User Guide ....*for version 3.3 of* Mo'Slo™ 4BIZ

Contents

CONVENTIONS AND TERMS

Sans Serif indicates a **keyboard key**, a **dialog item**, or a **Windows menu item**. In addition to simple emphasis, *italic* indicates the introduction of an *important term* or *proper name*. *Italic* is also used for *program file names*.

```
Indented monospaced text indicates a command line
```

Real-mode MS-DOS® is not the same as Microsoft® Windows® DOS emulation. Real-mode MS-DOS cannot be entered directly from 32-bit Windows—you must reboot the system. Windows 95 and 98 allow you to enter real-mode MS-DOS at boot time by pressing the **F8** key immediately before Windows starts, then selecting **Command Prompt Only** from the menu. They also allow a reboot to MS-DOS from a Windows shortcut. To run real-mode MS-DOS from other Windows versions normally requires a bootable MS-DOS diskette or dual-boot system.

The term *parameter* is used to refer to an item on a command line subsequent to a program's path name or file name. An equivalent term is *argument*.

 MHz is short for *megahertz* (millions of cycles per second). *GHz* is short for *gigahertz* (billions of cycles per second). *THz* is short for *terahertz* (trillions of cycles per second). These terms refer to the clock speed of a computer processor. The processor clock speed is not the only factor in the apparent speed of a computer. Processor architecture, memory access, disk drives, video processor…all affect the speed at which programs run.

WHAT'S NEW SINCE VERSION 3.0?

Mo'Slo 4BIZ-XP™ now provides three Windows-based slowdown methods for Windows NT, 2000, and XP, and one for Windows 98 and ME. Programs can be slowed to a virtual 4.77 MHz in Windows 2000 and XP without significantly impacting the responsiveness of other programs or Windows itself.

Slo'Win EZ™ graphical interface included since version 3.1 allows interactive testing of slowdown parameters, and—when slowdown is optimized—creation of Windows shortcuts in the Program menu and on the Desktop.

Functionality has been added to Mo'Slo 4BIZ-XP's system test window, including test abort, minimize button, and slowon/slowoff button. The window can be repositioned by clicking and dragging. Since version 3.2, the window self-minimizes when the slowed program is loaded.

Since version 3.1, Mo'Slo 4BIZ-XP no longer changes the default drive and folder to that of the slowed program. Slo'Win EZ makes that behavior is more a limitation than a feature.

Version 3.2 added keyboard toggling of slowdown on/off to Windows-based slowdown*.

OPTIONS FOR LOAD BALANCING SERVERS

Slowdown methods 3 and 4 can be used to limit the impact of multiple programs on the system and each other. Method 4 in particular can throttle CPU time without significant system overhead. Mo'Slo 4BIZ-XP now allows limiting a process to a specific logical processor on multi-processor and hyperthreaded systems. And a system-specific speed parameter allows the system test to be bypassed on load, eliminating the test's brief hogging of processor time.

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* Not supported by Windows 98 or ME.

ABOUT MO'SLO 4BIZ

Mo'Slo 4BIZ is a software program that lets you temporarily slow the effective speed of your computer while another software program or batch file executes. When the slowed program or batch file terminates, Mo'Slo 4BIZ also terminates, and normal system speed is restored.

Mo'Slo 4BIZ includes two slowdown programs. The DOS program (*moslo.com*) provides two methods for slowing DOS programs in MS-DOS and Windows. The 32-bit Windows program *Mo'Slo 4BIZ-XP* (*moslo.exe*) adds three Windows-based methods for slowing DOS *and* Windows programs in Windows 98, ME, NT, 2000, and XP. The various slowdown methods meet the special needs of a wide range of programs and system configurations.

When slowing a program with any of Mo'Slo 4BIZ-XP's Windows-based slowdown methods, a progress bar appears on the screen while slowdown factors are being tested. At any time during the test you can left-click on the progress bar or press the Esc key on the keyboard to stop testing and exit Mo'Slo 4BIZ-XP. When the test is complete, three buttons appear on the progress bar. The button with the red X is for use when a slowed program has crashed and won't close, or when a slowed program has terminated but the Mo'Slo 4BIZ-XP window does not automatically close. The button with the black horizontal bar minimizes the Mo'Slo 4BIZ-XP window. The button with the black circle (a vertical bar when slowdown is off) toggles slowdown off and on. If you click and hold the left mouse button while the cursor is over the Mo'Slo 4BIZ-XP window, you can drag the window to another location on the screen.

