only.

Each kind goes into its own folder in the DVX folder, named from the package name. For a package named `acme.chess`, the files go here:

Kind	Folder in the DVX folder
app	APPS\ACME\CHESS
library	LIBS\ACME\CHESS
widget	WIDGETS\ACME\CHESS
help	APPS\ACME\CHESS, or beside a library or widget with the same package name
font	SHARED\FONTS\ACME
bank	SHARED\BANKS\ACME
theme	SHARED\THEMES\ACME
wallpaper	SHARED\WPAPER\ACME
sound	SHARED\SOUNDS\ACME
saver	SHARED\SAVERS\ACME
bundle	None: a bundle has no files of its own.
system	Anywhere in the DVX folder except the user folder.

Any kind except a bundle may also put files in DVX's SYSTEM folder, for example a program for the DOS prompt, but not in its KEYS or PACKAGES folders. A package can never replace a file that belongs to another package: Software refuses such a package before it installs anything. DVX keeps a record of each installed package in SYSTEM\PACKAGES.

The SHARED folder holds the fonts, sounds, themes, desktop pictures, MIDI instruments, and screen savers that every program can use. Only packages put files there. Your own fonts, sounds, themes, desktop pictures, and screen savers go in the folders of the same names in your user folder instead. Those are not packages, and Software does not list them. See Section B.1 for the folders of DVX.

A few things about add-ons are kept for each user folder:

- The publisher keys you chose to trust, in the KEYS folder in your user folder (see Section 10.8.4).
- The package server's settings and your account there, in DVX.INI in your user folder (see Section 10.6.1).
- Packages being downloaded from the package server, in the DOWNLOAD folder in your user folder.

Your user folder is the USER folder in the DVX folder, unless the DVXUSER environment variable names another folder.

10.2. The Software program

Software installs, shows, updates, and removes packages. It is part of DVX itself, so it is always installed. To start it, open Program Manager's Installed Programs group and double-click

Software. Opening a `.DPK` file also starts Software (see Section 10.3.1).

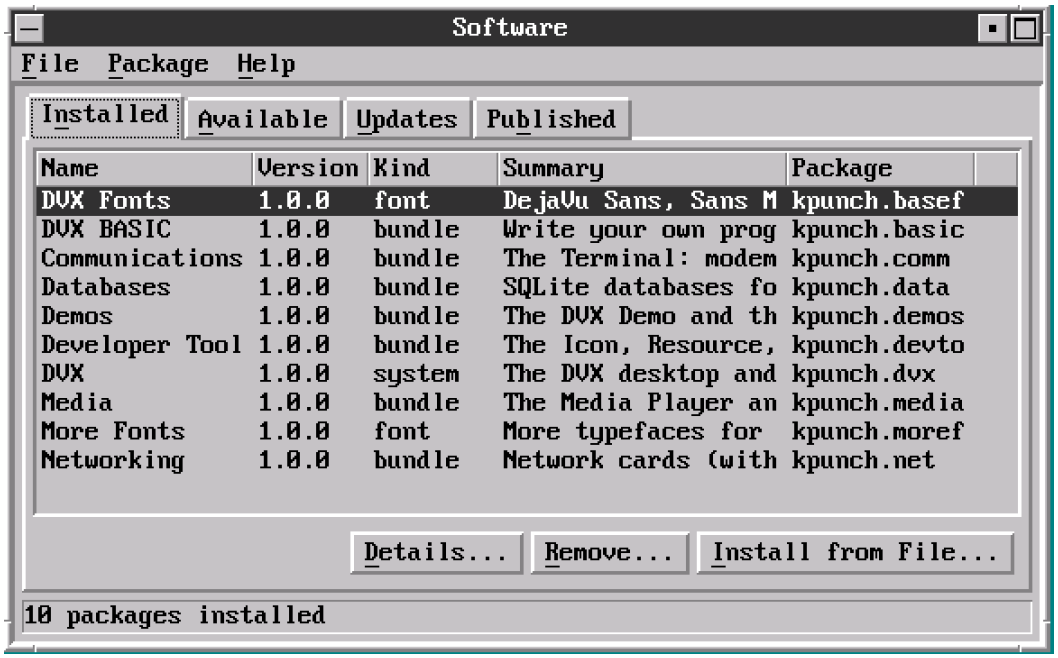


Figure 48. The Software window, showing its Installed page

The window has a menu bar, four pages on tabs (**Installed**, **Available**, **Updates**, and **Published**), and a status bar along the bottom. You can resize the window. The Available, Updates, and Published pages work with the package server over the network, so they need the Networking part of DVX (see Section 10.2.8).

10.2.1. Software's menus

The menus hold these commands:

Command	What it does
File › Install from File...	Installs a package from a `.DPK` file (see Section 10.3.1).
File › Publish a Package...	Sends a package you made to the package server (see Section 10.7).
File › Trust a Publisher's Key...	Makes DVX trust the packages a publisher signs (see Section 10.8.4).
File › Package Server...	Opens the **Package Server** window: the server Software uses, and your account there (see Section 10.6.1).
File › Exit	Closes Software.
Package › Details...	Shows everything about the chosen package (see Section 10.2.7). On the Published page, it says how the chosen version's review went.

Command	What it does
Package › Remove…	Removes the chosen package (see Section 10.4). On any other page, it first switches to the Installed page without removing anything; choose the package there and choose the command again.
Package › Install	Installs the package chosen on the Available page (see Section 10.3.2). On any other page, it first switches to the Available page.
Package › Check for Updates	Switches to the Updates page and asks the package server what is newer (see Section 10.5).
Package › Update All	Installs everything on the Updates page. If you are on another page, or the updates have not been checked yet, it switches to the Updates page and checks first; choose it again to install.
Help › Contents	Opens Software's help in DVX Help.
Help › About Software…	Shows what Software does and its copyright.

10.2.2. The Installed page

The **Installed** page lists every installed package, DVX itself included. Its columns are:

Name
: The package's name.

Version
: The version installed.

Kind
: What the package holds (see Section 10.1.1).

Summary
: A short description.

Package
: The package name, such as `acme.chess`.

The buttons **[Details…]**, **[Remove…]**, and **[Install from File…]** do the same as the menu commands of those names.

A bundle, such as each optional part of DVX, shows as one row. The packages it holds that were installed only for it are not listed separately; the bundle's details name them. A package that you installed on its own is listed even when a bundle also holds it.

The status bar shows how many packages are listed, for example "10 packages installed".

10.2.3. The Available page

The **Available** page lists every package the package server offers, at the newest version it has. Software reads this list from the server the first time you show the page; **[Refresh]** reads it again. While it reads, a window titled **Reading the package list** shows its progress.

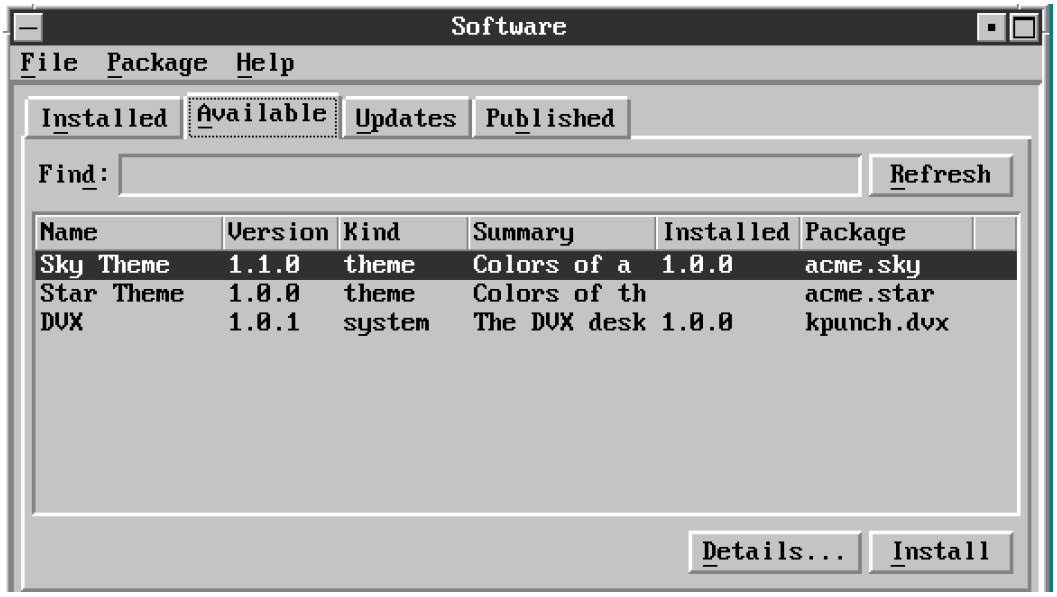


Figure 49. The Available page, listing what the package server offers

Its columns are:

Name

The package's name.

Version

The version the server offers.

Kind

What the package holds.

Summary

A short description.

Installed

The version you have. It is empty when you do not have the package.

Package

The package name.

To shorten the list, type in the **Find** box. Only the packages whose name, summary, or package name contains what you typed stay in the list; capital and small letters count as the same. Empty

the box to see the whole list again.

[Details…] shows what the server says about the chosen package (see Section 10.2.7). **[Install]** fetches the chosen package and installs it (see Section 10.3.2).

The status bar shows how many packages the server offers and the server's address: "*n* packages on *address*", for example with the address `http://packages.dvxgui.com`. When the server cannot be reached, the status bar says "The package server could not be reached." and a message gives the reason (see Section 10.6.3).

10.2.4. The Updates page

The **Updates** page lists what the package server has that is newer than the packages you have, DVX itself included (see Section 10.5 for using it). A line above the list says how many updates there are. The list's columns are:

Name

The package's name.

Installed

The version you have.

New

The newer version on the server.

Kind

What the package holds.

Summary

A short description.

Package

The package name.

[Check for Updates] asks the server again, and **[Update All]** installs everything listed.

10.2.5. The Published page

The **Published** page lists every version of every package you have sent to the package server, and how its review went (see Section 10.7). The line above the list says "*n* versions published by *email*", with the email of your account. Without an account, it says "Give your account on the package server in File > Package Server to see what you have published." The list's columns are:

Name

The package's name.

Version

The version you sent.

State

"Waiting for review" (the server's operator has not looked at it yet), "Published" (it is offered to everyone), "Turned down" (it was not accepted; the **Note** gives the reviewer's reason), or "Withdrawn" (it was taken off the server's list).

Note

The reviewer's note, if any.

Package

The package name.

Software reads this list from the server the first time you show the page; **[Refresh]** asks again. **[Publish a Package…]** is the same as **File › Publish a Package…**.

10.2.6. Choosing a package and sorting the lists

Every list starts with its first row chosen. Click a row to choose another package; Details, Install, and Remove act on the chosen one. Double-clicking a row is the same as choosing Details. Click a column heading to sort the list by that column.

If no package is chosen, for example because the list is empty, Software says "Choose a package in the list first."

10.2.7. The Details window

To see everything about a package, choose it and choose **[Details…]** (or **Package › Details…**), or double-click it. The window's title is the package's name. Its upper list has the columns **What** and **Value**, with these rows:

What	Value
Name	The package's name.
Version	Its version.
Kind	What it holds (see Section 10.1.1).
Summary	A short description.
Publisher	Who publishes it.

What	Value
Author	Who made it.
Licence	The terms under which you may use it.
Web site	A web site for the package, if any.
Signed by	Who signed it (see below).
Needs	The packages it needs, by package name, each with the oldest version that will do, such as “kpunch.dvx 1.0.0 or later”, separated by commas. For a bundle, these are the packages it holds.
Needed by	For an installed package: the names of the installed packages that need it.
Size	For a package on the server: the size of its file, in bytes.
Package	Its package name.

For an installed package, **Signed by** gives the name of the trusted key that signed it, such as “DVX Repository” for DVX’s own key. It says “key *id*” when the key that signed it is no longer trusted, and “nobody” when the package is not signed.A package signed with a key you did not trust when you installed it shows “a key you did not trust when it was installed (not checked)”: DVX could not check that signature. A package whose signature by a key you trust does not fit it shows “a key you trusted, but its signature did not fit: the package was changed after it was signed”.For DVX itself, DVX Fonts, and the parts of DVX that Setup installed, it says “not checked: Setup installed it from the DVX disks”: Setup copied them from the DVX disks and checked no signature. Once one of them is updated from the package server, it names DVX’s key. For a package on the Available or Updates page, **Signed by** says “checked when it is installed”: DVX checks the signature once it has fetched the package.

Below, **Files** lists every file the package put in DVX, with its size. Each file is named from the DVX folder, for example `APPS\ACME\CHESS\CHESS.APP`. For a package on the server, this list is empty: its files are known only once it is fetched.

[Close] (or `Enter` or `Esc`) closes the window.

On the Published page, Details shows a message instead of this window: “*Name Version*: *State*.”, followed by the reviewer’s note when there is one.

10.2.8. Software without the Networking part

Without the Networking part of DVX, Software still installs packages from files, shows their details, and removes them; only the package server is out of reach. These are then unavailable: **File › Publish a Package...**, **File › Package Server...**, **Package › Install**, **Package › Check for Updates**, **Package › Update All**, the **Find** box, and the buttons on the Available, Updates, and Published pages.

The three server pages say “The package server needs DVX’s Networking part. To add it, run Setup from DVX’s CD or Disk 1 and choose Upgrade or repair.” On the Available page this is in the status bar; on the Updates and Published pages it is above the list. See Section 10.9.1.

10.3. Installing add-ons

You can install a package from a `.DPK` file (on a floppy disk, a CD, or your hard disk) or from the package server. Either way, Software first shows what it is about to do in the **Install Software** window, and installs only when you choose **[Install]**.

10.3.1. Installing from a file

To install a package from a file:

1. In Software, choose **File › Install from File...**, or the **[Install from File...]** button on the Installed page.
2. In the **Install from File** dialog box, find the package’s `.DPK` file and open it. The dialog lists `Packages (*.dpk)`; choose `All Files (*.*)` to see every file.
3. Software reads the package. A small window titled **Reading** shows how far it has got.
4. The **Install Software** window shows what will be installed (see Section 10.3.4). Read it, then choose **[Install]**, or **[Cancel]** to install nothing.
5. A window titled **Installing** shows the progress. When it is done, Software says what was installed (see Section 10.3.7).

You can also open a `.DPK` file directly: double-click it in File Manager, type its full name in Program Manager’s **File › Run...**, or make a Program Manager item whose program is the `.DPK` file. DVX starts Software, which reads the package and shows the **Install Software** window at once. If Software is already open, its window comes to the front and it takes the package the same way. When Software is busy (a question or another window of its own is open, or it is installing), it takes the package once it is done; if you open several packages meanwhile, it takes the last one.

When a package needs other packages, keep them in the same folder. Software reads every other `.DPK` file in the folder of the one you chose, and installs from them whatever the chosen package needs that you do not have in a version that will do. The other files are used only for that, and one that cannot be read is skipped.

A package’s signature can be inside the package, or in a separate file with the same name ending in `.SIG` beside it. When you copy a package that has a `.SIG` file, copy the `.SIG` file with it, or DVX cannot tell who signed the package.

10.3.2. Installing from the package server

To install a package that the package server offers (this needs the Networking part and a working network connection; see Section 4.4):

1. In Software, click the **Available** tab. The first time, Software reads the list from the package server.
2. Find the package. To shorten the list, type part of its name in the **Find** box.
3. Choose the package, then choose **[Install]** (or **Package › Install**).
4. Software fetches the package, with any packages it needs that you do not have in a version that will do. A window titled **Fetching** names the package it is on and shows how far it has got.
5. Software reads what it fetched and shows the **Install Software** window. From here on, installing is exactly as from a file.

Install fetches the version the Available page lists, which is the newest the server has. For a package you have in an older version, that is an upgrade.

Software fetches packages into the `DOWNLOAD` folder in your user folder, and deletes them once they are installed. If you choose **[Cancel]** in the **Install Software** window, or the install does not finish, they are kept: when you choose **[Install]** again, Software checks the packages it kept rather than downloading them again, as long as the server still offers the same versions. Each fetch also clears out the packages an earlier fetch left there. A download that was stopped or cut off part way is kept, and goes on from where it stopped the next time.

Each package fetched must be exactly the size and have exactly the fingerprint the server listed for it. If it does not, it is thrown away and the fetch fails. Its signature is fetched with it: a package from the package server is installed only when it is signed with DVX's own key (see Section 10.8.3).

If what was fetched cannot be read, Software says "*Name* cannot be installed: what was fetched cannot be read." Other problems are given as "*Name* cannot be installed: *reason*", or as one of the server messages in Section 10.6.3.

10.3.3. The add-ons on the DVX CD

The DVX CD has two add-ons in its `ADDONS` folder. Setup offers them in its **Add-ons to install** list, each with a box to tick (see Section 3.6):

More Fonts (`MOREFONT.DPK`)

> "More typefaces for documents, programs, and games: condensed DejaVu, Arimo, Tinos, Cousine, display faces, and pixel fonts." Setup shows it as 8 MB.

DVX General MIDI (`DVXGM.DPK`)

> "General MIDI instruments for MIDI music on wavetable sound cards (Gravis UltraSound, Sound Blaster AWE32 and AWE64)." Setup shows it as 4 MB. It is the **Standard** SoundFont on the Control Panel's Sounds page (see Section 7.12); without it, the sound card's own instruments are used when it has them. (The FM instrument banks DMXOPL and DMXOPL3 are part of DVX itself, not add-ons.)

Once installed, both are ordinary packages: Software lists them and can remove them. To add one after Setup, choose **File › Install from File...** in Software and open it from the `ADDONS` folder on the CD, or install it from the Available page when the package server offers it. The DVX floppy disks have no add-ons.

Each comes with a `.SIG` file beside it (`MOREFONT.SIG` and `DVXGM.SIG`) that holds DVX's signature. Their package names start with `kpunch.`, so they install only with that signature: if you copy one, copy its `.SIG` file with it, or Software refuses the package with "*Name* says it is part of DVX, but it is not signed by DVX's key."

Setup installs the base fonts, the package DVX Fonts, unless you choose **None** for the fonts (see Section 3.4). Software lists it and offers updates to it. If you chose None, you can add DVX Fonts later from the package server in Software (when the server offers it), or by running Setup again.

10.3.4. The Install Software window

Before anything is installed, the **Install Software** window says "This is what will be installed:" and lists the packages in the order they will be installed, the packages that others need first.



Figure 50. The Install Software window, with notes about a needed package and unsigned packages

The list's columns are:

Name

The package's name.

Version

The version to be installed.

Action

"New" (you do not have the package yet), "Upgrade" (a newer version of one you have), or "Reinstall" (the same version you have, installed again, which repairs it).

Signed

"By DVX" (signed with DVX's own key), "Trusted" (signed with a publisher's key you chose to trust), or "No" (see Section 10.8).

Below the list are notes, each on its own line when it applies:

- "Installed with it, because it needs them: *names*." These packages are installed too, because the one you chose needs them.
- "Not signed by a publisher DVX trusts: *names*. Install them only if you trust where they came from." The first words are in bold. See Section 10.8.2.
- "These add-ons stop working with the new DVX until they are updated: *names*." This appears only when DVX itself is updated (see Section 10.5.1).
- "DVX itself is updated: the new version runs from the next time DVX starts." Or, when a library or widget is installed: "Libraries and widgets work from the next time DVX starts."
- "It takes *n* bytes of disk space." Or, when the disk does not have enough room: "There is not enough room on the disk: it needs *n* bytes and *m* are free. Make room on the disk, then install again." **[Install]** is then unavailable.

Choose **[Install]** (or press `Enter`) to install, or **[Cancel]** (or press `Esc`, or click the close box) to install nothing.

10.3.5. Disk space

The last note in the **Install Software** window says how much disk space the packages take. When the disk does not have enough room free, the note says so and **[Install]** is unavailable. The room needed can be more than the packages take in the end: each package's files are all unpacked before the files of the version it replaces are removed. Make room first, for example by deleting files you no longer need or by removing add-ons you do not use (see Section 10.4), then install again. An install that runs out of room all the same (for example because a program filled the disk meanwhile) stops with "Installing did not finish. *Name*: There is not enough room on the disk: *Name* needs *n* KB and *m* KB are free."

10.3.6. Progress and Cancel

While Software works, a small window shows a progress bar. Its title, and the start of the line above the bar, say what Software is doing: **Reading**, **Installing**, **Removing**, **Fetching**, **Publishing**, **Reading the package list**, **Checking for updates**, or **Reading your packages**. The line also names the package or file Software is on.

To stop, choose **[Cancel]** (or press `Esc`, or click the window's close box):

- Installing or removing stops after the package Software is on. A package that was still being unpacked is left exactly as it was before; one whose files were already in place is finished first. Packages done before stay installed (or removed). No message follows: the Installed page shows what is installed. When you choose **[Cancel]** during the last package and it is finished, there was nothing left to stop, so Software says it is done, as usual.
- A job on the package server stops at once, without a message. A download stopped part way is kept, and goes on from there the next time.

10.3.7. When the install is done

When everything is installed, Software says one of these:

- "Installed: *names*."
- "Installed: *names*. Libraries and widgets work from the next time DVX starts." A library or widget was installed.
- "Installed: *names*. Restart DVX to start using the new version of DVX." DVX itself was updated.

DVX does not restart by itself. When the message asks for it, exit DVX (see Section 5.16) and start it again.

An upgrade removes the files the old version had that the new one does not, the way removing a package does (see Section 10.4). A file among them that changed after it was installed, such as a data file you edited, is left. After the message that the package is installed, Software lists such files: "These files changed since they were installed, so they were left:", the files, and "Delete them too?" **[Yes]** deletes them; **[No]** leaves them where they are. A file that cannot be deleted is left too, and Software says "These files could not be deleted, so they were left:", the files, and "A program may be using them, or the disk may be write-protected." These messages also follow an install that did not finish, for the packages it upgraded before it stopped.

New programs appear in Program Manager's Installed Programs group. New fonts, sounds, themes, desktop pictures, and MIDI instruments appear in the lists where you choose them. MIDI instruments that an add-on installs are listed by the add-on's name on the Control Panel's Sounds page, except DVX General MIDI, which is listed there as **Standard**.

The next time DVX starts after programs or parts were added or removed, the bar on DVX's title

screen may fill a second time while the help is brought up to date.

10.3.8. When a package cannot be installed

If Software cannot read the package file, it says "*file* cannot be installed: *reason*". If it can read the package but cannot install it, it says "*Name* cannot be installed. *reason*". If something goes wrong while installing, it says "Installing did not finish. *Name*: *reason*". The reasons, and what to do:

Reason	What it means and what to do
"*Name* needs *package name version* or later, which is not here."	The package needs another package, at that version or later, that you do not have, and it is not in the same folder (or on the package server). Get that package, put it in the same folder, and install again.
"*Name* needs *package name version* or later, but an older one is being installed."	A package installed at the same time is older than this one needs. Get a newer version of it.
"*Name* needs DVX *version* or later (this is DVX *version*)."	The package was made for a newer DVX. Update DVX (see Section 10.5.1), or get a version of the package made for yours.
"*Name* was made for a different version of DVX."	Get a version of the package made for your DVX (see Section 10.10.2).
"This package needs a newer DVX (its manifest is format *n*)."	The package was made for a newer DVX. Update DVX first.
"A newer version of *Name* (*version*) is installed."	You already have a newer version. DVX never installs an older version over a newer one. If you really want the older one, remove the newer one first.
"*Name* is not signed by the publisher of the installed version."	An update must be signed by whoever signed the version you have, or by DVX (see Section 10.8.3). Get the update from the publisher of the version you have.
"*Name* says it is part of DVX, but it is not signed by DVX's key."	Its package name starts with `kpunch.`, but DVX's signature is missing or does not fit. Copy the package's `.SIG` file with it, or get the package again from the DVX CD or the package server.
"*Name* is from the package server, but it is not signed. DVX installs a package from the package server only when DVX's key signed it."	The package server gave a package without DVX's signature. DVX does not install it (see Section 10.8.3). Tell whoever runs the server.

Reason	What it means and what to do
"*Name* is from the package server, but it is signed by another key, not by DVX's. DVX installs a package from the package server only when DVX's key signed it."	The package carries a signature, but not DVX's, even if it is a publisher's key you trust. Tell whoever runs the server, or get the package from its publisher as a file.
"*Name* is from the package server, but its signature by DVX's key does not fit it: it was changed or damaged on the way."	The package was changed after DVX's key signed it. Try again; if it keeps happening, something between you and the server changes what you download.
"*Name* has the file *file*, which belongs to *Other*."	The package would replace a file of another package you have. Remove the other package first if you no longer need it, or do without this one.
"*Name* and *Other* both have the file *file*."	Two of the packages being installed have the same file, so they cannot be installed together.
"*Name* and *Other* need each other."	Each package needs the other, which DVX cannot install. Tell the publisher.
"Two versions of *Name* are asked for."	Two different versions of the same package were to be installed at once. Install only one of them.
"There is not enough room on the disk: *Name* needs *n* KB and *m* KB are free."	Make room on the disk (see Section 10.3.5).
"There is not enough memory."	Close other programs and try again.
"Cannot read *path*."	The file cannot be read. Check the disk, or copy the file again.
"*path* is not a DVX package (it does not start with PACKAGE.INI)."	The file is not a DVX package.
"The signature of *path* cannot be read."	The signature inside the package is damaged. Get a fresh copy of the package.
"*file* is not the file the manifest lists (it was changed or damaged)."	A file in the package does not match the package's own list of its files: it was changed or damaged. That package is left as it was before. Get a fresh copy of the package.
"Cannot write *file* (is the disk full?)." or "Cannot write *file*."	DVX could not write a file into the DVX folder. Check that the disk has room and is not write-protected.

Reason	What it means and what to do
“Cannot make the folder *folder*.”	DVX could not make a folder in the DVX folder. Check that the disk has room and is not write-protected.
“*path* cannot be installed: another job is running.”	Software is already busy. Wait for the progress window to close, then try again.
“*Name* cannot be installed now.”	Software could not start installing. Try again.

Other reasons that mention the manifest (the package’s own description of itself), a line number, or a file “in the package” mean that the package was not made correctly or is damaged: get a fresh copy, or tell its publisher. If putting the new files in place fails, DVX puts every file back as it was before, and the reason names the file.

10.4. Removing add-ons

To remove an add-on:

1. In Software, click the **Installed** tab.
2. Choose the package.
3. Choose **[Remove…]** (or **Package › Remove…**).
4. Answer Software’s questions (see below).
5. A window titled **Removing** shows the progress. When it is done, the list is shown again without the package. There is no separate message.

First, Software asks whether to remove the package. When no other installed package needs it, the question is “Remove *Name*?” When other installed packages need it, Software names them: “These need *Name* and are removed with it:”, their names, and “Remove them all?” Either way, **[Yes]** goes ahead and **[No]** removes nothing.



Figure 51. Software asking about the packages that need the one being removed

Next, if some packages were installed only because the ones being removed needed them (you did

not choose them yourself, and nothing else needs them), Software offers them: “These were installed for *Name* and nothing else needs them:”, their names, and “Remove them too?” **[Yes]** removes them as well; **[No]** keeps them. This is how removing a part of DVX removes its programs and libraries (see Section 10.9.2).

Files that changed after they were installed, such as a data file you edited, are not deleted. Once the package is removed, Software lists them: “These files changed since they were installed, so they were left:”, the files (named from the DVX folder, such as `APPS\ACME\CHESS\CHESS.APP`), and “Delete them too?” **[Yes]** deletes them; **[No]** leaves them where they are.

A file that cannot be deleted, for example because a program is using it or the disk is write-protected, is left in place too. Software then says “These files could not be deleted, so they were left:”, the files, and “A program may be using them, or the disk may be write-protected.” The same message names a changed file that **[Yes]** to “Delete them too?” could not delete. Close the program, or make the disk writable, and delete the files with File Manager.

A file that another package also has is left in place. Folders the package made are removed when they end up empty.

You cannot remove DVX itself with Software: it says “DVX itself is removed with Setup.” See Section 3.9.

If removing cannot start, Software says “*Name* cannot be removed now.” If it does not finish (other than after **[Cancel]**), Software says “Removing did not finish. *reason*”, where the reason is, for example, one of these:

- “*Name*: *package name* is not installed.” The package was already gone.
- “*Name*: Cannot remove *path*.” DVX could not delete the package’s record in the `SYSTEM\PACKAGES` folder. Check that the disk is not write-protected.

10.5. Keeping DVX and your add-ons up to date

The **Updates** page asks the package server what it has that is newer than the packages you have, DVX itself included. It needs the Networking part and a working network connection.

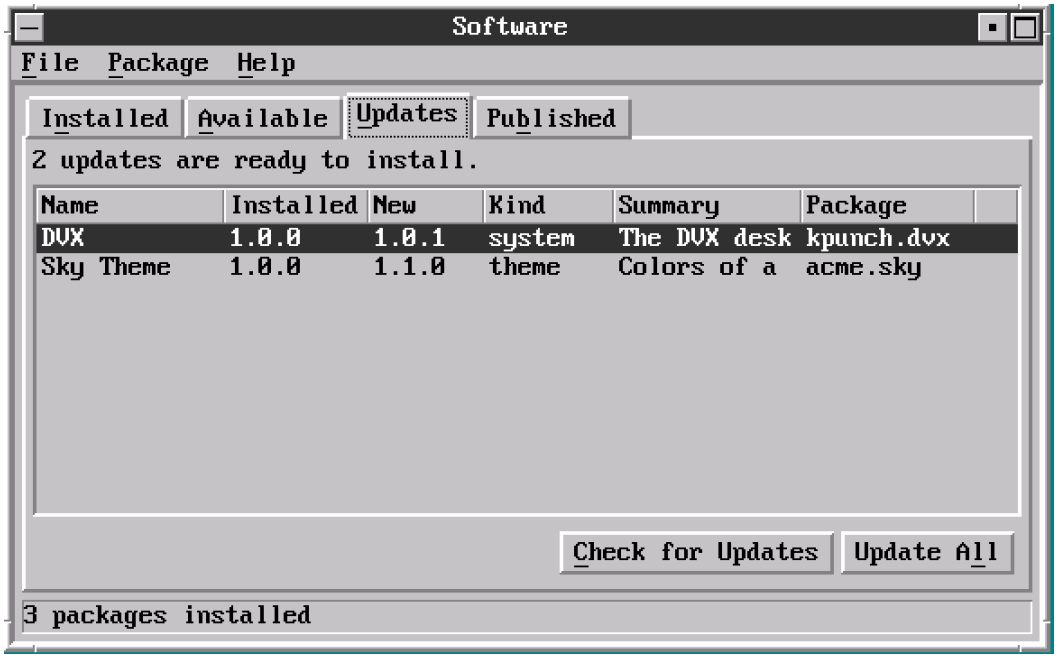


Figure 52. The Updates page, with an update of DVX itself at the top

To update everything:

1. In Software, click the **Updates** tab. The first time you show the page after starting Software, it asks the server; a window titled **Checking for updates** shows the progress. (Software does not check by itself when it starts.)
2. Read the line above the list: “Everything is up to date.”, or “*n* updates are ready to install.” (or “1 update is ready to install.”).
3. Choose **[Update All]** (or **Package › Update All**). Software fetches everything listed, with anything those packages need, and shows the **Install Software** window.
4. Choose **[Install]**.

When DVX itself is listed, it is at the top. **[Check for Updates]** (or **Package › Check for Updates**) asks the server again. With nothing listed, **[Update All]** just says “Everything is up to date.” If the server cannot be reached, the line above the list says “The package server could not be reached.” and a message gives the reason.

There is no button to update just one package on this page. To update one, find it on the Available page and choose **[Install]**: the Available page offers the newest version, so installing it upgrades the one you have.

In messages about Update All, the updates are named by the package’s name when there is one update, and as “The updates” when there are several, for example “The updates cannot be installed: *reason*”.

An update must be signed by the same publisher as the version you have, or by DVX (see Section

10.8.3).

10.5.1. Updating DVX itself

DVX itself is a package (named DVX, package name `kpunch.dvx`), so a newer DVX on the package server is offered on the Updates page, at the top of the list. DVX Fonts and the parts of DVX you have are offered there too when the server has newer versions.



Figure 53. The Install Software window when DVX itself is updated

When the update includes DVX itself, the **Install Software** window says "DVX itself is updated: the new version runs from the next time DVX starts." If some of your add-ons were made for the DVX you have and will stop working with the new one, the window names them before anything is installed: "These add-ons stop working with the new DVX until they are updated: *names*." Update them too, or choose **[Cancel]** and keep the DVX you have.

After the install, Software says "Installed: *names*. Restart DVX to start using the new version of DVX." Exit DVX and start it again.

You can also update DVX from a newer DVX CD or set of floppy disks, with Setup's **Upgrade or repair DVX** (see Section 3.8).

10.6. The package server

The package server is a web server on the network that offers DVX packages. Software uses it for its Available, Updates, and Published pages. DVX's own package server is `packages.dvxgui.com`, on port 80; you can choose another one in the **Package Server** window. What a server offers is up to whoever runs it.

To reach a package server, DVX needs the Networking part and a working network connection: a

network card, its packet driver, and the settings on the Control Panel's Network page (see Section 4.4 and Section 7.9). Without the Networking part, Software still installs packages from files (see Section 10.2.8).

10.6.1. The Package Server window

To choose the package server, or to give your account there, choose **File › Package Server...** in Software. The window says "The package server Software gets packages from (leave both empty for DVX's own):" and has these boxes:

Address

The server's name, such as `packages.dvxgui.com`. You can also type it as `http://packages.dvxgui.com/`; Software takes the name from it.DVX reaches package servers over plain web connections only, without encryption, so an address that starts with `https://` is refused: Software says "DVX reaches package servers over plain http only (it has no encryption). Type the address without https://."

Port

The server's port, a number from 1 to 65535. Port 80 is the usual one.

Below, the window says "Your account there, to publish packages (leave it empty if you have none):" and has:

Email

The email address you registered with on the server.

Password

The account's password. Each letter shows as a mask character.

The boxes are not empty when the window opens: they show the settings in use. Until you change them, they show DVX's own server, `packages.dvxgui.com`, and port 80. To go back to DVX's own server later, empty both the **Address** and the **Port** box and choose **[OK]**. When you choose **[OK]** with DVX's own server (empty, or typed as `packages.dvxgui.com`) and port 80, Software keeps both settings empty in `DVX.INI`, so that if DVX's own server ever moves, a newer DVX's address for it is used.

Choose **[OK]** to save the settings, or **[Cancel]** to leave them as they were. After a change, the Available, Updates, and Published pages are emptied, and read again from the new server when you show them.

If the port is not a number from 1 to 65535, Software says "The port is a number from 1 to 65535, or empty for the usual one." Correct it, or empty the box. If the settings cannot be saved, Software says "The package server cannot be saved in DVX's settings."

The settings are kept in `DVX.INI` in your user folder, in the `[packages]` section (as `server`, `port`, `user`, and `password`), so each user folder has its own (see Section B.2).

You need the account only to publish packages; getting and updating packages needs no account. Software keeps the password scrambled, so it cannot be read at a glance. Scrambled is not locked: someone who has the settings file and knows how DVX scrambles it can still read the password, so give it only on a computer you trust. A password typed into `DVX.INI` by hand is used as it is, and scrambled the next time Software saves the settings.

10.6.2. How Software uses the package server

DVX talks to the package server over plain web connections (`http://`), not secure ones. That is why DVX never trusts the server itself, only the signatures on the packages: every package from the package server must be signed with DVX's own key. A package that was changed on the way over the network no longer fits that signature, so Software refuses to install it (see Section 10.8.3).

- **The catalogue.** For the Available page, Software reads the list of every package the server offers, at its newest version. It reads it the first time you show the page, and again when you choose **[Refresh]**.
- **The updates.** For the Updates page, Software tells the server which packages and versions you have, and the server answers with what it has that is newer. Software asks the first time you show the page, and again when you choose **[Check for Updates]**.
- **Fetching.** When you install from the Available or Updates page, Software downloads the packages, checks each one's size and fingerprint against the server's list, and fetches its signature with it (see Section 10.3.2).
- **Your packages.** With your account, Software sends packages you publish and reads the list of what you have published (see Section 10.7).

Each of these jobs shows the progress window; **[Cancel]** stops it at once.

DVX's own parts and add-ons can be published on a package server too, so that their newer versions are offered as updates, and parts you do not have can be offered on the Available page.

10.6.3. Messages from the package server

When a job on the package server fails, Software shows one of these messages:

Message	What it means and what to do
“The package server cannot be reached: *reason*”	DVX could not talk to the server. The reason comes from the network, for example “Cannot find *host* on the network.”, “Cannot connect to *host*: *why*.”, “*host* did not answer in time (*n* seconds).”, “*host* closed the connection without answering.”, or “Lost the connection to *host*: *why*.” Check the address in the **Package Server** window and the network connection (see Section 11.9), then try again.
“*what*: the package server answered *code* (*reason*).”	The server refused a request, and gives its reason in brackets when it has one. *what* says which request: “its catalogue”, “the updates”, a package’s name, “a signature”, “Signing in”, the file being published, or “The list of your packages”.
“The package server does not know that email and password.”	Check the **Email** and **Password** in the **Package Server** window.
“The package server gave no session when signing in.”	Signing in to the server did not complete. Try again later.
“No account is set for the package server.”	Give your account in the **Package Server** window.
“The package server’s answer cannot be read: *why*”, “The package server’s answer has no list of packages.”, or “The package server’s list of your packages cannot be read.”	The server’s answer was not what DVX expected. Check that the address in the **Package Server** window is a DVX package server.
“*package name* is not offered by the package server.”	The server no longer offers that package. Choose **[Refresh]** on the Available page.
“*Name* cannot be installed: the package server has no signature of it by DVX’s key.”	The server lists the package without DVX’s signature, so Software does not fetch it: DVX would not install it (see Section 10.8.3). Tell whoever runs the server.
“Packages cannot be fetched: the path of the DOWNLOAD folder in your user folder is too long.”	Your user folder’s path is too long to hold its `DOWNLOAD` folder. Use a user folder nearer the top of the drive (see Section 11.12.7).
“*Name* was damaged on the way. Try again.”	The package fetched did not match what the server listed. Try again.
“The download of *Name* cannot be read.”	The downloaded file cannot be read. Try again.

Message	What it means and what to do
"*Name* cannot be saved in *folder*."	The download cannot be saved in the `DOWNLOAD` folder in your user folder. Check that the disk has room.
"*file* cannot be read."	The package file you chose to publish cannot be read.
"The package server's address is too long."	Shorten the address in the **Package Server** window.
"There is not enough memory."	Close other programs and try again.

10.7. Publishing your own packages

You can offer a package you made to every DVX user through the package server. Making the package is the job of Package Builder (in the Developer Tools part) or of DVX BASIC's **File › Make Package...** (see Section 8.13). Software sends the finished package to the server; Package Builder has no publish command of its own.

First you need an account on the package server: register on the server's web site, and open the link it sends to your email. Then give the account to Software:

1. In Software, choose **File › Package Server...**.
2. Type your **Email** and **Password**, and choose **[OK]**.

To publish a package:

1. In Software, choose **File › Publish a Package...**, or the **[Publish a Package...]** button on the Published page.
2. In the **Publish a Package** dialog box, open the package's `.DPK` file.
3. Software reads the package, then sends it to the server. A window titled **Publishing** shows the progress.
4. When the server has taken it, Software says "*Name Version* is on the package server, waiting for its review. The Published page shows how the review goes." and shows the Published page.



Figure 54. The message after publishing a package

The server checks the package as DVX would before installing it, and holds it for review. Once the server's operator approves it, it is listed on everyone's Available page, and offered on the Updates page to those who have an older version. Watch the **State** column on the Published page (see Section 10.2.5): "Waiting for review", "Published", "Turned down" (the **Note** says why), or "Withdrawn".

If you have not given an account, Software says "To publish a package, give your account on the package server in File > Package Server first." If Software cannot read the package, it says "*file* cannot be published: *reason*", with the same reasons as for installing (see Section 10.3.8). A wrong email or password gives "The package server does not know that email and password."

When the server refuses a package, Software says "*file*: the package server answered *code* (*reason*).", where *code* is a number and the reason comes from the server. A package that fails the server's check gets the reason the check gives. DVX's own server also keeps these rules, with the reasons shown:

- A package name belongs to the account that first published it, so publish its later versions from the same account. Otherwise: "*package name* belongs to another account".
- A version you have already uploaded cannot be uploaded again: "*package name version* has been uploaded already: give the new one a higher version". Give each new version a higher version number, since only a newer version is offered as an update.
- Package names that start with `kpunch.` are DVX's own, and only the server's operator uploads them: "*package name* is one of DVX's own packages: only the operator uploads those".

10.8. Signatures and trusted publishers

A publisher can sign a package with a key, a little like a seal on a letter: if the package is changed after it was signed, the seal no longer fits. A signature tells you who signed the package, and that nobody has changed it since.

A key is two files: `NAME.KEY`, which the publisher gives out, and `NAME.SEC`, the secret one they sign with and keep to themselves. You only ever need the `.KEY` file.

DVX trusts packages signed with:

- **DVX's own key**, named DVX Repository. It comes with DVX as `SYSTEM\KEYS\KPUNCH.KEY` in the DVX folder, and always stays trusted. On DVX's own package server, every approved version is signed with this key, so packages from it show as "By DVX". DVX installs a package from any package server only when it is signed with this key.
- **The keys of publishers you chose to trust**, kept in the `KEYS` folder in your user folder (see Section 10.8.4). Another user folder used with the same DVX does not trust them.

10.8.1. What the Signed column means

The **Signed** column of the **Install Software** window shows how far DVX trusts each package:

Signed	Meaning
`By DVX`	Signed with DVX's own key.
`Trusted`	Signed with the key of a publisher you chose to trust.
`No`	Not signed, signed with a key you do not trust, or the signature does not fit because the package was changed after it was signed. DVX shows all three the same way.

A package from the package server is never shown as "No": unless DVX's own key signed it, Software refuses it before the window opens (see Section 10.8.3).

After a package is installed, the **Signed by** row of its details names the trusted key that signed it (see Section 10.2.7). A package signed with a key you do not trust shows "a key you did not trust when it was installed (not checked)" there instead, and one whose signature does not fit shows "a key you trusted, but its signature did not fit: the package was changed after it was signed". An unsigned package shows "nobody".

10.8.2. Unsigned packages

A package from a file that is marked "No" can still be installed. The **Install Software** window warns you first: "Not signed by a publisher DVX trusts: *names*. Install them only if you trust where they came from." Choose **[Install]** only if you trust where the package came from; otherwise choose **[Cancel]**.

Whatever the signature, every file is checked against the package's own list as it is unpacked. A changed or damaged file stops the install with "*file* is not the file the manifest lists (it was changed or damaged)."

10.8.3. Rules DVX always keeps

DVX refuses a package, whatever you answer, in these cases:

- A package whose package name starts with `kpunch.` must be signed with DVX's own key. Otherwise: "*Name* says it is part of DVX, but it is not signed by DVX's key."
- A package from the package server must be signed with DVX's own key, whoever published it and whatever the server says about it: a key you trust is not enough. Otherwise Software says why: "*Name* is from the package server, but it is not signed. DVX installs a package from the package server only when DVX's key signed it.", "*Name* is from the package server, but it is signed by another key, not by DVX's. DVX installs a package from the package server only when DVX's key signed it.", or "*Name* is from the package server, but its signature by DVX's key does not fit it: it was changed or damaged on the way." A package the server lists without DVX's signature is not even fetched: "*Name* cannot be installed: the package server has no signature of it by DVX's key." Packages you install from a file, and the add-ons Setup installs from the CD, keep the rules for files.
- An update of a package you have must be signed by whoever signed the version you have (with a key you trust), or with DVX's own key. That way nobody else can replace a package with one of their own. Otherwise: "*Name* is not signed by the publisher of the installed version." A package you installed without a trusted signature can be updated by any package of the same package name.

10.8.4. Trusting a publisher's key

To trust the packages a publisher signs:

1. Get the publisher's key file (its name ends in `.KEY`) from them.
2. In Software, choose **File › Trust a Publisher's Key...**.
3. In the **Trust a Publisher's Key** dialog box, open the key file. The dialog lists `Publisher Keys (*.key)`; choose `All Files (*.*)` to see every file.
4. Software copies the key into the `KEYS` folder in your user folder and says "Packages signed with this key are trusted from now on."

Software does not ask before it trusts the key, so open only a key you got from the publisher.

If the key cannot be trusted, Software says "The key cannot be trusted: *reason*", where the reason is one of these:

- "Cannot read *path*." The file cannot be read.
- "This is not a [key] file (or it lacks part of one)." The file is not a key file, or part of it is missing.
- "The key's id is not its public key's.", "Line *n* is not a [section] or a key = value line.", "Line *n*: *field* is given twice.", or "Line *n*: *field* must be *count* hex digits." The key file was changed or damaged. Get it again from the publisher.
- "Cannot copy the key to *folder*." The `KEYS` folder in your user folder cannot be written to. Check that the disk has room and is not write-protected.

- “The path of the KEYS folder is too long.” Your user folder’s path is too long. Use a shorter one.

If you make your own key with Package Builder’s **[New Key...]** button, it is saved in your `KEYS` folder to start with, so the DVX you made it on trusts it too.

10.8.5. Removing a trusted key

Software has no command to stop trusting a key. DVX trusts every `.KEY` file in the `KEYS` folder in your user folder, so to stop trusting a publisher, delete their key file from that folder, for example `C:\DVX\USER\KEYS\ACME.KEY`, with File Manager (see Section 8.3).

DVX’s own key, `KPUNCH.KEY` in the `SYSTEM\KEYS` folder of the DVX folder, is not one of yours. DVX needs it to install its own packages and their updates, so leave it where it is.

10.9. The optional parts of DVX

DVX comes in parts. The desktop and the everyday programs (Program Manager, File Manager, Notepad, Clock, the Image Viewer, DVX Help, Control Panel, and Software) are always installed. Each of the seven optional parts is a bundle package: Setup installs the ones you tick, and Software lists each one as a single row of kind `bundle`. A part you leave out takes no disk space and leaves more memory for your programs. No part needs another part.

Part	Package name	What it holds
DVX BASIC	`kpunch.basic`	“Write your own programs: the BASIC editor, compiler, and debugger, with its guides.” Holds the DVX BASIC IDE and the BASIC Compiler (with BASCOMP for the DOS prompt).
Databases	`kpunch.data`	“SQLite databases for BASIC programs, with the Data control and the DBGrid that show them.” Holds SQLite, the Data Control, and DBGrid.
Networking	`kpunch.net`	“Network cards (with their DOS packet driver), the web, and the package server.” Holds Network, HTTP, and Package Server.
Communications	`kpunch.comm`	“The Terminal: modems, serial and secure links, Telnet (with Networking), and file transfers.” Holds Terminal, the Terminal Control, Connections, Secure Link, and File Transfer.
Media	`kpunch.media`	“The Media Player and the Sound Recorder.”
Developer Tools	`kpunch.devtools`	“The Icon, Resource, and Help Editors, Package Builder, and Widget Showcase, with DVXRES and DVXHLPC for the DOS prompt.”

Part	Package name	What it holds
Demos	`kpunch.demos`	“The DVX Demo and the BASIC Demo.”

To see what a part holds, choose it on Software’s Installed page and choose **[Details…]**: its **Needs** row lists the packages in it, by package name. Those packages are not listed separately on the Installed page.

10.9.1. Adding a part after Setup

To add a part you left out:

1. Run Setup from the DVX CD or Disk 1 of the floppy disks. Tick **I accept the licence**, choose **[Next >]**, and choose **[Upgrade or repair DVX]**.
2. Choose the folder DVX is in, and choose **[Next >]**.
3. On the next page, under “Parts of DVX to have (an unticked one is removed):”, tick the part you want. Leave the parts you have ticked.
4. Choose **[Upgrade]**.

See Section 3.8 for the whole of Setup.

