



Introduction

Welcome to PRAGMA 5

PRAGMA 5 is a complete programming environment that lets you create large and complex database business applications that can be run under Windows 98, Windows NT and Windows 2000. PRAGMA 5 is an interpreted language, insuring easy programming and debugging.

The following help manuals are available for Pragma 5.

Pragma 5 Manual

This PRAGMA help tells you how to install and run PRAGMA 5. It also contains various additional information needed to program with Pragma 5.

If you are a complete newcomer to computers and want to start by learning PRAGMA 5, this manual tells you how to install it.

If you simply want to run an existing PRAGMA 5 program, this manual contains all the necessary information.

The current version of the Pragma 5 Manual is dated **10-10-2001**.

Tutorial

If you are new to Windows programming we suggest that after having installed PRAGMA 5 you read the chapters on forms, elements and events in the Definitions and Basics section of the Tutorial online help. To access it click on the tutorial menu inside PRAGMA.

Then follow the instructions of the Forms and Elements section of the tutorial and you will be surprised how easy it is to program for Windows with PRAGMA 5.

Language Reference

This is the complete reference for all the elements, verbs and event verbs that are part of the Pragma language.

Menu Commands

This help is usually accessed by pressing the F1 function key when you would like to have an explanation for a procedure or option.

Symbols used



Stop. Pay careful attention to the stop symbol. You can get into deep trouble if you don't.



Warning. Follow the advices given besides the warning symbol. You can get into trouble if you don't, even though it is not fatal.

Hint

Hint. A friendly advice. Take it or leave it.

2000-11-06

h_welcom.gif, stop.gif, exclam.gif, hint.gif
v_intro.htm

Environment

You must use Microsoft Windows 98, Windows NT or Windows 2000.

We recommend that you use enough memory to avoid slowing down your system due to excessive memory swapping to disk.

If you are planning to program in PRAGMA 5 we suggest that you set the screen resolution to 800 by 600 pixels. Regular VGA (640 by 480) will work, but most parts of PRAGMA 5 were designed for the super VGA resolution.

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v_env.htm



Installation of PRAGMA 5

Automatic Installation

Installing Pragma 5 on your computer is simple using the **Prasetup** program. You can also use Prasetup to upgrade your Pragma installation.

Prasetup can install Pragma 5 both from diskettes and compressed files or from a CD-ROM with uncompressed files.

Before making your installation, close all applications and windows. If the explorer is in iconic state, close it completely.

Installing from Diskettes or Compressed Files

Insert the PRAGMA 5 disk 1 into your floppy disk drive and from the Start button choose Run. Type a:\PRASETUP and click OK.

Make sure that the radio button "Install from diskettes" is on.

Choose the installation options and click on the install button.

Should you experience difficulties during the installation, please refer to the [manual installation](#) section.

Please note that the diskettes do not contain the ODBC installation, which is needed by Pragma 5. Should your machine not have ODBC, you can download it from our web site.

To install PRAGMA 5 from a hard disk, create a new directory with subdirectories called DISK01, DISK02 etc. and then copy the diskettes to their subdirectories. Move the program PRASETUP.EXE from the DISK01 directory to the directory above.

Run PRASETUP from the directory.

Installation from CD ROM

Insert the Pragma 5 CD-ROM disk into your CD-ROM drive and from the Start button choose Run. Type d:\PRASETUP and click OK.

Make sure that the radio button "Install from CD-ROM" is on.

Choose the installation options and click on the install button.

Should you experience difficulties during the installation, please refer to the [manual installation](#) section.

To install Pragma 5 from a hard disk, create a new directory with subdirectories called PRAGMA, HELP, TUTORIAL and UTILITY and then copy the CD-ROM to its subdirectories. Leave the program PRASETUP.EXE in the directory above.

Run PRASETUP from the directory.

Installation from Web Site

To facilitate the download from the network, the compressed files in each diskette have been zipped into five files, called P5_DISK1.ZIP, P5_DISK2.ZIP, P5_DISK3.ZIP, P5_DISK4.ZIP and P5_DISK5.ZIP.

After downloading the five files create on your hard disk a temporary directory with subdirectories called DISK01, DISK02, DISK03, DISK04 and DISK05 (notice the zero in front of the number) and then copy the files to these subdirectories.

With the utility PKUNZIP unzip the five files, move the program PRASETUP.EXE from the DISK01 directory to the directory above. Run PRASETUP from that directory.