After Mo'Slo 4BIZ-XP adjusts effective system speed for the slowed program, its window self-minimizes. To restore the Mo'Slo 4BIZ-XP window, click the button labeled *Mo'Slo 4BIZ-XP System Speed Compensator* on the Windows Taskbar.

The Mo'Slo 4BIZ logo is grayed when the window is inactive.

Mo'Slo 4BIZ programs are command-driven. You cannot simply click the *moslo.com* or *moslo.exe* file icons and get a user interface. Instructions for what to slow and how to slow it must be included in the command that loads Mo'Slo 4BIZ. The advantage to this is that, once the parameters that provide best performance are determined, a program or batch file can be repeatedly loaded and run with a single command. In Windows, the command can be stored in a shortcut, so you can re-use it without having to type it each time. Using a Windows shortcut, you can run a program or batch file slowed with a few clicks of the mouse. And now, thanks to the new Slo'Win EZ program, making effective shortcuts is a simple task (see next page).

A list of DOS and Windows programs made usable by Mo'Slo 4BIZ is on the Internet at http://www.hpaa.com/moslo/compatible.asp. This web page lists the most effective speed and method to use with programs for which we can obtain data. If any of your programs needing slowdown are not listed, your data contribution would be much appreciated.

ABOUT SLO'WIN EZ

Slo'Win EZ is a Windows program with a graphical interface that allows you to configure slowdown options, test your configuration, and—when your program or batch file is working to your satisfaction—create shortcuts in the Programs menu and on the desktop. The default Mo'Slo 4BIZ Setup creates a shortcut to Slo'Win EZ in the Start\Programs\Mo'Slo folder.

Here is how the Slo'Win EZ window looks when opened in Windows 2000:

SParam is grayed when a DOS-based slowdown method is selected, either explicitly or by default.

Interval is grayed unless method 3 or 4 is explicitly selected. **Interval** is always grayed in Windows 95, 98, and ME, where method 3 and 4 are not supported.

Keyboard is grayed when **Quickload** is selected because quickload enables keyboard control if supported. **Keyboard** is grayed when method 2w is selected in Windows 98 and ME, which do not support keyboard control with Windows-based slowdown.

Logical Processor is grayed when only one logical processor is available.
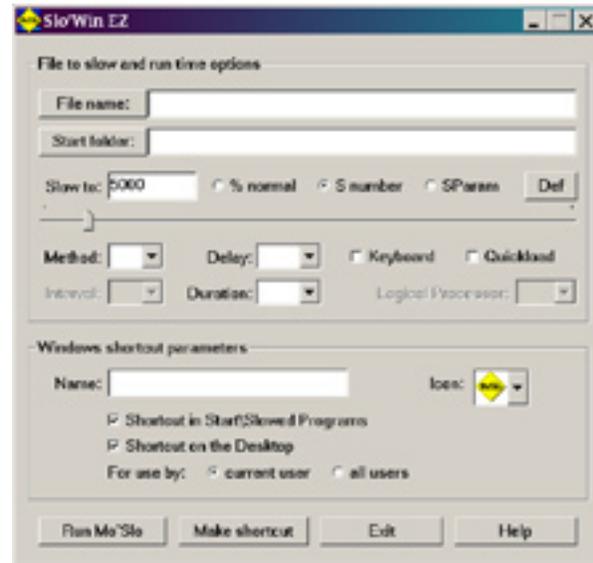
The option to create shortcuts for **all users** is valid only in NT-based Windows, and is enabled only when the current user has Adminstrator privileges. Otherwise, that option is grayed.

Starting Slo'WinEZ while another program is being slowed will produce an inaccurate system speed test. Close all unnecessary programs before starting Slo'Win EZ.

A description of the various parameters follows…

USING SLO'WIN EZ TO SLOW PROGRAMS AND CREATE SHORTCUTS

Double-click the Slo'Win EZ icon or name to start the program. On startup, a brief system test determines the ratio of emulation speed to percent-of-normal-speed and sets the range of the slowdown slider.