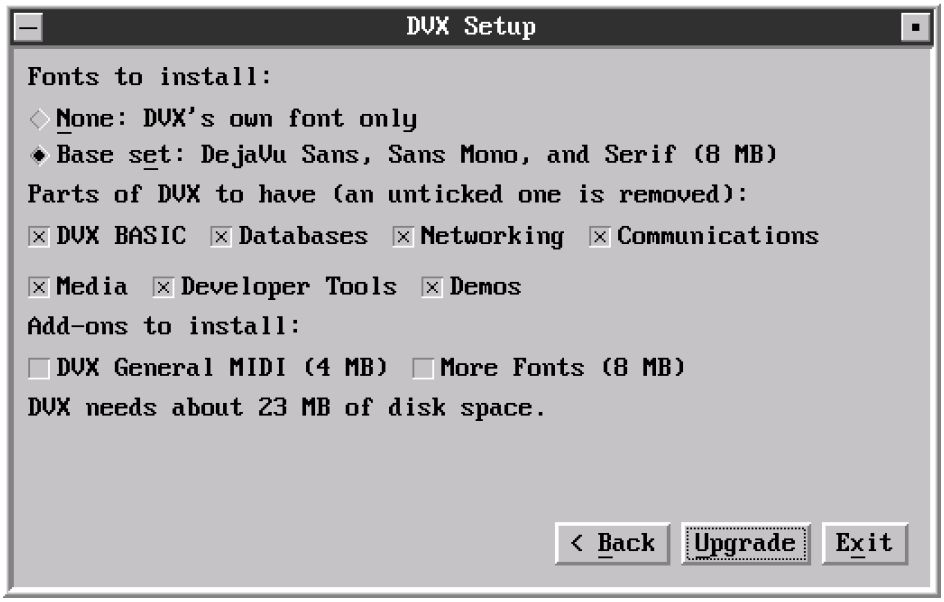


Figure 55. Setup’s page of fonts, parts, and add-ons, when upgrading

The Networking part can only be added with Setup: Software needs Networking to reach the package server, and the parts are not on the CD as separate package files. Once you have Networking, a package server that offers DVX’s parts can offer the ones you do not have on the Available page; install them as any other package.

10.9.2. Removing a part

To remove a part with Software:

1. On the Installed page, choose the part (its kind is `bundle`).
2. Choose **[Remove...]** and answer **[Yes]** to "Remove *part*?"
3. Software asks "These were installed for *part* and nothing else needs them:", lists the part's programs and libraries, and asks "Remove them too?" Answer **[Yes]** to remove them. If you answer **[No]**, only the part's own row goes, and its programs stay installed, each listed on its own on the Installed page.

You can also remove a part with Setup: run it, choose **Upgrade or repair DVX**, and untick the part. A part that other software in the DVX folder needs is kept, and Setup says "Other software in *folder* needs these parts, so Setup keeps them: *parts*." If Setup is cancelled while removing, it says "Setup was cancelled: *part* is not all removed. Software (in Program Manager) can remove it."

10.9.3. What needs Networking

Only these need the Networking part:

- Software's package server: the Available, Updates, and Published pages, the **Package Server** window, and publishing. Without Networking, Software installs packages from files only (see Section 10.2.8).
- Terminal's Telnet and the secure link over a network. Without Networking, Terminal says "Telnet and the secure link over the network need Networking, which is not installed. Setup can add it." (see Section 9.5).
- The Control Panel's Network page, which otherwise shows "Networking is not installed." (see Section 7.9).
- DVX BASIC programs that use the network.

The Communications part does not need Networking. Without it, Terminal still works over modems and serial ports, with file transfers and the secure link over a serial line.

10.10. When an add-on causes trouble

DVX loads the libraries and widgets that add-ons installed as it starts. This section explains what happens when one of them cannot be loaded, and how to start DVX without them. See also Section 11.11.

10.10.1. Add-ons left out at start-up

If DVX cannot load an add-on's library or widget, it starts without it. Once the desktop is up, a

message titled **Add-ons** lists each one it left out, as "*file* was not loaded: *why*.", and ends with "The Software program can reinstall or remove an add-on." The rest of DVX works as usual. The reasons, and what to do:

Why	What to do
"its file is damaged, or it needs something this DVX does not have"	Reinstall the add-on with Software, or get a version made for your DVX.
"it needs *name*, which is not installed"	Install the package it needs, or reinstall the add-on together with what it needs.
"it needs *file*, which was not loaded"	Something else it needs was left out too. Deal with that one first.
"it was made for a different version of DVX"	See Section 10.10.2.
"*file* has the same name"	The add-on has a file with the same name as another library or widget, of DVX's own or of another add-on. Remove the add-on, or the other add-on.
"it needs files that in turn need it or each other, so none of them can be loaded"	The add-on and the libraries or widgets it needs need each other, so none of them can be loaded first. Remove the add-on, or tell its publisher.

10.10.2. Add-ons made for another version of DVX

Packages of programs, libraries, widgets, and screen savers are made for a particular version of DVX; fonts, sounds, and other files are not. Software will not install an add-on made for another version: it says "*Name* was made for a different version of DVX." or "*Name* needs DVX *version* or later (this is DVX *version*)." When you update DVX itself, the **Install Software** window names the add-ons you have that stop working with the new DVX (see Section 10.5.1).

If a library or widget made for another version of DVX is installed anyway, for example because you updated DVX but not the add-on, DVX does not stop. It starts without that add-on and says so in the **Add-ons** message, with the reason "it was made for a different version of DVX". Update the add-on on Software's Updates page, install a version made for your DVX, or remove it.

10.10.3. Starting without add-ons

If DVX does not start at all after you installed something, start it without its add-on libraries and widgets:

1. Start DVX while holding down a `Shift` key, from when you press `Enter` until the desktop appears. Or type `DVX /SAFE` at the DOS prompt.

2. DVX starts in safe video mode, without any add-on libraries or widgets. It asks whether to use the safe video mode from now on; answer **[No]** to keep your usual screen mode (see Section 3.13).
3. Once the desktop is up, a message titled **Add-ons** says “DVX was started in safe mode, so no add-on libraries or widgets were loaded.” (It appears only when there were add-ons to leave out.)
4. Start Software and remove the add-on that causes the trouble (see Section 10.4).
5. Exit DVX and start it the usual way.

Software notes each package it installs, removes, or publishes in DVX’s log file, which can help you find out what was installed last (see Section B.6).

Chapter 11. Troubleshooting

This chapter helps when something goes wrong: DVX does not start, the screen or the mouse does not work, there is no sound, nothing prints, the network cannot be reached, a program stops responding, or a message appears that you do not understand.

The chapter is arranged by what you see. Find the section that matches your problem and work through its steps in order; the first steps are the ones most likely to help. Each problem gives the exact message DVX shows, what it means, what usually causes it, and what to do.

If you have a message on the screen, the quickest way in is the alphabetical list of messages at the end of the chapter, Section 11.17. Every message explained here is listed there, with a link to the place that explains it.

11.1. First steps for any problem

Whatever the problem, these steps help you find out what is wrong and get DVX working again.

11.1.1. Read the message

When DVX or a program has a problem, it usually says so in a message box. Read the whole message before you click a button: most messages say what went wrong and what to do about it. If you need to look the message up, write down its exact words first.

Message boxes have a picture at the left that tells you what kind of message it is:

Picture	Kind of message
An X in a circle	An error: something could not be done. The box has an **[OK]** button. When the program gives no title of its own, the title is **Error**.
An exclamation mark in a triangle	A warning: something needs your attention, such as a printer that is out of paper.
A question mark in a circle	A question: the buttons are the answers, such as **[Yes]** and **[No]**.
The letter i in a circle	Information: something you should know. The title is **Information** unless the program gives its own.

In every message box, `Enter` presses the first button and `Esc` presses the last one. Closing the box without choosing a button counts as **[Cancel]**.

Many DVX programs, and many programs you install, are written in DVX BASIC. When such a program gives its message box no title, the title is the program's name, as Program Manager shows it, and a box with only an **[OK]** button may have no picture. (The Resource Editor reports

its problems in its status line instead.)

Some problems stop DVX before the desktop appears. The message is then printed as plain text on the DOS screen, and DVX returns to the DOS prompt. DVX switches the screen back to text so you can read it. The log file usually records the same problem (see Section 11.16).

In this chapter, a part of a message that changes, such as a file name, is shown in *italics*. A message that the box shows on several lines is shown here as one line.

11.1.2. Try a safe start

If DVX does not start, or starts with a screen you cannot read, start it in safe start: hold down a `Shift` key while DVX starts, or type `DVX /SAFE` at the DOS prompt. DVX then starts in safe video mode (640x480), which every video card can show, and leaves out the libraries and widgets that add-on packages installed. See Section 11.2.8.

11.1.3. Look in the log file

DVX writes a record of what it does, and of what goes wrong, to the file `DVX.LOG` in your USER folder (usually `C:\DVX\USER\DVX.LOG`; System Information says where). It is the place to look when something fails without a message, such as a sound card that stays silent. DVX empties the file each time it starts, so copy it before you start DVX again. See Section 11.16.

11.1.4. Go back to the default settings

A setting that does not suit your computer, such as a screen mode the monitor cannot show, can be undone by going back to the settings DVX came with. Most of DVX's settings are in `DVX.INI` in your USER folder: delete that file and DVX makes a fresh copy the next time it starts. See Section 11.15 for this and the other settings files.

11.1.5. End a program that is stuck

If a program stops reacting to the mouse and the keyboard, press `Ctrl` + `Esc` to open the Task Manager, select the program, and click **[End Task]**. The other programs keep running. See Section 11.13.3.

11.1.6. Check what DVX needs

Many problems come from something the computer does not have, or a driver that is not loaded. DVX needs:

- An 80486DX processor or newer, that is, a 486 with a math coprocessor (486DX, DX2, DX4, or any Pentium). A 486SX needs a 487 coprocessor. DVX does not run on a 386.

- DOS 5.0 or later, such as MS-DOS or FreeDOS.
- A video card with a VESA video BIOS and a mode of at least 640x480 with 256 colors or more. Many older cards need their VESA driver loaded first (see Section 11.2.2).
- 4 MB of extended memory; 8 MB or more is recommended.
- A two-button mouse with its DOS mouse driver loaded before DVX starts.
- About 14 MB of free disk space for all of DVX (10 MB without its optional parts), 8 MB more for the base set of fonts, and more for add-ons.

See Section 2.2 and Section 2.3 for the details.

11.1.7. Find out about your computer

DVX can show what it found in your computer. In Program Manager, choose **Help › System Information...** to open the **System Information** window. It lists the processor, the memory, the DOS version, the TEMP folder, the video card and its memory, how DVX reaches the video memory, the mouse and its wheel, and the drives, as they are when you open the window: the free memory and disk space are those of that moment. At the end it says where the log file is (see Section 11.16.1). If DVX could not gather anything, a box says “No system information available.”

Some lines in it answer common questions:

Line	What it tells you
`Mouse: Not detected`	No DOS mouse driver was loaded when DVX started. See Section 11.4.
`Mouse: Detected (n buttons)`	The mouse driver is loaded, and the mouse has *n* buttons.
`Wheel: Yes (CuteMouse Wheel API)` or `Wheel: No`	Whether the mouse driver can report the scroll wheel.
`Video memory access: linear` or `Video memory access: banked, n KB window`	How DVX draws on the screen. Banked access works but is slower (see Section 11.2.3).
`Largest free block`, `Total physical`, `Free physical`, and `Paging file`	How much memory the computer has, and how much is free.

DVX also writes the same information into the log file each time it starts, between the lines `=== System Information ===` and `=== End System Information ===`.

11.1.8. Change AUTOEXEC.BAT or CONFIG.SYS

Many remedies in this chapter ask you to add a line to `AUTOEXEC.BAT` (for example to load a mouse driver or a VESA driver, or to set `BLASTER` for a Sound Blaster) or to change `CONFIG.SYS` (for memory). Both are plain text files in the main folder of the drive the computer starts from,

usually `C:\`. DOS reads them each time the computer starts. To change one:

1. Leave DVX, so you are at the DOS prompt.
2. Keep a copy of the file as it is, so you can go back to it. For example, type `COPY C:\AUTOEXEC.BAT C:\AUTOEXEC.BAK` and press `Enter`.
3. Open the file in a text editor, for example by typing `EDIT C:\AUTOEXEC.BAT`.
4. Add or change the line. In `AUTOEXEC.BAT`, put lines that load drivers or set values such as `BLASTER` before the line that starts DVX, if there is one.
5. Save the file and leave the editor.
6. Restart the computer, so that DOS reads the file again. Then start DVX.

A value set with the `SET` command, such as `SET BLASTER=A220 I5 D1 H5`, can also be typed at the DOS prompt before you start DVX, to try it out. It lasts until the computer is restarted.

11.2. DVX will not start

This section covers the problems that can happen from the moment you type `DVX` until the Program Manager appears: the messages DVX prints on the DOS screen, the video card, damaged or mismatched files, memory, safe start, and add-ons that cannot be loaded.

11.2.1. What a normal start looks like

It helps to know what DVX does when all is well:

1. DVX changes to the folder it is installed in, so you can start it from any folder by typing its full name, for example `C:\DVX\DVX`.
2. A title screen appears, with a bar that fills from left to right while DVX loads.The bar can fill a second time: DVX is then rebuilding its help files, because libraries or widgets were added or removed since the last start. This takes a little longer, once.
3. The screen changes to the desktop, and the Program Manager opens.
4. Any messages from the start appear: the **Safe Video Mode** question (before the Program Manager opens), a note that DVX runs from a disk it cannot write to, and the **Add-ons** box. The Welcome window opens after them the first time you start DVX.

Pressing `Ctrl` + `C` or `Ctrl` + `Break` does not stop DVX.

11.2.2. DVX says the video card has no usable mode

DVX draws its desktop in a graphics mode it gets from the video card's VESA video BIOS. When it cannot get one, DVX prints this and returns to DOS:

“DVX could not start: the video card offered no usable graphics mode. DVX needs a VESA video BIOS with a mode of at least 640x480 at 256 colors or more. Many older cards need their VESA driver loaded first: UniVBE (Scitech Display Doctor) works with most cards, and some cards came with their own, such as S3VBE20 for S3 cards and M64VBE for ATI Mach64 cards. The details are in DVX.LOG in the USER folder.”

One or more lines starting with `VBE:` come before it and say why. DVX first tries the screen mode it is set to use, then safe video mode (640x480), so you may see a line twice.

“VBE: No VESA BIOS extension (VBE) found”

The video card has no VESA video BIOS, or its VESA driver is not loaded. Load the driver as described below.

“VBE: No suitable mode found for *width*x*height* (VBE *version*)”

The card offers no mode at least as large as *width* by *height* with 256 colors or more. *version* is the VESA version the card reports, such as 1.2 or 2.0. If you see it only for the mode DVX is set to use, DVX goes on in safe video mode and asks about it (see Section 11.3.2). If you see it for 640x480 too, load the card’s VESA driver.

“VBE: Could not use mode 0x*number* (*width*x*height* at *bits* bpp)”

The card listed the mode but refused to set it, or DVX could not reach the card’s video memory. *number* is the card’s own number for the mode, and *bits* is the number of bits per dot (8, 15, 16, or 32). Load or update the VESA driver, or choose another mode.

“VBE: Failed to allocate *n* byte backbuffer” or “VBE: Failed to allocate palette”

There is not enough memory for the screen mode. DVX keeps a copy of the whole screen in memory, and a large mode with many colors needs a lot: 1024x768 with 16 million colors needs about 3 MB. Free memory (see Section 11.2.6), or use a smaller mode with fewer colors.

To load the VESA driver:

1. Find the VESA driver for your video card. UniVBE (Scitech Display Doctor) works with most cards. Some cards came with their own, such as S3VBE20 for S3 cards and M64VBE for ATI Mach64 cards.
2. Add a line that runs the driver to `AUTOEXEC.BAT`, before the line that starts DVX (see Section 11.1.8). To try it first, type the driver’s name at the DOS prompt and press `Enter`.
3. Start DVX again.

DVX uses modes with 256 colors (8 bits per dot), 32 thousand colors (15 bits), 65 thousand colors (16 bits), and 16 million colors (32 bits). It does not use 24-bit modes, so a card whose only modes with 16 million colors are 24-bit is used with 256 or 65 thousand colors instead.

11.2.3. The screen works, but it is slow (older video cards)

An older video card, such as one whose VESA BIOS is version 1.x, may not let DVX reach all of its video memory at once. DVX then draws through a small window into the video memory (usually 64 KB). Everything works, but the screen updates more slowly.

You can see which way DVX uses: System Information shows `Video memory access: banked, n KB window` instead of `Video memory access: linear`, and in the log file the line starting `Video:` says `banked` instead of `linear frame buffer`.

To speed it up:

1. Load a VESA driver such as UniVBE. It often gives older cards direct (linear) access to their memory.
2. Use fewer colors or a smaller resolution (see Section 11.3.3). More colors and higher resolutions mean more to draw.

11.2.4. DVX says a file could not be loaded

When one of DVX's own files is damaged, missing something it needs, or left over from another version of DVX, DVX prints this and returns to DOS:

"FATAL: *file* could not be loaded: *reason*. Run Setup and choose Upgrade or repair to fix DVX."

file is the file's place in the DVX folder, such as a file in `LIBS\KPUNCH` or `WIDGETS\KPUNCH`. *reason* is one of these:

Reason	What it means
"its file is damaged, or it needs something this DVX does not have"	The file cannot be read, or it was made for a DVX with something this one lacks.
"it was made for a different version of DVX"	The file is from an older or newer DVX, for example after an upgrade that did not finish, or files copied by hand.
"it needs *name*, which is not installed"	Another file it needs is missing.
"it needs *name*, which was not loaded"	Another file it needs could not be loaded either. Look for that file's own line.
"it needs files that in turn need it or each other, so none of them can be loaded"	Some of DVX's files each need another to be loaded first, which happens when files from different versions of DVX are mixed. The log file has a `FAILED:` line for each of them.

"No modules loaded from LIBS\ or WIDGETS\" means DVX found none of its files. `DVX.EXE` was copied somewhere else on its own, or the `LIBS` and `WIDGETS` folders beside it were deleted. Start the `DVX.EXE` in the folder where DVX is installed.

DVX can also return to DOS with no message at all, when the part of DVX that runs the desktop is missing. The log file then ends with a line starting `ERROR:`, or with `Failed to initialize task system`.

For all of these, repair DVX:

1. Start Setup from the DVX CD or from Disk 1 of the DVX floppy disks (the copy of Setup in the DVX folder can only remove DVX).
2. Choose **Upgrade or repair DVX**, with the folder DVX is in.
3. Leave **Start over: also remove my settings and saved files** unticked, so your settings and saved files in the USER folder are kept.

See Section 3.8.



Only DVX's own files stop DVX this way. A library or widget that an add-on package installed is left out instead, and DVX tells you about it once the desktop is up (see Section 11.2.9).

11.2.5. DVX starts, then closes: the Program Manager cannot be loaded

If the desktop appears with a box titled **Error** that says "Failed to load *file*: *reason*", and DVX returns to DOS when you click **[OK]**, DVX could not start the Program Manager. *file* is the program's file, such as `progman.app`; the second line is a short technical reason.

The causes are a wrong `desktop` line in the `[shell]` section of `DVX.INI`, or a damaged Program Manager. To fix it:

1. Open `DVX.INI` in your USER folder in a text editor (for example `EDIT C:\DVX\USER\DVX.INI`).
2. In the `[shell]` section, the line should read `desktop = apps/kpunch/progman/progman.app`. Correct it, or delete the line so that DVX uses the Program Manager.
3. If the line was right, run Setup and choose **Upgrade or repair DVX**.

You can also delete `DVX.INI` from the USER folder to go back to all the settings DVX came with (see Section 11.15).

11.2.6. Memory messages before the title screen

`DVX.EXE` has a small memory helper built into it, which prepares the computer's memory before DVX itself starts. You need no separate program for it. If it cannot do its job, it prints a message on the DOS screen. Most of these messages appear before the title screen, and DVX does not start; the ones about the swap file can also appear later:

Message	What it means and what to do
“80386 required.”	The processor is far too old. DVX needs an 80486DX or newer; there is nothing to change.
A message starting “Load error:” with “no DOS memory”	Not enough conventional memory (the first 640 KB) is free. Free some, as described below.
A message starting “Load error:” with “no DPMI memory”	Not enough extended memory is free. Check that `HIMEM.SYS` (or another extended memory manager) is loaded in `CONFIG.SYS`, and that a RAM disk or disk cache is not taking all the extended memory.
A message starting “Load error:” with “not EXE” or “not COFF (Check for viruses)”	`DVX.EXE` is damaged. Repair DVX with Setup (see Section 11.2.4).
“Protected mode not accessible.”	Another program already controls the processor in a way DVX cannot share, such as a multitasker or another program that runs in protected mode. Start DVX from plain DOS, without that program.
“Error: Using XMS switched CPU into V86 mode.”	The memory manager (such as EMM386) is set to AUTO mode. Remove the `AUTO` option from its line in `CONFIG.SYS`.
“Error: could not allocate page table memory”	Less than 16 KB of conventional memory is free. Free some, as described below.
“Warning: cannot open swap file c:\cwsdpmi.swp”	The helper could not make its swap file on drive C:, where it moves memory out to disk when memory runs short. Check that drive C: has free space and can be written to; DOS may also have run out of file handles (the `FILES=` line in `CONFIG.SYS` sets how many).
“No swap space!” or “Swap disk full!”	The helper ran out of room to move memory out to disk. Free disk space on drive C:, add memory, or run fewer programs in DVX.

To free memory for DVX:

1. Make sure `CONFIG.SYS` loads `HIMEM.SYS` or another extended memory manager.
2. If `CONFIG.SYS` loads `EMM386` (or a similar memory manager), make sure its line does not use the `AUTO` option.
3. Load drivers and resident programs into upper memory where you can: `DEVICEHIGH` instead of `DEVICE` in `CONFIG.SYS`, and `LOADHIGH` (or `LH`) in front of programs in `AUTOEXEC.BAT`.
4. Leave out drivers and resident programs you do not need while using DVX.
5. If you use a RAM disk or a disk cache, make it smaller, so it leaves extended memory for DVX.

6. Restart the computer, and type `MEM` at the DOS prompt to see how much memory is free.

Some parts of DVX need conventional memory as they start: a sound card needs some for its sound buffer, and a network card about 26 KB for its packets. If those report a shortage in the log file, the same steps help.

11.2.7. DVX stops while starting

If something goes wrong inside DVX itself while it starts, DVX returns to DOS and prints:

“DVX stopped while starting: something went wrong inside DVX itself. Start DVX again with a safe start: hold down a Shift key while it starts, or type DVX /SAFE. If DVX still stops, run Setup and choose Upgrade or repair to fix DVX.”

On the next line, “The details are in *file*.” names the log file, unless DVX could not write one.

A program that crashes while DVX starts, such as one in Program Manager’s Startup group, does not stop DVX: DVX ends that program with the **Application Error** message (see Section 11.13.4) and goes on starting.

If DVX stops this way, or the screen shows lines of technical text and numbers (it may begin “Exiting due to signal”), or the computer stops responding:

1. Restart the computer if it does not respond.
2. Before you start DVX again, copy the log file `DVX.LOG` from the USER folder to another name, so its record of the problem is kept (see Section 11.16). Look for a line `=== CRASH ===` in it.
3. Start DVX in safe start (see Section 11.2.8). If that works, the cause is the screen mode or an add-on: see the next section.
4. If DVX still fails, repair it with Setup (see Section 11.2.4), and send the log file with a problem report.

11.2.8. Safe start

A safe start is the way to start DVX when it will not start normally, or when the screen cannot be read. To make one, do either of these:

- Hold down either `Shift` key while DVX starts, from the moment you press `Enter` after `DVX` until the desktop appears.
- Type `DVX /SAFE` at the DOS prompt and press `Enter`. (Upper or lower case does not matter.)

In a safe start, DVX:

- Starts the screen in safe video mode: 640x480 with 65 thousand colors, or the nearest mode

the video card has. It then asks whether to keep that mode (see Section 11.3.2).

- Leaves out every library and widget that an add-on package installed, in case one of them is what stops DVX from starting. DVX's own files load as usual. If there were any add-ons to leave out, a box titled **Add-ons** says "DVX was started in safe mode, so no add-on libraries or widgets were loaded."

The programs in Program Manager's Startup group still start in a safe start.

To use your add-ons again, start DVX the usual way. If DVX then fails again, the cause is an add-on: start in safe start once more and remove the add-on with Software (see Section 10.4). If it is the screen mode, answer **[Yes]** to the Safe Video Mode question.

If a program in the Startup group causes trouble every time DVX starts, delete its icon from the Startup group (the program itself stays installed). See Section 6.3.

11.2.9. DVX says add-ons were not loaded

When a library or widget that an add-on package installed cannot be loaded, DVX starts without it. Once the desktop is up, a box titled **Add-ons** lists each file it left out, as "*file* was not loaded: *reason*.", and ends with "The Software program can reinstall or remove an add-on." The rest of DVX works as usual.

Table 6. The Add-ons box shows every file DVX left out, and why

Reason	What it means
"its file is damaged, or it needs something this DVX does not have"	The file cannot be read, or it was made for a newer DVX.
"it was made for a different version of DVX"	The add-on is for an older or newer DVX.
"it needs *name*, which is not installed"	It needs another package that is not installed.
"it needs *name*, which was not loaded"	It needs another file that could not be loaded either.
"*other file* has the same name"	Another add-on, or DVX itself, has a file of the same name, so both cannot be loaded.
"it needs files that in turn need it or each other, so none of them can be loaded"	The add-on's files each need another to be loaded first; the package is badly made.

If the list is very long, it ends with ⋯.

What to do:

1. Open Software (in Program Manager's Installed Programs group).
2. Install a version of the add-on made for this DVX, or install the package it needs, or remove the add-on. See Section 10.3 and Section 10.4.
3. Start DVX again.

You can also remove a package without starting DVX, with the program `DVXPKG` in the `SYSTEM` folder:

1. At the DOS prompt, change to the DVX folder, for example `CD C:\DVX`.
2. Type `SYSTEM\DVXPKG list` to list the installed packages. Each has a name such as `acme.chess` (who made it, then what it is).
3. Type `SYSTEM\DVXPKG remove` followed by the package's name, for example `SYSTEM\DVXPKG remove acme.chess`.

If other packages need it, `DVXPKG` removes nothing and says "dvxpkg: nothing removed: needed by *packages* (-f removes them too)". Remove those first, or add `-f` after the name (`SYSTEM\DVXPKG remove acme.chess -f`) to remove them all. A file you changed since the package was installed is kept, with the note "kept *file* (changed since it was installed)"; with `-f` it is deleted too. A file that cannot be deleted, for example because the disk is write-protected, is left, with the note "left *file* (it could not be deleted)". If the package is not installed, `DVXPKG` says "dvxpkg: *name* is not installed". `DVXPKG` cannot remove DVX itself.

11.2.10. Starting DVX with switches

You can add these to the `DVX` command at the DOS prompt (upper or lower case does not matter):

Switch	What it does
`/SAFE`	A safe start (see Section 11.2.8). The same as holding down `Shift`.
`/RUN=program`	Starts the program, or opens the document in its program, once the desktop is up, for example `DVX /RUN=APPS\KPUNCH\NOTEPAD\NOTEPAD.APP`. If it is not found, you see the same messages as when a program cannot be started (see Section 11.13.1).

11.3. The screen is wrong

This section covers a screen that is blank or cannot be read, the **Safe Video Mode** question, choosing another screen mode, and other screen problems once DVX is running. If DVX does not start at all because of the video card, see Section 11.2.2.

11.3.1. The screen is blank or cannot be read after DVX starts

DVX starts in the screen mode it is set to use. If the video card can set that mode but the monitor

cannot show it, the screen stays blank or scrambled: DVX cannot tell that the monitor shows nothing. This can happen after you connect another monitor, or copy `DVX.INI` from another computer. To fix it:

1. Restart DVX in safe start: hold down a `Shift` key while DVX starts, or type `DVX /SAFE` (see Section 11.2.8).
2. DVX starts in safe video mode, 640x480, and asks whether to use it from now on. Click **[Yes]**.
3. Later, choose a mode the monitor can show in Control Panel (see Section 11.3.3).

You can also set the mode by hand: open `DVX.INI` in your USER folder in a text editor and change the `width`, `height`, and `bpp` lines in the `[video]` section, for example to `640`, `480`, and `16` (see Section 11.3.4).

If the screen went wrong right after you chose a new mode in Control Panel, do nothing: after 15 seconds DVX puts the old mode back (see Section 11.3.3).

11.3.2. The Safe Video Mode question

Safe video mode is 640x480 with 65 thousand colors, or the nearest mode the video card has. DVX starts in it in two cases, and asks in a box titled **Safe Video Mode** whether to keep it. The question appears before the Program Manager opens.



Figure 56. The Safe Video Mode question after the saved screen mode did not work

When the mode DVX is set to use does not work, the box says:

“The screen mode DVX is set to use (*width*x*height*, *bits*-bit color) does not work on this computer, so DVX started in safe video mode (*width*x*height*, *bits*-bit color). Use this mode from now on?”

The first mode is the one DVX is set to use; the second is the safe mode it started in. Common causes are a new video card, a `DVX.INI` copied from another computer, a VESA driver that offered the mode but is not loaded this time, not enough memory for the mode, and going back to the default settings (the `DVX.INI` that comes with DVX asks for 1024x768 with 65 thousand colors).

When you asked for a safe start, the box says:

"DVX started in safe video mode (*width*x*height*, *bits*-bit color) as you asked. Use this mode from now on instead of *width*x*height*, *bits*-bit color?"

In both cases:

- **[Yes]** saves safe video mode as the mode to use from now on.
- **[No]** changes nothing, so DVX tries its usual mode again the next time it starts. Choose **[No]** when you know the cause and can fix it, for example by loading the VESA driver again.

Control Panel does not save safe video mode for you either: its **[OK]** saves the screen mode only when you choose one on its **Video** page (see Section 7.7.1).

If DVX cannot save your answer, a box says "The screen mode could not be saved. Change it in the Control Panel instead." DVX could not write `DVX.INI`: the disk of the USER folder is full or cannot be written to, or `DVX.INI` exists but cannot be read, in which case DVX does not overwrite it. Make room on the disk or make the USER folder writable, then choose the mode in Control Panel.

11.3.3. Choosing another screen mode

The **Video** page of Control Panel lists every mode DVX can use on your video card, such as `640x480 65 thousand colors` and `1024x768 16 million colors`. To change the mode:

1. Open Control Panel (in Program Manager's Installed Programs group) and click the **Video** tab.
2. Click a mode in the list, then click **[Apply Mode]**.
3. The screen changes, and a window titled **Keep this mode?** asks "Keep this display mode?" with "The old mode comes back in *n* seconds." counting down from 15.
4. If the screen looks right, click **[Keep]**. If it does not, click **[Revert]**, or just wait: when the count reaches 0 the old mode comes back.
5. Click **[OK]** in Control Panel. Only then does DVX use the new mode the next time it starts.

See Section 7.7 for the whole page.

If a box titled **Error** says "Failed to change video mode.", DVX could not set the mode you chose, and it keeps (or puts back) the old one. The card refused the mode, there is not enough memory for it, or a program is using the whole screen. Choose another mode, or close programs to free memory. When the card refused the mode, the log file has a line starting `VBE:` that says more.

Some things to know when choosing:

- More colors and higher resolutions use more memory and can be slower on older computers. If memory is short, a smaller mode with fewer colors frees some.
- Smooth (anti-aliased) text needs a mode with more than 256 colors. In a 256-color mode, text is drawn with sharp edges whatever the setting.

11.3.4. Setting the screen mode in DVX.INI

The screen mode DVX starts in is kept in the `[video]` section of `DVX.INI` in your USER folder:

```
[video]
width  = 1024
height = 768
bpp    = 16
```

`width` and `height` are the resolution. `bpp` is the number of colors: `8` for 256 colors, `15` for 32 thousand, `16` for 65 thousand, and `32` for 16 million. DVX does not use 24-bit modes; with `bpp = 24` it picks another number of colors.

DVX picks a mode at least as large as the one asked for. It takes the number of colors asked for if the card has it at that size or larger, otherwise 65 thousand colors (or the nearest the card has), and the exact size when there is one. Without the three lines, DVX starts in 640x480 with 65 thousand colors.

11.3.5. Other screen problems

A window is lost off the screen or behind others

A window cannot be dragged completely off the screen; part of it always stays in view. Press `Alt` + `Tab` until the window comes to the front, or choose **Window › Cascade** in Program Manager to bring every window into view.

The screen mode changed after you deleted DVX.INI

The `DVX.INI` that comes with DVX asks for 1024x768 with 65 thousand colors. Setup writes the mode it ran in when it installs DVX, so deleting your `DVX.INI` brings back the 1024x768 request, and possibly the **Safe Video Mode** question. Choose your mode again in Control Panel.

A program that uses the whole screen does not appear

When a program, such as a game, asks for a whole-screen mode the video card does not have, DVX shows the desktop again. The log file has the line `Video: no widthxheight full-screen mode`. If DVX cannot set the desktop's own mode again afterwards, the log file has `Video: the desktop mode could not be set again`; restart DVX.

A screenshot cannot be taken or saved

`Ctrl` + `F12` saves a picture of the whole screen and `Ctrl` + `Shift` + `F12` a picture of the inside of the active window, without its title bar, frame, and menu bar (also **Screenshot…** and **Window Shot…** on each window's menu). A box titled **Save Screenshot** or **Save Window Screenshot** may say "Not enough memory to capture the image." (close programs, or use a smaller screen mode) or "The image could not be saved." (the disk is full or cannot be written: save it somewhere else, with a name ending in `.png` or `.bmp`).

11.3.6. Colors, themes, and the desktop picture

Control Panel's **Colors** and **Desktop** pages can show these messages, in boxes titled **Error**:

"Could not load wallpaper image."

The picture you chose for the desktop is not a BMP, JPEG, PNG, or GIF picture, is damaged, or needs more memory than is free. The desktop stays as it was. Choose another picture, or close programs to free memory. If a picture you chose earlier goes missing, the desktop shows its plain color, and the log file says `Preferences: failed to load the wallpaper`.

"Could not save the theme file."

[Save As...] on the Colors page could not write the theme file (it goes into the `THEMES` folder in USER unless you choose another folder): the disk is full or cannot be written to.

"Theme file name is too long."

Choose a shorter name for the theme.

A theme file that cannot be read changes nothing when you apply or load it, and no message appears. Choose another theme.

11.4. The mouse does not work

DVX uses the DOS mouse driver that is loaded before it starts. It has no mouse driver of its own.

11.4.1. The pointer does not move

If no mouse driver is loaded, DVX starts with a pointer that does not move, and gives no message. System Information (in Program Manager's Help menu) then shows `Mouse: Not detected`. To fix it:

1. Leave DVX. Without a mouse, press `Alt` + `F4` in Program Manager, then `Enter` to answer **[Yes]**.
2. Load your mouse driver: type its name at the DOS prompt (for example `MOUSE` or `CTMOUSE`, depending on the driver your mouse came with).
3. Start DVX again. If the pointer moves now, add the line that loads the mouse driver to `AUTOEXEC.BAT`, before the line that starts DVX, so it is loaded every time (see Section 11.1.8).

Until the mouse works, you can do everything with the keyboard (see Section 11.5.3).

If the pointer stopped moving while DVX was running, and the whole screen is frozen so that the keyboard does nothing either, DVX cannot recover. Restart the computer. If only one program stopped responding, see Section 11.13.3.

11.4.2. The scroll wheel does nothing

The scroll wheel works only with a mouse driver that reports it the way CuteMouse does. System Information shows `Wheel: Yes (CuteMouse Wheel API)` when it works and `Wheel: No` when it does not. To use the wheel, load a driver that supports it, such as CuteMouse (`CTMOUSE`). Everything else works without a wheel.

If the wheel scrolls the wrong way or too far, change **Scroll Wheel** and **Scroll Speed** on Control Panel's Mouse page (see Section 7.4). The wheel scrolls the active window, not the window under the pointer.

11.4.3. The pointer is hard to control, or double-clicks do not work

These are set on Control Panel's Mouse page (see Section 7.4):

- If the pointer jumps or is hard to place, set **Acceleration** to **Off**, then adjust **Cursor Speed**.
- If DVX does not see your double-clicks, move **Double-Click Speed** toward **Slow**, and test it on the **[Test Area]** button.

The same settings are kept in the `[mouse]` section of `DVX.INI`: `speed`, `acceleration`, `doubleclick`, `wheel`, and `wheelspeed`. Deleting a line returns that setting to its default.

DVX needs only the left and right buttons, so a two-button mouse is fine. A middle button, if there is one, is passed to programs that use it.

11.5. The keyboard does not work as expected

DVX reads the keyboard through the computer's BIOS, as DOS does.

11.5.1. Keys type the wrong characters

If the keys type the characters of another country's keyboard, load your DOS keyboard layout program (`KEYB` with your country's code) before you start DVX, for example from `AUTOEXEC.BAT`. DVX uses the layout DOS has when it starts.

11.5.2. Other keyboard questions

`Ctrl` + `C` and `Ctrl` + `Break` do nothing

DVX ignores them, so they cannot stop DVX by accident. To stop a program, use the Task Manager (see Section 11.13.3).

A game does not notice keys held down

Some programs, mostly games, read which keys are held down. If DVX could not set this up,

the log file has `Platform: could not lock the keyboard handler; no raw keys` or `Platform: could not lock the keyboard state; no raw keys`. Typing still works everywhere, but such programs do not get the keys held down.

A keyboard joystick does not answer

Keys that stand in for a joystick (set on Control Panel's Game Controllers page) only work while the program using them is the active window.

11.5.3. Using DVX without a mouse

Everything in DVX can be done with the keyboard, which helps while the mouse does not work:

Key	What it does
`Tab`, `Shift` + `Tab`	Moves to the next or previous button, box, or list in a window.
`Enter`, `Space`	Presses the highlighted button.
`F10`	Opens the menu bar of the active window.
`Alt` and a letter	Opens the menu, or presses the button, whose underlined letter you typed.
`Alt` + `Space`	Opens the window menu, whose **Move** and **Size** items move and resize the window with the arrow keys.
`Alt` + `Tab`	Switches to the next window.
`Alt` + `F4`	Closes the active window. In Program Manager, it asks whether to exit DVX.
`Ctrl` + `Esc`	Opens the Task Manager.
`F1`	Opens help.

See Section 5.2 for more.

11.6. Game controllers do not work

Joysticks and game pads are set up on Control Panel's **Game Controllers** page (see Section 7.11). What it may show:

"No game controllers found."

Shown in the test picture. No joystick is plugged into the game port, the computer has no game port, or **Keyboard** is set to **Never**. Plug the joystick in and click **[Detect]**. To use keys as a joystick when none is plugged in, set **Keyboard** to **When no joystick is found**.

“Not connected”

The joystick stopped answering. Check its cable, then click **[Detect]**.

“A program is using a game controller. Close it, then click Detect again.”

A box titled **Game Controllers** shows this after **[Detect]**, or after you change **Game port** or **Keyboard**, while another program has a joystick open. Close that program and try again.

“Move the stick further, all the way to each edge.”

During calibration, the stick did not travel far enough. Move it round all its edges, then click **[Next]**.

“Game controller support is not installed.”

The only text on the page: a part of DVX is missing. Repair DVX with Setup (see Section 11.2.4).

The log file has a line `Joystick: n device(s) found` each time DVX looks for joysticks, with a line for each one found. Calibrations and the keyboard joystick’s keys are kept in the `[joystick]` section of `DVX.INI`; deleting a calibration line (a device’s name, such as `gameport0`, followed by `.axis` and a number) makes that axis find its range by itself again.

11.7. There is no sound

This section covers sound cards, desktop sounds, MIDI music and instruments, recording, and the Media Player. Without any sound hardware, DVX and its programs work the same, silently.

11.7.1. How DVX finds the sound card

The first time a sound plays (usually the start-up sound, as DVX starts), DVX tries the sound driver named by the `driver` key in the `[audio]` section of `DVX.INI` (Control Panel’s **Sound driver**), if one is chosen. If that one is not found or does not start, or if **Sound driver** is **Automatic**, DVX tries the others in this order and uses the first that finds its hardware:

1. Windows Sound System (`wss`).
2. Sound Blaster and compatible cards (`sb`).
3. Gravis UltraSound (`gus`).
4. A sound device on the printer port (`lpt`).
5. The PC speaker (`speaker`).
6. No sound (`null`), which always works, so every program runs, silently.

The music chips (an FM synthesizer, a MIDI port, or the wavetable synthesizer of a Gravis UltraSound or Sound Blaster AWE) are found beside the sound device. When a Sound Blaster and a Gravis UltraSound are both in the computer, the Sound Blaster plays recorded sound and the

UltraSound plays music.

11.7.2. Nothing is heard

Work through these steps:

1. Open Control Panel and click the **Sounds** tab. Near the bottom, the line "Sound device: *device*" names the sound hardware DVX is using:

What it says	What it means
A card, such as `Sound Blaster 16 (DSP 4.05) at 220h`	DVX found that card and uses it. Check the volume (step 4).
`PC speaker (tones)`	DVX found no sound card, only the PC speaker. It plays tones and beeps, not recorded sounds.
`No sound device`	DVX found no sound hardware and runs silently.
`none running`	No sound driver started, or no program has used sound since DVX started.

2. If your card was not found, give DVX its settings: the `BLASTER` line for a Sound Blaster (see Section 11.7.3), the `ULTRASND` line for a Gravis UltraSound (see Section 11.7.4), or the port, IRQ, and DMA of a Windows Sound System card (see Section 11.7.5).
3. If DVX picked the wrong device, choose yours in the **Sound driver** list, click **[OK]**, and restart DVX.As the page says, "Sound driver and MIDI changes take effect when DVX next starts."
4. Check the **Volume** slider on the Sounds page, and the volume knob or mixer of the card and the speakers.
5. Click an event in the **Events** list, then click **[Test]** beside its **Sound**. If it fails, a box titled **Sounds** gives the reason (see Section 11.7.14).
6. If there is still no sound, look in the log file for lines starting `Audio:` (see Section 11.7.15).

If the Sounds page shows only "Sound is not installed.", a part of DVX is missing. Repair DVX with Setup (see Section 11.2.4).

11.7.3. Sound Blaster cards and the BLASTER setting

DVX finds a Sound Blaster through the `BLASTER` setting in `AUTOEXEC.BAT`, for example:

```
SET BLASTER=A220 I5 D1 H5
```

`A` is the card's port, `I` its interrupt (IRQ), `D` its 8-bit DMA channel, and `H` its 16-bit DMA channel. A

Sound Blaster AWE adds the port of its music chip, for example `E620`. The card's manual or its setup program gives the right numbers. Without `BLASTER`, DVX can find only a Sound Blaster 16, at port 220h or 240h; older cards need the line.

What the log file says about a Sound Blaster:

Log line	What it means
`Audio: sb: DSP version at porth, IRQ n, DMA n, mode n`	The card was found and works.
`Audio: sb: no Sound Blaster found (BLASTER set)` or `(BLASTER not set)`	No card answered. Check that the card is in, and that `BLASTER` is set with the right port; older cards need it.
`Audio: sb: the DSP at porth gave no version`	Something at that port did not answer like a Sound Blaster. Check the `A` value.
`Audio: sb: IRQ or DMA channel unknown or unusable (set BLASTER, e.g. A220 I5 D1 H5)`	Set the `I` and `D` values in `BLASTER`.
`Audio: sb: no interrupt from the card on IRQ n (check BLASTER)`	The `I` value does not match the card. DVX then tries the next kind of sound device.
`Audio: sb: no conventional memory for the DMA buffer`	Free some conventional memory (see Section 11.2.6).
`Audio: awe: no sample memory at the EMU8000 at porth`	The AWE's music chip has no memory of its own, so it is not used for music.

11.7.4. Gravis UltraSound and the ULTRASND setting

A Gravis UltraSound needs the `ULTRASND` setting in `AUTOEXEC.BAT` to play recorded sound, for example:

```
SET ULTRASND=220,1,1,11,5
```

The card's manual or setup program gives the numbers: the card's port, DMA channels, and interrupts. DVX can find the UltraSound's music synthesizer without it, but not its recorded sound. The `ULTRADIR` setting, also written by the card's setup, names the folder of the card's software, where DVX finds the UltraSound's own instruments.

Log line	What it means
`Audio: gus: ULTRASND is not set (for example SET ULTRASND=220,1,1,11,5)`	Add the `ULTRASND` line.
`Audio: gus: no UltraSound at porth`	The port in `ULTRASND` is wrong.

Log line	What it means
`Audio: gus: ULTRASND□s IRQ n or DMA n cannot be used`	Correct the IRQ or DMA numbers in `ULTRASND`.
`Audio: gus: no interrupt from the card on IRQ n (check ULTRASND)`	The IRQ in `ULTRASND` does not match the card.
`Audio: gus: no DMA transfer into the card finished on DMA n (check ULTRASND)`	The DMA channel in `ULTRASND` does not match the card.
`Audio: gus: no conventional memory for the DMA buffer`	Free some conventional memory (see Section 11.2.6).

11.7.5. Windows Sound System cards

DVX looks for a Windows Sound System card at ports 530h, 604h, E80h, and F40h, on interrupt 7 and DMA channel 1. If yours uses another interrupt or DMA channel, or to name its port, set these keys in the `[audio]` section of `DVX.INI`:

- `wssPort`: the port, in hexadecimal, such as `530` or `E80`. DVX then looks only there.
- `wssIrq`: the interrupt, `7`, `9`, `10`, or `11` (7 if not set).
- `wssDma`: the DMA channel, `0`, `1`, or `3` (1 if not set).

A Plug and Play card that is set up by its own program must be set to the interrupt and DMA channel that `DVX.INI` names. `Audio: wss: no conventional memory for the DMA buffer` in the log file means conventional memory is short (see Section 11.2.6). The log file says `Audio: wss: IRQ n / DMA n cannot be used (wssIrq 7, 9, 10 or 11; wssDma 0, 1 or 3)` for values DVX cannot use, and `Audio: wss: no interrupt from the codec on IRQ n (set wssIrq)` when the card is on another interrupt.

11.7.6. Printer-port sound devices and the PC speaker

A Disney Sound Source or a Stereo-on-1 on the printer port is found by itself. A Covox Speech Thing must be named: set `lptDac = covox` in the `[audio]` section of `DVX.INI`, and `lptPort` to its port if it is not on LPT1.

With only the PC speaker, DVX plays tones and beeps but not recorded sounds, such as the desktop sounds. To hear recorded sounds on the speaker, set `speakerPcm = true` in the `[audio]` section; this takes much of the computer's time.

11.7.7. Sounds stop, stutter, or are cut off

A sound does not play while many others play

DVX mixes up to 16 sounds at once (the `voices` key in `[audio]`, from 1 to 32). When another starts, the quietest sound playing stops to make room. If the new one would be the quietest, it does not play, with the reason "Too many sounds are playing".

Sound or music modules stutter on a slow computer

Mixing takes the computer's time. In the `[audio]` section of `DVX.INI`, lower `rate` (for example to `11025`) or `voices`, or set `bits = 8` and `channels = 1`. On the Sounds page, **Modules** set to **Wavetable synthesizer when free** lets a Gravis UltraSound or Sound Blaster AWE play modules on its own voices.

Sound stops after a DOS program or a pause

DVX lets go of the sound card while a DOS program runs, and closes the sound output after 10 seconds of silence, opening it again for the next sound. Both are normal. If the card does not come back, the log file has `Audio: driver 'name' could not open the output again`, `Audio: driver 'name' could not start playing again`, or `Audio: synth driver 'name' could not open again`: restart DVX.

Sounds are held back while recording

A sound card either records or plays. While a recording runs, other programs' sounds and the desktop sounds are held or skipped until it stops.

11.7.8. Desktop sounds

DVX plays a sound for events such as starting, exiting, and message boxes. Each is chosen in the **Events** list on the Sounds page and kept in the `[sounds]` section of `DVX.INI`. An event set to **(None)** (an empty line in `[sounds]`) is silent; the window events are silent unless you choose sounds for them.

If **[Test]** fails, a box titled **Sounds** gives the reason (see Section 11.7.14): the sound file is missing or damaged, it is not a WAV or VOC file, no sound device runs (most often, "No sound device could be started"), or the card is busy recording. Choose another sound, or check the card's settings. A desktop sound that fails while DVX runs is only noted in the log file, as `Audio: desktop sound file: reason`.

If no sound device could be started at all, the desktop sounds stay silent: DVX does not try again at every event.