Installation of Btrieve

The installation of Btrieve is described in the section "[Manual Installation of Btrieve](#)" of this manual.

Discussion:

By default Prasetup will install PRAGMA on the C: drive in a directory called PRAGMA_5. You can choose a different drive or directory. If the directory does not exist, it will be created by Prasetup.

If you choose a directory that already contains PRAGMA, Prasetup will warn you if it finds a copy of the file PRVOCAB.PFM. Prasetup will overwrite **all** files except your PRVOCAB.PFM and Registry entries. So be very careful to make a backup of your PRSTD.PFM files or PRMSG.PFM if you have made any changes to them.

If you want to use Btrieve, you must install it separately, following the instructions of the Btrieve manual.

The PRAGMA.DES file is not part of the release diskettes or CD-ROM but is automatically generated by PRAGMA if it is not present. The PRAGMA.DES file must always be in the same directory where the PRVOCAB.PFM file is.

If you have more than one version of Pragma on a machine you can put the PRMSG.PFM and PRSTD.PFM files into one directory (any directory) and then tell PRAGMA where they are. To do so you must start PRAGMA, go to the Tools, Options menu, Various Parameters and then enter the path for the PRMSG.PFM and PRSTD.PFM files. Setting the path will make an entry into the registry and therefore all the instances of Pragma on that machine will then look for the message and standard files in that directory. If a path is set in the registry the message and standard files in the current directory (where the PRVOCAB.PFM file is) will be ignored.

Another place to put the PRMSG.PFM and PRSTD.PFM files is into a directory called \PRAGMA_5.

Another way to start Pragma is to create an association in Windows with PFM files and then click on the PRVOCAB.PFM file. Pragma will then look for the PRMSG.PFM and the PRSTD.PFM files in the directory where the P5.EXE is that is associated with PFM. Before creating an association with PFM files make sure that the suffix PFM is not used by any other program. To find out, double click on the PRVOCAB.PFM file and read the resulting Windows message.

We do not recommend that you put the PRSTD.PFM and PRMSG.PFM files on a different machine or on the server. You would greatly increase network traffic for very little advantage.

To sum it up, Pragma will look for the PRMSG.PFM and PRST.PFM files sequentially in the following places:

- Directory specified in the Registry and shown in the Tools, Options menu, Various parameters.
- Current directory.
- Pragma_5 directory.
- Directory in Windows where the P5.EXE is associated with PFM.

System Files

To run Pragma 5 needs two Windows DLL's: MFC42.DLL and MSVCRT.DLL . The DLL's must be fairly recent ones, otherwise they do not contain all the necessary links. Prasetup will install to the WINDOWS/SYSTEM directory the two DLL's **only** if they are **not** yet present. If a DLL is already present, Prasetup will copy the DLL's to the directory where Pragma is. This will enable Pragma 5 to run, but then you must always put those two DLL's in every directory of Pragma. It is up to you whether you then want to overwrite your existing DLL's with the ones supplied by us.

To open correctly the Pragma Help a recent version of the file HHCTRL.OCX is needed. Prasetup will install to the WINDOWS/SYSTEM directory the OCX **only** if it is **not** yet present. If a OCX is already present, Prasetup will copy the OCX to the directory where Pragma is.

To run Pragma 4 (P4.EXE) needs one Windows DLL: MSVCP60.DLL. The DLL can be in the directory where Pragma resides, but then you must add it to every directory that contains a copy of Pragma 4. A more efficient approach is to copy the DLL to the directory where Windows keeps all the DLL's, usually WINDOWS/SYSTEM32. In that case you must make sure that you do not overwrite a newer version of the file.

CD ROM Organization

The Pragma 5 CD ROM contains the following directories:

PRAGMA
HELP
TUTORIAL
UTILITY
ODBC
GOLIATH

See also:

[Installation of PRAGMA 5 - Manual Installation](#)
[Installation of PRAGMA - Manual Installation of Btrieve](#)

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Installation of PRAGMA 5

Manual Installation

The manual installation of Pragma 5 consists of various steps, depending whether you want to install everything or only parts of Pragma.

The manual installation is the same for Windows 95 and Windows NT. Any differences are described in the appropriate place.

Installing from Diskettes

Most of the files on the distribution Diskettes are compressed. You can see that a file is compressed if the last character of the file extension is an underline. For instance, when compressed, the file PRVOCAB.PFM would be called PRVOCAB.PF_.