Specifying a file name and start folder

If you know the path name of the file to be slowed you can type it into the **File name** text box (it is also OK to type only the file name in this box if the start folder is set to the location of the file). The surest way to specify a slowable file is to click the **File name** button and browse for the file. Selecting a file by browsing has three potential advantages. First, names with spaces are automatically enclosed in double quotes. Second, the Start folder is automatically set to the location of the slowed file. Third, the shortcut name in the shortcut parameters is filled in with the program name of the file to be slowed.

If the **File name** text box is left blank. Mo'Slo 4BIZ will slow a command prompt.

The **Start folder** text box is typically filled in with the path name of the directory where the slowed file is located. Specify another path name if the slowed program requires it, or leave the box blank to have the slowed file start in the current default drive and directory.

Specifying the amount of slowdown

Slo'Win EZ opens with slowdown set to the default emulation speed number, and maximum slowdown set to the speed of the system. You can toggle the **Slow to** number between emulation speed (**S number**) and percent-of-system-speed (**% normal**) with the radio buttons to right of the number. Click the **Default** button to set the **Slow to** box back to the default emulation speed. You can also select a slowdown speed using the slider bar. Click and hold the mouse button on the slider pointer and drag it left or right. Or, you can click to the left or right of the slider to adjust in increments. Once the slider is selected, you can also adjust speed using the keyboard arrow keys and the **Page Up**, **Page Down**, **Home** and **End** keys.

When you select the system-specific speed parameter (**SParam**), Mo'Slo 4BIZ will be used to convert your current **Slow to**, **Method**, and **Interval** settings into a parameter that allows it to skip its normal system test each time a program is slowed. Shortcuts created while this option is selected may load the slowed program sooner but slowdown may vary depending on how much background processing is taking place when the shortcut is run. This option is available with Windows-based slowdown only.

Shortcuts created with **% normal** or **SParam** parameter will need to be re-created if a system processor is upgraded.

Selecting **S Number** before making a shortcut will help ensure that your shortcut still works if you later increase the speed of your system.

Other options

Leave **Method** and **Interval** blank to use the default values or select from values in the drop-down lists. (See SLOWDOWN METHODS on page 8 for the meaning of the values.)

Interval is valid only for methods 3 and 4 and will be grayed unless one of these methods is explicitly selected.

To enable **Delay** or **Duration**, select 1–10 seconds from the drop-down list or type a number from 1–255. (See DELAYING SLOWDOWN AND LIMITING DURATION on page 9.)

Keyboard enables keyboard toggling of slowdown (plus keyboard speed adjustment in DOS-based slowdown). **Quickload** enables keyboard control and loads the slowed program with slowdown OFF. (See KEYBOARD CONTROL AND QUICKLOAD on page 9.)

Logical Processor gives you the option to execute slowdown and slowed program on a specific logical processor or to execute each on any logical processor on multi-processor and hyperthreaded systems. By default, Mo'Slo 4BIZ and slowed program execute on logical processor #1. This option is relevant only for Windows-based slowdown.

When file and slowdown parameters are selected, click the **Run Mo'Slo** button to test them.

Shortcut parameters

Choose a **Name** and select an **Icon** to represent your shortcut in the Start\Slowed Programs menu and/or on the Desktop. You must select one or both locations for placement. The option to make a shortcut for **All users** is valid only in NT-based Windows, and only if the current user has Administrator privileges.

As noted above, it's a good idea to select **S number** for slowdown display, as this will keep your shortcut usable if you upgrade system speed.

When shortcut parameters are selected and tested, click the **Make shortcut** button to create the shortcut(s). If a shortcut by the same name exists, you will be asked if you want to overwrite it.

ABOUT COMMAND LINES

Behind every shortcut or icon that runs programs with a mouse-click there is a command that can be expressed as one line of text. The command to load and run most programs and batch files is simply the file's name.

Microsoft operating systems identify file types by the file name *extension*: the last period and subsequent letters in the name. Extensions *.com* and *.exe* identify program files. Extension *.bat* identifies a *batch file*, which is simply a text file consisting of a sequence of command lines. In Windows Explorer and My Computer, these file name extensions are hidden by default (see UNHIDING FILENAME EXTENSIONS IN WINDOWS, page 12).