11.7.9. MIDI music

The **MIDI music** setting on the Sounds page (the `midi` key in `[audio]`) says where MIDI music plays:

Choice	In DVX.INI	Where MIDI music plays
Automatic	`auto`	On a Gravis UltraSound's or Sound Blaster AWE's recorded instruments when they can be loaded, else on the card's FM synthesizer chip, else on DVX's own synthesizer.

Choice	In DVX.INI	Where MIDI music plays
MIDI port (MPU-401)	`mpu401`	On an external synthesizer or sound module connected to the MIDI port.
FM synthesizer chip	`fm`	On the sound card's FM chip.
Built-in synthesizer	`software`	On DVX's own FM synthesizer, mixed by the computer.
Built-in SoundFont synthesizer	`softwave`	On a SoundFont played by the computer.

Changes to **MIDI music** take effect when DVX next starts.To see where a MIDI file actually plays, open it in the Media Player: the line under the title names the kind of file and the output, for example `MIDI music (MID) - OPL3 FM synthesizer at 388h`. The output is the FM chip (as in that example), the MIDI port (such as `MPU-401 MIDI port at 330h (gm)`), a wavetable card (such as `Gravis UltraSound wavetable at 220h (28 voices, 1024 KB)` or `Sound Blaster AWE EMU8000 at 620h (512 KB)`), `FM software synthesizer` or `SoundFont software synthesizer` (DVX's own synthesizers), or `Sound device` (music the computer mixes, and WAV and VOC files).

11.7.10. MIDI music plays on the wrong instruments, or sounds like the FM chip

To play MIDI music on a Gravis UltraSound's or Sound Blaster AWE's recorded instruments, DVX needs a set of instruments (a SoundFont). DVX's own is the **DVX General MIDI** add-on, which is on the DVX CD and on the package server. Without it, DVX uses the UltraSound's own instruments when `ULTRADIR` names the folder of its software, or the AWE's built-in instruments when the `SOUND` setting names Creative's software folder (the cards' setup programs put these lines in `AUTOEXEC.BAT`). Otherwise MIDI music plays on the FM chip, and the log file says `Music: SoundFont name: reason; MIDI music plays on the FM synthesizer.`

To fix it:

1. Install DVX General MIDI with Software: **File › Install from File...** and open it from the `ADDONS` folder of the DVX CD, or install it from the package server (see Section 10.3).
2. Or choose another SoundFont in the **SoundFont** list on the Sounds page.

If the card has too little memory for the instruments, some notes play on the FM chip instead, and the log file has lines starting `Music:` that say samples do not fit in the synthesizer's memory. Close other programs that play music, or choose a smaller SoundFont.

11.7.11. MIDI music to an external synthesizer is silent

DVX plays MIDI music on the MIDI port only when it was found when DVX started and no other

music is using it. Otherwise the music plays on the FM chip or DVX's own synthesizer, with no message. To use the port:

1. On the Sounds page, set **MIDI music** to **MIDI port (MPU-401)**, click **[OK]**, and restart DVX.
2. If the port is not at 330h, set `mpuPort` in the `[audio]` section of `DVX.INI` to its address (in hexadecimal, for example `300`).
3. For a Roland MT-32, set `mpuMode = mt32` in `[audio]`. (`gm`, the default, is for a General MIDI synthesizer; `raw` sends the music unchanged.) This setting is not in Control Panel.
4. Check that the synthesizer is switched on and that the MIDI cable is in the right sockets.

If the port was not found, the log file has `Audio: synth driver 'mpu401' found no device`. (That line also appears, harmlessly, whenever neither **MIDI music** nor **MIDI in** is set to the MIDI port.)

11.7.12. Instruments and SoundFont test messages

The **Instruments** row of the Sounds page chooses the instrument bank for FM music, and the **SoundFont** row the recorded instruments. **Standard** is DVX's own. A bank an add-on installed is shown by the add-on's name; one of your own in `USER\BANKS` by its file name; the UltraSound's and the AWE's own appear on the **SoundFont** row as **Gravis UltraSound patches** and **Sound Blaster AWE ROM instruments** when they are found.

If **[Test]** beside one of them fails, a box titled **Instruments** gives the reason, most often "The instrument bank for MIDI music is missing or damaged": the chosen file is missing or damaged, or, on the SoundFont row, **Standard** is chosen but the DVX General MIDI add-on is not installed. "No sound device can play this music" means no sound device runs. Install the add-on or choose another bank.

Log lines about banks:

- `Music: the MIDI bank name is missing or damaged; using the standard one`: the bank chosen is gone, so DVX uses its own.
- `Music: no usable MIDI instrument bank`: DVX's own bank is missing, so MIDI music can play only on a MIDI port. Repair DVX with Setup.
- `Music: the patch file is damaged; left out`: one of the UltraSound's instrument files could not be read.

11.7.13. Music modules (MOD, S3M, XM, and IT files)

The **Modules** setting on the Sounds page says where music modules play. With **Wavetable synthesizer when free**, they play on a Gravis UltraSound's or Sound Blaster AWE's own voices when no other music uses them and the module fits; otherwise, and with **Mixed in software**, the computer mixes them, which takes much of a slow computer's time. See Section 11.7.7 if they

stutter.

11.7.14. Sound and music messages

These reasons appear inside other messages: the Sounds page's **[Test]**, the Media Player, the Sound Recorder, and BASIC programs that play sound.

Reason	What it means
"No sound device could be started"	No sound hardware is working. See Section 11.7.2.
"No sound device can play this music"	No sound device runs that can play this kind of music.
"The file could not be read"	The file is missing, or its disk cannot be read.
"Not a WAV or VOC sound file"	The file is not a sound file DVX can play.
"Not a music or sound file (MOD, S3M, XM, IT, MIDI, WAV, or VOC)"	The file is not one of the kinds of music or sound DVX plays.
"Unsupported sound format (only uncompressed 8- and 16-bit sound can be played)"	The sound file is compressed, or in an unusual form. Convert it to uncompressed sound with another program.
"The sound file is damaged or incomplete", "The music file is damaged or incomplete"	The file is damaged, or was not copied completely.
"Too many sounds are playing"	The most sounds DVX mixes at once are already playing, and this one was the quietest.
"The synthesizer or sound device is being used by another program (or is recording)"	Another program has it, or the Sound Recorder is recording. Stop the other program first.
"There is no such synthesizer"	No FM chip was found, or (for a MIDI keyboard) **MIDI in** is not set to **MIDI port**.
"There is not enough synthesizer memory"	The wavetable card's memory is full.
"The instrument bank for MIDI music is missing or damaged"	See Section 11.7.12.
"The music string has a mistake in it"	A tune given to a program as text (such as a BASIC program's PLAY) has a mistake.
"The sound device cannot record from that input"	The card has no such input (for example a line input on an early Sound Blaster).
"The file could not be written"	The disk is full or cannot be written to.

Reason	What it means
“Not enough memory”	Close programs to free memory.
“No such sound is playing”, “Invalid argument”, “Unknown error”	A program asked for something that cannot be done. Report it to the program’s author.

11.7.15. Sound lines in the log file

Lines starting `Audio:` and `Music:` in the log file say what DVX found and what went wrong. These are the general ones; the card lines are listed with each card above.

Log line	What it means
`Audio: using 'driver': device, rate Hz, ⋯`	The sound device DVX plays on. Normal.
`Audio: using 'driver': device`	A music synthesizer DVX found. Normal.
`Audio: driver 'name' found no device`, `Audio: synth driver 'name' found no device`	That kind of hardware is not in the computer. Normal for every kind you do not have.
`Audio: sound driver 'name' not found; detecting`	The driver named in `[audio] driver` is not installed, usually a typing mistake. DVX looks for the others.
`Audio: sound driver 'name' did not start; detecting`	The driver named in `[audio] driver` did not find its card. DVX looks for the others.
`Audio: no sound driver could be started`	Nothing started, not even silent sound. Repair DVX with Setup and check the card’s settings.
`Audio: driver 'name' reported an unusable format`, `Audio: driver 'name' could not start playing`	The card could not play in the form DVX asked for. Try other `rate`, `bits`, or `channels` values, or another driver.
`Audio: could not pin the mixer in memory`, `Audio: could not pin the synthesizer code in memory`, `Music: could not pin the music player in memory`	Not enough memory. Close programs, use a smaller screen mode, and restart DVX.
`Audio: output closed after 10 s of silence`, `Audio: output opened again`	Normal.
`Audio: sound device let go for a DOS program`	Normal while a DOS program runs.

11.7.16. Recording sound

The Sound Recorder records with a Sound Blaster, a Windows Sound System card, or a Gravis UltraSound. The PC speaker and printer-port devices cannot record. Before the Sound Blaster Pro,

a Sound Blaster records only from the microphone; the Pro and the 16 also from the line input and the CD. An UltraSound records from the microphone and the line input. Inputs the card does not have are greyed out, and **MIDI Keyboard** is greyed out unless **MIDI in** on the Sounds page is set to **MIDI port**. Only one program in DVX can record at a time.

Until you save it, a recording is kept in the file `RECORDING.WAV` (or `RECORDING.MID`) in the Sound Recorder's own folder in the USER folder, and it is deleted when the program closes. Save it to keep it.

The Sound Recorder's messages are in boxes titled **Sound Recorder**. Many have a second part, after a blank line, that gives the reason (see Section 11.7.14):

"This computer's sound card cannot record." under the buttons

There is no card that can record, or the card was not found. Set up a Sound Blaster, Windows Sound System card, or Gravis UltraSound (see Section 11.7.2).

"Sound Recorder cannot record."

Recording could not start. The reason says why: another program is recording, the card has no such input, or the USER folder's disk is full or cannot be written to. With a MIDI recording, all eight MIDI recordings may be in use, or memory is short.

"Sound Recorder cannot record from the MIDI keyboard."

MIDI in is not set to **MIDI port** ("There is no such synthesizer"), or another program reads the MIDI keyboard. On the Sounds page, set **MIDI in** to **MIDI port**, click **[OK]**, and restart DVX.

"The recording could not be written."

A MIDI recording could not be saved to `RECORDING.MID`: the disk is full or cannot be written to.

"The recording could not all be written."

The disk filled up during the recording. The part recorded before that is kept.

"Sound Recorder cannot play this recording."

The reason says why.

"Sound Recorder could not save *file*."

Saving failed: the disk is full or cannot be written to (such as a CD-ROM), the folder does not exist, or a file of that name is read-only. A file of that name on the disk is left as it was. Save it somewhere else.

"Sound Recorder cannot open *file*."

The file could not be opened; the reason says why, or says "It is not a WAV or MIDI file."

The log file says more when recording fails: `Audio: the sound device did not start recording`; `Audio: sb: no 8-bit DMA channel to record on (set BLASTER D)` (add the `D` value to `BLASTER`); `Audio:`

`sb: no conventional memory for the recording's DMA buffer` or the same for `gus` and `wss` (free conventional memory); and `Audio: gus: no interrupt from the card while recording on IRQ n, DMA n (check ULTRASND)`.

If parts of a recording are missing, the log file line `Audio: recording ended: n frames, n lost` shows whether the computer was too busy to keep up. Close other programs while recording.

11.7.17. Media Player

The Media Player's messages are in boxes titled **Media Player**:

"Media Player cannot play *file*."

The file could not be loaded or started. The reason after it (also shown on the line under the title) says why, for example that the file is not a music or sound file, that it is damaged, that it is a compressed WAV file, that no sound device can play it, that the Sound Recorder is recording, or that the instrument bank is missing (see Section 11.7.14). When the list comes to such a track, the Media Player goes on to the next track that plays; if several in a row cannot be played, one message names them all, as in "Media Player cannot play *file*, *file*, and *n* other tracks.", and gives each reason once.

"The folder *folder* cannot be read."

After **File › Add Folder...**: the drive is empty, the disk was taken out, or the folder does not exist.

"There are no music or sound files in *folder*."

The Media Player adds only MOD, S3M, XM, IT, MID, RMI, WAV, and VOC files.

"Nothing is playing" where the track's title goes is normal when nothing is loaded. The Media Player keeps its settings and its list in `PLAYER.INI` in its own folder in the USER folder.

11.7.18. Sound settings in DVX.INI

The `[audio]` section of `DVX.INI` holds the sound settings. Control Panel's Sounds page sets the first ones; the others can only be set in the file. Deleting a line returns that setting to its default. See Section B.2 for the whole file.

Key	Values (default)	What it sets
`driver`	`auto`, `wss`, `sb`, `gus`, `lpt`, `speaker`, `null` (`auto`)	The sound driver tried first. Takes effect at the next start.
`volume`	0 to 100 (100)	The volume, in percent.
`midi`	`auto`, `mpu401`, `fm`, `software`, `softwave` (`auto`)	Where MIDI music plays. Next start.

Key	Values (default)	What it sets
`midiIn`	`none`, `mpu401` (`none`)	Where a MIDI keyboard is read from. Next start.
`modules`	`wavetable`, `software` (`wavetable`)	Where music modules play.
`midiBank`	A bank's name or path (not set: DVX's own)	The instrument bank for FM music.
`soundFont`	A SoundFont's name or path, or the path of an UltraSound's `ULTRASND.INI` (not set: the DVX General MIDI add-on's)	The recorded instruments for MIDI music.
`rate`	4000 to 48000 (22050)	The mixing rate in Hz. Lower takes less of the computer's time.
`bits`	`0`, `8`, `16` (`0`, the best the card can do)	Sound quality.
`channels`	`0`, `1`, `2` (`0`, the best the card can do)	Mono (1) or stereo (2).
`voices`	1 to 32 (16)	How many sounds are mixed at once.
`speakerPcm`	`true`, `false` (`false`)	Recorded sound on the PC speaker (takes much time).
`fmTones`	`true`, `false` (`true`)	Tones on the FM chip when there is one.
`mpuMode`	`gm`, `mt32`, `raw` (`gm`)	What is on the MIDI port.
`mpuPort`	hexadecimal (`330`)	The MIDI port's address.
`oplPort`	hexadecimal (`388`)	The FM chip's address.
`gusVoices`	14 to 32 (28)	Voices on a Gravis UltraSound; fewer play at a higher rate.
`wssPort`, `wssIrq`, `wssDma`	See Section 11.7.5	A Windows Sound System card.
`lptDac`	`auto`, `covox`, `disney`, `stereo` (`auto`)	The printer-port sound device. A Covox must be named.
`lptPort`	hexadecimal (LPT1)	Its port.

These settings in `AUTOEXEC.BAT` matter too: `BLASTER` (Sound Blaster and AWE), `ULTRASND` (Gravis UltraSound), `ULTRADIR` (the UltraSound's software folder, with its instruments), and `SOUND` (Creative's software folder, with the AWE's instruments).

11.8. Nothing prints

DVX sends printouts straight to the printer port, a serial port, or a file, as set on Control Panel's **Printer** page (see Section 7.10). Unless you change it, DVX prints to LPT1 with the model **Text only (any printer)**, which prints text but not pictures.

11.8.1. Check the printer settings first

Open Control Panel and click the **Printer** tab, then check:

Connected to

The port the printer's cable is plugged into: LPT1, LPT2, LPT3, COM1 to COM4 (a serial printer), or File. DVX can use a port only if the computer's BIOS lists it.

Printer model

Your printer's model, or one it can imitate. **Text only (any printer)** works with every printer but prints only text. The others print pictures too, the color ones in color: **Epson 9-pin (ESC/P)**, **Epson 24-pin (ESC/P)**, **HP LaserJet (PCL)**, **HP LaserJet III or DeskJet (300 dpi)**, **Epson 9-pin color (ESC/P)**, **Epson 24-pin color (ESC/P)**, **HP DeskJet 500C (color)**, **HP DeskJet 550C and later (color)**, **PostScript**, **PostScript (color)**, **Apple ImageWriter II**, and **Apple ImageWriter II (color)**.

Speed (baud) and Handshake

For a serial printer only. They must match the printer's own switches or settings. DVX sends 8 data bits, no parity, and 1 stop bit, at 300 to 38400 baud. **Handshake** is how the printer holds the computer back while it catches up: **None**, **XON / XOFF**, **Hardware (CTS)**, or **Hardware (DSR, Apple)** (as Apple's ImageWriter cable is wired).

While a printout goes out, a window titled **Printer** says "Printing *document* on *port*..." with a **[Cancel]** button (`Esc` presses it too). For a short printout it may not appear at all. If you end a program with **[End Task]** while it prints, the rest of its printout is not sent, and DVX does not wait for the printer or ask about it.

11.8.2. The printer has a problem

When the printer stops taking what DVX sends, a box titled **Printer** says what is wrong, with **[Retry]** and **[Cancel]** buttons. Fix the problem and click **[Retry]** to go on, or click **[Cancel]** to stop the printout. *port* is the port, such as LPT1, or the file's name.

"The printer on *port* is out of paper. Load paper, then choose Retry."

Load paper.

“The printer on *port* is off line or switched off. Switch it on and put it on line, then choose Retry.”

The printer is off, its ON LINE (or SELECT) light is off, its cable is loose, or nothing is connected to that port.

“The printer on *port* reports an error. Check that it is switched on, connected and has paper, then choose Retry.”

The printer signals a fault. For a serial printer, this also means the serial port failed.

“The printer on *port* is not responding. Check that it is switched on and connected, then choose Retry.”

The printer took nothing for 10 seconds: it is jammed or busy, the cable is unplugged, or, for a serial printer, **Speed (baud)** or **Handshake** does not match the printer (or the cable is wired for another handshake).

“Could not write to the file *file*. The disk may be full. Make room, then choose Retry.”

When printing to a file: the disk is full. Delete files to make room, or click **[Cancel]** and print to another disk.

Each of these is also written to the log file, after `Print:`.

11.8.3. The printout stops before it starts

These come in a box titled **Print**, and nothing is printed:

“This computer has no port *port*.”

The computer’s BIOS does not list that port: there is no such card, or the port is turned off in the computer’s setup. Choose the port the printer is on.

“The port *port* cannot be opened. Another program may be using it.”

A serial port that another program, such as Terminal, has open. Close that program or its connection, or use another port.

“Cannot create the file *file*.”

Printing to a file, the file could not be made: its folder does not exist, the disk cannot be written to, or the name is not allowed. (*file* is `(no name)` when no name was given; for a name without a folder it shows the USER folder too, such as `USER\PRINTER.PRN`.) See Section 11.8.6.

“Not enough memory to print.”, “Not enough memory to print the picture.”, or “Not enough memory to print the window.”

Close programs to free memory, then print again.

“Cannot read the picture *file*.”

The picture to print is missing or cannot be read.

“The document could not be printed.” or “The picture could not be printed.”

The printout failed part way. Check the printer and print again.

11.8.4. Pictures do not print

When a program prints a picture, a window, or a page it draws, and the printer model is **Text only (any printer)**, a box titled **Print** says:

“The printer model chosen in the Control Panel prints text only. To print pictures, choose your printer’s model on the Control Panel’s Printer page.”

Choose your printer’s model on the Printer page (see Section 11.8.1), click **[OK]**, and print again. The Printer page reminds you: “Text only works with any printer; choose your printer’s model to print pictures too.”

11.8.5. The printer driver is missing

With **PostScript** or **PostScript (color)** chosen on the Printer page, DVX prints through a file of its own, the PostScript printer driver. If that file is missing, nothing at all is printed, text or pictures, and a box titled **Print** says:

“The printer driver for *model* is missing, so DVX cannot print on that printer. To put it back, run Setup and choose Upgrade or repair DVX.”

model is **PostScript** or **PostScript (color)**. The log file also has the line `Print: the PostScript driver is missing from libs\kpunch\print\drivers`. Run Setup and choose **Upgrade or repair DVX** (see Section 3.8). Until then you can print text with **Text only (any printer)** if the printer can print plain text.

11.8.6. Printing to a file

With **Connected to** set to **File**, DVX writes the printout into a file instead of sending it to a printer. Unless you change **File name**, the file is `PRINTER.PRN` in your USER folder (for example `C:\DVX\USER\PRINTER.PRN`): a name without a folder always goes there, so printing to a file works wherever your settings are kept, also when DVX runs from a CD-ROM. To put the file elsewhere, type a full name, such as `C:\PRINTOUT.PRN`.

- When nothing can be saved at all (DVX runs from a disk it cannot write to and there is no TEMP folder; see Section B.1.4), printing to a name without a folder fails with “Cannot create the file USER\PRINTER.PRN.” (with your file’s name). Type a full name on a disk that can be written to, such as `C:\PRINTOUT.PRN`.

- If **File name** is empty, Control Panel's **[OK]** shows "Type the name of the file to print to, or connect the printer to a port." in a box titled **Printer**, and Control Panel stays open. In the Print dialog, choosing to print to **File** with no file name gives "Type the name of the file to print to."

11.8.7. Print dialog and Page Setup messages

The Print dialog shows the model chosen in Control Panel at the bottom, as `Printer model: model`. Its messages come in a box titled **Print**:

- "The first page to print comes after the last one.": the **From** page is after the **To** page.

Page Setup checks what you type and explains anything it cannot use, in a box titled **Page Setup**:

- "Lines per page must be 0 (the printer's usual length) or from 10 to 200."
- "Characters per line must be from 20 to 255."
- "Margins cannot be negative."
- "Tab width must be from 1 to 16."
- "The top and bottom margins leave no room for text."
- "The left and right margins leave less than 10 characters for text."
- "The page setup could not be saved.": `DVX.INI` could not be written, because the disk of the USER folder is full or cannot be written to, or `DVX.INI` exists but cannot be read.

Page Setup's changes are saved when you click **[OK]** in the **Page Setup** dialog, even if you then cancel Control Panel. If the page setup in `DVX.INI` cannot be used (for example after editing it by hand), DVX uses the default page setup instead.

11.8.8. Printing from particular programs

Icon Editor

"Could not prepare the icon for printing." The Icon Editor prints through a scratch copy of the icon, `PRINTICO.BMP`, in the TEMP folder (or in its own folder in USER when there is no TEMP folder). Neither could be written to. Set `TEMP` to a folder on a disk with free space (see Section 11.12.8).

BASIC Demo

"To print the report, choose your printer's model on the Control Panel's Printer page." The printer model is **Text only (any printer)**.

Programs written in DVX BASIC

These can stop with a **BASIC Runtime Error** box (see Section 11.14) about printing, as listed

below. When a BASIC program is ended from the Task Manager, anything it had drawn or written for the printer and not yet printed is thrown away, not printed.

- “Printing is not installed”, with “The Printer object needs the printing library (print.lib).”: a part of DVX is missing. Repair DVX with Setup.
- “The printer prints text only”, with “The printer model chosen in the Control Panel prints text only. To print with the Printer object, choose your printer’s model on the Control Panel’s Printer page.”: choose your model on the Printer page.
- “The printer driver is missing”, with “The printer driver for *model* is missing, so DVX cannot print on that printer. To put it back, run Setup and choose Upgrade or repair DVX.”: see Section 11.8.5.
- “Out of memory”, with “There is not enough memory for the Printer.” or “There is not enough memory for the Printer’s page.”: close programs.
- Error 68, “Device unavailable”: the printer port could not be opened, or printing is not installed. The log file has a line starting `Print:` that says why.
- Error 75, “Cannot create the printer spool file”: printing to LPT1 or PRN needs a scratch file, and none could be made. Check that `TEMP` names a folder with free space.

If the Printer page shows only “Printing is not installed.”, a part of DVX is missing. Repair DVX with Setup.

11.8.9. Printer settings in DVX.INI

The `[printer]` section of `DVX.INI` keeps the Printer page’s and Page Setup’s settings: `port` (`LPT1`), `file` (`PRINTER.PRN`), `model` (`text`), `linesPerPage` (`0`, the printer’s usual length: 66 lines, 60 on a laser printer), `columns` (`80`), `marginTop`, `marginBottom` (`3`), `marginLeft`, `marginRight` (`5`), `tabWidth` (`8`), `wrap` (`true`), `header` (`&f`), `footer` (`Page &p`), `baud` (`9600`), and `handshake` (`dtrdsr`; the others are `none`, `xonxoff`, and `rtscts`). The values in brackets are the ones DVX comes with. A `baud` value DVX does not offer counts as 9600. See Section B.2.

11.9. The network does not work

This section covers the network card, getting an address, finding computers by name, and reaching servers. Networking is an optional part of DVX. Terminal works over serial ports and modems without it; only Telnet, the secure link over the network, and Software’s package server need it.

11.9.1. How DVX uses the network

Knowing how DVX uses the network helps you find what is wrong:

- DVX reaches the network card through the card's DOS packet driver, which must be loaded before DVX starts, usually from `AUTOEXEC.BAT`. For an NE2000 card, for example, the line is `NE2000.COM 0x60 3 0x300`. See Section 4.3.
- DVX looks for the packet driver on software interrupts 60h to 80h, or only on the one set as **Packet driver** on Control Panel's Network page. It needs a packet driver for Ethernet.
- The network starts the first time a program uses it (to connect, or to look up a name), not when DVX starts. The **[Restart]** button on Control Panel's Network page also starts it.
- Right after the network starts, it asks the network's DHCP server for an address. Programs wait up to 20 seconds for one before they try to connect.
- While DVX runs a DOS program, the network is stopped and open connections end. When a program ends, the connections it left open are closed.

11.9.2. The Network Status window

To see what the network is doing, open Control Panel, click the **Network** tab, and click **[Status...]**: the **Network Status** window opens. It shows, and updates every second:

- The state of the network (one of the messages below).
- `Address`, `mask`, and `gateway`: the address the computer has, or `-` when it has none.
- `Name servers`: the computers it asks to find names, or `-` when it has none.
- `Card`: the packet driver's name and the card's hardware address.
- How many packets were received and sent.

The window can stay open after you close Control Panel. The state line is one of these:

State	What it means
"Networking is not started"	No program has used the network yet. See Section 11.9.6.
"No packet driver found: load one (for example NE2000.COM) before DVX"	DVX found no packet driver. See Section 11.9.4.
"Waiting for a DHCP server"	The network runs but has no address yet. See Section 11.9.5.
"Connected"	The network has an address and is ready.

11.9.3. Networking is not installed

If Control Panel's Network page shows only "Networking is not installed.", the Networking part of DVX was not installed. Terminal then says "Telnet and the secure link over the network need Networking, which is not installed. Setup can add it.", and Software's server pages say "The package server needs DVX's Networking part. To add it, run Setup from DVX's CD or Disk 1 and

choose Upgrade or repair.” To add it:

1. Run Setup from the DVX CD or Disk 1, and choose **Upgrade or repair DVX** with the folder DVX is in.
2. On the page that lists the parts of DVX (**Parts of DVX to have**), tick **Networking**, and go on.

See Section 3.5.

11.9.4. No packet driver found

When the Network Status window says “No packet driver found: load one (for example NE2000.COM) before DVX”, DVX found no packet driver, so only this computer itself (the address 127.0.0.1) can be reached. To fix it:

1. Load your network card’s packet driver before DVX: add its line to `AUTOEXEC.BAT` (see Section 11.1.8), or type it at the DOS prompt before you start DVX. The packet driver comes with the card, or from the card maker; its line gives the software interrupt (such as `0x60`) and the card’s IRQ and port.
2. If you loaded the driver after DVX started, click **[Restart]** on Control Panel’s Network page, so DVX looks again.
3. Set **Packet driver** on the Network page to **Find it**, unless you know the interrupt. If it names an interrupt, DVX looks only there.
4. Use an interrupt from 60h to 80h for the packet driver; DVX does not look elsewhere.

The log file says more, in lines starting `dvxnet:`:

Log line	What it means
`dvxnet: packet driver "name" at INT nnh`	The packet driver was found. Normal.
`dvxnet: no packet driver found; only local (127.0.0.1) connections work`	No packet driver was found where DVX looked.
`dvxnet: the packet driver at INT nnh is not an Ethernet driver`	The driver is for another kind of network. Use the card’s Ethernet packet driver.
`dvxnet: no conventional memory for the packet buffers`	DVX needs about 26 KB of conventional memory for the network card. Free some (see Section 11.2.6).
`dvxnet: the packet driver refused to deliver IP or ARP frames`	Another program already takes the network’s traffic from the packet driver, such as a resident network program. Do not load other programs that use the packet driver with DVX, and load the packet driver again.

Log line	What it means
`dvxnet: the packet driver did not give its hardware address`	The driver or the card did not answer. Check the driver's settings (interrupt, IRQ, and port) against the card, and try the card's own setup or test program.
`dvxnet: could not lock the packet receiver in memory`, `dvxnet: no real-mode callback is available for the packet receiver`	DVX could not set up its connection to the network card. Restart the computer; if it happens again, send the log file with a problem report.

11.9.5. Waiting for a DHCP server

"Waiting for a DHCP server" means the network runs but no DHCP server has given the computer an address. The cable may be unplugged, the card may not be connected to the network, or the network may have no DHCP server (on such a network every computer has a fixed address).

1. Check the cable and the network.
2. On a network without a DHCP server, untick **Get the address automatically (DHCP)** on Control Panel's Network page, and type the **Address**, **Subnet mask**, and **Gateway** the network's owner gives you. Click **[OK]**.

If the log file has `dvxnet: DHCP could not start`, the network could not begin asking for an address. Click **[Restart]** on the Network page, or restart DVX. When an address arrives, the log file says `dvxnet: address address`.

11.9.6. Networking is not started

"Networking is not started" is normal until a program uses the network. Click **[Restart]** on the Network page to start it now.

If it stays that way, the fixed address settings in `DVX.INI` may be wrong. (Control Panel checks them, but a hand-edited `DVX.INI` is not checked.) The network then refuses to start, and every connection fails; Terminal even says that a host given by its number was not found. Check **Address**, **Subnet mask**, and **Gateway** on the Network page, or tick **Get the address automatically (DHCP)**.

11.9.7. Control Panel will not accept the network settings

When you click **[OK]** in Control Panel, it checks the Network page. If a setting cannot work, a box titled **Network** says what is wrong, and nothing is saved until you fix it:

Message	What to do
“The computer name may only use letters, digits and hyphens”	**Computer name** is empty, has a space or another character, starts or ends with a hyphen, or is 64 characters or longer. Use letters, digits, and hyphens only, such as `DVX`.
“The packet driver interrupt must be between 0x60 and 0x80”	`DVX.INI` names an interrupt outside 60h to 80h. Choose **Find it** or an interrupt in the list.
“A name server is not a valid address (like 192.168.1.1)”	**Name server 1** or **Name server 2** is not four numbers with dots between them. A name such as `dns.example.org` is not accepted there. Type the number, or leave it empty to use the network’s own.
“The address is not a valid address (like 192.168.1.10)”	DHCP is off, and **Address** is empty or not four numbers from 0 to 255 with dots between them.
“The subnet mask is not valid (like 255.255.255.0)”	DHCP is off, and **Subnet mask** is empty, not an address, `0.0.0.0`, or not a proper mask.
“The gateway is not a valid address (like 192.168.1.1)”	DHCP is off, and **Gateway** is filled in but is not an address. It may be left empty.

After **[OK]**, if the settings changed, the network restarts with them, and connections that were open are closed. **[Restart]** uses the saved settings, not changes you have not yet saved with **[OK]**.

11.9.8. A computer’s name cannot be found

Terminal says “The host *name* was not found”, Software says “The package server cannot be reached: Cannot find *name* on the network.”, and a DVX BASIC program may say “That name could not be found (check the name and the network settings)”, when a name could not be turned into an address. The causes are:

- The name is misspelled or does not exist.
- There is no name server: the network gave none and none is set, or there is no packet driver.
- The name server did not answer within 30 seconds.
- The network gave no address within 20 seconds.
- The network cannot start because its fixed settings are wrong (see Section 11.9.6).

What to do:

1. Check the name.
2. Open the Network Status window. If it says `Name servers -`, there is none: type a name server’s

address as **Name server 1** on the Network page (your network's owner or provider gives it).

3. Try the computer's number (such as `192.168.1.20`) instead of its name.

11.9.9. A server cannot be reached

When Terminal connects over the network (Telnet, or the secure link with **Connect over the network** ticked), it shows how the connection goes in its status bar and on the screen. These end the connection:

Message	What it means and what to do
"*host* refused the connection on port *port*"	The computer is there, but nothing answers on that port: the port number is wrong (23 for Telnet; a secure-link proxy usually 2323), or the server program is not running.
"*host* did not answer"	No answer within 30 seconds: the address is wrong, the computer is off or not on the network, or something in between drops the connection. Check that the network works in the Network Status window.
"*host* cannot be reached: check the network settings"	DVX has no way to the computer: it has no address yet, no **Gateway** is set for a computer on another network, there is no packet driver, or the network is stopped. Check the Network page and the Network Status window.
"The connection to *host* failed"	Some other network failure, such as too many connections open. Close other network programs or connections, and connect again. Restart DVX if it keeps happening.
"*host* closed the connection"	The other computer ended the session, as a bulletin board does when you log off.
"The connection to *host* was lost"	The connection broke. Connect again, and check the network.
"Networking is not installed"	The Networking part of DVX is not installed (see Section 11.9.3).
"No host name is set"	A program connected without a host name.

Normal progress messages are "Connecting to *host* port *port*", "Connected to *host* port *port*", and "Disconnected" after you disconnect. For the package server, see Section 11.11.16.

11.9.10. Network messages in BASIC programs

Programs written in DVX BASIC that use the network may show these texts. They mean what they say; the ones most often seen are:

- “The other computer refused the connection”, “The other computer did not answer in time” (a BASIC program waits 20 seconds), “The other computer broke off the connection”, and “The connection was given up”.
- “That network cannot be reached (check the network settings)”: DVX found no way to the computer. Check the network settings (see Section 11.9.9).
- “The network is not running”, “Out of network memory”, and “Too many connections are open”.
- Others: “No error”, “Nothing to do yet (try again later)”, “The connection is still being made”, “Not connected”, “Already connected”, “The connection is closed for sending”, “That port is already in use”, “That address is not this computer’s”, “Not an open connection”, “The message is too long”, “Sending to everyone needs SO_BROADCAST”, and “The network operation failed”.
- When looking up names: “That name could not be found (check the name and the network settings)” (the name is misspelled or does not exist, or there is no name server: see Section 11.9.8), “The name server did not answer in time”, and “The name could not be looked up”.
- When opening a connection: “Bad connection settings”, “The port could not be opened”, “Networking is not installed”, and “The connection could not be opened”.

11.9.11. Network settings in DVX.INI

The Network page keeps its settings in the `[network]` section of `DVX.INI` (see Section B.2):

Key	What it sets
`dhcp`	`true` (the default) gets the address, mask, gateway, and name servers from a DHCP server; `false` uses the values below.
`address`, `netmask`, `gateway`	The fixed address, subnet mask, and gateway, used only when `dhcp = false`. `gateway` may be empty.
`dns1`, `dns2`	Name servers, as numbers. Empty uses the DHCP server’s. When set, they are used instead of the DHCP server’s.
`hostname`	This computer’s name on the network: letters, digits, and hyphens (`DVX` unless you change it).
`vector`	`auto` (search 60h to 80h), or the packet driver’s interrupt, written with `0x` in front, such as `0x60`. Without `0x`, the number is read as decimal.

Wrong fixed settings typed into the file by hand keep the network from starting at all.

11.10. Serial ports, modems, and Terminal

This section covers Terminal's connections over a serial port, a modem, and the secure link, and its file transfers. For Telnet and other connections over the network, see Section 11.9.9.

11.10.1. Where Terminal shows what happens

Terminal reports each step of a connection, and each problem, in three places: at the left of its status bar, on the terminal screen in square brackets (for example `[Connected to COM1 at 9600 bps]`), and in the log file as a line starting `Terminal:`. The messages in this section appear in all three. A problem ends the connection; choose **File › Connect** to try again.

11.10.2. A COM port cannot be opened

"COM*n* could not be opened: *reason*" means Terminal could not use the serial port chosen under **Port** on the **Connection** page of the Session Settings (**Settings › Session Settings...**). The reason is one of these:

Reason	What to do
"there is no serial port there"	The computer's BIOS lists no port with that number, or nothing answers at its address. Choose another port. Check that the port is turned on in the computer's setup, and, for an add-in card, its jumpers.
"it is already in use"	Another DVX program, such as another Terminal window, has that port open. Close it first.
"its interrupt could not be found"	Rare. Check the port's IRQ: COM1 and COM3 normally use IRQ 4, COM2 and COM4 IRQ 3.
"a setting is not supported"	The speed, data bits, parity, stop bits, or flow control cannot be used on that port. Choose another setting.
"it did not respond"	Any other failure, such as too little memory. Close programs and try again.

DVX takes each COM port's address from the computer's BIOS and finds its interrupt by itself; there are no serial port settings in `DVX.INI`.

"COM*n* could not be opened for the secure link" is the same problem for a secure link over a COM port. "Connected to COM*n* at *speed* bps" means the port is open. "COM*n* stopped working" means the port stopped delivering data; choose **File › Disconnect**, then connect again.

11.10.3. Garbage, nothing, or doubled letters on the screen

Random characters appear

The **Speed (bps)**, **Data bits**, **Parity**, or **Stop bits** on the **Connection** page do not match the other side. Both sides must use the same settings.

Nothing appears when you type

Turn on **Settings › Local Echo**.

Every letter appears twice

Turn off **Settings › Local Echo**. It is off unless you turn it on.

Characters are lost at high speed, or transfers fail

Set **Flow control** to **RTS/CTS** when the cable and the other side support it. Without flow control, ZMODEM downloads ask the sender to pause every 2 KB.

Edit › Send Break does nothing

It works only on serial port and modem connections.

11.10.4. Modems

Terminal sends the **Setup command** from the **Modem** page, dials, and waits for the modem's answers (such as OK, CONNECT, BUSY, NO CARRIER, NO ANSWER, NO DIALTONE, and ERROR). Everything the modem says also appears on the screen. Its messages:

Message	What it means and what to do
"Setting up the modem on COM*n*"	Normal: the setup command was sent.
"The modem on COM*n* did not answer"	No OK within 5 seconds of the setup command: the modem is off, not on that port, or its cable is loose; the speed or the setup command is wrong; or the modem answers with numbers instead of words. To test it, leave **Phone number** empty, connect, and type `AT` and `Enter` yourself. A setup command such as `ATZ` (the default) usually makes it answer in words again.
"The modem refused the setup command *command*"	The modem answered ERROR. Correct **Setup command**, or leave it empty to send none.
"Dialing *number* (try *n* of *n*)"	Normal.
"Connected (*modem's message*)"	Connected, for example `Connected (CONNECT 14400)`.

Message	What it means and what to do
"The line is busy: dialing again in *n* seconds", "No carrier: dialing again in *n* seconds", "No answer: dialing again in *n* seconds"	The call did not connect; Terminal dials again. After the last try, the reason alone ends the connection: "The line is busy", "No carrier", or "No answer". Try later, or raise **Redial tries** (0 to 99) or **Redial wait (s)** (1 to 300 seconds) on the **Modem** page. "No answer" also means the modem gave no result within 60 seconds of dialing.
"No dial tone: check the phone line"	The modem heard no dial tone. Plug in the phone line, and check it with a telephone.
"The modem refused the dial command"	The modem answered ERROR to the **Dial command** and number. Check the dial command (usually `ATDT` for tone or `ATDP` for pulse dialing) and the number's characters.
"Carrier lost: the call ended"	The call dropped after it connected.
"Modem ready on COM*n*: type AT commands"	Normal when **Phone number** is empty: type commands to the modem yourself.
"Hung up"	Normal after **File › Disconnect**.

11.10.5. The secure link

The secure link encrypts everything between Terminal and the secure-link proxy program on the other computer, over a COM port or, with **Connect over the network** ticked, over the network (see Section 9.7). Its messages:

Message	What it means and what to do
"Setting up the secure link on COM*n*", "Connecting to *host* port *port* for the secure link", "Setting up the secure link with *host*"	Normal progress. Over the network, the network messages can appear at this step too (see Section 11.9.9).
"Secure link established" or "Secure link established (passphrase checked)"	It worked. Press `Enter`; the proxy says `SecLink proxy ready.` and then connects to the bulletin board.
"The passphrase does not match the host's"	The two passphrases differ, or only one side has one. Use exactly the same passphrase as the proxy, or none on both sides.

Message	What it means and what to do
“The host did not answer the secure link”	The other side said nothing within 30 seconds: the proxy is not running, or the port, the cable, the speed, or the flow control is wrong. Check that the proxy is running, that the speeds and flow control (**None** or **RTS/CTS**) match, and that the line uses 8 data bits, no parity, and 1 stop bit.
“The secure link cannot use XON/XOFF flow control: choose None or RTS/CTS”	The session uses **XON/XOFF** flow control over a COM port, which the secure link cannot use (it sends those characters as part of its data). Session Settings does not accept it, so the setting was made another way, such as by editing Terminal’s settings file. Choose **None** or **RTS/CTS** in **Flow control**.
“The secure link could not be set up”	Any other failure: the proxy is from another version, the line dropped, or the line sends back everything it receives. Use matching versions of DVX and the proxy, and check the cable or modem.
“The secure link was lost”	No answer from the other side for 30 seconds, or the line or network connection closed. Connect again, and check the cable or network.
“Out of memory for the secure link”	Close programs, and connect again.

With **Ask for the passphrase when connecting (never save it)** ticked, a window titled **Secure Link Passphrase** asks “Passphrase for the secure link:”; **[Cancel]** does not connect. A passphrase typed on the **Secure Link** page is saved, scrambled, in Terminal’s settings file.

11.10.6. Terminal’s messages

Terminal’s boxes are titled **Terminal** unless noted:

“Telnet and the secure link over the network need Networking, which is not installed. Setup can add it.”

Add the Networking part with Setup (see Section 11.9.3). Serial and modem connections work without it.

“Enter the host name on the Network page of Session Settings first.”

Choose **Settings › Session Settings...**, click the **Network** tab, and type the **Host name**.

“A secure link over a COM port cannot use XON/XOFF flow control. Choose None or RTS/CTS.”

You clicked **[OK]** in Session Settings with **Secure link** in **Connect with**, **Connect over the**

network not ticked, and **XON/XOFF** in **Flow control**. The secure link sends the XON and XOFF characters as part of its data, so it cannot use them for flow control. Choose **None** or **RTS/CTS** (matching the proxy), and click **[OK]** again.

“A file transfer is running. Cancel it and close?”

You are closing Terminal during a transfer. **[No]** keeps it open.

“You are connected. Disconnect and close?”

You are closing Terminal while connected, dialing, or connecting. **[No]** keeps it open.

“The capture file could not be opened.”

After **File › Capture to File...**: the file cannot be written, because the disk is a CD-ROM, write-protected, or full, or the folder does not exist. Choose a file on a disk you can write to, such as in your USER folder.

“No file transfer can be started now.” (title File Transfer)

Too many transfers are running (in other programs too), memory is short, or the connection is not open. Wait for or cancel other transfers, close programs, or connect first.

“Add another file to send in the same batch?” (title Send Files)

With YMODEM and ZMODEM, you can send several files at once. **[No]** starts sending.

“Delete "*name*" from the phone book?” (title Phone Book)

[Yes] deletes the session. The last session cannot be deleted.

“The phone book is full. Delete an entry first.” (title Phone Book)

The phone book holds 32 sessions.

“The phone book *file* cannot be read. Terminal goes on, but does not save changes to the phone book, so the sessions in the file are not lost.”

Terminal’s settings file, `TERMINAL.INI` in `USER\APPS\KPUNCH\TERMINAL`, is there but cannot be read: it is damaged, or its disk failed. Terminal starts with the usual session and does not save over the file, so you can restore it from a backup. Delete the file to start a new phone book, or put a good copy in its place, and start Terminal again.

Terminal also writes notes on its screen in square brackets:

- `[The phone book could not be saved]`: Terminal’s settings file could not be written, because the disk is full or cannot be written to. Make room, or keep the USER folder on a disk that can be written to (see Section 11.12.7).
- `[The download folder folder could not be created.]`: when receiving with YMODEM or ZMODEM. The folder is on a disk that cannot be written to, its drive does not exist, or the name is not valid. Choose another **Download folder** in **Settings › Transfer Options...**; left

empty, it is the `DOWNLOAD` folder in USER.

- `[New connection settings take effect the next time you connect]`: after you change Session Settings while connected.
- `[Capturing to file]` and `[Capture stopped]`: normal.

If Terminal opens and closes at once, the log file has `Terminal: no connection available`: memory is short. Close programs and start Terminal again. If Terminal is started with a `telnet://` address (for example from a link) while its phone book is full, it opens without connecting, and the log file has `Terminal: the phone book is full; address was not opened`: delete a session and try again.

11.10.7. File transfers

When a transfer ends, the **File Transfer** window shows the result, Terminal writes it on its screen as `[Upload: result]` or `[Download: result]`, and the log file gets it too:

Result	What it means and what to do
“Transfer complete”	It worked.
“Transfer complete (the end was not confirmed)”	Every block arrived, but the other side never confirmed the end. The file should be complete.
“Cancelled”	You clicked **[Cancel]** or pressed `Esc`, or closed the window or Terminal.
“Cancelled by the sender”, “Cancelled by the receiver”	The other side cancelled.
“The receiver did not start”	You sent, but the other side never started receiving (about 60 seconds), or it uses another protocol. Start the receive on the other computer before (or right after) you choose **Transfer › Send Files...**, with the same protocol.
“The sender did not start”	You chose **Transfer › Receive Files...**, but the other side never started sending. Start the send on the other computer first, with the same protocol.
“The sender stopped”	A ZMODEM batch stopped before the next file came.
“Too many errors”, “Lost block sequence”	The same block failed 10 times, or the blocks lost step: line noise, characters lost for lack of flow control, a speed that is too high, or a link that changes control characters. Use **RTS/CTS** flow control, a lower speed, or XMODEM-1K; for ZMODEM, tick **Escape all control characters (for links that lose them)** in Transfer Options.
“The receiver ended the transfer”	The ZMODEM receiver stopped, for example because its disk is full.

Result	What it means and what to do
“Cannot open *file*”, “Cannot read the file”	A file to send does not exist, or cannot be read (a damaged disk, or the disk was taken out).
“Cannot create the file”	A file being received could not be made: the download folder is on a disk that cannot be written to (a CD-ROM or a write-protected floppy), the disk is full, or the folder does not exist. Choose another **Download folder** in Transfer Options, or make room.
“Cannot write the file”	Writing a received file failed part way: the disk is full or write-protected. Make room and receive again; a ZMODEM download can be continued, while XMODEM and YMODEM remove the incomplete file.
“A file larger than 2 GB cannot be transferred”	The file is too large.
“No file to send”, “Bad transfer parameters”	A program started a transfer wrongly. Report it to its author.

When a file being received already exists, the **File Transfer** window asks “*file* already exists (*size* bytes). What should happen to it?”, with **[Continue it]** (only when ZMODEM can continue it), **[Keep both]** (the new file gets `~1` to `~99` added to its name, such as `README~1.TXT`), **[Replace]**, and **[Skip]**.

On a disk without long file names, received names are shortened to 8.3 form, and characters DOS does not allow are replaced. Folder names in the sender’s file name are ignored; a name with nothing usable in it becomes `RECEIVED`. Typing is ignored while a transfer runs.

11.10.8. Terminal’s settings file

Terminal keeps its phone book and all its settings in `TERMINAL.INI`, in its own folder in USER (`USER\APPS\KPUNCH\TERMINAL\TERMINAL.INI`). Values out of range are put back into range when Terminal reads them. Several Terminals running at once share the file: each reads it again before it saves and changes only what was changed in it, so one Terminal does not undo another’s changes. Deleting the file gives one session, **Direct COM1**: a serial port on COM1 at 9600 bps, 8 data bits, no parity, 1 stop bit, no flow control, local echo off, and ANSI music on, with ZMODEM transfers into `USER\DOWNLOAD`. Your other sessions are lost, so keep a copy of the file first.

11.11. Setup, add-ons, and Software

This section covers Setup (installing, upgrading, repairing, and removing DVX) and the Software program (installing and removing add-on packages, the package server, and signatures). Setup’s boxes are titled **DVX Setup**, and Software’s are titled **Software**.

11.11.1. Setup will not start

These are printed at the DOS prompt, and Setup ends:

“DVX Setup: there is no DVX package (or it is damaged) beside *file*, and DVX is not installed in its folder.”

Setup found nothing to install. *file* is Setup’s own name, such as `a:\setup.exe`. `SETUP.EXE` was copied without the files that go with it, the floppy in the drive is not Disk 1, the CD or Disk 1 is damaged, or you started the copy of Setup in the DVX folder with `/AUTO=` (that copy can only remove DVX). Run `SETUP` from the DVX CD, or from Disk 1 of the floppy disks with Disk 1 in the drive. Make a new copy of a damaged disk.