To use Mo'Slo 4BIZ to slow a program or batch file, the original command used to execute the program is used as a *parameter*, or *argument*, to Mo'Slo 4BIZ. For example, here is a hypothetical command to load an old program:

```
c:\progs\old\pcxtprog.com
```

And here is a command you might use to slow the program with Mo'Slo 4BIZ:

```
c:\moslo\moslo.exe /s100 /m1 /d5 c:\progs\old\pcxtprog.com
```

| DRIVE | DIRECTORY (FOLDER) | FILENAME (WITH EXTENSION) | SWITCHES (OPTIONS) | DRIVE | DIRECTORIES (FOLDERS) | FILENAME (WITH EXTENSION) |

The command above tells the operating system to execute *c:\moslo\moslo.exe*. The subsequent items on the command line are parameters for *moslo.exe*.

Files and folders may be named with uppercase and lowercase letters in Windows, but command processing is *case-insensitive*. On a command line, *C:\MoSlo\MOSLO.EXE* is equivalent to *c:\moslo\moslo.exe*. Do not worry about capitalization in command lines.

The complete description of a file's location, including the drive and directories, is called the *path name*. The backslash (\) is the *path separator*, separating drive, directories, and the file name. Directories are special files that contain the names and locations of other files and directories. Directories appear as *folders* in Windows Explorer and My Computer.

The behavior of Mo'Slo 4BIZ is controlled by optional parameters called *switches*. A switch is a forward slash (/) followed by a sequence of letters and/or a number. The switches can be in any order, but they must occur between the Mo'Slo filename and the filename of the program you want to slow. Spaces between switches are optional, but spaces *must* be used between switches and path names.

TELLING MO'SLO 4BIZ WHAT TO SLOW

Here is a command to slow a popular DOS communications program:

```
c:\moslo\moslo.exe c:\pcplus\pcplus.exe
```

Moslo.exe is specified, so Mo'Slo 4BIZ-XP will be loaded. If you are using NT-based Windows, Mo'Slo 4BIZ-XP will then load *pcplus.exe* using its Windows-based slowdown. Otherwise, Mo'Slo 4BIZ-XP will pass control to *moslo.com*, which will then load *pcplus.exe* using DOS-based slowdown. Since there are no switches, *pcplus.exe* will be slowed with the default slowdown method to the default emulation speed of a 166MHz Pentium—a speed that has been determined to reliably load and run many MS-DOS business programs.

If you are working in a real-mode MS-DOS environment you will need to specify *moslo.com* because *moslo.exe* does not run outside of Windows.

Since many programs and batch files look for other files in the default drive and directory, it's a good idea to change the default drive and directory to the location of the program file to be slowed before slowing it. For example, the following sequence of commands changes

the current drive to *D*, changes the current directory to *\qa* and then runs *qa.exe* at the default emulation speed of a 166MHz Pentium CPU:

```
d:
cd \qa
c:\moslo\moslo.com qa.exe
```

Use of executable and batch file name extensions *.com*, *.exe*, and *.bat* is optional. When an extension is not given, Mo'Slo 4BIZ will first look for a file with an extension of *.com*, then *.exe*, then *.bat*.

Parameters for Slowed Programs

Some programs and batch files require their own parameters. Mo'Slo 4BIZ will pass parameters to a slowed program or batch file. Simply append the parameters to the tail of the command line as you normally would. Note, however, that if the path name to the slowed program includes spaces, you must enclose the entire name in double quotes.

Slowing a Command Prompt

The *command prompt* switch is a forward slash followed by the letter 'c'. Use this switch in place of a path name to slow a command prompt (MS-DOS prompt). The following example slows a command prompt using default emulation speed and slowdown method:

```
c:\moslo\moslo.exe /c
```

Any DOS program you run from the slowed prompt will also run slowed. The command prompt switch is implemented in both *moslo.exe* and *moslo.com*.

TELLING MO'SLO 4BIZ HOW MUCH TO SLOW

Effective system speed for a slowed program or batch file can be specified as either *percent-of-system-speed* or *emulation speed*. If no speed is specified, Mo'Slo 4BIZ approximates the speed of a 166MHz Pentium® processor.

Percent-of-system-speed and emulation speed are simply different ways of expressing the same thing. Specify one or the other, not both, unless you are converting percent to emulation speed as described at the end of this section.