“DVX Setup needs a video card with a VESA video BIOS and a 640x480 mode at 256 colors or more; many older cards need their VESA driver loaded first, such as UniVBE (see README.TXT).”

Load the video card’s VESA driver, then run Setup again (see Section 11.2.2).

“DVX Setup: /FONTS= takes NONE or BASE.”

Use `/FONTS=NONE` or `/FONTS=BASE`, or leave the switch out.

“There is not enough memory to run Setup.” (in a box, when Setup starts to install)

Free memory (see Section 11.2.6) and run Setup again.

If Setup opens with the note “To install or upgrade DVX, run SETUP from its CD or Disk 1.”, you started the copy of Setup in the DVX folder. It can only remove DVX from its own folder. To install, upgrade, or repair, run `SETUP` from the CD or Disk 1.

11.11.2. Choosing the folder

Setup checks the folder you type before it goes on:

- “Type the folder to install DVX in.”: the box is empty.
- “Type the whole path of the folder, starting with the drive, for example C:\DVX.”: the folder does not start with a drive letter.
- “Setup is reading DVX from *folder*. Choose a folder that is not this one and not inside it.”: you chose the CD or floppy drive Setup runs from. Choose a folder on the hard disk.
- “DVX is not installed in *folder*. To put DVX there, choose Back, then Install DVX.”: you chose **Upgrade or repair DVX** for a folder without DVX. Check the folder, or go back and choose **Install DVX**.
- “DVX is already installed in *folder*. Upgrade or repair it instead, keeping your settings and saved files?”: you chose **Install DVX** for a folder that has DVX. **[Yes]** upgrades it, keeping your settings; **[No]** lets you choose another folder.

11.11.3. Not enough disk space, or the folder cannot be made

“There is not enough free space for DVX on that disk. DVX needs about *n* bytes; *n* bytes are free.” appears after you choose what to install. On an upgrade, only what the folder does not have yet counts, and the add-ons you chose are included. The page of what to install shows “DVX needs about *n* MB of disk space.” as you choose. To make it fit:

1. Free space on that disk.
2. Choose fewer parts, or **None** for the fonts, or untick add-ons.
3. Or install DVX on another drive.

“Setup could not create the folder *folder*.” means the drive is write-protected or full, the name is not a valid DOS name, or the drive does not exist. Choose another folder or drive.

11.11.4. Floppy disk questions

When installing from floppy disks, Setup asks for each disk in turn, in a box with **[OK]** and **[Cancel]** (**[Cancel]** stops Setup):



Figure 57. Setup asks for the right disk

- “Please insert Disk *n* of *n* in *drive* and choose OK.”: insert that disk and click **[OK]**.
- “This is not Disk *n*. Please insert Disk *n* of *n* in *drive* and choose OK.”: a disk of the same set, but the wrong one, is in the drive.
- “The disk in *drive* belongs to a different set of DVX disks. Please insert Disk *n* of *n* of this set and choose OK.”: the disk is from another copy or version of DVX’s floppy disks. Use the disks of one set only, all made at the same time.
- “The disk in *drive* cannot be read. Please insert Disk *n* of *n* and choose OK.”: the disk is damaged. Clean or replace it, or make it again from the disk images.

11.11.5. Setup stops while unpacking

If Setup cannot finish unpacking, it shows the reason in a box. A new installation that fails is removed again; an upgrade that fails is left as it is, so run **Upgrade or repair DVX** again once the problem is fixed.

Message	What it means
“Setup could not write *file*. The disk may be full.”, “Setup could not write *file*. The disk may be full or write-protected.”	The disk is full or write-protected, or a file is in use.
“The path of *file* is too long.”, “The folder *folder* is too long.”	The folder you chose is too deep. Choose a shorter one, such as `C:\DVX`.
“Setup could not read the DVX package in *folder*.”, “Setup could not read the DVX package on disk *n*.”	The CD was taken out, or the disk cannot be read.
“The DVX package ends too early (disk *n*).”, “The DVX package is incomplete: *n* of *n* files.”, “The DVX package is damaged (disk *n*).”, “The file *file* in the DVX package is damaged (disk *n*).”, “The DVX package uses a form Setup cannot read (disk *n*).”, “The DVX package holds a name Setup does not accept: *name*”	The CD or a floppy disk is damaged, was not copied completely, or disks from different sets were mixed. Make the disks or the CD again from a good copy.

If you click **[Cancel]** while Setup unpacks, it says “Setup was cancelled. Nothing was installed in *folder*.” for a new installation, or “Setup was cancelled. DVX in *folder* is incomplete now; run Setup again to repair it.” for an upgrade. Run **Upgrade or repair DVX** for the same folder to finish it.

11.11.6. Parts and add-ons in Setup

Ticking a part also ticks the parts it needs; unticking one also unticks the parts that need it. On an upgrade, an unticked part is removed, unless an installed add-on needs it:

- “Other software in *folder* needs these parts, so Setup keeps them: *parts*.”: nothing is wrong. To remove the part, first remove the add-on that needs it with Software.
- “*name* could not be installed: *reason*” or “*name* could not be removed: *reason*”: an add-on or a part could not be installed or removed (the reasons are those of Software, below). DVX itself is installed, and Setup goes on with the others. Install or remove it later with Software; the add-ons are in the `ADDONS` folder of the CD.
- “Setup was cancelled: *name* and the add-ons after it are not as you chose. Software (in Program Manager) can install and remove them.” and “Setup was cancelled: *name* is not all removed. Software (in Program Manager) can remove it.”: use Software to finish.
- “There is not enough memory to install the add-ons.” and “There is not enough memory to

remove the parts left out.": free memory and run Setup again.

- "These files in *folder* changed since they were installed, so Setup left them:", the files, and "Delete them too?": removing a part or an add-on, or upgrading an add-on, does not delete files that changed after they were installed, such as data you edited, as in Software (see Section 11.11.15). **[Yes]** deletes them; **[No]** leaves them where they are. When Setup runs with `/AUTO`, it does not ask, and the files stay.
- "These files in *folder* could not be deleted, so Setup left them:", the files, and "A program may be using them, or the disk may be write-protected.": some files of a part or an add-on Setup removed (or, after **[Yes]** above, some of the changed files) could not be deleted. The part or add-on itself is removed. Make the disk writable, and delete the files with File Manager.

An add-on file in the CD's `ADDONS` folder that cannot be read, or is not signed, is not offered. The floppy disks have no add-ons; get them from the package server in Software.

11.11.7. After installing: settings and AUTOEXEC.BAT

"DVX was installed, but the settings file in *folder* could not be written."

Setup could not write `DVX.INI` in the USER folder, where it saves the screen mode it ran in. DVX can still be started, with its default settings. Check that the disk can be written to, and run **Upgrade or repair DVX** to try again.

"Your old settings and saved files in *folder* could not all be removed."

An upgrade with **Start over** ticked could not delete all of the USER folder. Delete it by hand.

When **Start DVX when the computer starts (AUTOEXEC.BAT)** is ticked, Setup asks before it adds the line that starts DVX to `AUTOEXEC.BAT`: "Setup will add this line to the end of *file*, so DVX starts when the computer starts: *line* The file as it is now is saved as *backup* first. Add the line?" It keeps a copy of the file as `AUTOEXEC.DVX`. When there is no `AUTOEXEC.BAT` yet, there is nothing to copy, and Setup asks "There is no *file* yet. Setup will make one with this line, so DVX starts when the computer starts: *line* Add the line?" instead. To undo it, delete the line from `AUTOEXEC.BAT`, or copy `AUTOEXEC.DVX` back over `AUTOEXEC.BAT`. If it fails, a box gives the reason: "The path *file* is too long.", "Could not make the backup copy *file*, so *file* was not changed.", "Could not write *file* (is the disk full or write-protected?).", or "There is not enough memory to change *file*."

If you tick **Start DVX now** on the last page, DVX starts while Setup is still in memory. If DVX then says memory is short, exit DVX and start it from the DOS prompt instead.

11.11.8. Removing DVX

"DVX is not installed in *folder* (or it was not installed by this Setup)."

The folder has no list of the files Setup installed (`SETUP.LST`), or it is not a full path. A DVX copied by hand must be deleted by hand. "*folder* has no list of installed files (SETUP.LST), so Setup

does not know what to remove." means the same.

"*n* file(s) in *folder* could not be removed. Close any program using them and choose Remove DVX again."

Some files are read-only, in use, or on a write-protected disk. Fix that and choose **Remove DVX** in Setup again (the list of files is kept, so it can finish).

"DVX was removed from *folder*."

Done. Files you added yourself stay, and the USER folder goes only if you ticked **Also remove my settings and saved files (the USER folder)**.

If `AUTOEXEC.BAT` has the exact line that starts DVX, Setup offers to remove it, keeping a copy as `AUTOEXEC.DVX`: "*file* starts DVX with the line *line* Remove that line? (The file as it is now is saved as AUTOEXEC.DVX first.)" A line you changed by hand (for example with a switch added) is not recognized: remove it yourself.

11.11.9. Keeping a record of Setup

Setup keeps no log file unless you ask. To keep one for a problem report, start it with `SETUP /LOG=C:\SETUP.LOG`. When you install with `SETUP /AUTO=C:\DVX` (without questions), Setup shows no error boxes, only writing the errors to the log, so add `/LOG=` to see them; it ends with exit code 0 when DVX was installed and 1 when it was not. See Section 3.3.

11.11.10. Software will not start, or its server pages are off

"There is not enough memory to start Software."

Close other programs and try again.

"The package server needs DVX's Networking part. To add it, run Setup from DVX's CD or Disk 1 and choose Upgrade or repair."

Shown as the status line of the Available, Updates, and Published pages, whose buttons are then off. Installing from a file still works. To use the package server, add Networking (see Section 11.9.3).

11.11.11. A package cannot be read

"*file* cannot be installed: *reason*" means Software could not read the package file you chose. The reason is one of these:

Reason	What it means
"Cannot read *file*."	The file is missing, cannot be read, or is not a package at all.

Reason	What it means
"*file* is not a DVX package (it does not start with PACKAGE.INI)."	It is some other kind of file.
"The manifest of *file* cannot be read: it is damaged." (or "…: it cannot be read.", "…: it uses a form DVX cannot read.", "…: a part of it could not be kept (the disk is full, or memory is short).")	The package is damaged, or the disk is full, or memory is short.
"The signature of *file* cannot be read."	Its signature is damaged.
"This package needs a newer DVX (its manifest is format *n*).", "Line *n*: *kind* is not a kind of package."	The package was made for a newer DVX. Update DVX first (Software's Updates page).
"The manifest has no format number: it is not a DVX package manifest.", "The manifest needs an id, a name, a version, and a kind."	It is not a proper DVX package.
"The path *file* is too long."	The package's folder is too deep. Move it to a shorter folder.

Other reasons, such as "The id *id* is not vendor.name (each part 1 to 8 of a-z, 0-9, and _).", "The package holds no files.", "*name* is listed twice.", "The package depends on itself.", or one starting "Line *n*", mean the package was made wrongly: tell whoever made it. In every case, get a fresh copy of the package and check that it is a DVX `.DPK` file.

"*file* cannot be installed: another job is running." means another install, removal, or download is under way. Wait for it to finish.

11.11.12. The Install Software window

Before it installs anything, Software shows a window titled **Install Software**: "This is what will be installed:", with each package's **Name**, **Version**, **Action** (**New**, **Upgrade**, or **Reinstall**, which repairs it), and **Signed** (**By DVX**, **Trusted**, or **No**). Notes under the list may say:

- "Installed with it, because it needs them: *names*.": other packages come along. Nothing is wrong.
- "Not signed by a publisher DVX trusts: *names*. Install them only if you trust where they came from.": the package is not signed, is signed with a key you have not chosen to trust, or was changed since it was signed. Install it only if you trust its source. To trust a publisher, see Section 11.11.18. (A package from the package server is never in this note: unless DVX's own

key signed it, Software refuses it; see Section 11.11.13.)

- "These add-ons stop working with the new DVX until they are updated: *names*.": you are updating DVX itself, and these add-ons were made for the old one. Update them too, or keep the DVX you have. Until they are updated, DVX leaves them out when it starts (see Section 11.2.9).
- "DVX itself is updated: the new version runs from the next time DVX starts." and "Libraries and widgets work from the next time DVX starts.": restart DVX after installing.
- "It takes *n* bytes of disk space.": how much room the packages need. When the disk has less room than installing needs, the note says "There is not enough room on the disk: it needs *n* bytes and *n* are free. Make room on the disk, then install again." instead, and **[Install]** is unavailable: make room, then install again. Installing can need more room than the packages take in the end, because each package's files are all unpacked before the old version's files go.

11.11.13. A package "cannot be installed"

"*name* cannot be installed. *reason*" means Software read the package but will not install it. The reason is one of these:

Reason	What to do
"*name* needs *package version* or later, which is not here."	A package it needs is not installed and not in the same folder (or not on the server). Put that package's `.DPK` file in the same folder and install again, or install it first.
"*name* needs *package version* or later, but an older one is being installed."	Get a newer version of the package it needs.
"*name* needs DVX *version* or later (this is DVX *version*)."	Update DVX first (Software's Updates page).
"*name* was made for a different version of DVX."	Get the version of the add-on made for this DVX.
"A newer version of *name* (*version*) is installed."	Going back to an older version is refused. Remove the newer one first if you really want the older one.
"*name* is not signed by the publisher of the installed version."	The installed version was signed by a publisher you trust, and this one is not signed by the same publisher. This keeps someone else from replacing a package. Get the update from the original publisher. If you are sure, remove the installed version first, then install.
"*name* says it is part of DVX, but it is not signed by DVX's key."	Packages whose names start with `kpunch.` must be signed by DVX's own key. Do not install it.

Reason	What to do
“*name* is from the package server, but it is not signed. DVX installs a package from the package server only when DVX’s key signed it.”, “*name* is from the package server, but it is signed by another key, not by DVX’s. DVX installs a package from the package server only when DVX’s key signed it.”	Every package from the package server must be signed by DVX’s own key, whoever published it; a publisher’s key you trust is not enough. Tell whoever runs the server. Packages from files are not affected.
“*name* is from the package server, but its signature by DVX’s key does not fit it: it was changed or damaged on the way.”	The package was changed after DVX’s key signed it. Try again; if it keeps happening, something on the network changes what you download.
“*name* has the file *file*, which belongs to *package*.”, “*name* and *package* both have the file *file*.”	Two packages would own the same file. Remove the other package first, or ask the maker.
“*name* and *package* need each other.”, “Two versions of *name* are asked for.”	The packages are badly made. Ask the maker.
“*name* is not one of the packages read.”, “There is not enough memory.”	Rare. Close programs and try again.

“*name* cannot be installed now.” means another job started meanwhile; try again.

11.11.14. Installing or removing stops part way

“Installing did not finish. *reason*” or “Removing did not finish. *reason*” appears after the progress window closes. The reason starts with the package’s name. After **[Cancel]** there is no message: Software stops after the package it is working on, and the Installed page shows what is installed. A package only partly unpacked is left out completely, and when replacing files fails, every file already replaced is put back, so the old version keeps working.

Reason	What to do
“There is not enough room on the disk: *name* needs *n* KB and *n* KB are free.”	Every new file is unpacked before the old ones go, so an upgrade needs room for the whole package. Free space on the drive DVX is on.
“Cannot write *file* (is the disk full?).”, “Cannot write *file*.”, “Cannot make the folder *folder*.”	The disk is full or cannot be written to.

Reason	What to do
“Cannot read *file*.”	The package file went away, for example the floppy or CD was taken out. Put it back and try again.
“*file* is not the file the manifest lists (it was changed or damaged).”, “*file*: it is damaged.”, “The package: it is damaged.”, “*file* is in the manifest but not in the package.”, “*file* is in the package but not in its manifest.”, “*file* is in the package twice.”	The package is damaged or was changed. Get a fresh copy.
“The path of *file* is too long.”, “*file* is a folder.”, “*name* has too many files.”	The package cannot be placed in this DVX folder. Ask its maker.
“Cannot move *file* aside.”, “Cannot put *file* in place.”	A file could not be replaced. Check that the disk can be written to, and try again after closing the program that uses the file.
“*name* is not installed.”, “Cannot remove *file*.”	When removing: the package is already gone, or its record could not be removed.
“There is not enough memory.”	Close programs and try again.

When it works, Software says “Installed: *names*.”, adding “Restart DVX to start using the new version of DVX.” or “Libraries and widgets work from the next time DVX starts.” when that applies. New programs appear in Program Manager’s Installed Programs group.

11.11.15. Removing a package

“DVX itself is removed with Setup.”

Software cannot remove DVX itself; use Setup’s **Remove DVX**.

“These need *name* and are removed with it: … Remove them all?”

Other packages need this one. **[No]** removes nothing.

“These were installed for *name* and nothing else needs them: … Remove them too?”

Packages that came with it. **[Yes]** removes them too.

“These files changed since they were installed, so they were left: … Delete them too?”

Files you (or a program) changed, such as data you edited, are kept unless you click **[Yes]**. Software asks this after an upgrade too, for the files the old version had that the new one does not.

“These files could not be deleted, so they were left: … A program may be using them, or the disk may be write-protected.”

Some of the package’s files could not be deleted (or, after **[Yes]** above, some of the changed files): a program is using them, or the disk cannot be written to. The package itself is removed (or, after an upgrade, the new version is installed). Close the program, or make the disk writable, and delete the files with File Manager.

“*name* cannot be removed now.”

Another job is running; try again when it is done.

A part of DVX removed with Software comes back with Setup’s **Upgrade or repair DVX**.

11.11.16. The package server cannot be reached

When Software cannot read the package server’s list, its updates, or your packages, the page’s status line says “The package server could not be reached.”, after a box that gives the real reason (no box when you clicked **[Cancel]**). The box says “The package server cannot be reached: *reason*”, with one of these reasons:

Reason	What to do
“Cannot find *host* on the network.”	No network, no address from the network yet, no name server, or a mistyped server name. See Section 11.9.4 and Section 11.9.8, and check the address in the Package Server window (**File › Package Server…**).
“Cannot connect to *host*: the server refused the connection.”, “…: the connection timed out.”, “…: the network cannot reach it.”, “…: the server broke off the connection.”	The port is wrong, the server is down, or there is no way to it (check **Gateway**). Try later, and check the address and port.
“*host* did not answer in time (*n* seconds).”	The server did not answer within 30 seconds. Try later.
“*host* did not answer in HTTP.”, “The package server’s answer cannot be read: *reason*”, “The package server’s answer has no list of packages.”, “The package server’s list of your packages cannot be read.”	Something that is not a DVX package server answered: the address or the port is wrong.

Reason	What to do
"*host* closed the connection without answering.", "*host* closed the connection before the whole reply came.", "Lost the connection to *host*: *reason*.", "Cannot send to *host*: *reason*."	The connection broke. Try again.
"*address* needs encryption, which DVX does not have: use an http:// address.", "*host* sent the request to *address*, which is not an http:// address."	DVX cannot use `https://` addresses. Use an `http://` address.
"*address* is not an http:// address.", "*address* does not name a computer.", "*address* has a port that is not a number from 1 to 65535.", "The address is too long.", "The package server's address is too long."	Correct the address in the Package Server window (**File › Package Server...**).
"*host* sent the request elsewhere too many times.", "The server sent a chunk of the reply in a form HTTP does not have.", "The server's reply has a head too long to read.", "The reply is too big to keep in memory: save it to a file."	The server's answer is not usable. Try later, or check the address.
"*what*: the package server answered *number*." (sometimes with the server's own message in brackets)	The server reported a problem, such as 404 (not found) or 500 (server error), or it is some other web server. Try later, and check the address.
"*package* is not offered by the package server."	The server does not have that package.
"*name* cannot be installed: the package server has no signature of it by DVX's key."	The server lists the package without DVX's signature, so Software does not fetch it: DVX would not install it. Tell whoever runs the server.
"Packages cannot be fetched: the path of the DOWNLOAD folder in your user folder is too long."	The path of the USER folder is too long to hold its `DOWNLOAD` folder (for example a deep folder named by `DVXUSER`). Set `DVXUSER` to a folder nearer the top of the drive, such as `C:\MYDVX` (see Section 11.12.7).
"*name* was damaged on the way. Try again."	The download did not arrive intact, so it was deleted. Try again.

Reason	What to do
“The download of *name* cannot be read.”, “*name* cannot be saved in *folder*.”, “Cannot write *file*.”	The download could not be kept: the USER folder’s disk is full or cannot be written to.
“There is not enough memory.”	Close programs and try again.

In the Package Server window (**File › Package Server...**), an address that starts with `https://` is refused with “DVX reaches package servers over plain http only (it has no encryption). Type the address without https://.”

When all is well, the status lines say “*n* packages on *address*” (the Available page), “*n* updates are ready to install.” or “Everything is up to date.” (the Updates page). “Choose a package in the list first.” means you clicked a button with no package selected.

After a download, reading it can fail with “*name* cannot be installed: *reason*” (see Section 11.11.11) or “*name* cannot be installed: what was fetched cannot be read.” Try again.

Packages fetched from the server go into the `DOWNLOAD` folder in USER and are deleted after they are installed. A download that did not finish is kept there and continued next time; deleting the folder only makes the next download start from the beginning.

11.11.17. The Package Server window

File › Package Server... in Software sets the server Software uses, and your account there for publishing. When nothing is set, it shows DVX’s own server, `packages.dvxgui.com`, port 80.

- “The port is a number from 1 to 65535, or empty for the usual one.”: correct the **Port**.
- “The package server cannot be saved in DVX’s settings.”: `DVX.INI` cannot be read or written (a disk that cannot be written to, or a full disk; see Section 11.12.6).
- To go back to DVX’s own server, clear **Address** and **Port** and click **[OK]**.
- To forget your account, clear **Email** and **Password**.

These settings are kept in the `[packages]` section of `DVX.INI`: `server`, `port`, `user`, and `password` (saved scrambled).

11.11.18. Signatures and trusted keys

To trust a publisher, get their key file (ending in `.KEY`) and choose **File › Trust a Publisher’s Key...** in Software. “Packages signed with this key are trusted from now on.” means it worked. “The key cannot be trusted: *reason*” means it did not:

- “Cannot read *file*.”: the file is missing or cannot be read.

- “This is not a [key] file (or it lacks part of one).”: often a secret key (`.SEC`) or another file was chosen instead of the publisher’s `.KEY`.
- “Line *n* is not a [section] or a key = value line.”, “Line *n*: *name* is given twice.”, “Line *n*: *name* must be *n* hex digits.”, or “The key’s id is not its public key’s.”: the key file is damaged or was changed. Get it again from the publisher.
- “The path of the KEYS folder is too long.”: the path of the USER folder is too long.
- “Cannot copy the key to *folder*.”: the USER folder cannot be written to.

A package’s **Details** window shows who signed it in the **Signed by** row: the key owner’s name for a key DVX trusts, `key id` for a key that signed it but is no longer trusted, `nobody` for an unsigned package, `a key you did not trust when it was installed (not checked)` for a package signed with a key you had not chosen to trust, `a key you trusted, but its signature did not fit: the package was changed after it was signed` for a package changed after a trusted key signed it, `not checked: Setup installed it from the DVX disks` for DVX itself and the other packages Setup copied from the DVX disks, or `checked when it is installed` for a package still on the server.

The keys you trust are kept in the `KEYS` folder in USER. A damaged or wrong file in a `KEYS` folder is ignored, with the log file line `Packages: file is not a key: reason`. Software has no command to stop trusting a key: delete the publisher’s `.KEY` file from `USER\KEYS`. DVX’s own key, in `SYSTEM\KEYS`, is always trusted.



The `KEYS` folder in USER also holds your own secret keys (`.SEC` files) if you made any in Package Builder. Do not delete them: without your secret key, you can no longer sign updates of your packages, and people who have your signed packages cannot install your updates.

11.11.19. Publishing packages

“To publish a package, give your account on the package server in File > Package Server first.”

Type your **Email** and **Password** in the Package Server window (**File › Package Server…**).

“*file* cannot be published: *reason*”

The package file cannot be read; the reasons are those in Section 11.11.11.

“The package server does not know that email and password.”

Check them in the Package Server window (**File › Package Server…**). The account must have been confirmed with the link the server sent by email.

“The package server gave no session when signing in.”, “No account is set for the package server.”, “Signing in: the package server answered *number* (…).”

Signing in failed. Check the account, and try later.

“*file*: the package server answered *number* (*message*).”

The server refused the package, for example because the package’s name belongs to another account, or its version is not higher than the last one. The server’s message says why.

“*name version* is on the package server, waiting for its review. The Published page shows how the review goes.”

It worked. The **Published** page shows each version as **Waiting for review**, **Published**, **Turned down** (with the reviewer’s note), or **Withdrawn**.

The Published page says “Give your account on the package server in File > Package Server to see what you have published.” until you set your account.

11.11.20. Package Builder

Package Builder’s boxes are titled **Package Builder**. Its messages explain themselves:

- “Give the package a name.”
- “The package name must be two parts with a dot between them, such as acme.chess: who made it, then what it is, each 1 to 8 lower-case letters, digits, or _.”
- “The version must be numbers with dots between them, such as 1.0.0.” and “*text* is not a version (such as 1.0.0).”
- “The oldest DVX must be a version such as *version*, or left empty.”
- “There are no other installed packages to choose from: a package can need only packages installed in this DVX.”
- “Choose a package in the list first.”
- “The files cannot be read. *reason*”: a file or folder of the package cannot be read, for example “Cannot read the folder *folder*.”
- “The package cannot be built: *file* cannot be written.” and “The package cannot be built. *reason*”: the disk is full or cannot be written to, or a file is too big for a package or not allowed where it goes (such as “This *kind* package may not put a file at *place*.”). The reasons include “Cannot read *file*.”, “*file* is too big for a package.”, “Cannot create *file*.”, “Cannot write *file*.”, “Cannot add *file* to *package*.”, and “Row *n* of the files has no TAB between the name and the file.”
- “The package is built: *file*”: it worked.
- “The folder *folder* cannot be made. *reason*” and “The key cannot be made. *reason*” (for example “There is nothing random enough to make a key from.”): your key could not be made in `USER\KEYS`.
- “Your key is made. Give *file* to the people who install your packages: it tells DVX that they are yours. Keep *file* private: anyone who has it can sign packages as you.”: keep the `.SEC` file safe

(see the warning in Section 11.11.18).

- "*file* is not a secret key. *reason*": the file chosen for **Other Key** is not a `.SEC` file.
- "*file* cannot be read.", "*file* cannot be written.": a template file cannot be opened or saved.
- "There is not enough memory to start Package Builder.": close programs.

11.12. Files, disks, and folders

This section covers the file dialogs, file names, long names and big disks, disks DVX cannot write to, the TEMP and USER folders, and the file messages of File Manager and the other programs.

11.12.1. Messages in the Open, Save As, and Choose a Folder dialogs

Every program uses the same **Open**, **Save As**, and **Choose a Folder** dialogs (see Section 5.6), so their messages are the same everywhere.

"*file* already exists. Do you want to replace it?" (title Confirm Save)

You chose **[OK]** in a Save dialog, and a file of that name is already in the folder. **[Yes]** replaces it; **[No]** goes back to the dialog so you can type another name.

"*file* does not exist. Check the file name and try again." (title File Not Found)

You typed a name in an Open dialog that is not an existing file: often a typing mistake, or the wrong folder. Click **[OK]**: the dialog stays open, so you can correct the name or go to the right folder. An Open dialog opens only files that are there: to start a new file, choose **File › New** in the program, and save the new file with **File › Save As...** when you are done.

"*file* does not exist. Do you want to create it?" (title Confirm Create)

Only in a program that makes new files from its Open dialog, such as DVX BASIC with **File › Add File...**: the name you typed is not an existing file. **[Yes]** gives the name to the program, which makes a new file of that name; **[No]** goes back to the dialog.

"The folder does not exist." (title Invalid Path)

The name you typed includes a folder or drive (such as `A:\LETTERS\JUNE.TXT`) that cannot be opened: the folder is mistyped or not made yet, or the drive is empty. Correct it, or go to an existing folder first. The Open and Save dialogs cannot make folders; the Choose a Folder dialog can. (Pressing `Enter` in the dialog's path box on a folder that does not exist does nothing at all.)

"Drive *drive* is not ready." (title Drive Not Ready)

You chose a drive in the drive list that cannot be read: there is no disk or CD in it, the disk is not formatted, or the drive door is open. The list goes back to the drive shown before. Put the disk in and choose the drive again.



Figure 58. A file dialog's message for an empty drive

"*path* is a file, not a folder." (title Invalid Folder)

In a Choose a Folder dialog (for example for Copy To, Move To, Setup's folder, or a Browse button), you chose a file. Choose a folder. A folder you type that does not exist yet is accepted: the program makes it.

"The path is too long." (title Invalid Filename or Invalid Folder)

The folder and name together are longer than DVX can handle. Use a shorter name, or a folder nearer the top of the drive.

A file saved without an extension gets one

In a Save dialog, a name typed without a dot gets the first extension of the filter chosen in **Filter**, such as `.txt` for **Text Files (*.txt)**. To save a file with no extension, choose **All Files (*.*)** first.

A folder with very many files shows only some, or none

Memory ran out while reading the list. The log file has `Dialog: out of memory reading directory listing` or `Dialog: failed to allocate listItems`. Close programs to free memory, or choose a filter that shows fewer files.

11.12.2. File names that are not allowed

When a name breaks the rules of the disk it goes on, a box titled **Invalid Filename** (or **Invalid Folder**, **New Folder**, or **Rename**) says why. The rules depend on the disk: long names are allowed only where a long file name driver is running (see Section 11.12.3); elsewhere names follow the DOS 8.3 rules.

Message	What it means
"Filename must not be empty."	No name was typed.
"Filename must be 1-8 characters before the extension."	(8.3 disks) The part before the dot is empty or too long.
"Extension must be 3 characters or fewer."	(8.3 disks) The part after the dot is too long.
"Filename may contain only one dot."	(8.3 disks) A name such as `MY.OLD.TXT`.

Message	What it means
“Filename contains invalid characters.”	On an 8.3 disk: a space, or one of `" * + , / : ; < = > ? [ \ ] |`, or a character DOS does not allow. With long names: one of `" * / : < > ? \ |` or a control character.
“That name is a reserved device name.”	The name is one DOS uses for a device, such as `CON`, `PRN`, `AUX`, `NUL`, `CLOCK$`, `COM1` to `COM9`, or `LPT1` to `LPT9`, with or without an extension.
“Filename must be 255 characters or fewer.”	(Long names) The name is too long.
“That name is reserved.”	(Long names) The name is `.` or `..`
“Filename must not end with a dot or a space.”	(Long names) Remove the dot or space at the end.
“The name is too long for this folder.”	The folder and the name together are too long.

Type a shorter or plainer name, such as `REPORT.TXT`.

11.12.3. Long file names

DVX uses long file names on a drive only when a long file name driver covers it, such as DOSLFN loaded before DVX. Without one, every name follows the DOS 8.3 rules, and long names already on the disk show in their short form, such as `LETTER~1.TXT`.

If long names do not appear although the driver is loaded, check `AUTOEXEC.BAT` for the line `SET LFN=N`, which turns long names off.

On a disk with long names, names keep their capital and small letters, except a name in capitals that fits the short 8.3 form, which is shown in small letters, as every name is on other disks. A new folder in File Manager is called `New Folder` on a disk with long names and `NEWFOLDR` on others.

11.12.4. Big disks and big files

Drives larger than 2 GB

DVX asks DOS for a drive’s free space in the way that works on large FAT32 drives. On DOS versions that cannot answer that way, a large drive may show only about 2 GB free even when it has more.

Files larger than 2 GB

File Manager shows the full size of files up to 4 GB less one byte, the largest a FAT32 drive holds. Terminal cannot transfer files larger than 2 GB, and a DVX BASIC program that asks for a file’s length or a position past 2 GB stops with error 6, “Overflow”.

DVX accepts / in place of \ wherever you type a path, and shows \.

11.12.5. Read-only disks, CD-ROMs, and empty drives

DVX never stops at the DOS question "Abort, Retry, Fail?". When a program reads an empty floppy or CD-ROM drive, or writes to a write-protected disk, a CD-ROM, or a read-only file, that one action simply fails, and the program says it could not read or write. Put the disk in, or save somewhere else, and try again. (While a DOS program runs from DVX, DOS's own question can appear again. It can also appear if DVX could not set up this protection when it started; the log file then says `Platform: no DOS memory for the critical-error handler` or `Platform: could not install the critical-error handler`.)

What the failure looks like in each place:

Where	What it says
File Manager (copy, move, delete, new folder, rename)	"Access denied (the file may be read-only or in use, the disk write-protected or not ready)." inside its message; for an empty drive, "The drive is not ready."
Notepad, Help Editor, BASIC Demo	"Could not save *file* (error 75)." for a read-only file or a disk that cannot be written; other numbers for other causes (see Section 11.12.11). The file on the disk is left as it was.
Icon Editor	"Could not save *file*."
A DVX BASIC program saving its settings	Run-time error 75, "Cannot write INI file". The old file is left as it was.
A database on a CD-ROM or write-protected disk	It opens for reading only; a change fails with "attempt to write a readonly database".

To fix it, save to a folder on the hard disk (such as your USER folder), remove the floppy's write protection, or clear the file's **Read-only** attribute in File Manager (**File › Properties**). A copied file keeps the attributes of the original, so a copy of a read-only file is read-only too; clear the attribute the same way before changing it.

11.12.6. DVX runs from a disk it cannot write to

DVX can run straight from a CD-ROM or a write-protected disk, but it needs somewhere to keep your settings, its log file, and your files. Once the desktop is up, a box titled **Information** tells you which way it went.

"DVX is running from a disk it cannot write to, such as a CD-ROM, so your settings are kept in the TEMP folder. To keep them somewhere else, set DVXUSER to a folder on your hard disk before starting DVX."

DVX uses a folder called DVXUSER inside the folder that the TEMP (or TMP) setting names, in place of the USER folder. Everything works, and is kept there. The first time, it starts as a copy of the USER folder on the disk DVX runs from (all of it but its log: DVX.INI, the file types, Program Manager's groups and the other programs' settings, and your own files, such as fonts, themes, sounds, and wallpapers), so you get the same settings and files as without a TEMP folder. Later starts keep what is in TEMP\DVXUSER.

"DVX cannot save anything: it is running from a disk it cannot write to, such as a CD-ROM, and there is no TEMP folder. Settings you change are kept until you exit DVX. To keep them, set DVXUSER to a folder on your hard disk before starting DVX, or install DVX with SETUP."

There is no TEMP setting either (or its folder cannot be written to). Settings you change last only until you exit DVX, and there is no log file: DVX keeps the latest part of the log in memory, and System Information shows it (see Section 11.16).

"Your changes cannot be saved to disk, so they last only until you exit DVX. To keep them, set DVXUSER to a folder DVX can write to before starting DVX."

When nothing can be saved, the first change you save after DVX has started, for example with **[OK]** in Control Panel or in Page Setup, brings this reminder that the change lasts only until you exit DVX. It comes only once each time DVX runs.

"DVX cannot write to *folder*, the folder DVXUSER names, so your settings are kept in the TEMP folder. To keep them somewhere else, set DVXUSER to a folder DVX can write to before starting DVX."

The DVXUSER setting names a folder DVX cannot write to, such as one on a write-protected disk or a network drive you may only read. DVX uses DVXUSER in the TEMP folder instead, as above. Correct DVXUSER, or make the folder writable.

"DVX cannot save anything: it cannot write to *folder*, the folder DVXUSER names, and there is no TEMP folder. Settings you change are kept until you exit DVX. To keep them, set DVXUSER to a folder DVX can write to before starting DVX."

The same, with no TEMP folder either: settings you change last only until you exit DVX.

To keep your settings and files on the hard disk, do one of these:

1. Install DVX on the hard disk with Setup (see Section 3.3).
2. Or set DVXUSER to a folder on the hard disk: add a line such as `SET DVXUSER=C:\MYDVX` to AUTOEXEC.BAT (see Section 11.1.8). DVX makes the folder if it does not exist.
3. Or, at least, set TEMP to an existing folder on the hard disk, such as `SET TEMP=C:\TEMP`.

On such a disk, DVX uses its help files as they are, without rebuilding them.

11.12.7. The USER folder and DVXUSER

DVX keeps everything that is yours in one folder, the USER folder: `USER` inside the DVX folder, or the folder that the `DVXUSER` setting names. DVX makes it if it is missing. It holds `DVX.INI` (DVX's settings), `ASSOC.INI` (your changes to the file types), `DVX.LOG` (the log file), `PROGRAMS.CAC`, `SECLINK.RND`, your own `FONTS`, `SOUNDS`, `THEMES`, `WPAPER`, `BANKS`, and `SAVERS` folders, `KEYS` (publishers' keys you trust), `APPS` (each program's settings and files, in a folder of its own), and `DOWNLOAD` (downloads). See Section B.1.

- The DVX folder itself is only read while DVX runs, and an upgrade never changes the USER folder. The USER folder is the one folder to back up.
- If `DVXUSER` names a folder that cannot be written to, DVX uses `DVXUSER` in the TEMP folder instead, as on a CD-ROM (see Section 11.12.6).
- Setup's **Start over** and **Also remove my settings and saved files (the USER folder)** delete the folder `DVXUSER` names when it is set, but only if that folder holds a `DVX.INI`.

11.12.8. The TEMP folder

DVX uses the folder that the `TEMP` (or `TMP`) setting names for scratch files. Set it in `AUTOEXEC.BAT` to an existing folder on a disk with free space, for example `SET TEMP=C:\TEMP`. Without it, or when it cannot be written to:

- "Failed to create instance copy of *file*.": a program that can run more than once needs a scratch copy for its second copy, in the TEMP folder (or the USER folder when there is no TEMP folder), and it could not be written: the disk is full or write-protected.
- The Icon Editor cannot print: "Could not prepare the icon for printing."
- A DVX BASIC program cannot print to a printer port: error 75, "Cannot create the printer spool file".
- On a disk DVX cannot write to, settings cannot be kept (see Section 11.12.6).

11.12.9. Saving onto a full disk

Before you save a large file, check that the disk has room: File Manager shows the free space of the drive at the bottom of its window. Keep enough free space on the disk you save to.

When Control Panel cannot save your settings, because the disk of the USER folder is full or write-protected, a box titled **Control Panel** says "The settings could not be saved: the disk may be full or write-protected. Control Panel stays open: click its OK to try again, or Cancel to undo the changes." Nothing is saved, and the settings you tried out stay in use until you click **[Cancel]** or exit DVX. Make room on the disk, or make the USER folder writable, and click **[OK]** again.If only the file types cannot be saved, the box says "The file types could not be saved: the disk may be full or write-protected."; your other settings are saved. See Section 7.3.1.

11.12.10. File Manager

File Manager's boxes are titled **File Manager** unless noted.

"Cannot open *folder*. The folder does not exist or the drive is not ready."

After clicking a drive button, typing a path in **Path**, or opening a folder: there is no disk in the drive, the folder was removed or renamed, or the path is mistyped. Insert the disk, or correct the path. (If the folder File Manager is showing disappears, **View › Refresh** moves up to the folder above it.) The free space at the bottom is blank when it cannot be read.

Starting a copy, move, or delete

"Not enough memory to start the operation."

Close programs and try again.

"*file* cannot be found, or the destination path would be too long. It is skipped."

One selected item was removed meanwhile, or the folder you copy to plus the item's name is too long. The other items are still done. Refresh the window and select again, or copy to a folder with a shorter path.

"The folder *folder* cannot be made, or its drive is not ready." (title Copy or Move)

The folder you typed for **File › Copy To…** or **File › Move To…** is on an empty drive or a write-protected disk, or its name is not valid. Choose an existing folder, or a valid name on a disk you can write to.

"The clipboard holds no files. Use Copy or Cut in a File Manager window first." (title Paste)

Select files, choose **Edit › Copy** or **Edit › Cut**, then **Edit › Paste**. A cut can be pasted only once.

"Delete *file*?" or "Delete these *n* items?" (title Confirm Delete)

[Yes] deletes them.

Questions while a copy, move, or delete runs

While File Manager works, a window titled **Copying**, **Moving**, or **Deleting** shows its progress. Clicking **[Cancel]** there stops it: a file copied part way is removed, and what is finished stays done.

Questions with **[Yes]**, **[No]**, **[Yes to All]**, and **[Cancel]**:

- "*file* already exists. Replace it with *file*?": **[Yes]** replaces this file, **[No]** skips it, **[Yes to All]** replaces it and every later one, **[Cancel]** stops.
- "*file* is read-only. Delete it anyway?": the same buttons; **[Yes to All]** covers every read-only file in this delete.

Problems with **[Retry]**, **[Skip]**, and **[Cancel]**. **[Retry]** tries again (for example after putting the disk back), **[Skip]** leaves this item out and goes on, and **[Cancel]** stops. A folder whose contents were skipped is kept by a move or delete.

- "Cannot read *file*.", "Cannot write *file*.", "Cannot delete *file*.", "Cannot create folder *folder*.", each followed by a reason (below). A file written part way is removed.
- "*file* was copied but cannot be removed.", with a reason: a move copied the file but could not delete the original (a read-only disk, or a file in use). The original stays.
- "Cannot replace *file*: a folder with that name exists."
- "*file* cannot be copied onto itself.": you copied a file into the folder it is already in. (A move to the same place does nothing.)
- "*folder* cannot be moved into itself." or "*folder* cannot be copied into itself.": you chose the folder itself, or one inside it, as the destination.

The reason is one of these:

- "The disk is full.": make room, or use another disk.
- "Access denied (the file may be read-only or in use, the disk write-protected or not ready).": clear the **Read-only** attribute, close the program using the file, remove the write protection, or insert the disk.
- "The drive is not ready.": the drive has no disk in it. Put the disk in, or use another drive.
- "The file or folder was not found.": it was removed meanwhile, or the disk was changed.
- "The path is too long.": use a shorter destination.
- "A file or folder with that name already exists."
- Otherwise, the system's own description of the error.

"File operations are still running. Stop them and close?"

You closed File Manager's window while a copy, move, or delete runs. **[Yes]** stops them; **[No]** keeps the window open.

New Folder, Rename, opening, and Properties

- "Cannot create *folder*." (title **New Folder**) and "Cannot rename *file* to *name*." (title **Rename**), each with a reason as above. "A file or folder with that name already exists." means the new name is taken. A name that breaks the rules gives one of the messages in Section 11.12.2.
- "Select one file or folder to rename." (title **Rename**): several items are selected.
- "No program is set to open *ext* files. File types are set in the Control Panel.": no program is set for that kind of file (*ext* is its extension, such as `TXT`, or the word `these` for a file without one). Choose one on Control Panel's File Types page (see Section 7.8).

- "*file* could not be opened.": the program set for that kind of file could not be started, for example because it was removed. Check the File Types page, or reinstall the program.
- "The attributes of some items could not be changed." (title **Properties**): the disk cannot be written to (a CD-ROM or write-protected floppy), or an item was removed meanwhile. Copy the files to a hard disk first.
- In Properties, a size followed by "(some items could not be read)" means part of the selection could not be read.

11.12.11. Notepad

Notepad's boxes are titled **Notepad**:

"Could not open *file* (error *n*)."

Error 53: the file does not exist. Error 76: its folder does not exist. Error 71: the drive is empty or not ready. Error 57: the disk failed. Error 70: another program is using the file. (To start a new file, see Section 11.12.1.) The text already in Notepad stays. Check the name and the disk.

"Could not save *file* (error *n*)."

Error 75: the file is read-only, or the disk cannot take the file (a CD-ROM, a write-protected floppy, or a floppy disk whose main folder is full). Error 76: the folder does not exist. Error 61: the disk is full. Error 71: the drive is not ready (no disk in it). Error 57: the disk could not be written: it failed. Error 70: another program is using the file. Notepad writes the text into a new file beside the old one first and puts it in the old one's place only when all of it was written, so the file on the disk is left as it was (while saving, the disk needs room for both). Use **File › Save As...** to save to a disk or folder you can write to (or make room on the disk first), or clear the file's **Read-only** attribute. The text stays unsaved, and the title keeps its *.

"*file* is not a text file, so Notepad did not open it."

The file holds NUL characters, which no text has: it is a program, a picture, or another kind of data, which Notepad cannot keep whole. The text already in Notepad stays.

"*file* is too big for Notepad."

Notepad holds files up to 262,144 characters (256 KB), and less when memory is short. The file is not opened. Edit large files with another editor, such as a DOS editor run from DVX.

When you close Notepad, or choose New or Open, with unsaved changes, it asks "Save changes?" (**[Yes]** saves, **[No]** throws the changes away, **[Cancel]** goes back).

11.12.12. Other programs' file messages

Image Viewer

Its boxes are titled **Image Viewer**."Could not load *file*.": the file is not a BMP, PNG, JPEG, or GIF

picture the viewer can read, it is damaged, or there is not enough memory for a large picture. The window is left empty. Open another file, convert the picture, or close programs. “Open a picture first.”: you chose **File › Print…** with no picture shown.

Icon Editor

Its boxes are titled **Icon Editor**. “Could not load *file*.”: not a picture it can read; the icon you had stays. “Icons must be 16 x 16, 24 x 24, or 32 x 32 pixels.”: the picture you opened is not one of those square sizes. “Could not save *file*.”: the disk is full or write-protected, the file is read-only, or the folder is wrong; a file of that name on the disk is left as it was. “Could not prepare the icon for printing.”: see Section 11.12.8. Its questions “Unsaved changes will be lost. Change size?”, “Unsaved changes. Start new icon?”, and “Unsaved changes. Open another file?” warn before your changes are thrown away.

Resource Editor

It shows its messages in its status line. “No file loaded.”: open a file first. “*file* - *n* resource(s)”: a file with no resources, or one it cannot read as one, shows 0. “Failed to add resource.”, “Failed to update resource.”, “Failed to extract resource.”, “Failed to remove resource.”: the file is read-only or on a disk that cannot be written to, the disk is full, or the file to add cannot be read. A file an extraction could not write is left as it was. Work on a copy on a disk you can write to. “Only text resources can be edited inline.”: an icon or other resource cannot be edited as text. It asks “Remove resource '*name*'?” before removing one.

Help Editor

Its boxes are titled **Help Editor**. “Could not open *file* (error *n*).”, “Could not save *file* (error *n*).”, “*file* is not a text file, so the Help Editor did not open it.”, and “*file* is too big for the Help Editor.” mean the same as in Notepad; after a failed save it does not close or start another file. Its status line shows “Compiling…”, then “Compiled: *file*.hlp” or “Compile failed!” (with the help compiler’s errors in a box titled **Compile failed**), “Not compiled: the source could not be saved.”, or “Save cancelled.”“The help compiler is not available, or no input or output file was given.” means the help compiler is missing: it is part of Developer Tools, which you add by running Setup again (see Section 3.5).

BASIC Demo

Its boxes are titled **BASIC Demo**. “Could not save *file* (error *n*).” as in Notepad, and “To print the report, choose your printer’s model on the Control Panel’s Printer page.” (see Section 11.8.4).

DVX Demo

Its boxes, such as “Close this window?” and “A new document would be created here.”, demonstrate DVX’s dialogs; they are not errors.

11.12.13. Fonts

DVX's fonts are in the `FONTS` folder in `SHARED`, and your own in the `FONTS` folder in USER (a file of yours with the same name is used instead of DVX's). When a program asks for a font that is not installed, or whose file cannot be used, it shows its text in DVX's own **System** font instead, with no message. A size the font lacks is replaced by the nearest size it has.

A font file that cannot be used is left out, and the log file says why, in a line starting `Fonts:`, such as `Fonts: file is damaged`. A font whose file stops working after DVX has started gives a line such as `Fonts: file cannot be read. Drawing family with the system font`. The reasons are "cannot be opened", "cannot be read", "is not a DVX font file of this version", "is damaged", "has no such size", "has glyphs that do not match its bitmaps", and "has a text too big for the memory left". Other `Fonts:` lines say a file was skipped because it uses the System font's name, repeats a style, lacks a size, or there was no memory for it.

To fix it, install the fonts again (the base set with Setup, or as **DVX Fonts** from the package server in Software; other fonts with Software), or remove a damaged `.DFN` file from the `FONTS` folder in USER.