Specify percent-of-system speed when you want to slow your system to a certain percentage of its normal operating speed. You specify percent-of-system-speed with a forward slash followed by a number (without the percent sign). You can specify a percentage from 0.01% through 99.99%. For example, when the following command is executed on a system with a 1 GHz processor:

```
c:\moslo\moslo.exe /3.3 c:\rd\rdprog.com
```

rdprog.com will execute as if the processor frequency were reduced to 3.3% of 1,000 MHz: 33 MHz.

Specify emulation speed when you want to emulate the speed of a specific system, regardless of the speed of the current system. You specify the emulation speed with a forward slash, followed by the letter 's', followed by a number. The number, once determined, can then be used to achieve approximately the same execution speed on various systems. For example, the following command:

```
c:\moslo\moslo.exe /s5000 c:\pcplus\pcplus.exe
```

emulates a 166MHz Pentium processor and successfully loads *pcplus.exe* on most if not all current processors. (Since /s5000 is the default emulation speed of Mo'Slo 4BIZ, the above command is equivalent to using no speed switch at all.)

In real-mode MS-DOS, /s100 emulates the original 4.77MHz IBM® PC-XT. Use /s300 and /s500 to achieve similar slowdown of graphical programs in Windows 9x/ME and NT-based Windows, respectively.

Converting Percent-Of-System-Speed to Emulation Speed

To find the emulation speed that corresponds to particular percent-of-system speed, use the percent-of-system-speed switch *and* the emulation speed switch without a speed number. The following command displays the emulation speed equivalent of 50% system speed:

```
c:\moslo\moslo.exe /50 /s
```

To display the emulation speed of your system at 100%, do not specify a percentage:

```
c:\moslo\moslo.exe /s
```

The number returned by *moslo.com* may not be exactly the same as the number returned by *moslo.exe*, and the result typically varies a bit from one test to another in Windows.

SLOWDOWN METHODS

Different programs may require different methods of slowdown to best reproduce a program's normal operation at the speed it was designed for. By default, Mo'Slo 4BIZ will use a method known to be generally effective on a specific operating system with a particular type of program (DOS or Windows). Unless you know another method is superior for your needs, you should first try the default slowdown method (i.e., do not specify a method in the command to run Mo'Slo 4BIZ).

You specify slowdown method with a forward slash, followed by the letter 'm', followed by a number.

Four methods are available in NT-based Windows and two in Windows 9x/ME. Two methods are available in real-mode MS-DOS.

Method 1 (/m1) is the default method for slowing DOS programs in MS-DOS and Windows 95/98/ME. When method 1 is used to slow a DOS program in Windows, other programs are not significantly affected. Effective for DOS programs only.

Method 2 (/m2) is implemented in both DOS and Windows versions.

DOS-based method 2 is supported in real-mode MS-DOS and Windows 95/98/ME. It uses a higher-frequency timing mechanism than method 1 and can provide smoother slowdown of animated graphics. It cannot slow Windows programs directly, but if a DOS program is slowed using this method, any Windows program running while the slowed DOS program is running will also be slowed. If the /m2 switch is specified in DOS or Windows 9x/ME to slow a DOS program, this is the method that will be used.

Windows-based method 2 is supported in Windows 98 and NT 4 and later. Like the DOS method 2, it slows all of Windows while its slowdown is in effect. As a Windows program, however, it can slow other Windows programs directly and is therefore used as the default slowdown method when slowing Windows programs in Windows 98 and ME.

Method 2w (/m2w) forces use of Windows-based method 2 to slow DOS programs in Windows 98 and ME. It is not relevant and not an option in other Windows versions.

Method 3 (/m3) is usable in NT-based Windows only. It provides the smoothest slowdown in Windows 2000 and later, with emulations down to 4.77 MHz. It combines time-slice reduction (which gives more processing time back to Windows) and slowdown of Windows itself. The impact of method 3 on Windows depends on interval (described below).

Method 4 (/m4) is usable in NT-based Windows only. It slows with time-slice reduction only, which means that multiple programs can be slowed with this method without one impacting another. Its intended use is on servers, where it can reduce a program's impact on background services by limiting the processor time the program can receive. Its shortcoming is that slowdown adjustment is in large increments (typically 6.67% of normal system speed), and you cannot slow to less than the smallest increment. However, if the minimum speed is not slow enough and the program to be slowed is a DOS program, you can slow *moslo.com* as much as possible, then have *moslo.com* slow the program to the desired emulation speed. For example, with a 5 GHz processor, 6.67% of system speed will not be slow enough to load *pcplus.exe*. The following command:

```
c:\moslo\moslo.exe /m4 c:\moslo\moslo.com pcplus.exe
```

slows *moslo.com* to 6.67%. *Moslo.com* then slows any additional amount required to load *pcplus.exe*.

9-step interval adjustment for Method 3 and 4 (/m31 through /m39 and /m41 through /m49) allows adjustment of the slow cycle interval, in 3-millisecond increments. For method 3, a longer interval reduces CPU utilization while a shorter interval may, in some cases, give smoother slowdown. For method 4, a longer interval decreases the slowdown increment at the expense of smoothness. Specifying a method of /m49, for example, gives an increment (and maximum slowdown) of 3.7%.

DELAYING SLOWDOWN AND LIMITING DURATION

Delay can be used when a program needs slowdown to run but not to load. Duration can be used when a program needs slowdown to load but can run at full speed.

Specify delayed slowdown, in seconds, with a forward slash, followed by the letter 'd', followed by a number from 1–255. Specify duration of slowdown, in seconds, with a forward slash, followed by the letters 'du', followed by a number from 1–255. Duration begins when slowdown begins, i.e. after any delay has expired. For example, the following command:

```
c:\moslo\moslo.exe /d7 /du30 c:\cb\cbstat.exe
```

will begin slowdown 7 seconds after cbstat.exe loads, and stop slowdown after another 30 seconds.

KEYBOARD CONTROL AND QUICKLOAD

The *keyboard control* switch (/k) and the *quickload* switch (/q) enable on-the-fly on/off toggling of slowdown and—with DOS-based methods 1 and 2—speed adjustment also. Quickload enables keyboard control and loads a slowed program with slowdown toggled off.

Slowdown is toggled by pressing left **Ctrl** + left **Alt** + right **Shift**. With DOS-based slowdown methods 1 and 2, pressing left **Ctrl** + left **Alt** + '-' reduces effective speed, pressing left **Ctrl** + left **Alt** + '=' increases effective speed.
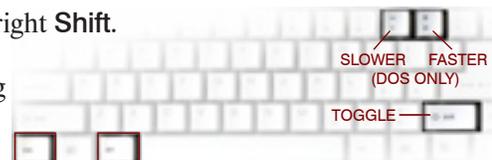
With Windows-based slowdown methods 2–4, a descending two-tone beep indicates slowdown is being toggled on, an ascending two-tone beep indicates slowdown is being toggled off. Speed can be toggled from any slowed program, and globally throughout Windows when using Windows-based method 2. Windows 98 and ME do not support keyboard control with Windows-based slowdown.

With DOS-based slowdown methods, visual feedback appears at the upper left of the display when left **Ctrl** + left **Alt** are pressed. Note that DOS-based keyboard control does not work with all DOS programs and may not work at a Windows NT or 2000 command prompt.

ABOUT WINDOWS SHORTCUTS

A shortcut is a small data file that tells Windows where another file is located and how to open it. Shortcuts are also called *links*. A shortcut can refer to any file type recognized by Windows, including web pages, but they most commonly refer to program files on your computer.

Windows creates two different types of shortcuts to program files, depending on whether the program file is a Windows program or a DOS program. Both types have editable *properties*. Some properties are general to all shortcuts and some are specific to the shortcut type.

The primary property in a shortcut to a program file is simply a command line. The command line is called a *cmd line* in a shortcut to a DOS program, a *target* in a shortcut to a Windows program, and a *location* in the Windows 2000/XP shortcut wizard, but for program files they are all the same thing.

Another property is the *start* folder (Windows shortcuts) or *working* directory (DOS shortcuts). Windows changes the default drive and directory to this location when executing the command line. This property is important for many programs that load additional files from the same location.