The **Licence...** button of the Font dialog shows each font's licence. For the System font, a box titled **Font Licence** says "The System font is DVX's own: it comes with DVX, under DVX's licence."For a font whose file cannot be read, it says "The licence of the font *family* cannot be read. The log file says why.": install the font again.

11.12.14. Help files

The DVX Help window's boxes are titled **DVX Help**:

"Could not open help file."

The help file is missing, cannot be read, is damaged, or was made for another version of DVX. When DVX Help is starting, it then closes; when it is already open, the file already shown stays. Reinstall the program or part the help belongs to; for DVX's own guide, run Setup and choose **Upgrade or repair DVX**. A program with no help of its own opens DVX's guide on `F1`.

"No index available."

The help file has no index.

"No matching topics found." (title Search Help)

No page has the words you searched for.

DVX rebuilds help files only when libraries or widgets are added or removed. If a help file fails to rebuild, the log file has a line starting `helpRecompile: FAILED`; DVX tries again at the next start, up to three starts in all.

11.12.15. Databases

Programs written in DVX BASIC that keep their data in a database show the database's own messages in their own boxes:

- "unable to open database file (*reason*)": the file or its folder is missing, or the disk is not ready.
- "attempt to write a readonly database": the database is on a CD-ROM or a write-protected disk, or is a read-only file. Copy it to a hard disk and clear its **Read-only** attribute.
- "database is locked": another program in DVX is using the database. Wait for it to finish, or close it, and try again. Do not share a database file with a program outside DVX.
- "A statement is still running on this database", "Out of memory", and "interrupted" (the program stopped a long search, and its changes were undone).

A database's journal file has the same name with the extension `.NAL` (`DATA.DB` uses `DATA.NAL`). Keep it beside the database. Two databases whose names differ only in their extension share it, so keep them in different folders. Programs that use databases need the Databases part of DVX; without it they stop with error 453 (see Section 11.14.3).

11.13. A program does not work

This section covers programs that will not start, that stop responding, or that crash; exiting DVX; DOS programs; screen savers; and Program Manager's messages. The error boxes of programs written in DVX BASIC are in Section 11.14.

11.13.1. A program will not start

"*name* is already running." (title Error)

Most programs can be open only once, and this one is open already: perhaps minimized to an icon, or behind other windows. Press `Alt` + `Tab` until it comes to the front, or press `Ctrl` + `Esc` and use **[Switch To]** in the Task Manager. (When DVX runs from a disk it cannot write to and there is no TEMP folder, every program can be open only once.) A program that opens documents, such as Media Player, takes the new document instead, without a message.

"Failed to create instance copy of *file*."

A second copy of a program needs a scratch copy in the TEMP folder, and it could not be written. See Section 11.12.8.

"Failed to load *file*: *reason*"

The program's file is damaged, or it needs a library that is not installed or could not be loaded. (A program file that is not there at all gives "Cannot find *path*." instead.) The second line is a short technical reason; the log file may also have a line with `FAILED:` for the library. Reinstall the program with Software, install what it needs, or run Setup and choose **Upgrade or repair**

DVX for DVX's own programs.

"*file*: missing appDescriptor" or "*file*: missing appMain"

The file is not a DVX program, or it is damaged. Reinstall it.

"This program was built for a different version of DVX and cannot run."

The program was made for an older or newer DVX. Get a copy made for your version of DVX.

"Out of memory: cannot allocate an application slot." or "Failed to create task for application."

There is not enough memory to start another program. Close programs you are not using (see Section 11.13.2).

"Cannot find *path*." (title Run)

The program or document typed in **File › Run...** or in the Task Manager's **Run** box, set in a Program Manager item, named by the `welcome` line of `DVX.INI`, or given with `/RUN=` does not exist, or is a folder. Correct the name, or the item's **Program** box. In **File › Run...**, put a name with spaces in double quotes.

"No program is set up to open *file*. Choose one on the File Types page of the Control Panel." (title Run)

No program is set for that kind of document. Choose one on Control Panel's File Types page (see Section 7.8).

On the File Types page, a box titled **File Types** may say "An extension is one to eight letters or digits, such as TXT." (type the extension without the dot) or "Type the program that opens this type." (the program box is empty). If your changes to the file types do not last, the log file may say `Assoc: cannot save the file types (file)`: the USER folder cannot be written to. To put every file type back as DVX had it, see Section 11.15.

11.13.2. Running low on memory

Each running program uses memory. When DVX or a program says memory is short:

1. Close programs you are not using.
2. Check memory in the Task Manager (`Ctrl` + `Esc`): it shows each program's memory, and at the bottom `Applications: n Memory: used/total MB`. System Information (in Program Manager's Help menu) shows the computer's memory as it is when you open it.
3. Use a smaller screen mode or fewer colors, which frees memory (see Section 11.3.3).
4. Free more memory for DVX before it starts (see Section 11.2.6).

11.13.3. A program stops responding

A program that has been busy for 5 seconds or more without coming back to DVX counts as not responding. (A program that is only waiting for you to answer one of its own message boxes does not count.) Its windows stop reacting, but the rest of DVX keeps working. To end it:

1. Press `Ctrl` + `Esc`. The Task Manager opens, from any program.
2. Find the program in the list. Its **Status** column says `Not responding` instead of `Running` (the list is checked again every second).
3. Select it and click **[End Task]**.

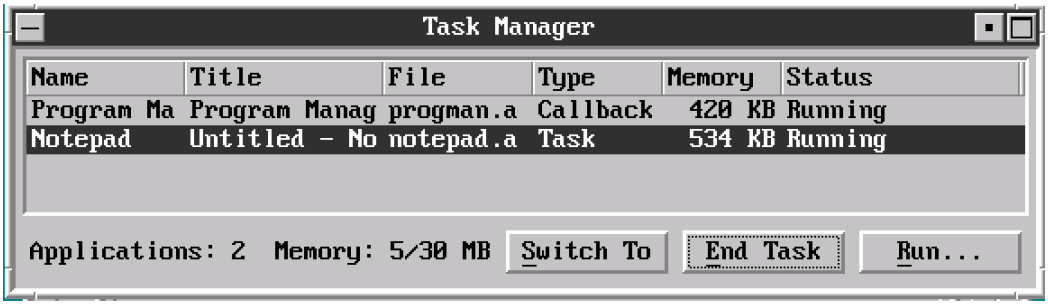


Figure 59. The Task Manager, with each program's memory and status



[End Task] ends the program at once. It does not ask first (except for Program Manager, below), and the program cannot save, so unsaved work in it is lost. The other programs keep running.

When you end a program written in DVX BASIC this way, its windows close at once, and anything it had drawn for the printer is thrown away, not printed.

Ending Program Manager ends DVX, so End Task asks "Are you sure you want to exit DVX?" first, as **File › Exit DVX** does. **[No]** keeps everything running. **[Yes]** closes the other programs as when you exit DVX, each asking about its unsaved work (see Section 11.13.5). A Program Manager that is not responding is ended at once, and DVX then exits the same way.

If the whole screen is frozen and even the mouse pointer does not move, DVX cannot recover. Restart the computer.

11.13.4. A program crashes

When a program makes a serious mistake, DVX stops it and shows a box titled **Application Error**:

"'*name*' has caused a fault and will be terminated."

Click **[OK]**. The program is ended, and its unsaved work is lost; the rest of DVX and your other programs keep running. Start the program again.

If it keeps happening, report it to the program's author with the log file: copy `DVX.LOG` from the USER folder before you start DVX again (DVX empties it at each start). It has a section starting `=== CRASH ===` that names the program and gives details its author needs (see Section 11.16).

A program can also end itself suddenly, with no box at all; the log file then has a line such as `Shell: 'name' called exit (status n); ending it`.

11.13.5. DVX will not exit

File › Exit DVX in Program Manager (or closing Program Manager's window) asks "Are you sure you want to exit DVX?" in a box titled **Exit DVX**. When you click **[Yes]**, DVX asks each running program to close its windows, the way you would. A program with unsaved work asks whether to save it:

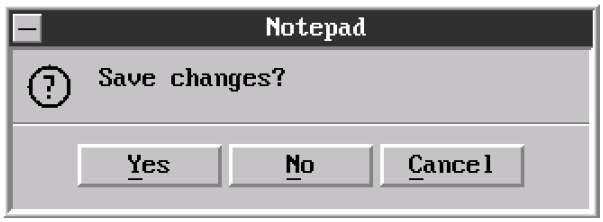


Figure 60. A program asks about unsaved work as DVX exits

- **[Yes]** saves and closes, **[No]** closes without saving.
- **[Cancel]** stops the exit: DVX keeps running. Programs already closed stay closed. Save or close that program, then choose **File › Exit DVX** again.
- If a dialog box is open, DVX brings it to the front and does not exit. Finish with the dialog, then exit again.

If a program does nothing for 5 seconds after being asked to close, a box titled **Exit DVX** asks "'*name*' is not responding to the request to close. End it and continue exiting DVX?" **[Yes]** ends it (its unsaved work is lost) and goes on exiting; **[No]** keeps DVX running. The same question, "'*name*' is not responding to the request to close. End it?", comes in a box titled **Close Program** when DVX closes programs before running a DOS program.

11.13.6. DOS programs

DVX runs DOS programs (files ending in `.EXE`, `.COM`, or `.BAT`) from Program Manager, **File › Run...**, or File Manager. Before one runs, DVX closes the other programs, and asks first in a box titled **Run DOS Program**:

"Running *file* closes these programs first: *programs* Each one asks about unsaved work as it closes. Continue?"

[No] keeps everything as it is, and the DOS program does not run. **[Cancel]** in any program's

save question also stops the DOS program from running; the programs closed before it stay closed. See Section 5.15.

Other messages, in boxes titled **Run DOS Program**:

“Cannot find *path*.”

A DOS program named with its folder does not exist. Correct the item’s **Program** box. (A program named without a folder is looked for by DOS on its PATH; if DOS does not find it, DOS prints its own message on the text screen.)

“DVX could not run *file*. *reason*”

The reason is the system’s own, for example “Argument list too long (E2BIG)” (the program’s name and arguments together are longer than the 126 characters DOS allows: shorten the arguments), “No such file or directory (ENOENT)” (the item’s **Working folder** does not exist: correct it), or “Not enough memory (ENOMEM)”.

DVX stays in memory while a DOS program runs, so a program that needs a lot of memory may not start; its own "not enough memory" message then appears on the DOS screen. To read what a DOS program prints before DVX comes back, tick **Wait for a key when a DOS program ends** in the item’s properties: DVX then shows “Press any key to return to DVX.” Run a program that needs much memory from DOS, after leaving DVX.

While a DOS program runs, DOS’s own `Ctrl` + `Break` and its “Abort, Retry, Fail?” question work as usual; DVX restores its own afterwards. The network is stopped and the sound card is let go while it runs.

11.13.7. Screen savers

The screen saver is chosen, with its **Wait** (1 to 60 minutes, 10 unless you change it), on Control Panel’s Desktop page (see Section 7.6). There is none until you choose one. DVX comes with **Blank Screen**, **Marquee**, **Mystify**, and **Starfield**.

The screen saver does not start

It does not start while a message box or dialog box is open, or while a program uses the whole screen. Check that one is chosen.

A screen saver is missing or does not work

DVX shows no message (nobody is there to read it) and tries again after the next wait. The log file says `Shell: screen saver name not found` or `Shell: screen saver name did not start`. Choose another screen saver, or **(None)**.

The key you pressed to end it did nothing in your program

The key or mouse movement that ends the screen saver goes to the screen saver, not to the program underneath. A screen saver still there 3 seconds after being asked to close is ended.

Screen savers are kept in the `SAVERS` folder in `SHARED` and in your own `SAVERS` folder in USER. Program Manager does not list them.

11.13.8. Program Manager messages

Program Manager's messages:

- "That group is full.": a group holds at most 256 items. Use another group.
- "A group needs a name no other group has.": choose another name.
- "There is no room for another group: Program Manager holds up to 64 groups of your own. Delete a group to make room for a new one." (title **New Group**): you have 64 groups of your own already. Delete a group you no longer need first.
- "There is no other group. Make one with File > New Group first.": you chose Move or Copy (or New Item) with only one group.
- "Type the program or document this item opens." (title **Properties**): the **Program** box is empty.
- "A shortcut key is Ctrl with Alt or Shift, and a letter, a digit, F1 to F12, or one of Backspace, Del, Down, End, Enter, Esc, Home, Ins, Left, PgDn, PgUp, Right, Space, Tab, and Up, for example Ctrl+Alt+P." (title **Properties**): the shortcut typed is not allowed.
- "*keys* cannot be a shortcut key: it *does*." (title **Properties**): DVX itself uses those keys, for example `Ctrl` + `Alt` + `F4` (it closes the active window), so they could never start the item. Choose other keys (see Section 6.4.4).
- "*keys* is already the shortcut for "*item*".": each shortcut can belong to one item only.
- ""*item*" no longer has its shortcut key *keys*. *reason* Choose another one in the item's Properties." (title **Program Manager**, when Program Manager starts): the item's shortcut key, kept in `PROGMAN.INI`, is not allowed (any more), for example because DVX now keeps those keys for itself; the reason is one of the two shortcut key messages above. The item keeps everything else, and the key is removed from the file, so the message comes only once. Give the item another shortcut key in its Properties (see Section 6.4.4).
- "Delete "*item*" from the group "*group*"? The program itself is not removed." and "Delete the group "*group*" and its *n* item(s)? The programs themselves are not removed.": deleting icons never uninstalls the programs.

Program Manager keeps its groups, items, and options in `PROGMAN.INI`, in its folder in USER (`USER\APPS\KPUNCH\PROGMAN`). If it cannot save the file, it says so only in the log file: `Progman: cannot save file`. Deleting the file gives the default, empty Main and Startup groups at the next start (see Section 11.15).

11.14. Error messages from DVX BASIC programs

Many programs in DVX are written in DVX BASIC, among them File Manager, Notepad, Clock, Terminal, and Welcome, as are many programs you install. When such a program meets an error it does not handle itself, DVX stops it and shows a box titled **BASIC Runtime Error**, with two parts: a summary line, then the details.

11.14.1. The BASIC Runtime Error box

For an error in the program's code, the summary is "Runtime error *number* at PC *n*" (or "Runtime error *number* on line *line*" in a program built with line numbers), and the details give the error's text. For example: "Runtime error 53 at PC 1234", then "File not found". The `PC` number is a place in the program that means something only to its author. "Runtime error" with "Unknown error" means the error has no text.

For an error found in a form or one of its controls, the summary names the problem (for example "Read of unknown control"), and the details name the form, the control, and the property.

When you click **[OK]**, the program's windows close and it ends; its unsaved work is lost. DVX and your other programs keep running. Only one box is shown, even if several things went wrong.

What to do:

1. Write down the number and the text, and click **[OK]**.
2. Start the program again.
3. If the error is about files (numbers 52 to 76), check the disk, folder, or file it was using: it may be missing, read-only, or full.
4. If it is about memory (error 7 or 14), close other programs.
5. If it keeps happening, report it to the program's author, with the whole text of the box and the log file. The log file has the error as `BASIC RUNTIME ERROR: summary`, followed by the details.

A program that handles its own errors shows its own messages instead, as Notepad does.

11.14.2. A BASIC program that cannot start

These come in a box titled **Error**, and the program does not start:

- "No compiled module found in this application." or "MODULE resource not found.": the program's file is damaged or incomplete. Reinstall it.
- "MODULE resource failed to deserialize.": the program was made for a different version of DVX BASIC, or its file is damaged. Get a copy made for this version of DVX, or reinstall it.
- "Out of memory creating the BASIC runtime.", "Out of memory creating the form runtime.",

"Out of memory loading program": close programs.

- "Program needs *n* global variables; the limit is *n*": the program is too large for this DVX BASIC. Only its author can fix it.
- "No program loaded": the program could not be loaded. Reinstall it.

11.14.3. A part of DVX the program needs is missing

"Runtime error 453 at PC *n*" with "External function not found: *name*" appears the first time the program uses a library that is not installed or cannot be loaded. Most often a part of DVX the program needs, such as Networking or Databases, was not installed, or an add-on was removed or is damaged. Add the part with Setup (see Section 3.5), or install the add-on with Software. The program's own help should say what it needs.

"Printing is not installed" with "The Printer object needs the printing library (print.lib)." means DVX's printing support is missing: repair DVX with Setup.

11.14.4. Code that ran too long

Error 18, "The code ran too long without returning and was stopped", and error 5, "A control's code cannot wait (SLEEP, FRAMEWAIT, or SHELL)", come from controls written in DVX BASIC that do something they may not. Both are mistakes in the program or the control: report them to its author.

11.14.5. Error numbers

These are the error numbers a DVX BASIC program can stop with, and their usual texts. A program can also give its own text with a number.

No.	Text	What it usually means
1	"NEXT without FOR"	A mistake in the program.
3	"RETURN without GOSUB"	A mistake in the program.
4	"Out of DATA"	A mistake in the program.
5	"Illegal function call"	A value given to a command is not allowed: a mistake in the program, or in what you typed.
6	"Overflow"	A number is too big. Also a file larger than 2 GB.
7	"Out of memory"	Memory ran out. Close programs.
9	"Subscript out of range"	A mistake in the program.

No.	Text	What it usually means
10	“This array is fixed or temporarily locked”	A mistake in the program.
11	“Division by zero”	A mistake in the program, or in what you typed.
13	“Type mismatch”	A mistake in the program, or in what you typed.
14	“Out of string space”	Memory for text ran out. Close programs.
18	“User interrupt occurred”	The code was stopped for running too long.
20	“RESUME without error”	A mistake in the program.
26	“FOR loop nesting too deep”	A mistake in the program.
28	“Out of stack space”	Too many calls inside calls: a mistake in the program.
51	“Internal error”	The program’s file is damaged, or a mistake in DVX BASIC. Reinstall the program.
52	“Bad file number”	A mistake in the program.
53	“File not found”	The file is missing (its folder is there).
54	“Bad file mode”	A mistake in the program.
57	“Device I/O error”	A disk or printer failed, a disk could not be read, or a disk refused what was being written into a file (it is write-protected).
58	“File already exists”	The name is taken.
59	“Bad record length”	A mistake in the program or its data.
61	“Disk full”	The disk filled up while a file was being written, and the file is cut short. Make room on the disk, or save on another one.
62	“Input past end of file”	The program read on past the end of a file: a mistake in the program, or a file that is shorter than it should be.
63	“Bad record number”	A mistake in the program or its data.

No.	Text	What it usually means
64	“Bad file name”	A mistake in the program, or a file name that is too long or not allowed.
67	“Too many files”	Too many files are open at once.
68	“Device unavailable”	A printer, port, or sound device is not there or cannot be opened.
70	“Permission denied”	Another program is using the file.
71	“Disk not ready”	The drive has no disk in it, such as an empty floppy or CD-ROM drive. Put the disk in, or use another drive.
74	“Can’t rename with different drive”	A file cannot be renamed onto another drive. Copy it there, then delete the old one.
75	“Path/File access error”	A file or folder cannot be made, removed, renamed, or written: the file is read-only, the name is a folder’s, the disk cannot be written (a CD-ROM or a write-protected floppy), or its main folder is full.
76	“Path not found”	The folder (or the drive) does not exist.
91	“Object variable not set”	A mistake in the program.
92	“For loop not initialized”	A mistake in the program.
93	“Invalid pattern string”	A mistake in the program, or in a pattern you typed.
94	“Invalid use of Null”	A mistake in the program, or empty data.
424	“Object required”	A mistake in the program.
438	“Object doesn’t support this property or method”	A mistake in the program.
446	“Object doesn’t support named arguments”	A mistake in the program.
448	“Named argument not found”	A mistake in the program.
449	“Argument not optional”	A mistake in the program.
450	“Wrong number of arguments or invalid property assignment”	A mistake in the program.

No.	Text	What it usually means
451	“Object not a collection”	A mistake in the program.
453	“External function not found: *name*”	A part of DVX or an add-on is missing (see Section 11.14.3).
457	“This key is already associated with an element of this collection”	A mistake in the program.
481	“Invalid picture”	The file is not a picture DVX can read.
Others	“User-defined error”	Any other number, often one the program gave itself. Ask its author.

Some errors use a more exact text:

- 75: “Path/File access error” (a folder could not be made or removed, or a file could not be opened, deleted, or copied over), “Cannot write INI file” (a settings file could not be saved), and “Cannot create the printer spool file” (see Section 11.12.8).
- 76: “Path not found” (changing to a folder that does not exist, or a file in one).
- 57: “Device I/O error” (writing a file failed for a reason other than a full disk, a disk could not be read or written, or the printer output failed).
- 68: “Device unavailable” (for example a printer port that cannot be opened).
- 67: “Too many files open”.
- 52: “Bad file number or file not open” and “Bad file channel number”.
- 7: “Out of memory allocating array”, “Out of memory allocating TYPE”, and “Out of memory”.
- 5: “Illegal function call (a mistake in the PLAY string)” and “Too many arguments in external call”, among others.
- 1, 9, 13, 51, 59, and 63: other mistakes in the program, such as “Invalid field index”, “Not a TYPE instance”, “NEXT variable mismatch”, “Record longer than LEN”, and “Bad record number”.

11.14.6. Form and control errors you can act on

Most form and control errors are mistakes in the program, which only its author can fix. These you can do something about:

Summary and details	What to do
“Out of memory” with “There is not enough memory for the picture.”, “… for the Printer.”, “… for the Printer’s page.”, “… for the font *name*.”, “… for the font.”, “Could not allocate *n* form-level variables.”, or “Out of memory marshalling arguments for external function '*name*'.”	Close programs, or use fewer colors or a smaller screen mode.
“Icon not loaded” or “Picture not loaded” with “… There is not enough memory for the picture.”	Close programs.
“Icon not loaded” with “Icon takes a picture file DVX can read (.bmp, .png, .gif …).”	The program’s icon file is missing or damaged. Reinstall the program.
“The printer prints text only”	Choose your printer’s model on Control Panel’s Printer page (see Section 11.8.4).
“Printing is not installed”	Repair DVX with Setup.
“Screenshot not saved” with “SaveScreenshot needs a form with a window and a file it can write (BMP when the name ends in .bmp, PNG otherwise).”	Often a read-only or full disk.

Other summaries mean a mistake in the program (or in a control it uses). Report them to its author with the log file: “Bad control”, “UserControl has no such method”, “UserControl has no such property”, “UserControl property cannot be set”, “Control cannot be registered”, “No such control”, “Cannot move the control”, “Illegal function call”, “No drawing area”, “PaintPicture needs a picture, x, and y”, “PaintPicture has no picture”, “Invalid property value”, “Printer has no such property”, “Printer has no such method”, “Property is read-only”, “Picture has no methods”, “Method call on unknown control”, “Method call on control with no widget”, “CreateControl: not a loaded form”, “CreateControl: unknown control type”, “CreateControl: invalid parent”, “CreateControl: form has no parent widget”, “CreateControl: widget creation failed”, “Read of unknown control”, “Unknown menu property”, “Property read on control with no widget”, “Property not found on control”, “Hide on unknown form”, “Hide on form with no window”, “Unknown shortcut key”, “Show on unknown form”, “Show on form with no window”, “ScrollToControl needs a control inside a ScrollPane”, “Invalid Drag action”, “Menu name already used”, “Not a menu of the menu bar”, “A submenu cannot be removed”, “Method not found on control”, “Too many arguments”, “Clipboard method not supported”, “Form property not available”, “Object has no default property”, “Unknown widget type in form”, “Bad property value

in form", "Unknown form property", "A submenu cannot be hidden", "Unknown Picture property", "Picture from LoadPictureData not shown", "Unknown Screen method", "Invalid Arrange value", "Unknown Screen property", "Screen property cannot be set", "Bad enum value for property", "Invalid MousePointer", "Clipboard has no properties", "Picture properties are read-only", "Assignment to unknown control", "Property set on control with no widget", and "Invalid WindowState".

11.15. Going back to the default settings

All your settings are kept in your USER folder (`USER` in the DVX folder, or the folder `DVXUSER` names; see Section 11.12.7). The settings DVX came with are in the `SYSTEM` folder and are never changed. So you can always go back to them by deleting a file from the USER folder. Find the kind of setting in this table:

To go back to the defaults for	Delete, in the USER folder	What happens
All of DVX's settings: the screen mode, mouse, colors, wallpaper, screen saver, network, printer, sound, desktop sounds, game controllers, and package server	`DVX.INI`	At the next start, DVX copies the `DVX.INI` it came with into the USER folder. The screen mode goes back to 1024x768 with 65 thousand colors (which may bring the **Safe Video Mode** question), and the Welcome window shows again.
One setting in `DVX.INI`	That setting's line in `DVX.INI` (edit it with a text editor)	The setting goes back to DVX's built-in default.
Which program opens each kind of file	`ASSOC.INI`	It holds only your changes to the file types; without it, every file type goes back to DVX's defaults.
Program Manager's groups, items, and options	`APPS\KPUNCH\PROGMAN\PROGMAN.INI`	The default, empty Main and Startup groups come back. The programs themselves stay installed.
Any one program's settings	That program's folder, `APPS\maker\program` (for example `APPS\KPUNCH\TERMINAL` for Terminal)	The program starts with its defaults. Files it saved in that folder are lost too, so look before you delete.
Program Manager's remembered names and icons	`PROGRAMS.CAC`	Harmless: DVX makes it again. Do this when a program shows an old name or icon after it was changed.

To go back to the defaults for	Delete, in the USER folder	What happens
The secure link's random seed	`SECLINK.RND`	DVX writes a new one when it exits.
The publishers you trust	Their `.KEY` files in `KEYS`	Packages they signed are no longer trusted. Do not delete your own `.SEC` files (see Section 11.11.18).

To delete `DVX.INI`:

1. Exit DVX.
2. At the DOS prompt, keep a copy, in case you want a setting from it later: `COPY C:\DVX\USER\DVX.INI C:\DVX\USER\DVX.OLD` (use your DVX folder in place of `C:\DVX`).
3. Delete it: `DEL C:\DVX\USER\DVX.INI`.
4. Start DVX. If the **Safe Video Mode** question appears, answer **[Yes]**, then choose your screen mode in Control Panel (see Section 11.3.3).

Some things to know:

- A `DVX.INI` that exists but cannot be read is never overwritten, so changes to your settings are not saved while it is there. If settings you change do not last, delete the file as above.
- You may see `DVX.$IN` or `DVX.~IN` beside `DVX.INI`. They are copies DVX makes while it saves the file. If a save was interrupted (for example by a power cut) and `DVX.INI` is missing, rename `DVX.~IN` to `DVX.INI` before you start DVX, or DVX starts with the settings it came with.
- The Welcome window is started by the `welcome` line in the `[shell]` section of `DVX.INI`. Ticking **Don't show this again** removes the line. To have it at every start again, add the line `welcome = apps/kpunch/welcome/welcome.app` to the `[shell]` section.
- `DVX.INI` is described in full in Section B.2. Each section of this chapter lists the keys for its subject: `[video]` in Section 11.3.4, `[mouse]` in Section 11.4.3, `[audio]` in Section 11.7.18, `[printer]` in Section 11.8.9, `[network]` in Section 11.9.11, and `[packages]` in Section 11.11.17.
- The USER folder is the one folder to back up. An upgrade never changes it.

11.16. The log file

DVX writes a record of what it does, and of what goes wrong, to the file `DVX.LOG` in your USER folder. It is plain text, one line for each thing. When something fails without a message, or you want to report a problem, the log file is where to look. See also Section B.6.

11.16.1. Where it is

The log file is in the USER folder:

- Usually `C:\DVX\USER\DVX.LOG` (in the folder you installed DVX in).
- In the folder `DVXUSER` names, when that is set.
- In `DVXUSER\DVX.LOG` inside the TEMP folder, when DVX runs from a disk it cannot write to.
- Nowhere, when DVX runs from a disk it cannot write to and there is no TEMP folder. DVX then keeps the latest part of the log in memory, until it exits.

System Information (**Help › System Information...** in Program Manager) says where the log file is, on its last lines, under `=== Log ===`: "Log file:" and the file's full name. When there is no log file, it shows the latest lines of the log that DVX keeps in memory there instead, after the line "DVX cannot write its log to a disk, so it keeps the latest lines here:". Scroll to the end of the window to read them.

11.16.2. Keep it before you start DVX again

IMPORTANT: DVX empties the log file each time it starts. After a problem, copy the log file before you start DVX again, or its record of the problem is lost.

The log file never grows past 512 KB: when it does, DVX removes its oldest lines, keeping the newest 256 KB at most, and the file then begins with the line "Log: older lines were removed when the log passed 524288 bytes".

To copy it and read it:

1. Exit DVX (or restart the computer, if it is stuck).
2. At the DOS prompt, copy the log to another name, for example `COPY C:\DVX\USER\DVX.LOG C:\DVXLOG.TXT`.
3. Read the copy with a text editor, for example `EDIT C:\DVXLOG.TXT`, or later in Notepad.

11.16.3. What to look for

Most lines are normal. These are the ones that tell you what happened:

Line	What it tells you
`DVX Loader starting...`	The first line: DVX started.
`Loader: user folder folder`	Which USER folder DVX uses. Other `Loader:` lines here say when DVX's disk, or the folder `DVXUSER` names, cannot be written to.

Line	What it tells you
Lines containing `FAILED:`, `dlopen:`, or `ABI:`, and lines starting `FATAL:` or `ERROR:`	A file of DVX's, or of an add-on, could not be loaded (see Section 11.2.4 and Section 11.2.9).
`Safe start: not loading file`	An add-on file left out by a safe start.
Lines starting `helpRecompile:`	DVX rebuilding its help files; `helpRecompile: FAILED` means one did not rebuild.
`Preferences: video widthxheight bitsbpp`	The screen mode DVX was set to use.
Lines starting `VBE:` or `Video:`	The video card and the screen mode (see Section 11.2.2). `Available video modes:` lists every mode DVX found, and `Selected:` the one it chose.
`=== System Information ===` to `=== End System Information ===`	The same as System Information: processor, memory, DOS version, TEMP folder, video card, mouse, and drives.
Lines starting `Preferences:`	The settings DVX applied. `Preferences: failed to load the wallpaper` means the desktop picture is missing or cannot be read; the desktop shows its plain color instead.
Lines starting `Drivers:`	Sound, network, and other hardware drivers: `Drivers: file did not load: reason`, `Drivers: file is not a driver for this version of DVX`, and `Drivers: another driver named 'name' in folder is not used`.
Lines starting `Audio:`, `Music:`, `Print:`, `Joystick:`, `dvxnet:`, `Terminal:`, `Fonts:`, or `Software:`	What happened with sound, music, printing, joysticks, the network, Terminal, fonts, and add-ons (see those sections of this chapter).
`DVX Shell ready.`	The desktop came up.
`Shell: DVX crashed while starting; stopping`	DVX itself failed before the desktop was up (see Section 11.2.7).
`=== CRASH ===`	A program (or DVX) crashed. The lines after it name the program and give details for its author.
`BASIC RUNTIME ERROR:`	A DVX BASIC program stopped with an error; the details follow.
`DVX Shell shutting down...` and `DVX Shell exited.`	A normal exit. A log that ends before `DVX Shell exited.` means DVX stopped abnormally.

11.16.4. Sending it with a problem report

When you report a problem with DVX or with a program to its author:

1. Copy the log file right after the problem, before you start DVX again (see Section 11.16.2).
2. Write down the exact words of any message, including its title.
3. Say what you were doing when it happened, and whether it happens every time.
4. Send the copy of the log file with your report. Its System Information section describes your computer, and after a crash its `=== CRASH ===` section gives the details the author needs.

For a problem with Setup, start Setup with `SETUP /LOG=C:\SETUP.LOG` and send that file too (see Section 11.11.9).

11.17. Messages, A to Z

This list gives every message explained in this chapter, in alphabetical order, with what it means and the section that explains it. A message that begins with a part that changes, such as a file name, is listed under the words that follow that part: "*name* is already running." is under I. Lines that DVX writes only to its log file are explained in Section 11.16 and in the section for each subject.

Message	What it means	See
"80386 required."	The processor is far too old for DVX.	Section 11.2.6
"A control's code cannot wait (SLEEP, FRAMEWAIT, or SHELL)"	A mistake in a control. Report it to the author.	Section 11.14.4
"A file larger than 2 GB cannot be transferred"	Terminal cannot transfer files larger than 2 GB.	Section 11.10.7
"A file or folder with that name already exists."	The name is taken.	Section 11.12.10
"A file transfer is running. Cancel it and close?"	Closing Terminal would cancel a transfer.	Section 11.10.6
"A group needs a name no other group has."	The group name is taken.	Section 11.13.8
"A name server is not a valid address (like 192.168.1.1)"	A name server is not given as four numbers.	Section 11.9.7
"A new document would be created here."	A DVX Demo example, not an error.	Section 11.12.12
"A newer version of *name* (*version*) is installed."	A newer version is installed already.	Section 11.11.13
"A program is using a game controller. Close it, then click Detect again."	Close the program using the joystick, then click Detect.	Section 11.6

Message	What it means	See
“A secure link over a COM port cannot use XON/XOFF flow control. Choose None or RTS/CTS.”	The secure link cannot use XON/XOFF over a COM port.	Section 11.10.6
“a setting is not supported”	The reason a COM port could not be opened: a setting cannot be used.	Section 11.10.2
“A shortcut key is Ctrl with Alt or Shift, and a letter, a digit, F1 to F12, or one of Backspace, Del, Down, End, Enter, Esc, Home, Ins, Left, PgDn, PgUp, Right, Space, Tab, and Up, for example Ctrl+Alt+P.”	The shortcut key typed is not allowed.	Section 11.13.8
“A statement is still running on this database”	A database message from a program.	Section 11.12.15
“A submenu cannot be hidden”	A mistake in the program. Report it to its author.	Section 11.14.6
“A submenu cannot be removed”	A mistake in the program. Report it to its author.	Section 11.14.6
“Abort, Retry, Fail?”	DOS’s own question; DVX never stops at it.	Section 11.12.5
“Access denied (the file may be read-only or in use, the disk write-protected or not ready).”	The file is read-only or in use, or the disk cannot be written to.	Section 11.12.10
“Add another file to send in the same batch?”	YMODEM and ZMODEM can send several files.	Section 11.10.6
“Already connected”	A network message shown by a DVX BASIC program.	Section 11.9.10
“*file* already exists (*size* bytes). What should happen to it?”	A file being received is already there.	Section 11.10.7
“*file* already exists. Do you want to replace it?”	Saving would replace a file.	Section 11.12.1
“*file* already exists. Replace it with *file*?”	A file of that name is already there.	Section 11.12.10
“An extension is one to eight letters or digits, such as TXT.”	Type the extension without the dot.	Section 11.13.1
“*name* and *package* both have the file *file*.”	Two packages would own the same file.	Section 11.11.13

Message	What it means	See
“*name* and *package* need each other.”	The packages are badly made.	Section 11.11.13
“Are you sure you want to exit DVX?”	DVX asks before exiting.	Section 11.13.5
“Argument list too long (E2BIG)”	The DOS program’s arguments are too long.	Section 11.13.6
“Argument not optional”	DVX BASIC error 449. A mistake in the program.	Section 11.14.5
“Assignment to unknown control”	A mistake in the program. Report it to its author.	Section 11.14.6
“attempt to write a readonly database”	The database is on a disk that cannot be written to.	Section 11.12.15
“Bad connection settings”	A network message shown by a DVX BASIC program.	Section 11.9.10
“Bad control”	A mistake in the program. Report it to its author.	Section 11.14.6
“Bad enum value for property”	A mistake in the program. Report it to its author.	Section 11.14.6
“Bad file channel number”	DVX BASIC error 52. A mistake in the program.	Section 11.14.5
“Bad file mode”	DVX BASIC error 54. A mistake in the program.	Section 11.14.5
“Bad file name”	DVX BASIC error 64. A mistake in the program, or a file name that is not allowed.	Section 11.14.5
“Bad file number”	DVX BASIC error 52. A mistake in the program.	Section 11.14.5
“Bad file number or file not open”	DVX BASIC error 52. A mistake in the program.	Section 11.14.5
“Bad property value in form”	A mistake in the program. Report it to its author.	Section 11.14.6
“Bad record length”	DVX BASIC error 59. A mistake in the program or its data.	Section 11.14.5
“Bad record number”	DVX BASIC error 63. A mistake in the program or its data.	Section 11.14.5

Message	What it means	See
“Bad transfer parameters”	A program started a transfer wrongly.	Section 11.10.7
“Cancelled”	The transfer was cancelled.	Section 11.10.7
“Cancelled by the receiver”	The other side cancelled the transfer.	Section 11.10.7
“Cancelled by the sender”	The other side cancelled the transfer.	Section 11.10.7
“Can’t rename with different drive”	DVX BASIC error 74. A file cannot be renamed onto another drive.	Section 11.14.5
“Cannot add *file* to *package*.”	A file could not be added to the package.	Section 11.11.20
“*keys* cannot be a shortcut key: it *does*.”	DVX itself uses those keys. Choose others.	Section 11.13.8
“*folder* cannot be copied into itself.”	A folder cannot go inside itself.	Section 11.12.10
“*file* cannot be copied onto itself.”	The file is already in that folder.	Section 11.12.10
“*file* cannot be found, or the destination path would be too long. It is skipped.”	One item is skipped.	Section 11.12.10
“*file* cannot be installed: *reason*”	Software cannot read the package file.	Section 11.11.11
“*name* cannot be installed. *reason*”	Software will not install the package; the reason says why.	Section 11.11.13
“*file* cannot be installed: another job is running.”	Wait for the job under way to finish.	Section 11.11.11
“*name* cannot be installed now.”	Another job started meanwhile. Try again.	Section 11.11.13
“*name* cannot be installed: the package server has no signature of it by DVX’s key.”	The server has no signature of the package by DVX’s key.	Section 11.11.16
“*name* cannot be installed: what was fetched cannot be read.”	The download cannot be read. Try again.	Section 11.11.16
“*folder* cannot be moved into itself.”	A folder cannot go inside itself.	Section 11.12.10
“*file* cannot be published: *reason*”	The package file cannot be read.	Section 11.11.19
“*host* cannot be reached: check the network settings”	DVX has no way to the computer.	Section 11.9.9
“*file* cannot be read.”	A file cannot be read.	Section 11.11.20

Message	What it means	See
“*name* cannot be removed now.”	Another job is running. Try again.	Section 11.11.15
“*name* cannot be saved in *folder*.”	The download could not be kept: the disk is full or cannot be written to.	Section 11.11.16
“*file* cannot be written.”	A file cannot be written.	Section 11.11.20
“Cannot connect to *host*: the server refused the connection.”	The connection to the package server failed.	Section 11.11.16
“Cannot copy the key to *folder*.”	The USER folder cannot be written to.	Section 11.11.18
“Cannot create *file*.”	A file cannot be made: the disk is full or cannot be written to.	Section 11.11.20
“Cannot create *folder*.”	A new folder cannot be made; the reason follows.	Section 11.12.10
“Cannot create folder *folder*.”	A folder cannot be made; the reason follows.	Section 11.12.10
“Cannot create the file”	A received file cannot be made.	Section 11.10.7
“Cannot create the file *file*.”	The file to print into cannot be made.	Section 11.8.3
“Cannot create the file USER\PRINTER.PRN.”	Nothing can be saved (a read-only disk and no TEMP folder); print to a file on another disk.	Section 11.8.6
“Cannot create the printer spool file”	No scratch file could be made for printing. Check TEMP.	Section 11.12.8
“Cannot delete *file*.”	A file cannot be deleted; the reason follows.	Section 11.12.10
“Cannot find *path*.”	The program or document does not exist.	Section 11.13.1
“Cannot find *host* on the network.”	The package server’s name could not be found.	Section 11.11.16
“Cannot make the folder *folder*.”	The disk is full or cannot be written to.	Section 11.11.14
“Cannot move *file* aside.”	A file could not be replaced.	Section 11.11.14
“Cannot move the control”	A mistake in the program. Report it to its author.	Section 11.14.6

Message	What it means	See
“Cannot open *file*”	A file to send cannot be opened.	Section 11.10.7
“Cannot open *folder*. The folder does not exist or the drive is not ready.”	The folder or drive cannot be opened.	Section 11.12.10
“Cannot put *file* in place.”	A file could not be replaced.	Section 11.11.14
“Cannot read *file*.”	A file cannot be read: missing, damaged, or not a package.	Section 11.11.11
“Cannot read the file”	A file being sent cannot be read.	Section 11.10.7
“Cannot read the folder *folder*.”	A folder of the package cannot be read.	Section 11.11.20
“Cannot read the picture *file*.”	The picture to print cannot be read.	Section 11.8.3
“Cannot remove *file*.”	The package’s record could not be removed.	Section 11.11.14
“Cannot rename *file* to *name*.”	The item cannot be renamed; the reason follows.	Section 11.12.10
“Cannot replace *file*: a folder with that name exists.”	A folder has the name the file would get.	Section 11.12.10
“Cannot send to *host*: *reason*.”	The connection broke. Try again.	Section 11.11.16
“Cannot write *file*.”	The disk is full or cannot be written to.	Section 11.11.14
“Cannot write INI file”	A program’s settings file cannot be saved.	Section 11.14.5
“Cannot write *file* (is the disk full?).”	The disk is full or cannot be written to.	Section 11.11.14
“Cannot write the file”	Writing a received file failed.	Section 11.10.7
“Carrier lost: the call ended”	The call dropped.	Section 11.10.4
“Characters per line must be from 20 to 255.”	Page Setup cannot use the number of characters.	Section 11.8.7
“Choose a package in the list first.”	No package is selected.	Section 11.11.16
“Clipboard has no properties”	A mistake in the program. Report it to its author.	Section 11.14.6
“Clipboard method not supported”	A mistake in the program. Report it to its author.	Section 11.14.6

Message	What it means	See
“Close this window?”	The DVX Demo asks before closing.	Section 11.12.12
“*host* closed the connection”	The other computer ended the session.	Section 11.9.9
“*host* closed the connection before the whole reply came.”	The connection broke. Try again.	Section 11.11.16
“*host* closed the connection without answering.”	The connection broke. Try again.	Section 11.11.16
“COM*n* could not be opened: *reason*”	The serial port cannot be used; the reason says why.	Section 11.10.2
“COM*n* could not be opened for the secure link”	The serial port cannot be used for the secure link.	Section 11.10.2
“COM*n* stopped working”	The port stopped delivering data. Connect again.	Section 11.10.2
“Compile failed!”	The help file has mistakes.	Section 11.12.12
“Compiled: *file*.hlp”	Normal: the help file was made.	Section 11.12.12
“Compiling…”	Normal: the help file is being made.	Section 11.12.12
“Connected”	The network is ready.	Section 11.9.2
“Connected (*modem’s message*)”	Normal: the call connected.	Section 11.10.4
“Connected to COM*n* at *speed* bps”	Normal: the serial port is open.	Section 11.10.2
“Connected to *host* port *port*”	Normal: Terminal is connected.	Section 11.9.9
“Connecting to *host* port *port*”	Normal: Terminal is connecting.	Section 11.9.9
“Connecting to *host* port *port* for the secure link”	Normal: the secure link is connecting.	Section 11.10.5
“Control cannot be registered”	A mistake in the program. Report it to its author.	Section 11.14.6
“Could not allocate *n* form-level variables.”	Memory ran out. Close programs.	Section 11.14.6
“*name* could not be installed: *reason*”	Setup could not install an add-on.	Section 11.11.6
“*file* could not be opened.”	The program for that kind of file cannot be started.	Section 11.12.10
“*name* could not be removed: *reason*”	Setup could not remove an add-on or part.	Section 11.11.6

Message	What it means	See
“Could not load *file*.”	The picture cannot be read.	Section 11.12.12
“Could not load wallpaper image.”	The desktop picture is not a picture DVX can read, or memory is short.	Section 11.3.6
“Could not make the backup copy *file*, so *file* was not changed.”	AUTOEXEC.BAT could not be backed up, so it was not changed.	Section 11.11.7
“Could not open *file* (error *n*).”	The file cannot be opened.	Section 11.12.11
“Could not open help file.”	The help file is missing or damaged.	Section 11.12.14
“Could not prepare the icon for printing.”	The Icon Editor’s scratch file cannot be written.	Section 11.8.8
“Could not save *file*.”	The Icon Editor cannot write the file.	Section 11.12.12
“Could not save *file* (error *n*).”	The file cannot be written.	Section 11.12.11
“Could not save *file* (error 75).”	The file is read-only, or the disk cannot be written.	Section 11.12.5
“Could not save the theme file.”	The theme could not be written into your THEMES folder.	Section 11.3.6
“Could not write *file* (is the disk full or write-protected?).”	AUTOEXEC.BAT could not be written.	Section 11.11.7
“Could not write to the file *file*. The disk may be full. Make room, then choose Retry.”	Printing to a file: the disk is full.	Section 11.8.2
“CreateControl: form has no parent widget”	A mistake in the program. Report it to its author.	Section 11.14.6
“CreateControl: invalid parent”	A mistake in the program. Report it to its author.	Section 11.14.6
“CreateControl: not a loaded form”	A mistake in the program. Report it to its author.	Section 11.14.6
“CreateControl: unknown control type”	A mistake in the program. Report it to its author.	Section 11.14.6
“CreateControl: widget creation failed”	A mistake in the program. Report it to its author.	Section 11.14.6

Message	What it means	See
“database is locked”	Another program is using the database.	Section 11.12.15
“Delete *file*?”	File Manager asks before deleting.	Section 11.12.10
“Delete "*item*" from the group "*group*"? The program itself is not removed.”	Program Manager asks before deleting an icon.	Section 11.13.8
“Delete "*name*" from the phone book?”	Terminal asks before deleting a session.	Section 11.10.6
“Delete the group "*group*" and its *n* item(s)? The programs themselves are not removed.”	Program Manager asks before deleting a group.	Section 11.13.8
“Delete these *n* items?”	File Manager asks before deleting.	Section 11.12.10
“Device I/O error”	DVX BASIC error 57. A disk or printer failed.	Section 11.14.5
“Device unavailable”	A printer, port, or sound device is not there or cannot be opened.	Section 11.14.5
“Dialing *number* (try *n* of *n*)”	Normal: Terminal is dialing.	Section 11.10.4
“*host* did not answer”	No answer within 30 seconds.	Section 11.9.9
“*host* did not answer in HTTP.”	The address or port is not a package server.	Section 11.11.16
“*host* did not answer in time (*n* seconds).”	The server did not answer within 30 seconds.	Section 11.11.16
“Disconnected”	Normal: the connection was closed.	Section 11.9.9
“Disk full”	DVX BASIC error 61. The disk filled up while a file was being written.	Section 11.14.5
“Disk not ready”	DVX BASIC error 71. The drive has no disk in it.	Section 11.14.5
“Division by zero”	DVX BASIC error 11. A mistake in the program, or in what you typed.	Section 11.14.5
“*file* does not exist. Check the file name and try again.”	The file typed in an Open dialog does not exist.	Section 11.12.1

Message	What it means	See
"*file* does not exist. Do you want to create it?"	The file typed in a program's Open dialog does not exist; the program can make it.	Section 11.12.1
"*address* does not name a computer."	Correct the package server's address.	Section 11.11.16
"Drive *drive* is not ready."	The drive has no disk in it.	Section 11.12.1
"DVX cannot save anything: it cannot write to *folder*, the folder DVXUSER names, and there is no TEMP folder. Settings you change are kept until you exit DVX. To keep them, set DVXUSER to a folder DVX can write to before starting DVX."	The folder DVXUSER names cannot be written to, and there is no TEMP folder.	Section 11.12.6
"DVX cannot save anything: it is running from a disk it cannot write to, such as a CD-ROM, and there is no TEMP folder. Settings you change are kept until you exit DVX. To keep them, set DVXUSER to a folder on your hard disk before starting DVX, or install DVX with SETUP."	DVX runs from a disk it cannot write to, and there is no TEMP folder.	Section 11.12.6
"DVX cannot write to *folder*, the folder DVXUSER names, so your settings are kept in the TEMP folder. To keep them somewhere else, set DVXUSER to a folder DVX can write to before starting DVX."	DVX keeps your settings in the TEMP folder.	Section 11.12.6
"DVX could not run *file*. *reason*"	The DOS program could not be started.	Section 11.13.6
"DVX could not start: the video card offered no usable graphics mode. DVX needs a VESA video BIOS with a mode of at least 640x480 at 256 colors or more. Many older cards need their VESA driver loaded first: UniVBE (Scitech Display Doctor) works with most cards, and some cards came with their own, such as S3VBE20 for S3 cards and M64VBE for ATI Mach64 cards. The details are in DVX.LOG in the USER folder."	DVX found no screen mode it can use. Load the video card's VESA driver.	Section 11.2.2