A shortcut property for Windows files in Windows 2000 and later is *compatibility mode*. Compatibility mode should NOT be enabled in Mo'Slo 4BIZ shortcuts, as this will reduce the options available to Mo'Slo 4BIZ. If you are slowing a program that requires a compatibility mode, edit the program's properties, not the properties of the Mo'Slo 4BIZ shortcut.

A shortcut to a DOS program such as *moslo.com* includes properties for memory, screen, and other aspects. These properties must be edited for the shortcut, not for the specific program being slowed.

Shortcuts can be located anywhere on your disk drives, but are typically placed in the Programs menu and on the Desktop for convenient access.

CREATING A SHORTCUT MANUALLY

To create a desktop shortcut to run Mo'Slo 4BIZ-XP, right-click on the desktop to pop up a menu, highlight **New** to pop up another menu, then click **Shortcut** to open the Shortcut Wizard. In the box labeled **Command line** or **Type the location**…, enter the path name to *moslo.exe*, followed by a space, switches if needed, a space, and the file name of the program you want to slow. If the file name of the program to be slowed includes any space characters, enclose the name in double quotes ("). Follow instructions to complete the shortcut. The shortcut will have the yellow Mo'Slo icon.

The process is the same for a shortcut to run DOS Mo'Slo 4BIZ (*moslo.com*), except that no element in the path name of the file to be slowed can have more than 8 characters plus a 3-character extension, and spaces in names are not allowed. When creating a DOS shortcut you will be asked to choose an icon from a selection box.

After creating a shortcut to *moslo.exe*, right-click it, click **Properties**, click the **Shortcut** tab, and in the **Start in** box type the path name of the folder where the program to be slowed is located. Click **Apply**. Double-click the shortcut icon to make sure it works. Then click **OK**.

After creating a shortcut to *moslo.com*, right-click it, click **Properties**, click the **Program** tab, and in the **Working** box type the path name of the folder where the program to be slowed is located. Uncheck the **Close on exit** box so any error messages will be readable. Click **Apply**. Double-click the shortcut icon to make sure it works. Check the **Close on exit** box. Click **OK**.

You can also add Mo'Slo 4BIZ shortcuts to the **Programs** menu. Simply click **Start** and highlight **Settings…** Click **Taskbar & Start Menu…** Click either the **Start Menu Programs** or **Advanced** tab (depending on Windows version). Click the **Add** button to start the Shortcut Wizard. After creating the shortcut you will be asked where you want it placed in the **Programs** menu.

EDITING SHORTCUT AND PROGRAM PROPERTIES

To edit shortcut properties, right-click the shortcut's icon (on the desktop) or text (in the Programs menu). When the menu pops up, click **Properties**. When you finish editing, click **Apply** if you want to test changes before closing the Properties box or **OK** to apply changes and close the box.

Edit a program properties as you would a shortcut properties, except that you must first find the program file in Windows Explorer or My Computer. Right-click the program file icon or name and then click **Properties**.

When using a Windows-based slowdown method to slow a program, edit the properties of the program, not the shortcut. When using *moslo.com* in a shortcut, edit the properties of the shortcut. If you are using *moslo.exe* in a shortcut with a DOS-based slowdown method, effective properties will be those of *moslo.com*. We recommend that you do not edit *moslo.com* properties. Create a shortcut using *moslo.com* and edit the properties of the shortcut.

DO NOT ENABLE COMPATIBILITY MODES IN MO'SLO 4BIZ SHORTCUTS. A compatibility mode, if required, should be enabled in the properties of the slowed program, not in the Mo'Slo 4BIZ shortcut properties.

DOS shortcuts and programs have many more properties than Windows programs. For instance, for maximum slowdown effectiveness, you can move the idle sensitivity slider in the **Misc** properties all the way to **Low**. Conversely, to avoid affecting performance in other Windows programs, you can enable **Background—Always suspend** in the **Misc** properties and move the idle sensitivity slider a few notches short of **High**. If a command prompt window remains on the desktop after your slowed MS-DOS program exits, enable '**Close on exit**' in the **Program** properties. You can also limit memory usage and specify whether to run a program full screen or in a window.

A SHORTCUT TO SLOW WINDOWS PROGRAMS IN WINDOWS 95

Windows-based slowdown isn't available in Windows 95, but you can slow a Windows program using DOS-based slowdown method 2. To do so, you must first slow Windows itself using method 2, then run the program as you normally would. To create a shortcut to slow Windows 95, right-click the desktop, highlight **New** to pop up another menu, then click on **Shortcut** to start the shortcut wizard. When you're asked to enter a Command line, type:

```
c:\moslo\moslo.exe /c/k/m2
```

followed by either a percent-of-system-speed (/*n*) or emulation speed (/s*n*) switch. When you have created the shortcut, right-click on the shortcut icon and select **Properties**. In the **Misc** properties, uncheck **Background—Always suspend** and move the idle sensitivity slider all the way to **Low**. In the **Program** properties, make sure the **Close on exit** box is checked. Then click **OK**.

To run your Windows program slowed, double-click the shortcut icon. This should open a slowed command prompt. With the command prompt open on the desktop, run your Windows program as you normally would. You can switch focus back to the command prompt and adjust speed with the keyboard. After you exit your Windows program, type **exit** at the command prompt, then press **Enter** to close the command prompt and restore normal speed.

This method also works in Windows 98 and ME, and can be used as an alternative to the Windows-based slowdown.

LIMITATIONS OF WINDOWS MS-DOS EMULATION

Mo'Slo 4BIZ effectively slows many if not most MS-DOS programs in Windows 95, 98, ME, NT4, 2000, and XP. *Moslo.com* can slow *text-mode* programs in Windows 3.x.

Windows extracts a performance overhead and you may need to run a DOS program at a higher percent-of-normal or emulation speed in Windows than in real-mode MS-DOS.

Not all DOS programs will slow smoothly in Windows 9x/ME, and many more will not run in Windows NT/2000/XP due to serial port, memory management, video, or sound incompatibilities. Some of these restrictions may be surmountable with third-party utilities or program patches. Visit the Mo'Slo website FEEDBACK and FAQ sections for referrals.

If a program does not run smoothly when slowed in Windows, try booting the system to real-mode MS-DOS and slowing from the command line using *moslo.com*. Some old games, such as Ultima VII and VIII, use a custom memory manager that is incompatible with the Windows memory manager and must be run in real-mode MS-DOS.

UNHIDING FILE EXTENSIONS IN WINDOWS

Windows Explorer (My Computer) hides DOS file extensions by default. To show file extensions, double-click **My Computer**, click **Tools** (or **View** if there is no **Tools** item), then **Folder Options…** (or **Options…** in earlier Windows versions), and uncheck the box with a label that begins with **Hide file extensions**… or **Hide MS-DOS file extensions**… (wording is slightly different in different Windows versions).

MISCELLANEOUS TIPS

If you don't know what speed at which to run, start high and work downward. Below an ideal level of speed reduction the system may appear to speed up erratically.

When slowing an old DOS program to PC-XT or PC-AT speeds, use of Delay or Quickload can avoid system lockup while loading the program into memory. If the program supports keyboard control, use of Quickload will allow you to switch slowdown off before exiting the program, avoiding a long wait while DOS unloads the file in a slowed state.

If your program has not started after 1 minute loading, adjust speed higher if keyboard is enabled. Otherwise press **Ctrl** + **Alt** + **Del** and shut down the task.

No software-based slowdown can be guaranteed to slow all programs effectively, but we try hard to find solutions when problems arise. If your old program is not slowed satisfactorily, please let us know. Of course, we really appreciate being advised about programs that *are* slowed satisfactorily, and the parameters you used to slow them!

TECHNICAL SUPPORT

Your questions can be e-mailed to support@hpaa.com, voiced or faxed to +1 (818) 884-7157. To most efficiently help you, we need to know (1) your operating system, (2) the title of the program(s) you are attempting to slow, (3) the location of the program(s) on your system (drive:\path\filename), (4) the version of Mo'Slo 4BIZ you are using, (5) the location of the Mo'Slo files on your system (drive:\path), (6) your CPU type and MHz, (7) a detailed description of the problem you are trying to solve, and (8) what you've done that hasn't worked.

Frequently asked questions are answered on our WWW site at http://moslo.info. Look in the FAQ and FEEDBACK sections.

Address snail mail to: Dr.David's Super Crispy Software
                          Division of Hearn/Perrell Art Associates
                          23022 Hatteras Street
                          Woodland Hills, CA 91367

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