Message	What it means	See
“DVX is already installed in *folder*. Upgrade or repair it instead, keeping your settings and saved files?”	Setup offers to upgrade instead.	Section 11.11.2
“DVX is not installed in *folder* (or it was not installed by this Setup).”	Setup has no list of DVX’s files in that folder.	Section 11.11.8
“DVX is not installed in *folder*. To put DVX there, choose Back, then Install DVX.”	There is no DVX to upgrade in that folder.	Section 11.11.2
“DVX is running from a disk it cannot write to, such as a CD-ROM, so your settings are kept in the TEMP folder. To keep them somewhere else, set DVXUSER to a folder on your hard disk before starting DVX.”	DVX keeps your settings in the TEMP folder.	Section 11.12.6
“DVX itself is removed with Setup.”	Software cannot remove DVX itself.	Section 11.11.15
“DVX itself is updated: the new version runs from the next time DVX starts.”	Restart DVX after installing.	Section 11.11.12
“DVX needs about *n* MB of disk space.”	Setup shows the space needed as you choose.	Section 11.11.3
“DVX reaches package servers over plain http only (it has no encryption). Type the address without https://.”	An https:// address was typed for the package server.	Section 11.11.16
“DVX Setup: /FONTS= takes NONE or BASE.”	The /FONTS= switch takes NONE or BASE.	Section 11.11.1
“DVX Setup needs a video card with a VESA video BIOS and a 640x480 mode at 256 colors or more; many older cards need their VESA driver loaded first, such as UniVBE (see README.TXT).”	The video card has no usable VESA mode for Setup.	Section 11.11.1
“DVX Setup: there is no DVX package (or it is damaged) beside *file*, and DVX is not installed in its folder.”	Setup found nothing to install beside it.	Section 11.11.1
“DVX started in safe video mode (*width* x*height*, *bits*-bit color) as you asked. Use this mode from now on instead of *width* x*height*, *bits*-bit color?”	A safe start uses safe video mode; DVX asks whether to keep it.	Section 11.3.2

Message	What it means	See
“DVX stopped while starting: something went wrong inside DVX itself. Start DVX again with a safe start: hold down a Shift key while it starts, or type DVX /SAFE. If DVX still stops, run Setup and choose Upgrade or repair to fix DVX.”	DVX itself failed before the desktop was up.	Section 11.2.7
“DVX was installed, but the settings file in *folder* could not be written.”	Setup could not write DVX.INI.	Section 11.11.7
“DVX was removed from *folder*.”	Setup removed DVX.	Section 11.11.8
“DVX was started in safe mode, so no add-on libraries or widgets were loaded.”	A safe start left out the add-ons' libraries and widgets.	Section 11.2.8
“dvxpkg: *name* is not installed”	DVXPKG cannot remove a package that is not installed.	Section 11.2.9
“dvxpkg: nothing removed: needed by *packages* (-f removes them too)”	DVXPKG did not remove a package that others need.	Section 11.2.9
“Enter the host name on the Network page of Session Settings first.”	The session has no host name.	Section 11.10.6
“Error: could not allocate page table memory”	Less than 16 KB of conventional memory is free.	Section 11.2.6
“Error: Using XMS switched CPU into V86 mode.”	The memory manager is in AUTO mode. Remove AUTO from its line in CONFIG.SYS.	Section 11.2.6
“Everything is up to date.”	Normal: there are no updates.	Section 11.11.16
“Exiting due to signal”	DVX stopped with a technical report.	Section 11.2.7
“Extension must be 3 characters or fewer.”	The name breaks the file name rules of the disk.	Section 11.12.2
“External function not found: *name*”	A part of DVX or an add-on the program needs is missing.	Section 11.14.3
“Failed to add resource.”	The file cannot be changed.	Section 11.12.12
“Failed to change video mode.”	The video card could not set the mode chosen in Control Panel.	Section 11.3.3
“Failed to create instance copy of *file*.”	A second copy of a program cannot get its scratch file.	Section 11.12.8
“Failed to create task for application.”	Memory is short. Close programs.	Section 11.13.1

Message	What it means	See
“Failed to extract resource.”	The resource cannot be written out.	Section 11.12.12
“Failed to load *file*: *reason*”	A program, or the Program Manager, could not be loaded.	Section 11.13.1
“Failed to remove resource.”	The file cannot be changed.	Section 11.12.12
“Failed to update resource.”	The file cannot be changed.	Section 11.12.12
“FATAL: *file* could not be loaded: *reason*. Run Setup and choose Upgrade or repair to fix DVX.”	One of DVX’s own files is damaged or from another version. Repair DVX with Setup.	Section 11.2.4
“File already exists”	DVX BASIC error 58. The name is taken.	Section 11.14.5
“File not found”	DVX BASIC error 53. The file is missing.	Section 11.14.5
“File operations are still running. Stop them and close?”	Closing File Manager would stop a copy, move, or delete.	Section 11.12.10
“Filename contains invalid characters.”	The name breaks the file name rules of the disk.	Section 11.12.2
“Filename may contain only one dot.”	The name breaks the file name rules of the disk.	Section 11.12.2
“Filename must be 1-8 characters before the extension.”	The name breaks the file name rules of the disk.	Section 11.12.2
“Filename must be 255 characters or fewer.”	The name breaks the file name rules of the disk.	Section 11.12.2
“Filename must not be empty.”	The name breaks the file name rules of the disk.	Section 11.12.2
“Filename must not end with a dot or a space.”	The name breaks the file name rules of the disk.	Section 11.12.2
“*n* file(s) in *folder* could not be removed. Close any program using them and choose Remove DVX again.”	Some files could not be removed. Choose Remove DVX again.	Section 11.11.8
“FOR loop nesting too deep”	DVX BASIC error 26. A mistake in the program.	Section 11.14.5
“… for the font.”	Memory ran out. Close programs.	Section 11.14.6
“… for the font *name*.”	Memory ran out. Close programs.	Section 11.14.6

Message	What it means	See
“… for the Printer.”	Memory ran out. Close programs.	Section 11.14.6
“… for the Printer’s page.”	Memory ran out. Close programs.	Section 11.14.6
“Form property not available”	A mistake in the program. Report it to its author.	Section 11.14.6
“Game controller support is not installed.”	A part of DVX is missing. Repair DVX with Setup.	Section 11.6
“Give the package a name.”	Package Builder needs a package name.	Section 11.11.20
“Give your account on the package server in File > Package Server to see what you have published.”	Set your account to see what you published.	Section 11.11.19
“*address* has a port that is not a number from 1 to 65535.”	Correct the package server’s port.	Section 11.11.16
“'*name*' has caused a fault and will be terminated.”	The program crashed and was ended.	Section 11.13.4
“*folder* has no list of installed files (SETUP.LST), so Setup does not know what to remove.”	Setup has no list of DVX’s files in that folder.	Section 11.11.8
“*name* has the file *file*, which belongs to *package*.”	Two packages would own the same file.	Section 11.11.13
“*other file* has the same name”	The reason an add-on was left out: two files have the same name.	Section 11.2.9
“*name* has too many files.”	The package is too large to install.	Section 11.11.14
“Hide on form with no window”	A mistake in the program. Report it to its author.	Section 11.14.6
“Hide on unknown form”	A mistake in the program. Report it to its author.	Section 11.14.6
“Hung up”	Normal: the modem hung up.	Section 11.10.4
“Icon not loaded”	The program’s icon could not be loaded: memory is short, or its icon file is missing or damaged.	Section 11.14.6
“Icon takes a picture file DVX can read (.bmp, .png, .gif …).”	The program’s icon file is missing or damaged. Reinstall the program.	Section 11.14.6

Message	What it means	See
“Icons must be 16 x 16, 24 x 24, or 32 x 32 pixels.”	The picture is not an icon size.	Section 11.12.12
“Illegal function call”	DVX BASIC error 5. A value given to a command is not allowed: a mistake in the program, or in what you typed.	Section 11.14.5
“Illegal function call (a mistake in the PLAY string)”	DVX BASIC error 5. A value given to a command is not allowed: a mistake in the program, or in what you typed.	Section 11.14.5
“Installed: *names*.”	The install worked.	Section 11.11.14
“Installed with it, because it needs them: *names*.”	Packages it needs are installed with it.	Section 11.11.12
“Installing did not finish. *reason*”	The install stopped; the reason says why.	Section 11.11.14
“Internal error”	DVX BASIC error 51. The program’s file is damaged. Reinstall the program.	Section 11.14.5
“interrupted”	A long database search was stopped.	Section 11.12.15
“Invalid argument”	A program asked for something that cannot be done.	Section 11.7.14
“Invalid Arrange value”	A mistake in the program. Report it to its author.	Section 11.14.6
“Invalid Drag action”	A mistake in the program. Report it to its author.	Section 11.14.6
“Invalid field index”	A mistake in the program. Report it to its author.	Section 11.14.5
“Invalid MousePointer”	A mistake in the program. Report it to its author.	Section 11.14.6
“Invalid pattern string”	DVX BASIC error 93. A mistake in the program, or in a pattern you typed.	Section 11.14.5
“Invalid picture”	DVX BASIC error 481. The file is not a picture DVX can read.	Section 11.14.5

Message	What it means	See
“Invalid property value”	A mistake in the program. Report it to its author.	Section 11.14.6
“Invalid use of Null”	DVX BASIC error 94. A mistake in the program, or empty data.	Section 11.14.5
“Invalid WindowState”	A mistake in the program. Report it to its author.	Section 11.14.6
“*path* is a file, not a folder.”	Choose a folder, not a file.	Section 11.12.1
“*file* is a folder.”	A folder is where the package puts a file.	Section 11.11.14
“*name* is already running.”	The program is open already.	Section 11.13.1
“*keys* is already the shortcut for "*item*".”	Another item has that shortcut.	Section 11.13.8
“*name* is from the package server, but it is not signed. DVX installs a package from the package server only when DVX’s key signed it.”	DVX installs from the package server only what DVX’s key signed.	Section 11.11.13
“*name* is from the package server, but it is signed by another key, not by DVX’s. DVX installs a package from the package server only when DVX’s key signed it.”	DVX installs from the package server only what DVX’s key signed.	Section 11.11.13
“*name* is from the package server, but its signature by DVX’s key does not fit it: it was changed or damaged on the way.”	The package was changed after it was signed.	Section 11.11.13
“*file* is in the manifest but not in the package.”	The package is damaged or was changed.	Section 11.11.14
“*file* is in the package but not in its manifest.”	The package is damaged or was changed.	Section 11.11.14
“*file* is in the package twice.”	The package is damaged or was changed.	Section 11.11.14
“*name* is listed twice.”	The package was made wrongly. Tell its maker.	Section 11.11.11
“*file* is not a DVX package (it does not start with PACKAGE.INI).”	The file is not a DVX package.	Section 11.11.11
“*file* is not a secret key. *reason*”	The file chosen is not a secret key.	Section 11.11.20
“*file* is not a text file, so Notepad did not open it.”	The file holds NUL characters, which no text has.	Section 11.12.11

Message	What it means	See
“*file* is not a text file, so the Help Editor did not open it.”	The file holds NUL characters, which no text has.	Section 11.12.12
“*text* is not a version (such as 1.0.0).”	The version is not in the form 1.0.0.	Section 11.11.20
“*address* is not an http:// address.”	Correct the package server’s address.	Section 11.11.16
“*name* is not installed.”	The package is already gone.	Section 11.11.14
“*package* is not offered by the package server.”	The server does not have that package.	Section 11.11.16
“*name* is not one of the packages read.”	Rare. Try again.	Section 11.11.13
“'*name*' is not responding to the request to close. End it?”	A program did not close before a DOS program.	Section 11.13.5
“'*name*' is not responding to the request to close. End it and continue exiting DVX?”	A program did not close when DVX exited.	Section 11.13.5
“*name* is not signed by the publisher of the installed version.”	The update is not from the same publisher.	Section 11.11.13
“*file* is not the file the manifest lists (it was changed or damaged).”	The package is damaged or was changed.	Section 11.11.14
“*name version* is on the package server, waiting for its review. The Published page shows how the review goes.”	The package was published and waits for review.	Section 11.11.19
“*file* is read-only. Delete it anyway?”	The file is read-only.	Section 11.12.10
“*file* is too big for a package.”	A file is too large for a package.	Section 11.11.20
“*file* is too big for Notepad.”	Notepad holds files up to 256 KB.	Section 11.12.11
“*file* is too big for the Help Editor.”	The Help Editor holds files up to 256 KB.	Section 11.12.12
“it did not respond”	The reason a COM port could not be opened: any other failure.	Section 11.10.2
“it is already in use”	The reason a COM port could not be opened: another program has it.	Section 11.10.2
“*file*: it is damaged.”	The package is damaged.	Section 11.11.14
“It is not a WAV or MIDI file.”	The Sound Recorder opens only WAV and MIDI files.	Section 11.7.16

Message	What it means	See
“it needs *name*, which is not installed”	The reason a file could not be loaded: a file it needs is missing.	Section 11.2.4
“it needs *name*, which was not loaded”	The reason a file could not be loaded: a file it needs failed too.	Section 11.2.4
“it needs files that in turn need it or each other, so none of them can be loaded”	The reason a file could not be loaded: files that each need another first.	Section 11.2.4
“It takes *n* bytes of disk space.”	The space the package needs.	Section 11.11.12
“it was made for a different version of DVX”	The reason a file could not be loaded: it belongs to another version of DVX.	Section 11.2.4
“its file is damaged, or it needs something this DVX does not have”	The reason a file could not be loaded: it is damaged or needs a newer DVX.	Section 11.2.4
“its interrupt could not be found”	The reason a COM port could not be opened: its IRQ was not found.	Section 11.10.2
“Keep this display mode?”	Control Panel asks whether to keep the new screen mode.	Section 11.3.3
“kept *file* (changed since it was installed)”	DVXPKG kept a file you changed.	Section 11.2.9
“left *file* (it could not be deleted)”	DVXPKG could not delete a file.	Section 11.2.9
“Libraries and widgets work from the next time DVX starts.”	Restart DVX after installing.	Section 11.11.12
“Line *n*: *name* is given twice.”	The key file is damaged.	Section 11.11.18
“Line *n*: *kind* is not a kind of package.”	The package is for a newer DVX.	Section 11.11.11
“Line *n* is not a [section] or a key = value line.”	The key file is damaged.	Section 11.11.18
“Line *n*: *name* must be *n* hex digits.”	The key file is damaged.	Section 11.11.18
“Lines per page must be 0 (the printer’s usual length) or from 10 to 200.”	Page Setup cannot use the number of lines.	Section 11.8.7
“Load error:” with “no DOS memory”	Not enough conventional memory is free to start DVX.	Section 11.2.6
“Load error:” with “no DPMI memory”	Not enough extended memory is free to start DVX.	Section 11.2.6

Message	What it means	See
“Load error:” with “not EXE” or “not COFF (Check for viruses)”	DVX.EXE is damaged. Repair DVX with Setup.	Section 11.2.6
“Lost block sequence”	The two sides lost step during a transfer.	Section 11.10.7
“Lost the connection to *host*: *reason*.”	The connection broke. Try again.	Section 11.11.16
“Margins cannot be negative.”	Page Setup cannot use the margins.	Section 11.8.7
“Media Player cannot play *file*.”	The file cannot be played; the reason follows.	Section 11.7.17
“Media Player cannot play *file*, *file*, and *n* other tracks.”	Several tracks in a row cannot be played; the reasons follow.	Section 11.7.17
“Menu name already used”	A mistake in the program. Report it to its author.	Section 11.14.6
“Method call on control with no widget”	A mistake in the program. Report it to its author.	Section 11.14.6
“Method call on unknown control”	A mistake in the program. Report it to its author.	Section 11.14.6
“Method not found on control”	A mistake in the program. Report it to its author.	Section 11.14.6
“*file*: missing appDescriptor”	The file is not a DVX program, or it is damaged.	Section 11.13.1
“*file*: missing appMain”	The file is not a DVX program, or it is damaged.	Section 11.13.1
“Modem ready on COM*n*: type AT commands”	Normal: type commands to the modem.	Section 11.10.4
“MODULE resource failed to deserialize.”	The program is for another version of DVX, or damaged.	Section 11.14.2
“MODULE resource not found.”	The program’s file is damaged. Reinstall it.	Section 11.14.2
“Move the stick further, all the way to each edge.”	Calibration needs the stick moved to each edge.	Section 11.6
“Named argument not found”	DVX BASIC error 448. A mistake in the program.	Section 11.14.5

Message	What it means	See
"*name* needs DVX *version* or later (this is DVX *version*)."	Update DVX first.	Section 11.11.13
"*address* needs encryption, which DVX does not have: use an http:// address."	DVX cannot use https:// addresses.	Section 11.11.16
"*name* needs *package version* or later, but an older one is being installed."	It needs a newer version of another package.	Section 11.11.13
"*name* needs *package version* or later, which is not here."	A package it needs is missing.	Section 11.11.13
"Networking is not installed."	The Networking part of DVX is not installed.	Section 11.9.3
"Networking is not installed"	The Networking part of DVX is not installed.	Section 11.9.9
"Networking is not started"	No program has used the network yet.	Section 11.9.6
"NEXT variable mismatch"	A mistake in the program. Report it to its author.	Section 11.14.5
"NEXT without FOR"	DVX BASIC error 1. A mistake in the program.	Section 11.14.5
"No account is set for the package server."	Set your account in File > Package Server.	Section 11.11.19
"No answer"	Nobody answered at the last try.	Section 11.10.4
"No answer: dialing again in *n* seconds"	Nobody answered; Terminal dials again.	Section 11.10.4
"No carrier"	The call did not connect at the last try.	Section 11.10.4
"No carrier: dialing again in *n* seconds"	The call did not connect; Terminal dials again.	Section 11.10.4
"No compiled module found in this application."	The program's file is damaged. Reinstall it.	Section 11.14.2
"No dial tone: check the phone line"	The modem heard no dial tone.	Section 11.10.4
"No drawing area"	A mistake in the program. Report it to its author.	Section 11.14.6
"No error"	A network message shown by a DVX BASIC program.	Section 11.9.10

Message	What it means	See
“No file loaded.”	Open a file first.	Section 11.12.12
“No file to send”	A program started a transfer wrongly.	Section 11.10.7
“No file transfer can be started now.”	Too many transfers, too little memory, or no connection.	Section 11.10.6
“No game controllers found.”	No joystick was found.	Section 11.6
“No host name is set”	A connection was opened without a host name.	Section 11.9.9
“No index available.”	The help file has no index.	Section 11.12.14
“"*item*" no longer has its shortcut key *keys*. *reason* Choose another one in the item’s Properties.”	An item’s shortcut key is not allowed; it was removed.	Section 11.13.8
“No matching topics found.”	No page has the words searched for.	Section 11.12.14
“No modules loaded from LIBS\ or WIDGETS\”	DVX.EXE was started away from its LIBS and WIDGETS folders.	Section 11.2.4
“No packet driver found: load one (for example NE2000.COM) before DVX”	DVX found no packet driver for the network card.	Section 11.9.4
“No program is set to open *ext* files. File types are set in the Control Panel.”	No program is set for that kind of file.	Section 11.12.10
“No program is set up to open *file*. Choose one on the File Types page of the Control Panel.”	No program is set for that kind of document.	Section 11.13.1
“No program loaded”	The program could not be loaded. Reinstall it.	Section 11.14.2
“No sound device can play this music”	No sound device that can play this music is running.	Section 11.7.14
“No sound device could be started”	No sound hardware is working.	Section 11.7.14
“No such control”	A mistake in the program. Report it to its author.	Section 11.14.6
“No such file or directory (ENOENT)”	The DOS program’s working folder does not exist.	Section 11.13.6
“No such sound is playing”	A program asked for something that cannot be done.	Section 11.7.14

Message	What it means	See
“No swap space!”	The memory helper ran out of room on disk for memory.	Section 11.2.6
“No system information available.”	DVX could not gather any information about the computer.	Section 11.1.7
“Not a menu of the menu bar”	A mistake in the program. Report it to its author.	Section 11.14.6
“Not a music or sound file (MOD, S3M, XM, IT, MIDI, WAV, or VOC)”	The file is not music or sound DVX can play.	Section 11.7.14
“Not a TYPE instance”	A mistake in the program. Report it to its author.	Section 11.14.5
“Not a WAV or VOC sound file”	The file is not a sound file DVX can play.	Section 11.7.14
“Not an open connection”	A network message shown by a DVX BASIC program.	Section 11.9.10
“Not compiled: the source could not be saved.”	The help source cannot be written.	Section 11.12.12
“Not connected”	The joystick stopped answering.	Section 11.6
“Not enough memory”	Memory is short. Close programs.	Section 11.7.14
“Not enough memory (ENOMEM)”	Not enough memory for the DOS program.	Section 11.13.6
“Not enough memory to capture the image.”	Not enough memory for a screenshot.	Section 11.3.5
“Not enough memory to print.”	Memory is short. Close programs.	Section 11.8.3
“Not enough memory to print the picture.”	Memory is short. Close programs.	Section 11.8.3
“Not enough memory to print the window.”	Memory is short. Close programs.	Section 11.8.3
“Not enough memory to start the operation.”	Memory is short. Close programs.	Section 11.12.10
“Not responding” (in the Task Manager)	The program has been busy for 5 seconds or more.	Section 11.13.3
“Not signed by a publisher DVX trusts: *names*. Install them only if you trust where they came from.”	Install only if you trust where the package came from.	Section 11.11.12
“Nothing is playing”	Normal: the Media Player has nothing loaded.	Section 11.7.17

Message	What it means	See
“Nothing to do yet (try again later)”	A network message shown by a DVX BASIC program.	Section 11.9.10
“Object doesn’t support named arguments”	DVX BASIC error 446. A mistake in the program.	Section 11.14.5
“Object doesn’t support this property or method”	DVX BASIC error 438. A mistake in the program.	Section 11.14.5
“Object has no default property”	A mistake in the program. Report it to its author.	Section 11.14.6
“Object not a collection”	DVX BASIC error 451. A mistake in the program.	Section 11.14.5
“Object required”	DVX BASIC error 424. A mistake in the program.	Section 11.14.5
“Object variable not set”	DVX BASIC error 91. A mistake in the program.	Section 11.14.5
“Only text resources can be edited inline.”	Only text can be edited this way.	Section 11.12.12
“Open a picture first.”	Nothing to print.	Section 11.12.12
“Other software in *folder* needs these parts, so Setup keeps them: *parts*.”	Setup keeps parts that add-ons need.	Section 11.11.6
“Out of DATA”	DVX BASIC error 4. A mistake in the program.	Section 11.14.5
“Out of memory”	Memory ran out. Close programs.	Section 11.14.5
“Out of memory allocating array”	Memory ran out. Close programs.	Section 11.14.5
“Out of memory allocating TYPE”	Memory ran out. Close programs.	Section 11.14.5
“Out of memory: cannot allocate an application slot.”	Memory is short. Close programs.	Section 11.13.1
“Out of memory creating the BASIC runtime.”	Memory is short. Close programs.	Section 11.14.2
“Out of memory creating the form runtime.”	Memory is short. Close programs.	Section 11.14.2
“Out of memory for the secure link”	Memory is short. Close programs.	Section 11.10.5
“Out of memory loading program”	Memory is short. Close programs.	Section 11.14.2
“Out of memory marshalling arguments for external function '*name*'.”	Memory ran out. Close programs.	Section 11.14.6

Message	What it means	See
“Out of network memory”	A network message shown by a DVX BASIC program.	Section 11.9.10
“Out of stack space”	DVX BASIC error 28. Too many calls inside calls: a mistake in the program.	Section 11.14.5
“Out of string space”	DVX BASIC error 14. Memory for text ran out. Close programs.	Section 11.14.5
“Overflow”	A number is too big, or a file is larger than 2 GB.	Section 11.14.5
“*n* packages on *address*”	Normal: the packages the server offers.	Section 11.11.16
“Packages cannot be fetched: the path of the DOWNLOAD folder in your user folder is too long.”	The USER folder’s path is too long.	Section 11.11.16
“Packages signed with this key are trusted from now on.”	The publisher’s key is now trusted.	Section 11.11.18
“PaintPicture has no picture”	A mistake in the program. Report it to its author.	Section 11.14.6
“PaintPicture needs a picture, x, and y”	A mistake in the program. Report it to its author.	Section 11.14.6
“Passphrase for the secure link:”	Terminal asks for the secure link’s passphrase.	Section 11.10.5
“Path not found”	DVX BASIC error 76. The folder does not exist.	Section 11.14.5
“Path/File access error”	DVX BASIC error 75. A file or folder cannot be made, removed, renamed, or written: the file is read-only, or the disk cannot be written or its main folder is full.	Section 11.14.5
“Permission denied”	DVX BASIC error 70. Another program is using the file.	Section 11.14.5
“Picture from LoadPictureData not shown”	A mistake in the program. Report it to its author.	Section 11.14.6
“Picture has no methods”	A mistake in the program. Report it to its author.	Section 11.14.6

Message	What it means	See
“Picture not loaded”	Memory ran out. Close programs.	Section 11.14.6
“Picture properties are read-only”	A mistake in the program. Report it to its author.	Section 11.14.6
“Please insert Disk *n* of *n* in *drive* and choose OK.”	Setup needs the next floppy disk.	Section 11.11.4
“Press any key to return to DVX.”	The DOS program ended.	Section 11.13.6
“Printer has no such method”	A mistake in the program. Report it to its author.	Section 11.14.6
“Printer has no such property”	A mistake in the program. Report it to its author.	Section 11.14.6
“Printing is not installed.”	A part of DVX is missing. Repair DVX with Setup.	Section 11.8.8
“Printing is not installed”	A part of DVX is missing. Repair DVX with Setup.	Section 11.8.8
“Printing *document* on *port*...”	Normal: a printout is going out.	Section 11.8.1
“Program needs *n* global variables; the limit is *n*”	The program is too large. Ask its author.	Section 11.14.2
“Property is read-only”	A mistake in the program. Report it to its author.	Section 11.14.6
“Property not found on control”	A mistake in the program. Report it to its author.	Section 11.14.6
“Property read on control with no widget”	A mistake in the program. Report it to its author.	Section 11.14.6
“Property set on control with no widget”	A mistake in the program. Report it to its author.	Section 11.14.6
“Protected mode not accessible.”	Another program holds the processor’s protected mode. Start DVX from plain DOS.	Section 11.2.6
“Read of unknown control”	A mistake in the program. Report it to its author.	Section 11.14.6
“Record longer than LEN”	A mistake in the program or its data. Report it to its author.	Section 11.14.5
“*host* refused the connection on port *port*”	Nothing answers on that port.	Section 11.9.9

Message	What it means	See
“Remove resource '*name*'?”	The Resource Editor asks before removing.	Section 11.12.12
“Removing did not finish. *reason*”	The removal stopped; the reason says why.	Section 11.11.14
“*file* - *n* resource(s)”	The resources in the file.	Section 11.12.12
“Restart DVX to start using the new version of DVX.”	DVX itself was updated. Restart DVX.	Section 11.11.14
“RESUME without error”	DVX BASIC error 20. A mistake in the program.	Section 11.14.5
“RETURN without GOSUB”	DVX BASIC error 3. A mistake in the program.	Section 11.14.5
“Row *n* of the files has no TAB between the name and the file.”	A row of the file list is wrong.	Section 11.11.20
“Running *file* closes these programs first: *programs* Each one asks about unsaved work as it closes. Continue?”	DVX closes other programs before running a DOS program.	Section 11.13.6
“Runtime error”	A DVX BASIC error with no text.	Section 11.14.1
“Runtime error *number* at PC *n*”	A DVX BASIC program stopped with an error.	Section 11.14.1
“Runtime error *number* on line *line*”	A DVX BASIC program stopped with an error.	Section 11.14.1
“Save cancelled.”	The save was cancelled.	Section 11.12.12
“Save changes?”	The program has unsaved work.	Section 11.12.11
“SaveScreenshot needs a form with a window and a file it can write (BMP when the name ends in .bmp, PNG otherwise).”	The screenshot could not be saved: often a read-only or full disk.	Section 11.14.6
“*name* says it is part of DVX, but it is not signed by DVX’s key.”	A package claiming to be DVX’s is not signed by DVX. Do not install it.	Section 11.11.13
“Screen property cannot be set”	A mistake in the program. Report it to its author.	Section 11.14.6
“Screenshot not saved”	The screenshot could not be saved: often a read-only or full disk.	Section 11.14.6

Message	What it means	See
“ScrollToControl needs a control inside a ScrollPane”	A mistake in the program. Report it to its author.	Section 11.14.6
“Secure link established”	Normal: the secure link works. Press Enter.	Section 11.10.5
“Secure link established (passphrase checked)”	Normal: the secure link works. Press Enter.	Section 11.10.5
“Select one file or folder to rename.”	Several items are selected.	Section 11.12.10
“Sending to everyone needs SO_BROADCAST”	A network message shown by a DVX BASIC program.	Section 11.9.10
“*host* sent the request elsewhere too many times.”	The server’s answer is not usable.	Section 11.11.16
“*host* sent the request to *address*, which is not an http:// address.”	The server sends DVX to an address it cannot use.	Section 11.11.16
“Setting up the modem on COM*n*”	Normal: the modem’s setup command was sent.	Section 11.10.4
“Setting up the secure link on COM*n*”	Normal: the secure link is starting.	Section 11.10.5
“Setting up the secure link with *host*”	Normal: the secure link is starting.	Section 11.10.5
“Setup could not create the folder *folder*.”	The folder cannot be made on that drive.	Section 11.11.3
“Setup could not read the DVX package in *folder*.”	The CD or floppy disk cannot be read.	Section 11.11.5
“Setup could not read the DVX package on disk *n*.”	The CD or floppy disk cannot be read.	Section 11.11.5
“Setup could not write *file*. The disk may be full.”	The disk is full.	Section 11.11.5
“Setup could not write *file*. The disk may be full or write-protected.”	The disk is full or write-protected.	Section 11.11.5
“Setup is reading DVX from *folder*. Choose a folder that is not this one and not inside it.”	Choose a folder that is not on the CD or floppy.	Section 11.11.2
“Setup was cancelled: *name* and the add-ons after it are not as you chose. Software (in Program Manager) can install and remove them.”	Use Software to finish installing the add-ons.	Section 11.11.6

Message	What it means	See
“Setup was cancelled. DVX in *folder* is incomplete now; run Setup again to repair it.”	An upgrade was cancelled. Run Setup again to repair it.	Section 11.11.5
“Setup was cancelled: *name* is not all removed. Software (in Program Manager) can remove it.”	Use Software to finish removing it.	Section 11.11.6
“Setup was cancelled. Nothing was installed in *folder*.”	A new installation was cancelled; nothing was installed.	Section 11.11.5
“Setup will add this line to the end of *file*, so DVX starts when the computer starts: *line* The file as it is now is saved as *backup* first. Add the line?”	Setup asks before changing AUTOEXEC.BAT.	Section 11.11.7
“Show on form with no window”	A mistake in the program. Report it to its author.	Section 11.14.6
“Show on unknown form”	A mistake in the program. Report it to its author.	Section 11.14.6
“Signing in: the package server answered *number* (…).”	Signing in failed.	Section 11.11.19
“(some items could not be read)”	Part of the selection could not be read.	Section 11.12.10
“Sound device: *device*”	The sound hardware DVX is using, shown on the Sounds page.	Section 11.7.2
“Sound driver and MIDI changes take effect when DVX next starts.”	Restart DVX after changing these settings.	Section 11.7.2
“Sound is not installed.”	A part of DVX is missing. Repair DVX with Setup.	Section 11.7.2
“Sound Recorder cannot open *file*.”	The file cannot be opened; the reason follows.	Section 11.7.16
“Sound Recorder cannot play this recording.”	The recording cannot be played; the reason follows.	Section 11.7.16
“Sound Recorder cannot record.”	Recording could not start; the reason follows.	Section 11.7.16
“Sound Recorder cannot record from the MIDI keyboard.”	MIDI in is not the MIDI port, or another program reads it.	Section 11.7.16

Message	What it means	See
“Sound Recorder could not save *file*.”	The recording could not be saved there.	Section 11.7.16
“*file* starts DVX with the line *line* Remove that line? (The file as it is now is saved as AUTOEXEC.DVX first.)”	Setup offers to remove DVX’s line from AUTOEXEC.BAT.	Section 11.11.8
“Subscript out of range”	DVX BASIC error 9. A mistake in the program.	Section 11.14.5
“Swap disk full!”	Drive C: is full: the memory helper cannot move memory out to disk.	Section 11.2.6
“Tab width must be from 1 to 16.”	Page Setup cannot use the tab width.	Section 11.8.7
“Telnet and the secure link over the network need Networking, which is not installed. Setup can add it.”	The Networking part of DVX is not installed.	Section 11.10.6
“Text only works with any printer; choose your printer’s model to print pictures too.”	The Printer page’s reminder that Text only does not print pictures.	Section 11.8.4
“That address is not this computer’s”	A network message shown by a DVX BASIC program.	Section 11.9.10
“That group is full.”	A group holds 256 items.	Section 11.13.8
“That name could not be found (check the name and the network settings)”	A network message shown by a DVX BASIC program: a name lookup failed.	Section 11.9.10
“That name is a reserved device name.”	The name breaks the file name rules of the disk.	Section 11.12.2
“That name is reserved.”	The name breaks the file name rules of the disk.	Section 11.12.2
“That network cannot be reached (check the network settings)”	A network message shown by a DVX BASIC program.	Section 11.9.10
“That port is already in use”	A network message shown by a DVX BASIC program.	Section 11.9.10
“The address is not a valid address (like 192.168.1.10)”	The fixed address is missing or not valid.	Section 11.9.7
“The address is too long.”	Correct the package server’s address.	Section 11.11.16

Message	What it means	See
“The attributes of some items could not be changed.”	The disk cannot be written to, or an item is gone.	Section 11.12.10
“The capture file could not be opened.”	The capture file cannot be written.	Section 11.10.6
“The clipboard holds no files. Use Copy or Cut in a File Manager window first.”	Copy or cut files first.	Section 11.12.10
“The code ran too long without returning and was stopped”	A control’s code ran too long. Report it to the author.	Section 11.14.4
“The computer name may only use letters, digits and hyphens”	The Computer name has a character that is not allowed.	Section 11.9.7
“The connection could not be opened”	A network message shown by a DVX BASIC program.	Section 11.9.10
“The connection is closed for sending”	A network message shown by a DVX BASIC program.	Section 11.9.10
“The connection is still being made”	A network message shown by a DVX BASIC program.	Section 11.9.10
“The connection to *host* failed”	A network failure, such as too many connections.	Section 11.9.9
“The connection to *host* was lost”	The connection broke.	Section 11.9.9
“The connection was given up”	A network message shown by a DVX BASIC program.	Section 11.9.10
“The details are in *file*.”	Where the log file is, after “DVX stopped while starting”.	Section 11.2.7
“The disk in *drive* belongs to a different set of DVX disks. Please insert Disk *n* of *n* of this set and choose OK.”	A disk from another set of DVX disks is in the drive.	Section 11.11.4
“The disk in *drive* cannot be read. Please insert Disk *n* of *n* and choose OK.”	The floppy disk is damaged.	Section 11.11.4
“The disk is full.”	Make room, or use another disk.	Section 11.12.10
“The document could not be printed.”	The printout failed part way.	Section 11.8.3
“The download of *name* cannot be read.”	The download could not be kept.	Section 11.11.16
“The drive is not ready.”	The drive has no disk in it.	Section 11.12.10
“The DVX package ends too early (disk *n*).”	The CD or a floppy disk is damaged.	Section 11.11.5

Message	What it means	See
“The DVX package holds a name Setup does not accept: *name*”	The CD or a floppy disk is damaged.	Section 11.11.5
“The DVX package is damaged (disk *n*).”	The CD or a floppy disk is damaged.	Section 11.11.5
“The DVX package is incomplete: *n* of *n* files.”	The CD or the floppy disks are damaged or incomplete.	Section 11.11.5
“The DVX package uses a form Setup cannot read (disk *n*).”	The CD or a floppy disk is damaged.	Section 11.11.5
“The file could not be read”	The file is missing, or its disk cannot be read.	Section 11.7.14
“The file could not be written”	The disk is full or cannot be written to.	Section 11.7.14
“The file *file* in the DVX package is damaged (disk *n*).”	The CD or a floppy disk is damaged.	Section 11.11.5
“The file or folder was not found.”	It was removed, or the disk was changed.	Section 11.12.10
“The file types could not be saved: the disk may be full or write-protected.”	Control Panel could not save the File Types changes.	Section 11.12.9
“The files cannot be read. *reason*”	A file or folder of the package cannot be read.	Section 11.11.20
“The first page to print comes after the last one.”	The From page is after the To page.	Section 11.8.7
“The folder *folder* cannot be made. *reason*”	Your key’s folder cannot be made.	Section 11.11.20
“The folder *folder* cannot be made, or its drive is not ready.”	The destination folder cannot be made.	Section 11.12.10
“The folder *folder* cannot be read.”	The folder added to the Media Player cannot be read.	Section 11.7.17
“The folder does not exist.”	The folder or drive typed cannot be opened.	Section 11.12.1
“The folder *folder* is too long.”	The folder is too deep. Choose a shorter one.	Section 11.11.5
“The gateway is not a valid address (like 192.168.1.1)”	The gateway is not an address.	Section 11.9.7

Message	What it means	See
“The help compiler is not available, or no input or output file was given.”	Developer Tools is not installed.	Section 11.12.12
“The host did not answer the secure link”	The proxy did not answer within 30 seconds.	Section 11.10.5
“The host *name* was not found”	The computer’s name could not be found.	Section 11.9.8
“The id *id* is not vendor.name (each part 1 to 8 of a-z, 0-9, and _).”	The package was made wrongly. Tell its maker.	Section 11.11.11
“The image could not be saved.”	The screenshot could not be written to the disk.	Section 11.3.5
“The instrument bank for MIDI music is missing or damaged”	The instruments for MIDI music cannot be found.	Section 11.7.12
“The key cannot be made. *reason*”	Your key could not be made.	Section 11.11.20
“The key cannot be trusted: *reason*”	The key file cannot be used; the reason says why.	Section 11.11.18
“The key’s id is not its public key’s.”	The key file is damaged or was changed.	Section 11.11.18
“The left and right margins leave less than 10 characters for text.”	Page Setup’s margins are too large.	Section 11.8.7
“The licence of the font *family* cannot be read. The log file says why.”	The font’s file cannot be read. Install the font again.	Section 11.12.13
“The line is busy”	The number was busy at the last try.	Section 11.10.4
“The line is busy: dialing again in *n* seconds”	The number was busy; Terminal dials again.	Section 11.10.4
“The manifest has no format number: it is not a DVX package manifest.”	The file is not a proper DVX package.	Section 11.11.11
“The manifest needs an id, a name, a version, and a kind.”	The file is not a proper DVX package.	Section 11.11.11
“The manifest of *file* cannot be read: it is damaged.”	The package is damaged, the disk is full, or memory is short.	Section 11.11.11
“The message is too long”	A network message shown by a DVX BASIC program.	Section 11.9.10

Message	What it means	See
“The modem on COM*n* did not answer”	The modem did not answer its setup command.	Section 11.10.4
“The modem refused the dial command”	The modem answered ERROR to the dial command.	Section 11.10.4
“The modem refused the setup command *command*”	The modem answered ERROR to the setup command.	Section 11.10.4
“The music file is damaged or incomplete”	The music file is damaged.	Section 11.7.14
“The music string has a mistake in it”	A tune given to a program as text has a mistake.	Section 11.7.14
“The name could not be looked up”	A network message shown by a DVX BASIC program.	Section 11.9.10
“The name is too long for this folder.”	The name breaks the file name rules of the disk.	Section 11.12.2
“The name server did not answer in time”	A network message shown by a DVX BASIC program.	Section 11.9.10
“The network is not running”	A network message shown by a DVX BASIC program.	Section 11.9.10
“The network operation failed”	A network message shown by a DVX BASIC program.	Section 11.9.10
“The old mode comes back in *n* seconds.”	The new screen mode is undone unless you click Keep.	Section 11.3.3
“The oldest DVX must be a version such as *version*, or left empty.”	The oldest DVX is not a version number.	Section 11.11.20
“The other computer broke off the connection”	A network message shown by a DVX BASIC program.	Section 11.9.10
“The other computer did not answer in time”	A network message shown by a DVX BASIC program.	Section 11.9.10
“The other computer refused the connection”	A network message shown by a DVX BASIC program.	Section 11.9.10
“The package cannot be built. *reason*”	The package cannot be built; the reason says why.	Section 11.11.20
“The package cannot be built: *file* cannot be written.”	The disk is full or cannot be written to.	Section 11.11.20

Message	What it means	See
“The package depends on itself.”	The package was made wrongly. Tell its maker.	Section 11.11.11
“The package holds no files.”	The package was made wrongly. Tell its maker.	Section 11.11.11
“The package is built: *file*”	The package was built.	Section 11.11.20
“The package: it is damaged.”	The package is damaged.	Section 11.11.14
“The package name must be two parts with a dot between them, such as acme.chess: who made it, then what it is, each 1 to 8 lower-case letters, digits, or _.”	The package name is not in the form maker.name.	Section 11.11.20
“*file*: the package server answered *number* (*message*).”	The server refused the package; its message says why.	Section 11.11.19
“*what*: the package server answered *number*.”	The server reported a problem.	Section 11.11.16
“The package server cannot be reached: *reason*”	Software could not read the package server; the reason says why.	Section 11.11.16
“The package server cannot be reached: Cannot find *name* on the network.”	The package server’s name could not be found.	Section 11.9.8
“The package server cannot be saved in DVX’s settings.”	DVX.INI cannot be written.	Section 11.11.17
“The package server could not be reached.”	Software could not read the package server.	Section 11.11.16
“The package server does not know that email and password.”	Check your email and password.	Section 11.11.19
“The package server gave no session when signing in.”	Signing in failed. Try later.	Section 11.11.19
“The package server needs DVX’s Networking part. To add it, run Setup from DVX’s CD or Disk 1 and choose Upgrade or repair.”	The Networking part of DVX is not installed.	Section 11.11.10
“The package server’s address is too long.”	Correct the package server’s address.	Section 11.11.16
“The package server’s answer cannot be read: *reason*”	The address is not a DVX package server.	Section 11.11.16

Message	What it means	See
“The package server’s answer has no list of packages.”	The address is not a DVX package server.	Section 11.11.16
“The package server’s list of your packages cannot be read.”	The address is not a DVX package server.	Section 11.11.16
“The packet driver interrupt must be between 0x60 and 0x80”	The packet driver interrupt in DVX.INI is outside 60h to 80h.	Section 11.9.7
“The page setup could not be saved.”	DVX.INI could not be written.	Section 11.8.7
“The passphrase does not match the host’s”	The two passphrases differ.	Section 11.10.5
“The path *file* is too long.”	AUTOEXEC.BAT could not be changed.	Section 11.11.7
“The path is too long.”	The folder and name together are too long.	Section 11.12.1
“The path of *file* is too long.”	The folder is too deep. Choose a shorter one.	Section 11.11.5
“The path of the KEYS folder is too long.”	The path of the USER folder is too long.	Section 11.11.18
“The phone book *file* cannot be read. Terminal goes on, but does not save changes to the phone book, so the sessions in the file are not lost.”	Terminal’s settings file is damaged or its disk failed.	Section 11.10.6
“The phone book is full. Delete an entry first.”	The phone book holds 32 sessions.	Section 11.10.6
“The picture could not be printed.”	The printout failed part way.	Section 11.8.3
“The port *port* cannot be opened. Another program may be using it.”	Another program is using the serial port.	Section 11.8.3
“The port could not be opened”	A network message shown by a DVX BASIC program.	Section 11.9.10
“The port is a number from 1 to 65535, or empty for the usual one.”	Correct the package server’s port.	Section 11.11.17
“The printer driver for *model* is missing, so DVX cannot print on that printer. To put it back, run Setup and choose Upgrade or repair DVX.”	The PostScript printer driver file is missing. Repair DVX with Setup.	Section 11.8.5
“The printer driver is missing”	The PostScript printer driver file is missing (a DVX BASIC program).	Section 11.8.8

Message	What it means	See
“The printer model chosen in the Control Panel prints text only. To print pictures, choose your printer’s model on the Control Panel’s Printer page.”	The printer model is Text only. Choose your printer’s model.	Section 11.8.4
“The printer model chosen in the Control Panel prints text only. To print with the Printer object, choose your printer’s model on the Control Panel’s Printer page.”	The printer model is Text only. Choose your printer’s model.	Section 11.8.8
“The Printer object needs the printing library (print.lib).”	A part of DVX is missing. Repair DVX with Setup.	Section 11.8.8
“The printer on *port* is not responding. Check that it is switched on and connected, then choose Retry.”	The printer took nothing for 10 seconds.	Section 11.8.2
“The printer on *port* is off line or switched off. Switch it on and put it on line, then choose Retry.”	The printer is off, off line, or not connected.	Section 11.8.2
“The printer on *port* is out of paper. Load paper, then choose Retry.”	Load paper, then click Retry.	Section 11.8.2
“The printer on *port* reports an error. Check that it is switched on, connected and has paper, then choose Retry.”	The printer signals a fault.	Section 11.8.2
“The printer prints text only”	The printer model is Text only. Choose your printer’s model.	Section 11.8.8
“The receiver did not start”	The other side never started receiving.	Section 11.10.7
“The receiver ended the transfer”	The other side stopped the transfer.	Section 11.10.7
“The recording could not all be written.”	The disk filled up during the recording.	Section 11.7.16
“The recording could not be written.”	The MIDI recording could not be saved; the disk is full or cannot be written to.	Section 11.7.16
“The reply is too big to keep in memory: save it to a file.”	The server’s answer is not usable.	Section 11.11.16
“The screen mode could not be saved. Change it in the Control Panel instead.”	DVX.INI could not be written.	Section 11.3.2

Message	What it means	See
“The screen mode DVX is set to use (*width* x*height*, *bits*-bit color) does not work on this computer, so DVX started in safe video mode (*width*x*height*, *bits*-bit color). Use this mode from now on?”	The saved screen mode does not work, so DVX started in safe video mode.	Section 11.3.2
“The secure link cannot use XON/XOFF flow control: choose None or RTS/CTS”	The session is set to XON/XOFF, which the secure link cannot use.	Section 11.10.5
“The secure link could not be set up”	The secure link failed to start.	Section 11.10.5
“The secure link was lost”	The other side stopped answering.	Section 11.10.5
“The sender did not start”	The other side never started sending.	Section 11.10.7
“The sender stopped”	A ZMODEM batch stopped early.	Section 11.10.7
“The server sent a chunk of the reply in a form HTTP does not have.”	The server’s answer is not usable.	Section 11.11.16
“The server’s reply has a head too long to read.”	The server’s answer is not usable.	Section 11.11.16
“The settings could not be saved: the disk may be full or write-protected. Control Panel stays open: click its OK to try again, or Cancel to undo the changes.”	Control Panel could not write DVX.INI.	Section 11.12.9
“The signature of *file* cannot be read.”	The package’s signature is damaged.	Section 11.11.11
“The Software program can reinstall or remove an add-on.”	The end of the Add-ons box: use Software to fix the add-ons listed.	Section 11.2.9
“The sound device cannot record from that input”	The sound card has no such input.	Section 11.7.14
“The sound file is damaged or incomplete”	The sound file is damaged.	Section 11.7.14
“The subnet mask is not valid (like 255.255.255.0)”	The subnet mask is missing or not valid.	Section 11.9.7
“The synthesizer or sound device is being used by another program (or is recording)”	Another program, or a recording, has the sound card.	Section 11.7.14
“The System font is DVX’s own: it comes with DVX, under DVX’s licence.”	The System font’s licence.	Section 11.12.13
“The top and bottom margins leave no room for text.”	Page Setup’s margins are too large.	Section 11.8.7

Message	What it means	See
“The version must be numbers with dots between them, such as 1.0.0.”	The version is not in the form 1.0.0.	Section 11.11.20
“Theme file name is too long.”	Choose a shorter name for the theme.	Section 11.3.6
“There are no music or sound files in *folder*.”	The folder has no files the Media Player plays.	Section 11.7.17
“There are no other installed packages to choose from: a package can need only packages installed in this DVX.”	A package can need only installed packages.	Section 11.11.20
“There is no *file* yet. Setup will make one with this line, so DVX starts when the computer starts: *line* Add the line?”	Setup asks before making AUTOEXEC.BAT.	Section 11.11.7
“There is no other group. Make one with File > New Group first.”	Make another group first.	Section 11.13.8
“There is no room for another group: Program Manager holds up to 64 groups of your own. Delete a group to make room for a new one.”	You have 64 groups already. Delete one first.	Section 11.13.8
“there is no serial port there”	The reason a COM port could not be opened: it does not exist.	Section 11.10.2
“There is no such synthesizer”	No FM chip was found, or MIDI in is not the MIDI port.	Section 11.7.14
“There is not enough free space for DVX on that disk. DVX needs about *n* bytes; *n* bytes are free.”	The disk is too full for what you chose.	Section 11.11.3
“There is not enough memory.”	Memory is short. Close programs.	Section 11.11.14
“… There is not enough memory for the picture.”	Memory ran out. Close programs.	Section 11.14.6
“There is not enough memory for the picture.”	Memory ran out. Close programs.	Section 11.14.6
“There is not enough memory for the Printer.”	Memory is short. Close programs.	Section 11.8.8
“There is not enough memory for the Printer’s page.”	Memory is short. Close programs.	Section 11.8.8

Message	What it means	See
“There is not enough memory to change *file*.”	AUTOEXEC.BAT could not be changed.	Section 11.11.7
“There is not enough memory to install the add-ons.”	Free memory and run Setup again.	Section 11.11.6
“There is not enough memory to remove the parts left out.”	Free memory and run Setup again.	Section 11.11.6
“There is not enough memory to run Setup.”	Free memory and run Setup again.	Section 11.11.1
“There is not enough memory to start Package Builder.”	Memory is short. Close programs.	Section 11.11.20
“There is not enough memory to start Software.”	Memory is short. Close programs.	Section 11.11.10
“There is not enough room on the disk: it needs *n* bytes and *n* are free. Make room on the disk, then install again.”	Install is off until there is room.	Section 11.11.12
“There is not enough room on the disk: *name* needs *n* KB and *n* KB are free.”	Free space on the drive DVX is on.	Section 11.11.14
“There is not enough synthesizer memory”	The wavetable card’s memory is full.	Section 11.7.14
“There is nothing random enough to make a key from.”	Your key could not be made.	Section 11.11.20
“These add-ons stop working with the new DVX until they are updated: *names*.”	Update these add-ons too, or keep your DVX.	Section 11.11.12
“These files changed since they were installed, so they were left: … Delete them too?”	Files you changed are kept unless you say so.	Section 11.11.15
“These files could not be deleted, so they were left: … A program may be using them, or the disk may be write-protected.”	Some files could not be deleted.	Section 11.11.15
“These files in *folder* changed since they were installed, so Setup left them:”	Files you changed are kept unless you say so.	Section 11.11.6
“These files in *folder* could not be deleted, so Setup left them:”	Some files could not be deleted.	Section 11.11.6
“These need *name* and are removed with it: … Remove them all?”	Other packages need the one you remove.	Section 11.11.15

Message	What it means	See
“These were installed for *name* and nothing else needs them: … Remove them too?”	Packages that came with it can go too.	Section 11.11.15
“This array is fixed or temporarily locked”	DVX BASIC error 10. A mistake in the program.	Section 11.14.5
“This computer has no port *port*.”	The printer port chosen does not exist.	Section 11.8.3
“This computer’s sound card cannot record.”	There is no sound card that can record.	Section 11.7.16
“This is not a [key] file (or it lacks part of one).”	The file chosen is not a publisher’s key.	Section 11.11.18
“This is not Disk *n*. Please insert Disk *n* of *n* in *drive* and choose OK.”	The wrong disk of the set is in the drive.	Section 11.11.4
“This key is already associated with an element of this collection”	DVX BASIC error 457. A mistake in the program.	Section 11.14.5
“This *kind* package may not put a file at *place*.”	A file is not allowed where it goes.	Section 11.11.20
“This package needs a newer DVX (its manifest is format *n*).”	Update DVX before installing this package.	Section 11.11.11
“This program was built for a different version of DVX and cannot run.”	The program is for another version of DVX.	Section 11.13.1
“To install or upgrade DVX, run SETUP from its CD or Disk 1.”	This copy of Setup can only remove DVX.	Section 11.11.1
“To print the report, choose your printer’s model on the Control Panel’s Printer page.”	The BASIC Demo needs a printer model that prints pictures.	Section 11.8.8
“To publish a package, give your account on the package server in File > Package Server first.”	Set your account in File > Package Server first.	Section 11.11.19
“Too many arguments”	A mistake in the program. Report it to its author.	Section 11.14.6
“Too many arguments in external call”	DVX BASIC error 5. A value given to a command is not allowed: a mistake in the program, or in what you typed.	Section 11.14.5

Message	What it means	See
“Too many connections are open”	A network message shown by a DVX BASIC program.	Section 11.9.10
“Too many errors”	A transfer block failed 10 times.	Section 11.10.7
“Too many files”	DVX BASIC error 67. Too many files are open at once.	Section 11.14.5
“Too many files open”	DVX BASIC error 67. Too many files are open at once.	Section 11.14.5
“Too many sounds are playing”	The most sounds DVX mixes at once are already playing.	Section 11.7.14
“Transfer complete”	The transfer worked.	Section 11.10.7
“Transfer complete (the end was not confirmed)”	The file should be complete.	Section 11.10.7
“Two versions of *name* are asked for.”	The packages are badly made.	Section 11.11.13
“Type mismatch”	DVX BASIC error 13. A mistake in the program, or in what you typed.	Section 11.14.5
“Type the folder to install DVX in.”	Setup’s folder box is empty.	Section 11.11.2
“Type the name of the file to print to.”	Printing to a file needs a file name.	Section 11.8.6
“Type the name of the file to print to, or connect the printer to a port.”	Printing to a file needs a file name.	Section 11.8.6
“Type the program or document this item opens.”	The Program box is empty.	Section 11.13.8
“Type the program that opens this type.”	The program box is empty.	Section 11.13.1
“Type the whole path of the folder, starting with the drive, for example C:\DVX.”	The folder must start with a drive letter.	Section 11.11.2
“unable to open database file (*reason*)”	The database file or its folder is missing.	Section 11.12.15
“Unknown error”	A sound or music error with no description.	Section 11.7.14
“Unknown form property”	A mistake in the program. Report it to its author.	Section 11.14.6
“Unknown menu property”	A mistake in the program. Report it to its author.	Section 11.14.6

Message	What it means	See
“Unknown Picture property”	A mistake in the program. Report it to its author.	Section 11.14.6
“Unknown Screen method”	A mistake in the program. Report it to its author.	Section 11.14.6
“Unknown Screen property”	A mistake in the program. Report it to its author.	Section 11.14.6
“Unknown shortcut key”	A mistake in the program. Report it to its author.	Section 11.14.6
“Unknown widget type in form”	A mistake in the program. Report it to its author.	Section 11.14.6
“Unsaved changes. Open another file?”	The Icon Editor warns before losing changes.	Section 11.12.12
“Unsaved changes. Start new icon?”	The Icon Editor warns before losing changes.	Section 11.12.12
“Unsaved changes will be lost. Change size?”	The Icon Editor warns before losing changes.	Section 11.12.12
“Unsupported sound format (only uncompressed 8- and 16-bit sound can be played)”	The sound file is compressed or in an unusual form.	Section 11.7.14
“*n* updates are ready to install.”	Normal: updates are waiting.	Section 11.11.16
“User interrupt occurred”	DVX BASIC error 18. The code was stopped for running too long.	Section 11.14.5
“UserControl has no such method”	A mistake in the program. Report it to its author.	Section 11.14.6
“UserControl has no such property”	A mistake in the program. Report it to its author.	Section 11.14.6
“UserControl property cannot be set”	A mistake in the program. Report it to its author.	Section 11.14.6
“User-defined error”	A DVX BASIC error number with no text of its own. Ask the program’s author.	Section 11.14.5
“VBE: Could not use mode 0x*number* (*width*x*height* at *bits* bpp)”	The video card refused the screen mode.	Section 11.2.2
“VBE: Failed to allocate *n* byte backbuffer”	Not enough memory for the screen mode.	Section 11.2.2

Message	What it means	See
“VBE: Failed to allocate palette”	Not enough memory for the screen mode.	Section 11.2.2
“VBE: No suitable mode found for *width* x*height* (VBE *version*)”	The video card has no mode as large as the one DVX asked for.	Section 11.2.2
“VBE: No VESA BIOS extension (VBE) found”	The video card has no VESA BIOS, or its VESA driver is not loaded.	Section 11.2.2
“Waiting for a DHCP server”	The network has no address yet.	Section 11.9.5
“Warning: cannot open swap file c:\cwsdpmi.swp”	The memory helper cannot make its swap file on drive C:.	Section 11.2.6
“*file* was copied but cannot be removed.”	A move could not delete the original.	Section 11.12.10
“*name* was damaged on the way. Try again.”	The download arrived damaged. Try again.	Section 11.11.16
“*name* was made for a different version of DVX.”	Get the version made for this DVX.	Section 11.11.13
“*file* was not loaded: *reason*.”	An add-on’s library or widget was left out at start.	Section 11.2.9
“Wrong number of arguments or invalid property assignment”	DVX BASIC error 450. A mistake in the program.	Section 11.14.5
“You are connected. Disconnect and close?”	Closing Terminal would end the connection.	Section 11.10.6
“Your changes cannot be saved to disk, so they last only until you exit DVX. To keep them, set DVXUSER to a folder DVX can write to before starting DVX.”	Nothing can be saved: a change lasts only until you exit DVX.	Section 11.12.6
“Your key is made. Give *file* to the people who install your packages: it tells DVX that they are yours. Keep *file* private: anyone who has it can sign packages as you.”	Keep your secret key file safe.	Section 11.11.20
“Your old settings and saved files in *folder* could not all be removed.”	Setup could not delete all of the USER folder.	Section 11.11.7

Appendix A: Keyboard Shortcuts

This appendix gathers the keyboard shortcuts from the rest of this guide in one place. Each table is the same one you find in the section it comes from, which tells you more about the keys.

A.1. Keys that work in every program

These keys work whichever program is in front. See Section 5.9.

Key	What it does
`Alt` + `Tab`	Switch to the next window: the active window goes to the back. Minimized windows are skipped. Does nothing while a dialog box is open.
`Shift` + `Alt` + `Tab`	Switch the other way: the window at the back comes to the front.
`Alt` + `F4`	Close the active window. While a dialog box is open, close only the dialog box.
`Ctrl` + `Esc`	Open the Task Manager, or bring it to the front (see Section 5.10).
`F1`	Open help for the program you are using (see Section 5.11).
`F10`	Open the first menu of the active window, or close the open menu.
`Alt` + `Space`	Open or close the window menu of the active window.
`Alt` + a letter	Open the menu whose underlined letter you typed; otherwise move to, or press, the control with that underlined letter.
`Tab`, `Shift` + `Tab`	Move to the next or previous control.
`Enter`	Press the highlighted button, or the main button of a dialog box or of a window that has one (such as Control Panel's **[OK]**).
`Esc`	Close a menu or a drop-down list, or press **[Cancel]** in a dialog box or a window that has one (such as Control Panel).
`Ctrl` + `F12`	Save a picture of the whole screen (see Section 5.8).
`Ctrl` + `Shift` + `F12`	Save a picture of the inside of the active window.
Shortcut keys of Program Manager items	Start that item, whichever window is in front (see Section 6.4.4).

A.2. Menus

See Section 5.4.2.

Key	What it does
`Up`, `Down`	Move the highlight to the previous or next command. The highlight wraps around from the bottom to the top and skips the lines between groups.
`Right`	Opens the submenu of the highlighted command; otherwise opens the next menu on the menu bar.
`Left`	Closes the open submenu; otherwise opens the previous menu on the menu bar.
`Enter`	Chooses the highlighted command, or opens its submenu. With nothing highlighted, closes the menu.
A letter	Chooses the command with that underlined letter (you do not need `Alt` in an open menu). If no command has that letter, opens the menu on the menu bar that has it.
`Esc`	Closes the open submenu, or the menu.

A.3. Typing and editing text

These keys work in every box you type in. See Section 5.5.3.4.

Key	What it does
`Left`, `Right`	Move one character.
`Ctrl` + `Left`, `Ctrl` + `Right`	Move one word.
`Home`, `End`	Go to the start or end of the line.
`Up`, `Down`	In a box of several lines: move one line.
`Page Up`, `Page Down`	In a box of several lines: move one boxful of lines.
`Ctrl` + `Home`, `Ctrl` + `End`	In a box of several lines: go to the start or end of the text.
`Shift` with a moving key	Select text as you move.
`Backspace`	Delete the character before the cursor, or the selected text.
`Del`	Delete the character at the cursor, or the selected text.
`Enter`	In a box of several lines: start a new line.
`Ctrl` + `A`	Select all the text.
`Ctrl` + `X`, `Ctrl` + `C`, `Ctrl` + `V`	Cut, copy, and paste (see Section 5.7).
`Ctrl` + `Z`	Undo the last change. Press it again to redo the change. Only the last change can be undone.

A.4. Cut, copy, and paste

See Section 5.7.

Key	Command	What it does
`Ctrl` + `X`	Cut	Removes the selected text and puts it on the clipboard.
`Ctrl` + `C`	Copy	Puts a copy of the selected text on the clipboard.
`Ctrl` + `V`	Paste	Puts the clipboard's text where the cursor is. If text is selected, the pasted text replaces it.

A.5. Program Manager

See Section 6.11.

Key	What it does
`Tab`, `Shift` + `Tab`	Move between the Groups list, the Search box, and the icon area.
`Alt` + `G`	Go to the Groups list.
`Alt` + `S`	Go to the Search box.
Arrow keys, `Home`, `End`, `Page Up`, `Page Down`	Move between the icons.
A letter or digit	Go to the next icon whose name starts with it (in the icon area).
`Enter`	Start the selected item (in the icon area).
`Del`	Delete the selected item (in the icon area).
`F2`	Rename the selected item (in the icon area).
`Alt` + `Enter`	Properties of the selected item.
`F5`	Look for programs that were installed or removed.
`F7`	Move the selected item to another group.
`F8`	Copy the selected item to a group.
`F1`	Open Program Manager's help.
`Ctrl` + `Esc`	Open the Task Manager.

A.6. Control Panel

See Section 7.2.1.

Key	What it does
`F1`	Opens Control Panel's help.
`Alt` + `H`	Opens the **Help** menu.
`Tab`	Moves to the next setting or button. `Space` or `Enter` presses the button that is highlighted.
`Enter`	Presses **[OK]**, as in a dialog box (see Section 5.5.1), when no button is highlighted. On a list, such as the list of video modes, it presses **[OK]** too: to use the item, double-click it or click its button.
`Esc`	Presses **[Cancel]**.
`Left` and `Right`	When the row of tabs is highlighted: shows the page of the previous or next tab (after the last tab comes the first).
`Home` and `End`	When the row of tabs is highlighted: shows the first or last page.

A.7. File Manager

See Section 8.3.11.

Key	What it does
`Enter`	In the file list, opens the highlighted item. In the **Path** box, goes to the folder typed there.
`Backspace`	Goes up one folder (in the file list or the folder tree).
`Del`	Deletes the selection (in the file list or the folder tree).
`F2`	Rename.
`F5`	Refresh.
`F7`	Move To.
`F8`	Copy To.
`Alt` + `Enter`	Properties.
`Ctrl` + `A`, `Ctrl` + `C`, `Ctrl` + `X`, `Ctrl` + `V`	Select all, copy, cut, and paste files, when the file list has the focus.
`Space`	Selects or unselects the highlighted item.
`Shift` with an arrow key	Selects as you move.
Letters	Typed quickly, one after another, jump to the item whose name starts with them; the same letter again jumps to the next item starting with it (see Section 5.5.3.6).

Key	What it does
`F1`	Help.

A.8. Notepad

See Section 8.4.3.

Key or action	What it does
Arrow keys	Move one character or one line.
`Ctrl` + `Left`, `Ctrl` + `Right`	Move one word.
`Home`, `End`	Move to the start or end of the line.
`Page Up`, `Page Down`	Move one screenful.
`Ctrl` + `Home`, `Ctrl` + `End`	Move to the start or end of the text.
`Shift` with any of these keys, or drag with the mouse	Select text.
Double-click, triple-click	Select a word, or a whole line.
`Ctrl` + `A`	Select all the text.
`Ctrl` + `X`, `Ctrl` + `C`, `Ctrl` + `V`	Cut, copy, and paste.
`Ctrl` + `Z`	Undo the last change. Press it again to redo the change.
`Tab`	Put a tab in the text.
Mouse wheel, scroll bars	Move through a long text.
`F1`	Help.

A.9. Terminal

See Section 9.3.3.

Key	What it does
`F1`	Opens Terminal's help.
`Alt` + `F`	Opens the **File** menu.
`Alt` + `E`	Opens the **Edit** menu.
`Alt` + `S`	Opens the **Settings** menu.
`Alt` + `T`	Opens the **Transfer** menu.
`Alt` + `H`	Opens the **Help** menu.

Key	What it does
`Ctrl` + `C`	With text selected on the screen, copies it. Without a selection, it is sent to the other computer.
`Ctrl` + `V`	Sends the text on the clipboard to the other computer.
`Shift` + `PgUp`, `Shift` + `PgDn`	Pages back and forward through the scrollback.
`Enter`	In the **Phone Book**, **Session Settings**, **Secure Link Passphrase**, and **Transfer Options** dialog boxes, presses the default button (**[Connect]** or **[OK]**).
`Esc`	In the same dialog boxes, presses **[Cancel]**. While a file transfer runs, in the **File Transfer** window or in the Terminal window, cancels the transfer; after the transfer, in the **File Transfer** window, closes it.

A.10. Other programs

These programs list their keys beside their menus:

- Media Player: Section 8.7.8
- Sound Recorder: Section 8.8.6
- DVX Help: Section 8.9.7
- Image Viewer: Section 8.6.4
- Dialog boxes and the controls in them: Section 5.5
- Moving and sizing a window with the keyboard: Section 5.3.9.1

Appendix B: DVX Folders and Settings Files

This appendix describes the folders DVX is installed in, the files in which DVX and its programs keep their settings, and DVX's log file. You do not need it to use DVX: Control Panel (see Chapter 7) and each program's own menus change almost every setting. Read it when you want to back up your settings, keep them somewhere else, change a setting that Control Panel does not offer, go back to the settings DVX came with, or send the log with a problem report.

In this appendix, `C:\DVX` stands for the folder you installed DVX in. If you chose another folder in Setup, use that one instead.

B.1. The DVX folders

DVX keeps its own files and yours apart. Everything that comes with DVX is in the DVX folder and the folders inside it. Everything that changes while you use DVX, such as your settings, your own fonts and pictures, and the files programs save, is in one folder: the USER folder. To back up everything you have set up, you copy that one folder.

B.1.1. The DVX folder

The DVX folder holds these files and folders:

File or folder	What it holds
`DVX.EXE`	DVX itself. This is what you run to start DVX.
`SETUP.EXE`	A copy of Setup, which can remove DVX (see Section 3.9).
`SETUP.LST`	Setup's list of the files it installed. Setup uses it to recognise a folder that holds DVX and to remove DVX. Do not delete it.
`SYSTEM`	The copies of `DVX.INI` and `ASSOC.INI` that come with DVX: DVX makes your own `DVX.INI` from the first, and adds your file type changes to the second (see Section B.2 and Section B.3). DVX's tools for the DOS prompt: `DVXPKG.EXE` (packages), and, with the optional parts that include them, `BASCOMP.EXE` (DVX BASIC), `DVXRES.EXE`, and `DVXHLPC.EXE` (Developer Tools); see Section 8.13. The `KEYS` folder, with the key that proves a package comes from DVX's own publisher (see Section 10.8). The `PACKAGES` folder, with a record of every package that is installed and the files it put there. The picture DVX shows while it starts, `SPLASH.RAW`.

File or folder	What it holds
LIBS	The libraries: parts of DVX that programs share, such as sound, printing, and networking. DVX's own are in LIBS\KPUNCH; those an add-on installs are in a folder named after its publisher.
WIDGETS	The controls that windows are made of, such as buttons, lists, and text boxes. DVX's own are in WIDGETS\KPUNCH; those an add-on installs are in a folder named after its publisher.
APPS	The programs, each in its own folder with its help file and the files it needs. DVX's own are in APPS\KPUNCH, for example Notepad in APPS\KPUNCH\NOTEPAD.
SHARED	Files that every program can use, in one folder for each kind (see the next table). Only packages put files here: DVX's own files, and those of the add-ons you install.
USER	Your settings and files (see Section B.1.2). It may be somewhere else if you set DVXUSER (see Section B.1.3).

The folders inside SHARED are:

Folder	What it holds
FONTS	Fonts (files ending in .DFN).
SOUNDS	Sounds (WAV and VOC files) for the events on Control Panel's Sounds page. DVX comes with beep.wav, error.wav, exit.wav, info.wav, question.wav, startup.wav, warning.wav, winclose.wav, and winopen.wav.
THEMES	Color themes (files ending in .THM). DVX comes with cde.thm, geos.thm, hotdog.thm, and win31.thm.
WPAPER	Desktop pictures (wallpaper). DVX comes with blueglow.jpg, swoop.jpg, and triangle.jpg.
BANKS	Instrument banks (OP2 files) and SoundFonts (SF2 and SBK files) for MIDI music. DVX comes with the banks DMXOPL.OP2 and DMXOPL3.OP2.
SAVERS	Screen savers. DVX comes with blank.app (Blank Screen), marquee.app (Marquee), mystify.app (Mystify), and starfld.app (Starfield).

Files that an add-on installs in these folders go in a folder named after the add-on's publisher, for example SHARED\BANKS\KPUNCH. A setting can name such a file as the publisher's folder and the file name, for example KPUNCH\DVXGM.SF2.

The folders other than USER are DVX itself. They change when you install, upgrade, or remove DVX or an add-on, and DVX brings the help files in APPS up to date after libraries or controls are added or removed (see Section B.2.18). An upgrade writes every one of DVX's files again, so do not change DVX's own files, and put your own fonts, sounds, themes, pictures, instrument banks, and

screen savers in the USER folder instead.

B.1.2. The USER folder

The USER folder is `C:\DVX\USER`, unless you set DVXUSER to name another folder (see Section B.1.3). DVX makes it when it is missing. It holds:

File or folder	What it holds
`DVX.INI`	Your DVX settings: the screen mode, the mouse, the colors, the wallpaper, the network, the printer, the sounds, and more. See Section B.2.
`ASSOC.INI`	Your changes to which program opens each kind of file. It is there only after you have changed a file type. See Section B.3.
`DVX.LOG`	The log file: a record of what DVX did since it last started. See Section B.6.
`PROGRAMS.CAC`	DVX's memory of each program's name, description, and icon, so that it need not read every program again at each start. See Section B.4.2.
`SECLINK.RND`	A store of random numbers that secure connections use, kept from one session to the next.
`APPS`	A folder for each program that keeps settings or files, such as Program Manager's groups and Terminal's phone book. See Section B.4.
`DOWNLOAD`	Packages that Software is fetching from the package server, and the files Terminal receives, unless you choose another download folder in Terminal. Software and Terminal make the folder when they need it.
`KEYS`	The keys of the publishers you chose to trust, and your own keys made in Package Builder. See Section B.4.7.
`FONTS`, `SOUNDS`, `THEMES`, `WPAPER`, `BANKS`, `SAVERS`	Your own files of each kind (see below).

You may also see temporary files in it for a moment; see Section B.4.10.

Your own fonts, sounds, themes, pictures, banks, and screen savers

To use your own files of these kinds, copy them into a folder of the same name in your USER folder. Make the folder first if it is not there; only `THEMES` is made for you, the first time you save a theme in Control Panel. DVX looks in your folder first and then in `SHARED`, and Control Panel's lists show the files of both.

Folder in USER	Put in it	Where you choose them
FONTS	Fonts (.DFN files). A font of yours with the same family and style as one DVX has is used instead of DVX's.	Every program that lets you choose a font.
SOUNDS	WAV and VOC sounds.	Control Panel, Sounds page (Section 7.12).
THEMES	Color themes (.THM files).	Control Panel, Colors page (Section 7.5). **[Save As...]** there saves into this folder.
WPAPER	Pictures (BMP, JPEG, PNG, and GIF).	Control Panel, Desktop page (Section 7.6).
BANKS	Instrument banks (.OP2) and SoundFonts (.SF2 and .SBK).	Control Panel, Sounds page, **Instruments** and **SoundFont** (Section 7.12).
SAVERS	Screen savers.	Control Panel, Desktop page, **Screen saver** (Section 7.6).

B.1.3. Keeping the USER folder somewhere else: DVXUSER

DVX normally uses the USER folder inside the DVX folder. To keep your settings and files somewhere else, for example on another disk, or in a separate folder for each person who uses the computer, set the DOS setting DVXUSER to that folder before you start DVX. Put a line like this in AUTOEXEC.BAT:

```
SET DVXUSER=D:\MYDVX
```

- DVX uses the folder exactly as you typed it. A folder typed with neither a drive nor a leading backslash is taken from the DVX folder: SET DVXUSER=ANNA means C:\DVX\ANNA.
- DVX makes the folder, and any folders above it, when they are missing. The first time, it puts a fresh DVX.INI in it (see Section B.2.1).
- Setup uses DVXUSER too. When it is set, Setup puts a new installation's settings there instead of in C:\DVX\USER; and when you ask Setup to remove your settings (when you remove DVX, or upgrade with **Start over**), it removes that folder, but only if it holds a DVX.INI.
- If the folder cannot be made or written, DVX does what it does on a disk it cannot write to (see Section B.1.4).

To give each person their own settings, make a small batch file for each one instead of setting DVXUSER in AUTOEXEC.BAT. For example, ANNA.BAT:

```
@ECHO OFF
SET DVXUSER=C:\DVXUSERS\ANNA
C:\DVX\DVX.EXE
```

Each person then starts DVX with their own batch file and gets their own settings, Program Manager groups, log file, and saved files.

B.1.4. Running DVX from a disk it cannot write to

A copy of an installed DVX folder can be run from a disk that DVX cannot write to, such as a CD-ROM you made or a write-protected disk. (The DVX CD itself cannot be run; it holds only Setup and the files it installs.) DVX then cannot use its USER folder:

- If there is a TEMP folder, DVX keeps your settings and files in a folder named `DVXUSER` inside it, for example `C:\TEMP\DVXUSER`, and says once, after the desktop appears: “DVX is running from a disk it cannot write to, such as a CD-ROM, so your settings are kept in the TEMP folder. To keep them somewhere else, set DVXUSER to a folder on your hard disk before starting DVX.” The TEMP folder is the one the DOS setting TEMP names (for example `SET TEMP=C:\TEMP` in `AUTOEXEC.BAT`), or TMP when TEMP is not set. The first time (when there is no `DVX.INI` in `TEMP\DVXUSER` yet), DVX copies there every file of the USER folder on that disk except its `DVX.LOG`: `DVX.INI`, the file types (`ASSOC.INI`), each program’s settings in `USER\APPS`, such as Program Manager’s groups, and your own files, such as fonts, themes, sounds, and wallpapers. So DVX starts with the same settings and files as it does without a TEMP folder. Without a `DVX.INI` in that USER folder, the one there starts as a copy of `SYSTEM\DVX.INI`. Later starts copy nothing again: your changes in `TEMP\DVXUSER` stay.
- If there is no TEMP folder either, DVX says: “DVX cannot save anything: it is running from a disk it cannot write to, such as a CD-ROM, and there is no TEMP folder. Settings you change are kept until you exit DVX. To keep them, set DVXUSER to a folder on your hard disk before starting DVX, or install DVX with SETUP.” Settings you change then last only until you exit DVX. DVX makes no copy of the settings that come with it: it uses the settings already in the USER folder on that disk (or in the folder DVXUSER names), if there are any, without saving changes to them, and without a `DVX.INI` there it starts with its built-in settings (640 x 480, no Welcome window, and no desktop sounds). There is no log file (see Section B.6).The first change you save after the desktop is up brings a reminder, once each time DVX runs: “Your changes cannot be saved to disk, so they last only until you exit DVX. To keep them, set DVXUSER to a folder DVX can write to before starting DVX.”

The same happens when DVXUSER names a folder DVX cannot write to, and the messages then name that folder: “DVX cannot write to *folder*, the folder DVXUSER names, so your settings are kept in the TEMP folder. To keep them somewhere else, set DVXUSER to a folder DVX can write to before starting DVX.”, or, without a TEMP folder, “DVX cannot save anything: it cannot write to *folder*, the folder DVXUSER names, and there is no TEMP folder. Settings you change are kept until

you exit DVX. To keep them, set DVXUSER to a folder DVX can write to before starting DVX."

On such a disk DVX also uses the help files as they are, without bringing them up to date.

To keep your settings on your hard disk, set DVXUSER to a folder there (see Section B.1.3), or install DVX with Setup.

B.1.5. Backing up your settings and files

Everything you have set up in DVX is in the USER folder, so to back it up, copy that folder. Do it with DVX not running, so that no file is being saved while you copy:

1. Exit DVX.
2. At the DOS prompt, make a folder for the copy and copy the USER folder into it, with all its folders. For example, to copy it to drive D:

   ```
   MD D:\DVXBACK
   XCOPY C:\DVX\USER D:\DVXBACK /S /E
   ```

   If you set DVXUSER, copy the folder it names instead.

To put the copy back later, exit DVX and copy it the other way:

```
XCOPY D:\DVXBACK C:\DVX\USER /S /E
```

You can move your settings to another computer the same way. If that computer's video card has no mode as large as the screen mode you saved, DVX starts there in safe video mode and asks whether to use that mode from now on (see Section 3.13).



Setup never changes the USER folder when it upgrades DVX, unless you tick **Start over**, and it removes the USER folder only when you ask it to (see Section 3.8 and Section 3.9). A backup is still worth having before you do either.

B.2. DVX.INI, the settings file

`DVX.INI` holds DVX's own settings: almost everything you set in Control Panel, the package server you use in Software, whether the Welcome window appears, and some sound and game controller settings that are not in Control Panel. It is a plain text file, which you can read and change with any text editor.

B.2.1. Where DVX.INI is and how it is made

DVX reads and saves only the `DVX.INI` in your USER folder: `C:\DVX\USER\DVX.INI`, or the one in the folder DVXUSER names, or the one in `TEMP\DVXUSER` on a disk DVX cannot write to (see Section B.1). The first time DVX uses `TEMP\DVXUSER`, it copies there the `DVX.INI` of the USER folder it cannot write to, if that has one, with every other file of that folder but its log (see Section B.1.4).

The copy in the `SYSTEM` folder, `C:\DVX\SYSTEM\DVX.INI`, is the one that comes with DVX. It has comments that explain most settings. DVX never changes it and never reads it for settings: each time DVX starts and finds no `DVX.INI` in your USER folder, it copies the one from `SYSTEM` there, comments and all. So deleting your `DVX.INI` gives you the settings DVX came with at the next start (see Section B.5). Changing `SYSTEM\DVX.INI` has no effect until such a copy is made, and an upgrade replaces that file.

Setup makes the first copy when it installs DVX (or when you upgrade with **Start over**), and then writes into it the screen mode Setup itself ran in: 640 x 480 with 65 thousand colors, or, on a card without that mode, the mode DVX chose instead (see Section B.2.5). So a new installation starts in that mode, not in the 1024 x 768 that `SYSTEM\DVX.INI` asks for.

When nothing can be saved at all (no writable USER folder and no TEMP folder), DVX makes no copy of `SYSTEM\DVX.INI`: it reads the `DVX.INI` already in the USER folder, if there is one, and otherwise every setting takes its built-in default, given in the tables below, not the value in `SYSTEM\DVX.INI`.

B.2.2. Changing DVX.INI by hand

Most settings are easier and safer to change in Control Panel. Change `DVX.INI` by hand only for a setting Control Panel does not have, or to fix a setting that stops DVX from working. The safest way is with DVX not running:

1. Exit DVX.
2. Make a copy of the file, so you can go back to it:

   ```
   COPY C:\DVX\USER\DVX.INI C:\DVX\USER\DVXINI.BAK
   ```

3. Open the file in a text editor, for example DOS's EDIT:

   ```
   EDIT C:\DVX\USER\DVX.INI
   ```

4. Find the section (the line in square brackets, such as `[mouse]`) and change the value after the `=` on the key's line. To add a key that is not there, type it on a new line under its section's line. To add a section that is not there, type its line at the end of the file, with its keys under it.

5. Save the file and leave the editor.
6. Start DVX.

You can also edit `DVX.INI` while DVX is running, in Notepad (see Section 8.4). Keep these points in mind:

- Most sections are read only when DVX starts, so most changes take effect the next time DVX starts. The table below says when each section is read.
- Control Panel saves only the settings you change in it, so the keys you edit by hand stay as you wrote them, even if Control Panel was open while you edited, unless you then change the same setting in Control Panel. Until DVX restarts, Control Panel shows the mouse, colors, wallpaper, screen saver, text smoothing, and screen mode DVX is using, not what you typed.

Section	A change by hand takes effect
`[video]`, `[mouse]`, `[shell]`, `[colors]`, `[desktop]`, `[fonts]`	The next time DVX starts.
`[network]`	The next time DVX starts. (The network starts the first time a program uses it and keeps running until you exit DVX.)
`[packages]`	The next time Software starts.
`[printer]`	At the next printout. DVX reads this section each time you print, open the **Print** dialog, or open **Page Setup**.
`[audio]`	Mostly the next time DVX starts; a few keys at the next piece of music. See Section B.2.11.
`[sounds]`	The next time DVX starts.
`[joystick]`	The next time DVX starts. (DVX reads it the first time a program or Control Panel uses a game controller.)
`[help]`	Do not change it. See Section B.2.18.

B.2.3. How DVX reads and saves the file

These rules apply to `DVX.INI` and to every other settings file DVX and its programs use (`ASSOC.INI`, theme files, and the programs' own settings files):

- A line with a name in square brackets, such as `[mouse]`, starts a section. The settings after it, up to the next section's line, belong to it.
- A setting is a line `key = value`. Spaces around the key and the value do not matter.
- A line that starts with `;` or `#` is a comment, which DVX ignores. A comment must have the whole line to itself: text after a value on the same line is part of the value, so `speed = 8 ; faster` does not work as you might expect. Blank lines are ignored.

- Section and key names can be typed in capital or small letters: `[MOUSE]` and `[mouse]` are the same, and so are `doubleClick` and `doubleclick`. If a key appears twice in a section, DVX uses the first one.
- For a setting that is on or off, write `true`, `yes`, or `1` for on, and `false`, `no`, or `0` for off, in capital or small letters.
- For a number, write the number in decimal, unless the tables below say otherwise. Text after it is ignored, so `9600 baud` reads as 9600.
- For a setting with a list of choices, write one of the words the tables below give, in capital or small letters.
- A value DVX does not understand counts as missing. A missing setting takes its built-in default, given in the tables below, and every other setting works as usual. Where a value is understood but out of range, the tables say what DVX does with it.

When DVX or Control Panel saves the file, it changes only the lines of the settings that changed, and keeps everything else as it was: your comments, keys DVX does not know, and your spacing. A changed setting is written as `key = value`. A new setting goes after the last setting of its section, and a new section is added at the end of the file. Program Manager, Terminal, Media Player, and Sound Recorder are different: each writes its own settings file whole every time it saves, so comments and keys it does not know are not kept in that file.

DVX saves a settings file in a way that cannot leave it half written: it writes the new file under another name first, and puts it in place only when it is complete. If the disk is full, the old file stays as it was. While it saves, you may see the files `DVX.$IN` and `DVX.~IN` beside `DVX.INI` for a moment; see Section B.4.10.

If `DVX.INI` is there but cannot be read, for example because of a disk error, DVX uses its built-in settings, and never saves over the file, so your settings are not replaced by defaults. Settings you change are then not saved until the file can be read again, or you delete it.

B.2.4. The sections of DVX.INI

The `DVX.INI` that comes with DVX has the sections `[video]`, `[mouse]`, `[shell]`, `[network]`, `[packages]`, `[printer]`, `[audio]`, and `[sounds]`, in that order, each with a comment above it. Control Panel and DVX add the other sections when they first save them.

Section	What it holds	In the file DVX comes with	Set by
`[video]`	The screen mode.	Yes	Control Panel, Video page; Setup; the safe video mode question.
`[mouse]`	The mouse.	Yes	Control Panel, Mouse page.

Section	What it holds	In the file DVX comes with	Set by
`[shell]`	The desktop program and the Welcome window.	Yes	The Welcome window.
`[network]`	The network.	Yes	Control Panel, Network page.
`[packages]`	The package server.	Yes	Software, Package Server window.
`[printer]`	The printer and the page setup.	Yes	Control Panel, Printer page; the Page Setup dialog.
`[audio]`	The sound hardware and music.	Yes	Control Panel, Sounds page; some keys only by hand.
`[sounds]`	The sound for each event.	Yes	Control Panel, Sounds page.
`[colors]`	The screen colors.	No; added the first time you click **[OK]** in Control Panel	Control Panel, Colors page.
`[desktop]`	The wallpaper and the screen saver.	No; added the first time you click **[OK]** in Control Panel	Control Panel, Desktop page.
`[fonts]`	Text smoothing.	No; added the first time you click **[OK]** in Control Panel	Control Panel, Video page.
`[joystick]`	Game controllers.	No; added when Control Panel saves it	Control Panel, Game Controllers page; some keys only by hand.
`[help]`	DVX's own notes about its help files.	No; added by DVX when it starts	DVX itself. Do not change it.

In the tables that follow, **Default** is the value DVX uses when the key is missing or its value is not understood, which is not always the value in the file DVX comes with; where they differ, the table says so.

B.2.5. The `[video]` section: screen mode

The screen mode DVX uses. **When a change takes effect:** a change by hand, the next time DVX starts; Control Panel changes the mode at once.

Key	Values	Default	Set by
`width`	The width of the screen in dots (pixels), such as `640`, `800`, or `1024`. The file DVX comes with has `1024`.	`640`	Control Panel, Video page, **Available Video Modes** (Section 7.7), when you choose a mode there and click **[OK]**; the safe video mode question when DVX starts; Setup.
`height`	The height of the screen in dots, such as `480`, `600`, or `768`. The file DVX comes with has `768`.	`480`	
`bpp`	How many colors, as bits per dot: `8` (256 colors), `15` (32 thousand), `16` (65 thousand), or `32` (16 million).	`16`	

DVX chooses among the modes your video card offers:

- It never uses a mode smaller than `width` and `height`.
- When the card has the number of colors `bpp` asks for at exactly that size, DVX uses that mode. When it has that number of colors only at a larger size, DVX uses the larger mode, with one exception: with `bpp = 8`, a mode of exactly that size with 65 thousand colors is used instead (and one with 32 thousand colors may be, depending on the card).
- Otherwise, and for any other number, DVX chooses among the modes the card has, preferring 65 thousand colors, then 32 thousand, 16 million, and 256, and preferring the exact size to a larger one. DVX never uses the card's 24-bit modes, so `bpp = 24` gets one of the others.
- If the card has no mode as large as `width` and `height`, or the mode does not work, DVX starts in safe video mode (640 x 480) and asks whether to use that mode from now on. **[Yes]** writes the safe mode into this section; **[No]** leaves it, so DVX tries the saved mode again at the next start. See Section 3.13.

Control Panel's list of modes offers only 640 x 480 and larger.

B.2.6. The `[mouse]` section

How the mouse works. **When a change takes effect:** a change by hand, the next time DVX starts; Control Panel's changes at once. All five keys are set on Control Panel's Mouse page (Section 7.4).

Key	Values	Default	Set by
`wheel`	`normal`, or `reversed` to make the scroll wheel scroll the other way.	`normal`	**Scroll Wheel**
`wheelspeed`	How many lines one notch of the wheel scrolls, from 1 to 10. A smaller number counts as 1, a larger one as 10.	`3`	**Scroll Speed**

Key	Values	Default	Set by
`doubleclick`	The most time, in milliseconds (thousandths of a second), between the two clicks of a double-click. Control Panel's slider offers 200 to 900; DVX uses whatever number is written here.	`500`	**Double-Click Speed**
`acceleration`	`off`, `low`, `medium`, or `high`: how much farther the pointer travels when you move the mouse quickly.	`medium`	**Acceleration**
`speed`	How far you must move the mouse to move the pointer: a smaller number makes the pointer faster. DVX hands the number to the mouse driver as it is; `0` or less leaves the mouse driver's own setting. Control Panel's slider runs the other way: the number it shows is 34 minus this one, so its 2 to 32 covers speeds 32 to 2, and the slider's 26 is a speed of 8.	`8`	**Cursor Speed**

The scroll wheel settings need a mouse driver that supports a wheel (see Section 7.4).

B.2.7. The `[shell]` section: the desktop and the Welcome window

What DVX starts when it starts. **When a change takes effect:** the next time DVX starts. Control Panel has no setting for these keys.

Key	Values	Default	Set by
`desktop`	The program DVX opens as its desktop, as a path from the DVX folder: `apps/kpunch/progman/progman.app`, Program Manager. **Do not change it** (see below).	Program Manager	No program DVX comes with.
`welcome`	A program DVX starts each time, once the desktop is up. It can be followed by what to give the program, and it can also name a document (which opens in its program) or a DOS program. Empty: nothing is started. The file DVX comes with has `apps/kpunch/welcome/welcome.app`, the Welcome window.	None	The Welcome window (Section 8.10).

The `desktop` key names Program Manager, which is DVX's desktop: closing it exits DVX. If the key

names a file that is missing or is not a DVX program, DVX shows an error message, such as “Failed to load *name*:” followed by the reason, and then ends. To fix it, edit `DVX.INI` at the DOS prompt and delete the `desktop` line, or put it back as `desktop = apps/kpunch/progman/progman.app`.

The Welcome window changes the `welcome` key when you close it: with **Don’t show this again** ticked, it removes the key, so Welcome does not appear again; with the box cleared, it writes its own path, so it appears at every start. The box is ticked when the window opens, so closing Welcome without touching the box stops it from appearing. To see Welcome again, start it from Program Manager’s **Installed Programs** group.

B.2.8. The `[network]` section

The network settings, used when the Networking part of DVX is installed (see Section 4.4). **When a change takes effect:** a change by hand, the next time DVX starts; when you click **[OK]** in Control Panel after changing the Network page, the network restarts at once with the new settings. All the keys are set on Control Panel’s Network page (Section 7.9).

Key	Values	Default	Set by
`dhcp`	`true`: a DHCP server on the network gives DVX its address, subnet mask, gateway, and name servers, and `address`, `netmask`, and `gateway` are not used. `false`: DVX uses those three.	`true`	**Get the address automatically (DHCP)**
`address`	This computer’s address on the network, such as `192.168.1.10`. Used only when `dhcp` is `false`.	Empty	**Address**
`netmask`	The subnet mask, such as `255.255.255.0`. Used only when `dhcp` is `false`.	Empty	**Subnet mask**
`gateway`	The address of the router to other networks and the Internet. Used only when `dhcp` is `false`. It may be empty; then only the local network can be reached.	Empty	**Gateway**
`dns1`, `dns2`	The addresses of up to two name servers. With DHCP, a name server written here is used in place of the one the DHCP server gives, and an empty one leaves the DHCP server’s. Without DHCP and with both empty, names such as `bbs.example.org` cannot be looked up. A value that is not an address is ignored.	Empty	**Name server 1**, **Name server 2**

Key	Values	Default	Set by
`hostname`	This computer's name, which DVX gives the DHCP server: letters, digits, and hyphens, not starting or ending with a hyphen, at most 63 characters (a longer name is cut short). If the key is there but empty, the name is empty.	`DVX`	**Computer name**
`vector`	`auto`: DVX looks for the packet driver at interrupts 0x60 to 0x80. Or the one interrupt your packet driver uses, from `0x60` to `0x80`. Always write it with `0x` in front: without it the number is read as decimal, so `60` is not `0x60`. A value that is not a number counts as `auto`. With a number outside 0x60 to 0x80, DVX finds no packet driver, and the log says so; Control Panel's **Packet driver** list shows the number with "(cannot be used)" after it.	`auto`	**Packet driver**

When `dhcp` is `false` and `address` or `netmask` is not a valid address (or `gateway` is neither empty nor a valid address), the network does not start at all, so no program can use it. Control Panel checks these values, and `vector` too: if one typed into `DVX.INI` by hand is not valid, clicking **[OK]** in Control Panel shows a warning box titled **Network**, even if you changed another page, until you correct it on the Network page (see Section 7.9). When Control Panel saves a value you changed, it writes it in its own way, for example the interrupt as `0x60`; values you did not change stay as you wrote them.

B.2.9. The `[packages]` section: the package server

The package server Software gets packages and updates from, and your account there for publishing packages (see Section 10.6). **When a change takes effect:** a change by hand, the next time Software starts. All four keys are set in Software's **Package Server** window (**File › Package Server…**), and saved together when you click **[OK]** there.

Key	Values	Default	Set by
`server`	The server's name, such as `packages.dvxgui.com`, at most 127 characters. A `http://` in front and slashes at the end are removed. When the key is missing or empty, Software uses DVX's own package server, `packages.dvxgui.com`. When you choose DVX's own server in the **Package Server** window, Software saves this key empty, so that if DVX's own server ever moves, a newer DVX's address for it is used. A server written with `https://` in front cannot be reached: DVX has no encryption.	DVX's own server	**Address**
`port`	The server's port, from 1 to 65535. A key that is missing, empty, not a number, or out of range means 80, so a server of your own without a port uses 80. Software saves port 80 as empty.	`80`	**Port**
`user`	The email address of your account on the server, needed only to publish packages. At most 127 characters.	Empty (no account)	**Email**
`password`	The account's password, at most 127 characters. Software saves it scrambled, as a * followed by digits and letters that change at every save. Scrambled is not locked: anyone with DVX can read it back. A password you type here by hand is used as it is, and scrambled the next time Software saves the settings. (A password typed by hand that is a * followed by an even number, eight or more, of the digits 0 to 9 and the letters A to F (in capital or small letters) looks like a scrambled one, and does not work.)	Empty	**Password**

B.2.10. The `[printer]` section

The printer every program prints to, and the page setup for printing text. **When a change takes effect:** at the next printout; DVX reads this section each time you print, open the **Print** dialog, or open **Page Setup**, so no restart is needed.

The first five keys are set on Control Panel's Printer page (Section 7.10). The others are the page setup, set in the **Page Setup** dialog, which you open with **[Page Setup…]** on the Printer page or with **File › Page Setup…** in Notepad; its **[OK]** saves them at once. The **Print to** and **File name** you choose in a **Print** dialog are for that one printout only, and are not saved.

Key	Values	Default	Set by
`port`	Where the printer is connected: `LPT1`, `LPT2`, `LPT3`, `COM1`, `COM2`, `COM3`, `COM4`, or `FILE` to print into a file.	`LPT1`	**Connected to**
`file`	The file printouts go into when `port` is `FILE`, at most 259 characters. A name without a folder is in your USER folder (so `PRINTER.PRN` is `C:\DVX\USER\PRINTER.PRN`); give a whole path, such as `C:\PRINTOUT.PRN`, to put it elsewhere. Each printout replaces the file.	`PRINTER.PRN`	**File name**
`model`	The kind of printer, one of the words in the next table.	`text`	**Printer model**
`baud`	A serial printer's speed: exactly `300`, `1200`, `2400`, `4800`, `9600`, `19200`, or `38400`. Any other number counts as 9600. The port always sends 8 data bits, no parity, and 1 stop bit.	`9600`	**Speed (baud)**
`handshake`	How a serial printer tells the computer to wait: `none`, `xonxoff` (XON / XOFF characters), `rtscts` (the printer's ready line wired to CTS), or `dtrdsr` (wired to DSR, as Apple's ImageWriter cable does).	`dtrdsr`	**Handshake**
`linesPerPage`	How many lines fit on a sheet: `0`, or 10 to 200. `0` means the printer's usual page length: 66 lines for `text`, the Epsons, and the ImageWriters, and 60 for the LaserJets, the DeskJets, and PostScript.	`0`	**Lines per page**
`columns`	How many characters fit across a sheet, from 20 to 255.	`80`	**Characters per line**
`marginTop`, `marginBottom`	Blank lines at the top and the bottom of each page. The header prints in the middle line of the top margin, the footer in the middle line of the bottom margin; with a margin of 0 there is none.	`3` each	**Top margin (lines)**, **Bottom margin (lines)**

Key	Values	Default	Set by
`marginLeft`, `marginRight`	Blank characters at the left and the right of each line.	`5` each	**Left margin**, **Right margin**
`tabWidth`	How far apart tab stops are, from 1 to 16 characters.	`8`	**Tab width**
`wrap`	`true` continues a line that is too long on the next line, breaking it between words; `false` cuts it off at the right margin.	`true`	**Wrap long lines (otherwise they are cut off)**
`header`, `footer`	The line printed at the top and the bottom of each page, with the codes in the table below, at most 79 characters. If the key is there but empty, there is no header (or footer).	`header`: `&f` `footer`: `Page &p`	**Header**, **Footer**

If the file a printout goes into cannot be made, the printout stops with “Cannot create the file *name*.” If `port` is `FILE` and `file` is empty, the **Print** dialog asks for a name.

The page setup is checked as a whole. If any of these is not true, DVX ignores every page setup key, from `linesPerPage` to `footer` (including `wrap`, `header`, and `footer`), and uses all their defaults:

- `linesPerPage` is 0 or from 10 to 200.
- `columns` is from 20 to 255.
- No margin is less than 0.
- `tabWidth` is from 1 to 16.
- The top and bottom margins leave at least 1 line for text (with `linesPerPage` 0, on a 60-line page).
- The left and right margins leave at least 10 characters for text.

The **Page Setup** dialog does not let you save such a setup: it says what is wrong.

The printer models:

`model`	Control Panel’s name
`text`	**Text only (any printer)**
`epson9`	**Epson 9-pin (ESC/P)**
`epson24`	**Epson 24-pin (ESC/P)**
`laserjet`	**HP LaserJet (PCL)** (prints pictures at 150 dots per inch)
`laserjet300`	**HP LaserJet III or DeskJet (300 dpi)**

model	Control Panel's name
epson9color	**Epson 9-pin color (ESC/P)**
epson24color	**Epson 24-pin color (ESC/P)**
deskjet500c	**HP DeskJet 500C (color)**
deskjetcolor	**HP DeskJet 550C and later (color)**
postscript	**PostScript**
postscriptcolor	**PostScript (color)**
imagewriter	**Apple ImageWriter II**
imagewritercolor	**Apple ImageWriter II (color)**

The codes in `header` and `footer` are replaced when the page is printed. They must be typed in small letters; any other code, including `&F` in capitals, prints as it is typed.

Code	Is replaced by
`&f`	The file name.
`&p`	The page number.
`&n`	The number of pages.
`&d`	The date, as YYYY-MM-DD.
`&t`	The time, as HH:MM.
`&l`, `&c`, `&r`	Nothing; the text after it goes at the left, the centre, or the right of the line. Text before any of these three is centred.
`&&`	One `&`.

A header or footer too long for the space between the margins is cut short.

B.2.11. The `[audio]` section: sound hardware and music

The sound hardware DVX uses and how it plays music. Control Panel's Sounds page (Section 7.12) sets `driver`, `volume`, `midi`, `midiIn`, `modules`, `midiBank`, and `soundFont`, and saves them when you click **[OK]**. The other keys can only be changed here.

When a change takes effect: DVX starts the sound hardware for its first sound, normally the start-up sound, and while the event sounds are on it keeps the hardware running until you exit DVX. So a change to most of these keys may not take effect until the next time DVX starts. A few are read again each time a piece of music starts, as the table says. To be sure a change is used, exit DVX and start it again.

The keys for ports (`oplPort`, `mpuPort`, `wssPort`, and `lptPort`) take hexadecimal numbers, the way sound card ports are usually written: `220`, `0x220`, and `220h` all mean port 220h. A port key with nothing after the `=`, or with something that is not a port number, counts as not set: the table gives what DVX then uses.

The keys marked “optional” are not in the file DVX comes with. Add one under `[audio]` only when you need it.

Key	Values	Default	Set by
`driver`	The sound hardware. `auto` finds it, trying `wss`, `sb`, `gus`, `lpt`, and `speaker` in that order; the PC speaker always works, so `auto` always finds something. Or name one: `wss` (Windows Sound System), `sb` (Sound Blaster), `gus` (Gravis UltraSound), `lpt` (a sound device on the printer port), `speaker` (the PC speaker), or `null` (no sound). If the one named is not installed or does not start, DVX notes it in the log and tries the others, as for `auto`.	`auto`	**Sound driver**
`rate`	The mixing rate in Hz, from 4000 to 48000; a smaller number counts as 4000, a larger one as 48000. The hardware uses the nearest rate it can, which can be far from this: a printer-port device at most 11,048 Hz (a Disney Sound Source always 7,000 Hz), the PC speaker 22,096 Hz for sampled sound or 11,025 Hz for tones only, and a Gravis UltraSound at most its own rate (see `gusVoices`).	`22050`	By hand only
`bits`	`0` (the best the hardware can do), `8`, or `16`. Any other number counts as 0. Hardware that cannot play 16 bits plays 8, as the printer-port devices and the PC speaker do. `8` saves work on a slow computer.	`0`	By hand only
`channels`	`0` (the best the hardware can do), `1` (mono), or `2` (stereo). Any other number counts as 0.	`0`	By hand only

Key	Values	Default	Set by
`voices`	How many sounds can play at once, from 1 to 32; a number outside counts as the nearest end. When all are playing, a new sound stops the quietest one only if the new one is louder; otherwise the new sound is not played. Music never stops another sound.	`16`	By hand only
`volume`	The volume of all sound and music, in percent, from 0 to 100; a number outside counts as the nearest end.	`100`	**Volume**
`speakerPcm`	Only for the PC speaker. `true` plays sampled sound on it, which takes a lot of the computer's time. `false` plays only tones; sampled sounds and noise are not heard.	`false`	By hand only
`fmTones`	`true` plays square and triangle tones on a free voice of the sound card's FM music chip when it has one. `false` always has the computer make them.	`true`	By hand only
`midi`	Where MIDI music plays: `auto`, `mpu401`, `fm`, `software`, or `softwave` (see the next table). Read again at each piece of MIDI music, but a change to `mpu401` needs a restart of DVX.	`auto`	**MIDI music**
`midiIn`	Where MIDI input from a MIDI keyboard comes from: `none` or `mpu401` (see the next table).	`none`	**MIDI in**
`modules`	Where music modules (MOD, S3M, XM, and IT files) play: `wavetable` or `software` (see the next table). Read again for each module that starts.	`wavetable`	**Modules**
`mpuMode`	What is connected to the MIDI port: `gm`, `mt32`, or `raw` (see the next table). Read again at each piece of music on the MIDI port.	`gm`	By hand only
`oplPort` (optional)	The FM music chip's port address, in hexadecimal. Only this port is tried. At a wrong port no chip is found, and tones and MIDI music are then made by the computer. When it is not set, or empty, DVX uses 388.	`388`	By hand only

Key	Values	Default	Set by
`mpuPort` (optional)	The MIDI port's address, in hexadecimal. Used only when `midi` or `midiIn` is `mpu401`. When it is not set, or empty, DVX uses 330.	`330`	By hand only
`midiBank` (optional)	The instrument bank (an OP2 file) for MIDI music on the FM chip and in the built-in synthesizer: the name of a file in your `USER\BANKS` folder or in `SHARED\BANKS` (yours is looked for first), an add-on's bank as its publisher's folder and the file name, or a path from the DVX folder. If the file is missing or damaged, DVX uses its standard bank and notes it in the log. Read again at each piece of MIDI music.	DVX's standard bank	**Instruments** (**Standard** removes the key)
`soundFont` (optional)	The recorded instruments for MIDI music on a Gravis UltraSound, a Sound Blaster AWE, and the built-in SoundFont synthesizer: a SoundFont (`.SF2` or `.SBK`), named as for `midiBank`; or the path of a Gravis UltraSound's `ULTRASND.INI` (its patches); or an AWE's own instrument file. If the SoundFont named is missing or damaged, MIDI music plays on the FM chip or in the built-in synthesizer instead. When the key is missing or empty, DVX uses `KPUNCH\DVXGM.SF2`, its General MIDI SoundFont add-on, and without that add-on the UltraSound's patches or the AWE's instruments (see Section B.2.12). Read again at each piece of MIDI music.	DVX's General MIDI SoundFont	**SoundFont** (**Standard** removes the key)
`gusVoices` (optional)	How many voices a Gravis UltraSound runs, from 14 to 32; a number from 0 to 13 counts as 14, and one above 32 (or below 0) as 32. Fewer voices give a higher output rate: 617,400 divided by the voices, so 22,050 Hz at 28.	`28`	By hand only

Key	Values	Default	Set by
`wssPort` (optional)	The port of a Windows Sound System card, in hexadecimal. When it is set, only that port is tried, and if no card is there DVX tries the next kind of sound hardware. When it is not set, or empty, DVX tries ports 530, 604, E80, and F40, in that order.	Looked for	By hand only
`wssIrq` (optional)	The Windows Sound System card's IRQ: `7`, `9`, `10`, or `11`. With any other number, DVX notes it in the log and tries the next kind of sound hardware.	`7`	By hand only
`wssDma` (optional)	The Windows Sound System card's DMA channel: `0`, `1`, or `3`. Any other number: as for `wssIrq`.	`1`	By hand only
`lptDac` (optional)	The sound device on the printer port: `auto` looks for a Disney Sound Source, then a Stereo-on-1, and otherwise leaves the port alone for a printer; `covox` (a Covox Speech Thing, which cannot be found and must be named), `disney`, or `stereo` uses that device without looking. Any other word: DVX tries the next kind of sound hardware.	`auto`	By hand only
`lptPort` (optional)	The printer port's address, in hexadecimal. When it is not set, or empty, DVX uses LPT1 as the computer lists it.	LPT1	By hand only

The choices for MIDI music, MIDI input, modules, and the MIDI port:

Key	Value	Control Panel's name	What it does
`midi`	`auto`	**Automatic**	Plays on the recorded instruments of a Gravis UltraSound or Sound Blaster AWE when they can be loaded there; else on the FM chip when it is free; else in the built-in synthesizer.
`midi`	`mpu401`	**MIDI port (MPU-401)**	Plays on an external synthesizer connected to the MIDI port. If the port was not found when DVX started, or is busy, the music plays as for `auto`.

Key	Value	Control Panel's name	What it does
`midi`	`fm`	**FM synthesizer chip**	Plays on the FM chip; without one, in the built-in synthesizer.
`midi`	`software`	**Built-in synthesizer**	Always plays in DVX's own synthesizer.
`midi`	`softwave`	**Built-in SoundFont synthesizer**	Plays the SoundFont in the computer itself; if the SoundFont cannot be loaded, in the built-in synthesizer.
`midiIn`	`none`	**None**	No MIDI input.
`midiIn`	`mpu401`	**MIDI port**	Reads a MIDI keyboard on the MIDI port (at `mpuPort`), for programs such as Sound Recorder. The port is shared with MIDI music when `midi` is `mpu401` too.
`modules`	`wavetable`	**Wavetable synthesizer when free**	Plays a module on the voices of a Gravis UltraSound or Sound Blaster AWE when no other music uses them and the module fits; otherwise the computer mixes it.
`modules`	`software`	**Mixed in software**	The computer always mixes modules.
`mpuMode`	`gm`	Not in Control Panel	A General MIDI synthesizer: the music is sent as it is.
`mpuMode`	`mt32`	Not in Control Panel	A Roland MT-32: General MIDI music is changed to suit it.
`mpuMode`	`raw`	Not in Control Panel	The music is sent unchanged, with no setting up; for music made for an MT-32.

B.2.12. Sound card settings in AUTOEXEC.BAT: BLASTER and ULTRASND

Some sound cards are not set in `DVX.INI` at all, but with DOS settings that the card's own software uses too. You set them with `SET` lines in `AUTOEXEC.BAT`, before DVX starts.

BLASTER (Sound Blaster cards)

The Sound Blaster's port, IRQ, and DMA channels, for example:

```
SET BLASTER=A220 I5 D1 H5
```

DVX reads `A` (the port), `I` (the IRQ), `D` (the 8-bit DMA channel), and `H` (the 16-bit DMA channel). Without BLASTER, DVX looks at ports 220h and 240h, which finds only a Sound Blaster 16; older Sound Blasters need BLASTER. A Sound Blaster 16's own IRQ and DMA settings are used

even when BLASTER gives others. If DVX finds a Sound Blaster but cannot tell which IRQ or DMA channel it uses, or cannot use them, the log says “Audio: sb: IRQ or DMA channel unknown or unusable (set BLASTER, e.g. A220 I5 D1 H5)”.

A Sound Blaster AWE needs BLASTER for its recorded instruments too. Their port is the `E` in BLASTER, such as `E620`; without `E`, DVX uses the `A` port plus 400h.

ULTRASND (Gravis UltraSound)

The UltraSound’s port, its two DMA channels (playing and recording), and its two IRQs (the card’s and the MIDI port’s), for example:

```
SET ULTRASND=220,1,1,11,5
```

DVX cannot play sound on an UltraSound without it; the log then says that ULTRASND is not set. When the UltraSound is used only for music, with another card playing the sound, DVX takes its port from ULTRASND, or without it looks at ports 220h, 240h, 260h, 210h, 230h, and 250h.

Two more DOS settings tell DVX where the cards' own instruments are, for the `soundFont` key: ULTRADIR names the folder of the UltraSound’s software, where its patches and `ULTRASND.INI` are; SOUND names the folder of Creative’s software for the AWE, whose `SFBANK` folder holds the AWE’s instrument file (`SYNTHGM.SF2` or `SYNTHGM.SBK`).

B.2.13. The `[sounds]` section: event sounds

The sound DVX plays for each event. **When a change takes effect:** when you click **[OK]** in Control Panel; a change by hand, the next time DVX starts. All nine keys are set on Control Panel’s Sounds page (Section 7.12), and its **[OK]** writes all nine.

Key	Control Panel’s event	Plays when	In the file DVX comes with
`default`	**Default beep**	A program asks for a beep, and a message without a picture appears.	`beep.wav`
`startup`	**Start DVX**	DVX has started.	`startup.wav`
`exit`	**Exit DVX**	DVX is ending. DVX waits up to 5 seconds for it to finish; after it, DVX plays no other sound.	`exit.wav`
`error`	**Error**	A message about an error appears.	`error.wav`
`warning`	**Warning**	A warning message appears.	`warning.wav`

Key	Control Panel's event	Plays when	In the file DVX comes with
`question`	**Question**	A message that asks a question appears.	`question.wav`
`information`	**Information**	A message that tells you something appears.	`info.wav`
`windowOpen`	**Open window**	A window opens (not a dialog box).	Empty
`windowClose`	**Close window**	A window closes (not a dialog box).	Empty

The value of each key is a sound file, WAV or VOC:

- A name alone, such as `beep.wav`, is looked for in your `USER\SOUNDS` folder first, then in `SHARED\SOUNDS`. An add-on's sound is named by its publisher's folder and the file name.
- Any other name with a folder in it, or a whole path, is that file.
- Empty: no sound for that event.

Default: a missing key also means no sound for that event, not the sound in the file DVX comes with. If a file is not found or cannot be played, the event is silent, and the log says "Audio: desktop sound *file*: *reason*".

B.2.14. The `[colors]` section: screen colors

The color of each part of the screen. The file DVX comes with does not have this section; Control Panel writes all twenty keys the first time you click **[OK]**. **When a change takes effect:** a change by hand, the next time DVX starts; Control Panel's changes at once. All the keys are set on Control Panel's Colors page (Section 7.5), each by its name in the **System Colors** list, or all together by a theme.

Each value is three numbers from 0 to 255, separated by commas: the amounts of red, green, and blue, for example `desktop = 0,128,128`. A number below 0 counts as 0, one above 255 as 255. A key that is missing, or not three numbers, keeps DVX's standard color, the one **[Reset]** on the Colors page puts back.

Key	System Colors name	Standard color
`desktop`	**Desktop**	`0,128,128`
`windowFace`	**Window Face**	`192,192,192`
`windowHighlight`	**Window Highlight**	`255,255,255`
`windowShadow`	**Window Shadow**	`128,128,128`
`activeTitleBg`	**Active Title Bar**	`48,48,48`
`activeTitleFg`	**Active Title Text**	`255,255,255`

Key	System Colors name	Standard color
inactiveTitleBg	**Inactive Title Bar**	160,160,160
inactiveTitleFg	**Inactive Title Text**	64,64,64
contentBg	**Content Background**	192,192,192
contentFg	**Content Text**	0,0,0
menuBg	**Menu Background**	192,192,192
menuFg	**Menu Text**	0,0,0
menuHighlightBg	**Menu Highlight**	48,48,48
menuHighlightFg	**Menu Highlight Text**	255,255,255
buttonFace	**Button Face**	192,192,192
scrollbarBg	**Scrollbar Background**	192,192,192
scrollbarFg	**Scrollbar Foreground**	128,128,128
scrollbarTrough	**Scrollbar Trough**	160,160,160
cursorColor	**Cursor Color**	255,255,255
cursorOutline	**Cursor Outline**	0,0,0

A theme file (`.THM`) is a settings file with the same `[colors]` section. `DVX.INI` keeps the colors themselves, not the name of the theme you chose.

B.2.15. The `[desktop]` section: wallpaper and screen saver

The picture on the desktop and the screen saver. The file DVX comes with does not have this section; Control Panel writes it the first time you click **[OK]**. **When a change takes effect:** a change by hand, the next time DVX starts; Control Panel's changes at once. All four keys are set on Control Panel's Desktop page (Section 7.6).

Key	Values	Default	Set by
`wallpaper`	A picture file (BMP, JPEG, PNG, or GIF). A name alone is looked for in your `USER\WPAPER` folder first, then in `SHARED\WPAPER`; an add-on's picture is named by its publisher's folder and the file name; any other name with a folder in it is that file. Control Panel saves a picture from a wallpaper folder by its name alone, and any other by its whole path. Without a picture, the desktop shows the plain **Desktop** color. If the picture cannot be loaded when DVX starts, there is no wallpaper, and the log says "Preferences: failed to load the wallpaper".	None	**Wallpaper** list, **[Browse...]**; **[Clear]** removes the key
`mode`	How the picture fills the screen: `stretch`, `tile`, or `center`.	`stretch`	**Mode**
`saver`	The screen saver: the file name of one in your `USER\SAVERS` folder or in `SHARED\SAVERS`, such as `starfld.app` for Starfield, or a path. Empty: no screen saver. If the file is not found when its time comes, nothing starts, and the log notes it.	None	**Screen saver**
`saverWait`	The minutes without a key press or mouse movement before the screen saver starts, from 1 to 60; a number outside counts as the nearest end.	`10`	**Wait**

B.2.16. The `[fonts]` section: text smoothing

The file DVX comes with does not have this section; Control Panel writes it the first time you click **[OK]**. **When a change takes effect:** a change by hand, the next time DVX starts; Control Panel's change at once.

Key	Values	Default	Set by
`smoothing`	`true` smooths the edges of text; `false` draws it sharp. Smoothing works only in modes with more than 256 colors; at 256 colors text is always sharp.	`true`	Control Panel, Video page, **Smooth the edges of text (more than 256 colors)** (Section 7.7)

B.2.17. The `[joystick]` section: game controllers

Joysticks and the keyboard joystick. The file DVX comes with does not have this section; Control Panel writes it when it saves. **When a change takes effect:** DVX reads this section the first time a program, or Control Panel, uses a game controller after DVX starts, so a change by hand takes effect the next time DVX starts. Changes on Control Panel's Game Controllers page (Section 7.11) work at once.

Some keys start with the name of a controller: `gameport0` and `gameport1` are the joysticks on the game port, and `keyboard0` is the keyboard joystick.

Key	Values	Default	Set by
`pollHz`	How many times a second DVX reads the controllers, from 10 to 200; a number outside counts as the nearest end.	`60`	By hand only
`fallback`	When the keyboard stands in for a joystick: `auto` (**When no joystick is found**), `always` (**Always**), or `never` (**Never**).	`auto`	**Keyboard**
`gameport.mode`	`twoSticks` (**Two joysticks**) or `fourAxes` (**One joystick with 4 axes**).	`twoSticks`	**Game port**
`gameport0.axis0`, `gameport0.axis1`, and so on	A joystick's calibration, one key for each axis: the controller's name, `.axis`, and the axis number, counting from 0. The value is three whole numbers, `min,center,max`, with `min` smaller than `center` and `center` smaller than `max`. A missing key or a value not understood means that axis calibrates itself: the middle is where the stick rests when it is found, and the range is learned as you move it.	None	**[Calibrate...]** writes them; **[Automatic]** removes them
`gameport0.deadZone` and so on	How far, in percent of the way to either end, the stick can move from the middle and still count as the middle: from 0 to 50; a number outside counts as the nearest end.	`8`	**Dead zone**

Key	Values	Default	Set by
`keyboard.up`, `keyboard.down`, `keyboard.left`, `keyboard.right`, `keyboard.button1` to `keyboard.button4`	The keys of the keyboard joystick, each one of: `Up`, `Down`, `Left`, `Right`, `LCtrl`, `RCtrl`, `LShift`, `RShift`, `LAlt`, `RAlt`, `Space`, `Enter`, `Tab`, `Backspace`, `Insert`, `Delete`, `Home`, `End`, `PgUp`, `PgDn`, `Keypad0` to `Keypad9`, `A` to `Z`, or `0` to `9`, in capital or small letters. A name not on this list means that key's default.	`Up`, `Down`, `Left`, `Right`, `LCtrl`, `Space`, `LShift`, `Z`	**[Keys...]**

A game controller add-on may keep settings of its own in this section, starting with its own name.

B.2.18. The `[help]` section: DVX's own notes

DVX writes this section itself when it starts, to keep track of its help files: the first time, and whenever it brings them up to date. **Do not change it.**

Key	What DVX keeps in it
`libCount`, `widgetCount`	How many libraries and controls DVX found the last time it brought its help files up to date. When either number is different at a start, because something was added or removed, DVX brings every help file up to date; that is when the bar on the start-up screen fills a second time.
`retries`	How many starts in a row bringing the help files up to date has failed. After 3, DVX stops trying until libraries or controls are added or removed.

A wrong number makes DVX bring every help file up to date at the next start, which only makes that start slower. If you delete the section, DVX writes it again with the counts it finds, without bringing the help files up to date.

B.3. ASSOC.INI: which program opens each kind of file

When you open a document, for example by double-clicking it in File Manager or Program Manager, or by naming it in Program Manager's **File › Run...**, DVX starts the program set up for its kind of file, its extension. DVX keeps this list in two files called `ASSOC.INI`:

- `C:\DVX\SYSTEM\ASSOC.INI` is the list that comes with DVX, with comments that explain it. DVX never changes it; an upgrade replaces it.
- `ASSOC.INI` in your USER folder holds only your changes to that list. It is made the first time you change a file type in Control Panel, and holds the line `[associations]` and the lines you changed, without comments.

DVX reads the two together: every type in the shipped list that you have not changed, and then your own lines. A line in your file replaces the shipped line for the same extension, and a line with nothing after the `=` removes a shipped type.

Both files have one section, `[associations]`, with one line for each extension:

```
EXTENSION = program,arguments
```

`EXTENSION`

The extension without the dot: one to eight letters or digits, such as `TXT`. Capital and small letters count as the same. An extension that is longer, or has other characters, never matches a file.

`program`

The program that opens the file, as a path from the DVX folder (such as `apps/kpunch/notepad/notepad.app`) or a whole path. Both `/` and `\` work in it. It can be a DVX program (`.app`) or a DOS program (`.EXE`, `.COM`, or `.BAT`); a DOS program may be just its name if DOS can find it along the PATH.

`arguments`

Optional, after the first comma: what to give the program. `%1` stands for the document's whole path, which DVX puts in quotes if it has a space in it (unless you wrote `"%1"` in quotes yourself). Without arguments, the program is given just the document.

For example, an `ASSOC.INI` in your USER folder with these lines opens `.LOG` and `.NFO` files in Notepad, and makes GIF pictures open in nothing at all instead of Image Viewer:

```
[associations]
LOG = apps/kpunch/notepad/notepad.app
NFO = apps/kpunch/notepad/notepad.app
GIF =
```

A type whose program is part of DVX you did not install, such as DVX BASIC, opens nothing, as if it had no program. Control Panel still lists it.

The easy way to change the list is Control Panel's File Types page (see Section 7.8), which also lists the types DVX comes with. Your changes there are written to your `ASSOC.INI` when you click **[OK]**: a new or changed type is written as its line; a removed type you added yourself loses its line; a removed type DVX came with gets an empty line; and setting a type back to exactly the program DVX came with removes its line from your file, so it follows the shipped list again. If the file cannot be saved, the log says "Assoc: cannot save the file types" followed by the file's name.

DVX reads the two files the first time it needs a file type and keeps what it read, so change `ASSOC.INI` by hand only while DVX is not running. To go back to the file types DVX came with, delete `ASSOC.INI` from your USER folder while DVX is not running (see Section B.5).

B.4. Other settings files

Each program that remembers settings or keeps files of its own has a folder in the `APPS` folder of your USER folder. For a program in the DVX folder, it is the same path as the program's own folder: Program Manager, which is `C:\DVX\APPS\KPUNCH\PROGMAN\PROGMAN.APP`, keeps its settings in `C:\DVX\USER\APPS\KPUNCH\PROGMAN`. For a program outside the DVX folder, it is a folder named after the program's file, without the extension: a program `GAME.APP` on a floppy disk uses `USER\APPS\GAME`. The folder is made when the program first saves something.

These programs that come with DVX keep files there:

Program	**File in** `USER\APPS\KPUNCH...`	**What it holds**
Program Manager	`PROGMAN\PROGMAN.INI`	Your groups and their items, the options, and the Run history. See Section B.4.1.
Terminal	`TERMINAL\TERMINAL.INI`	The phone book and the transfer settings. See Section B.4.3.
DVX BASIC	`DVXBASIC\DVXBASIC.INI`	The editor's preferences and the recent projects. See Section B.4.4.
Media Player	`PLAYER\PLAYER.INI`	The play list and the player's settings. See Section B.4.5.
Sound Recorder	`RECORDER\RECORDER.INI`, `RECORDING.WAV`, `RECORDING.MID`	The recorder's settings, and a recording that is not saved yet. See Section B.4.6.

These programs keep no settings file of their own: Clock, Control Panel (it writes `DVX.INI`, `ASSOC.INI`, and the themes you save in `USER\THEMES`), DVX Demo, DVX Help (its Back and Forward history lasts only while it runs), File Manager, Help Editor, Image Viewer, Notepad, Package Builder (your keys are in `USER\KEYS`; its package templates are documents you save where you like), Resource Editor, Widget Showcase, Welcome (it changes only the `welcome` key in `DVX.INI`), Software (it uses `DVX.INI`, `USER\KEYS`, and `USER\DOWNLOAD`), and the screen savers.

B.4.1. Program Manager: PROGMAN.INI

Program Manager keeps your groups in `USER\APPS\KPUNCH\PROGMAN\PROGMAN.INI` and saves the file after every change. (For groups and items, see Section 6.3 and Section 6.4.)

Section	Key	What it holds	Default
`[options]`	`minimizeOnRun`	**Options › Minimize on Run**	`false`
`[options]`	`restoreAlone`	**Options › Restore when Alone**	`false`
`[options]`	`autoArrange`	**View › Auto Arrange**	`true`
`[options]`	`view`	**View › Large Icons**, **View › Small Icons**, or **View › List**: `large`, `small`, or `list`	`large`
`[options]`	`group`	The name of the group shown	**Installed Programs**
`[groups]`	`count`	How many of your groups follow, at most 64	Missing: the groups **Main** and **Startup**
`[group1]`, `[group2]`, …	`name`	The group's name	"Group *n*"
`[group1]`, …	`count`	How many items the group has, at most 256	`0`
`[group1]`, …	`item1.name`, `item2.name`, …	The item's **Name**	An item without a name is left out
`[group1]`, …	`item1.program`, …	The item's **Program**: a program, a DOS program, or a document	An item without a program is left out
`[group1]`, …	`item1.args`, …	**Arguments**	Empty
`[group1]`, …	`item1.folder`, …	**Working folder**	Empty
`[group1]`, …	`item1.icon`, …	**Icon file** (empty: the program's own)	Empty
`[group1]`, …	`item1.key`, …	**Shortcut key**, such as `Ctrl+Alt+P`	None; a key not understood is dropped
`[group1]`, …	`item1.minimized`, …	**Run minimized**	`false`
`[group1]`, …	`item1.pause`, …	Wait for a key when a DOS program ends	`false`
`[group1]`, …	`item1.col`, `item1.row`, …	Where the item is in the group	Placed by Program Manager
`[run]`	`history1` to `history10`	The commands typed in **File › Run…** , newest first	None

An item's settings that are empty or off are left out of the file. The **Installed Programs** group is never saved: Program Manager makes it again from the programs it finds each time DVX starts, and whenever programs are added or removed. The items in your **Startup** group run once, right

after DVX has started. Damaged lines are skipped, and a group whose name is already taken gets a number after it.

If `PROGMAN.INI` is missing, Program Manager starts with two empty groups, **Main** and **Startup**, the default options, and no Run history.

B.4.2. PROGRAMS.CAC: the list of programs

`USER\PROGRAMS.CAC` is DVX's memory of each program's name, description, and icon, so that Program Manager, File Manager, and other programs can show them without reading every program file at each start. DVX checks each program against its file: a program that changed is read again, and one that was removed is forgotten. DVX saves its changes a few seconds after they happen, while the computer is idle, and the rest when DVX ends. A damaged file is noted in the log and made again.

You may delete it at any time DVX is not running: DVX makes it again, and only the next start is slower. Delete it if Program Manager shows a program's old name or icon after the program was changed.

B.4.3. Terminal: TERMINAL.INI

Terminal keeps the phone book and the transfer settings in `USER\APPS\KPUNCH\TERMINAL\TERMINAL.INI`, and saves it whenever you change a session or a transfer setting (see Section 9.4 and Section 9.8). Terminals running at the same time share the file: each reads it again before it saves, and changes only what was changed in it. Every choice is written as a word, and every value is brought into range when the file is read, so a file changed by hand cannot give a session a value Terminal does not allow. If the file is missing or empty, Terminal starts with one session, "Direct COM1", and the transfer defaults. If it cannot save the file, Terminal says "The phone book could not be saved". If the file is there but cannot be read, Terminal starts with the defaults and does not save over it (see Section 9.8.8).

Section	Keys	What they hold	Default
`[phonebook]`	`entries`	How many sessions follow, 0 to 32	One session
`[phonebook]`	`current`	The session used last (0 is the first)	`0`
`[transfer]`	`directory`	The download folder	`USER\DOWNLOAD`
`[transfer]`	`protocol`	`xmodem`, `xmodem1k`, `ymodem`, or `zmodem`	`zmodem`
`[transfer]`	`exists`	When a file being received is already there: `ask`, `rename`, `resume`, `overwrite`, or `skip`	`ask`

Section	Keys	What they hold	Default
[transfer]	autozmodem, escapectl, resume	The transfer options, true or false	true, false, false
[entry1], [entry2], …	name	The session's name	Direct COM1
[entry1], …	type	serial, modem, secure, or telnet	serial
[entry1], …	port, speed	The serial port (COM1 to COM4) and its speed (300 to 115200)	COM1, 9600
[entry1], …	databits, parity, stopbits	5 to 8; N, E, O, M, or S; 1 or 2	8, N, 1
[entry1], …	flow	none, xonxoff, or rtscts (a secure link over a COM port cannot use xonxoff)	none
[entry1], …	init, dialprefix, phone	The modem's commands and the number to dial	ATZ, ATDT, empty
[entry1], …	redial, redialdelay	How many times to redial, and the seconds between (1 to 300)	3, 30
[entry1], …	host, tcpport	The Telnet host and port (1 to 65535)	Empty, 23
[entry1], …	passphrase, askpassphrase, securenet	The secure link's passphrase (saved scrambled, and never saved when it is asked for at each connect) and its options	Empty, false, false
[entry1], …	cols, rows, scrollback	The screen size (40 to 132 by 10 to 60) and the lines kept (100 to 10000)	80, 25, 1000
[entry1], …	scheme	standard, green, amber, or light	standard
[entry1], …	localecho, ansimusic, answerback	Local echo, ANSI music, and the answerback text	false, true, empty

The passphrase is scrambled the same way as the package server password: not locked, only hidden from a quick look.

B.4.4. DVX BASIC: DVXBASIC.INI

DVX BASIC keeps its preferences in USER\APPS\KPUNCH\DVXBASIC\DVXBASIC.INI, made the first time a setting is saved, and saves it after each change.

Section	Key	What it holds	Default
[view]	toolbar	**View › Toolbar**	true
[view]	statusbar	**View › Status Bar**	true
[run]	saveOnRun	**Run › Save on Run**	true
[run]	outputToLog	**Run › Output Window to Log**	false
[editor]	renameSkipComments	**Tools › Preferences…, Skip comments/strings when renaming**	true
[editor]	optionExplicit	**OPTION EXPLICIT default for new projects**	false
[editor]	tabWidth	**Tab width**, 1 to 8	3
[editor]	useSpaces	**Insert spaces instead of tabs**	true
[defaults]	author, publisher, version, copyright, description	The **New Project Defaults**	Empty (version: 1.0)
[syntax]	color0 to color6	The colors on the Preferences window's **Colors** tab: Default Text, Keywords, Strings, Comments, Numbers, Operators, and Types	DVX BASIC's own colors
[recent]	file0 to file15	The recent projects	None

B.4.5. Media Player: PLAYER.INI

Media Player reads USER\APPS\KPUNCH\PLAYER\PLAYER.INI when its window opens, and writes it when the window closes (see Section 8.7).

Section	Key	What it holds	Default
[Player]	Volume	The volume slider, 0 to 100	100
[Player]	Repeat	**Repeat Off**, **Repeat List**, or **Repeat Track**: off, list, or track	off
[Player]	Shuffle	**Shuffle**	false
[Player]	Folder	Where the file dialogs start	Empty
[Player]	Track	The track that was selected (0 is the first)	None selected
[List]	File1, File2, …	The play list	Empty

B.4.6. Sound Recorder: RECORDER.INI and the recording files

Sound Recorder reads USER\APPS\KPUNCH\RECORDER\RECORDER.INI when its window opens, and writes

it when the window closes (see Section 8.8).

Section	Key	What it holds	Default
[Recorder]	Quality	**Telephone Quality**, **Radio Quality**, or **CD Quality**: telephone, radio, or cd	radio
[Recorder]	Input	**Microphone** (0), **Line In** (1), **CD Audio** (2), or **MIDI Keyboard** (-1)	0
[Recorder]	Folder	Where the file dialogs start	Empty

The same folder holds RECORDING.WAV and RECORDING.MID while you record: they keep a recording until you save it with **File › Save As...**. Sound Recorder deletes them when it closes, after asking about a recording you have not saved.

B.4.7. KEYS: publisher keys

Keys prove who made a package (see Section 10.8).

- C:\DVX\SYSTEM\KEYS holds DVX's own key, KPUNCH.KEY. It is part of DVX, not a setting. Do not delete it: without it DVX cannot check its own packages and updates.
- USER\KEYS holds the keys of the publishers you chose to trust, as .KEY files. Software's **File › Trust a Publisher's Key...** copies a key there. To stop trusting a publisher, delete their .KEY file from this folder while DVX is not running.
- USER\KEYS also holds the keys you make yourself in Package Builder (**[New Key...]**): a .SEC file, your private key, and a .KEY file with the same name to give to others.



Keep a copy of your .SEC files somewhere safe. A private key cannot be made again, and an upgrade of a package must be signed with the same key as the version that is installed, so without it you cannot publish upgrades of the packages you signed with it.

B.4.8. DOWNLOAD

USER\DOWNLOAD holds the packages Software fetches from the package server, while it fetches and installs them; a download not yet finished ends in .PRT. Software deletes what it fetched once it is installed. Until then (for example after you choose **[Cancel]** in its **Install Software** window) it keeps the packages, so that installing them again does not download them again, and it keeps a download that was stopped, so it can carry on from where it stopped. Each fetch removes the packages an earlier one left there. It is also Terminal's usual download folder; the files Terminal receives stay there until you delete them.

B.4.9. Files in the DVX folder

These files outside the USER folder are DVX's own records. They are not settings, and you should not change or delete them:

File or folder	What it holds
`C:\DVX\SETUP.LST`	Setup's list of every file it installed, one to a line. Setup uses it to recognise a folder that holds DVX, and to remove DVX; without it, Setup cannot remove DVX.
`C:\DVX\SYSTEM\PACKAGES`	A file for each installed package, listing every file it put in the DVX folder. Without them, Software no longer knows what is installed.
`C:\DVX\SYSTEM\KEYS`	DVX's own key (see Section B.4.7).
`C:\AUTOEXEC.DVX`	The copy of `AUTOEXEC.BAT` that Setup keeps when it adds or removes the line that starts DVX. It is on the drive the computer starts from.

Setup writes a log file only when you start it with `/LOG=`, for example `SETUP /LOG=C:\SETUP.LOG`.

B.4.10. Temporary files

You may come across these files. DVX makes them while it works and normally deletes them again:

File	What it is
`DVX.$IN`, `DVX.~IN`, and others like them	A settings file being saved. DVX writes the new file with `$` and the first two letters of its extension, such as `DVX.$IN` or `PROGMAN.$IN`, then parks the old one with `~`, such as `DVX.~IN`, puts the new one in place, and deletes the old one. If the computer is switched off or DVX stops in the middle, these files can be left behind. A `$` file can be deleted. A `~` file whose settings file is missing is the complete old copy of your settings: keep it, and rename it back, for example `REN DVX.~IN DVX.INI`, before you start DVX.
`_dvx01.APP` and others like it	A copy of a program that is running twice, made in the TEMP folder (or, without one, in the USER folder) and deleted when that copy ends. One left behind after a crash can be deleted while DVX is not running.
`PKGMAKE` folder	Made in the TEMP folder (or the USER folder) while DVX BASIC makes a package, and removed afterwards.

File	What it is
`PRINTICO.BMP`	Made in the TEMP folder (or Icon Editor's folder in the USER folder) while Icon Editor prints an icon, and deleted afterwards.
`demo.txt`, `demo.ini`	Made in BASIC Demo's folder in the USER folder by its **File I/O** and **INI** buttons, and deleted straight away.

B.5. Going back to the default settings

Each settings file can be deleted to put that part of DVX back as it came. A missing file is not an error: DVX, or the program, starts with its defaults and makes the file again when it next saves. Delete files only while DVX is not running.

File or folder (in the USER folder unless shown)	Safe to delete?	What you get	What you lose
`DVX.INI`	Yes	A new copy of the settings DVX came with, made when DVX starts (see the steps below).	Every setting made in Control Panel (but not the file types), Software's package server settings, and your changes by hand.
`ASSOC.INI`	Yes	The file types DVX came with, from the next start.	Your changes to the file types.
`APPS\KPUNCH\PROGMAN\PROGMAN.INI`	Yes	Two empty groups, **Main** and **Startup**, **Large Icons**, **Auto Arrange** on, and no Run history. **Installed Programs** is made again anyway.	Every group and item you made, their shortcut keys, and your Startup items.
`APPS\KPUNCH\TERMINAL\TERMINAL.INI`	Yes	One session, "Direct COM1", ZMODEM, and the download folder `USER\DOWNLOAD`.	The whole phone book, with any passphrases saved in it.
`APPS\KPUNCH\DVXBASIC\DVXBASIC.INI`	Yes	DVX BASIC's default preferences and colors.	The recent projects, the project defaults, and your colors.
`APPS\KPUNCH\PLAYER\PLAYER.INI`	Yes	Volume 100, Repeat Off, Shuffle off, and an empty play list.	The play list.

File or folder (in the USER folder unless shown)	Safe to delete?	What you get	What you lose
`APPS\KPUNCH\RECORDER\RECORDER.INI`	Yes	Radio Quality and the microphone.	The last folder used.
`APPS\KPUNCH\RECORDER\RECORDING.WAV`, `RECORDING.MID`	Yes	Nothing; Sound Recorder deletes them when it closes anyway.	A recording not yet saved.
`APPS` (the whole folder)	Yes	Every program's defaults.	All of the above, and any other files programs saved there.
`PROGRAMS.CAC`	Yes	DVX makes it again.	Nothing; the next start is slower.
`SECLINK.RND`	Yes	DVX writes a new one when it exits, if a program used it during that session.	Nothing.
`DOWNLOAD`	Yes, when Software is not installing anything	Made again when needed.	Packages fetched but not installed yet, and the files Terminal received there.
`KEYS`	Only with care	Only DVX's own key is trusted (it is in `SYSTEM\KEYS`).	Your trust in every other publisher, and your own private keys (`.SEC`), which cannot be made again (see Section B.4.7).
`FONTS`, `SOUNDS`, `THEMES`, `WPAPER`, `BANKS`, `SAVERS`	Yes	Only DVX's own files of that kind (in `SHARED`).	Your own files of that kind. A setting that named one of them then finds nothing: no sound, no wallpaper, no screen saver, or DVX's standard instruments.
A `$` scratch file, such as `DVX.$IN`, and a left-over `_dvx01.APP`	Yes	-	-

File or folder (in the USER folder unless shown)	Safe to delete?	What you get	What you lose
A ~ file whose settings file is missing, such as `DVX.~IN` without `DVX.INI`	No	-	Your settings: it is the only copy. Rename it back instead (see Section B.4.10).
The whole USER folder	Yes	DVX starts with everything as it came, and makes a new `DVX.INI` at the next start (see Section B.5.1 for its screen mode).	Every setting and every file saved in it.
`C:\DVX\SETUP.LST`, `C:\DVX\SYSTEM\PACKAGES`, `C:\DVX\SYSTEM\KEYS`	No	-	Removing DVX, Software's record of what is installed, and the check of DVX's own packages.

B.5.1. Putting back the settings DVX came with

To go back to the settings in `DVX.INI` that DVX came with, rename your `DVX.INI` rather than deleting it, so you can still look up your old settings or copy one back:

1. Exit DVX.
2. At the DOS prompt, rename the file:

   ```
   CD \DVX\USER
   REN DVX.INI DVXOLD.INI
   ```

   If you set DVXUSER, change to the folder it names instead.

3. Start DVX. It copies `SYSTEM\DVX.INI` into your USER folder.

The new copy has the values of the file DVX came with, which are not quite those Setup gave you:

- The screen mode is 1024 x 768 with 65 thousand colors, not the mode Setup chose. If your card has no mode that large, DVX starts in safe video mode and asks whether to use that mode from now on: click **[Yes]**. If the card has the mode but the monitor cannot show it, the screen stays blank or unreadable: exit DVX, then start it again while holding down a `Shift` key, and click **[Yes]** when it asks whether to use the safe video mode from now on (see Section 3.13). Then choose the mode you want on Control Panel's Video page.
- The Welcome window appears again at the start.

- The colors, wallpaper, screen saver, and text smoothing go back to DVX's own, and the mouse, network, printer, sound, event sounds, and package server go back to the values in the file DVX came with.

To start over completely, rename the whole USER folder instead (for example `MOVE C:\DVX\USER C:\DVX\USEROLD` with DVX not running). DVX makes a new, empty USER folder at the next start, with a new `DVX.INI` like the one described above. You can copy files you want to keep, such as your Program Manager groups or Terminal's phone book, from the old folder into the new one later, with DVX not running.

To put back a single program's settings, delete (or rename) just its file from the table above. To put back the file types, delete `ASSOC.INI`.

B.6. The log file, DVX.LOG

DVX writes a record of what it does, and of what goes wrong, to the file `DVX.LOG` in your USER folder: `C:\DVX\USER\DVX.LOG`, or `DVX.LOG` in the folder DVXUSER names, or `TEMP\DVXUSER\DVX.LOG` when DVX runs from a disk it cannot write to (see Section B.1). It is the place to look when something fails without a message, such as a sound card that stays silent or a network that does not start, and the file to send with a problem report.

B.6.1. When DVX writes it

- DVX empties the file each time it starts, so it holds only the latest session. Copy it before you start DVX again if you want to keep it.
- DVX adds each line the moment something happens, and the line is on the disk straight away, so the log keeps everything up to a crash. The file never grows past 512 KB: when it does, DVX removes its oldest lines and keeps the newest 256 KB at most, starting with the line "Log: older lines were removed when the log passed 524288 bytes".
- When DVX cannot write to its USER folder and there is no TEMP folder, there is no log file. DVX keeps only the last part of the log (16 KB) in memory, which is lost when it exits. To read it, open System Information in Program Manager's **Help** menu and scroll to its end: after the line "DVX cannot write its log to a disk, so it keeps the latest lines here:" come the latest lines of the log. To get a log file, set TEMP or DVXUSER (see Section B.1.4).
- System Information always ends with where the log is: "Log file:" and the file's full name.

B.6.2. Reading the log

The log is a plain text file. Open it in Notepad with **File › Open...**, or, with DVX not running, at the DOS prompt:

```
EDIT C:\DVX\USER\DVX.LOG
```

A very long log may be too big for Notepad, which then says so; use EDIT or `TYPE C:\DVX\USER\DVX.LOG | MORE` at the DOS prompt instead.

Each line is one note. These are the kinds of lines you find, roughly in the order they appear:

Lines about	What they say
DVX starting	A line saying that DVX is starting, then the USER folder DVX uses, and each library and control that DVX loads. A part that could not be loaded has a line starting with “FAILED:” that says why, for example an add-on made for another version of DVX. A safe start notes the add-ons it left out.
The help files	Bringing the help files up to date, when libraries or controls were added or removed.
The screen	The screen mode asked for in `DVX.INI`, the list of modes the video card offers (“Available video modes:”), and the mode chosen (“Selected:”).
The computer	A block from “=== System Information ===” to “=== End System Information ===” with the processor, the memory, the DOS version, the TEMP folder, the video card and its memory, the mouse, and the drives.
Your settings	Lines starting with “Preferences:” for the mouse, the colors, text smoothing, the wallpaper, and the screen saver, for example “Preferences: failed to load the wallpaper” when the picture cannot be loaded.
Programs	Each program started, a program that could not be loaded and why, and a program that ended itself.
Crashes	When a program crashes, you see “'*name*' has caused a fault and will be terminated.”, and the log gets “=== CRASH ===” followed by the details, the program’s name and file, and the fact that DVX recovered by ending it.
DVX BASIC programs	An error a BASIC program did not handle, starting “BASIC RUNTIME ERROR:” with the details below it, and any notes the program writes to the log itself.

Lines about	What they say
Hardware	The sound hardware found or not found (for example the BLASTER advice in Section B.2.12), the network (“no packet driver found”, and the address the network gave), game controllers, and fonts that could not be used (“Fonts:”).
Programs at work	Packages Software installs, removes, or publishes; Terminal’s connections and file transfers (“Terminal:”); the screen saver starting and ending; settings that could not be saved.
DVX ending	Two lines saying that DVX is shutting down and that it has exited. A log that stops before them means DVX stopped without exiting normally.

B.6.3. Sending the log with a problem report

When you report a problem, for example to the author of a program that failed, send the log of the session in which it happened:

1. When the problem happens, write down what you were doing, and the exact words of any message, including its title.
2. If DVX is still running, exit it if you can. (The log is complete up to the moment of the problem even if DVX stopped.)
3. Before you start DVX again, copy the log, for example to a floppy disk or under another name:

   ```
   COPY C:\DVX\USER\DVX.LOG A:\DVX.LOG
   ```

   If you set DVXUSER, copy `DVX.LOG` from the folder it names.

4. Send the copy with your report, together with what you wrote down.

The log already describes your computer (processor, memory, video card, and drives), so you do not need to list them. It does contain the names of your folders and of the files programs used; read it first if that matters to you.

For a problem with Setup itself, start it as `SETUP /LOG=C:\SETUP.LOG` and send the file `C:\SETUP.LOG` it writes.

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