To restore a compressed file you must use the DOS utility EXPAND. For example, to restore the file PRVOCAB.PF_ you type at the DOS prompt:

```
EXPAND PRVOCAB.PF_ PRVOCAB.PFM
```

For more information please consult your DOS commands reference.

Installing from CD-ROM

All the files on the CD-ROM can be used as they are. Only make sure that after copying the various files to the hard disk the read only attribute is **not** set.

The first diskette or the CD-ROM also contains the following file:

PRASETUP.EXE

This file is the automatic installation program and doesn't have to be installed if you perform a manual installation.

The complete installation of PRAGMA consists of the following steps:

[Installation of PRAGMA - Manual Installation of PRAGMA](#)
[Installation of PRAGMA - Manual Installation of PRAGMA Help](#)
[Installation of PRAGMA - Manual Installation of PRAGMA Tutorial](#)
[Installation of PRAGMA - Manual Installation of Btrieve](#) (only if Btrieve is used as filemanager)

See also:

[Installation of PRAGMA - Automatic Installation](#)



Installation of PRAGMA

Manual Installation of Btrieve

Pragma 5 requires that you use Btrieve for Windows NT or Windows 95. You must use version 6.15 or later.

Another Btrieve requirement is that you must have at least 16 MB of memory on your machine. For the installation of the microkernel follow the instructions of the Btrieve manual.

When Btrieve has been installed, you must make sure that the default settings satisfy your requirements. Pay attention to the flag that must be set if you want to run old Btrieve files that were created with Btrieve version 5.

If you use the new Btrieve from Pervasive, follow their instructions for the installation.



Please note that installing the new Btrieve version of Pervasive, the old Btrieve will no longer run .

See also:

[Installation of PRAGMA 5 - Automatic Installation](#)

[Installation of PRAGMA - Manual Installation of PRAGMA](#)

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Installation of PRAGMA

Manual Installation of PRAGMA

On your hard disk make a subdirectory called, for instance, PRAGMA_5.

Copy the following files to that directory:

P5.EXE
P4.EXE
PRUTIL.EXE
PRVOCAB.PFM
PRVOCAB.DES
PRMSG.PFM
PRSTD.PFM
P5_UPDAT.HTM
P5_START.WAV
WBTRV32.DLL

P5.EXE

The PRAGMA Software Development System that lets you program and run PRAGMA applications .

P4.EXE

The Pragma 4 runtime interpreter that lets you run native Pragma 4 programs.

PRUTIL.EXE

The PRAGMA utility program.

PRVOCAB.PFM

The file that contains the user vocabulary. On the PRAGMA release diskette, the vocabulary is empty.

PRVOCAB.DES

A textfile used in conjunction with PRUTIL to create an empty PRVOCAB.PFM file.

PRMSG.PFM

The file that contains all the messages of PRAGMA 5 and PRUTIL.

PRSTD.PFM

The file that contains all the standard names and abbreviations of the PRAGMA Software Development System.

P5_UPDAT.HTM

The PRAGMA 5 updates documentation in HTM format. Click on the file to automatically open the browser and view the file.

P5_START.WAV

The sound file that is played at the startup of Pragma.

WBTRV32.DLL

The dynamic link library used by Btrieve. Move it to the \WINDOWS\SYSTEM directory.

The PRAGMA.DES file is not part of the release diskettes but is automatically generated by Pragma if it is not present.

See also:

[Installation of PRAGMA 5 - Automatic Installation](#)
[Installation of PRAGMA 5 - Manual Installation](#)

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v_inst04.htm



Installation of PRAGMA

Manual Installation of PRAGMA Help

To the directory where Windows keeps all the help files (usually \WINDOWS\HELP) add the following files:

PRAMENU.CHM
PRAREF.CHM
PRATUT.CHM
PRAVAR.CHM

PRAMENU.CHM
The help file for the menu commands.

PRAREF.CHM
The help file for the language reference.

PRATUT.CHM
The help file for the tutorial.

PRAVAR.CHM
The help file for the Pragma manual, like the one you are reading now.



Please note that to properly see the help from within Pragma you may have to update your HHCTRL.OCX file. For more information go to [Startup Problems](#).

See also:

[Installation of PRAGMA 5 - Automatic Installation](#)
[Installation of PRAGMA - Manual Installation](#)

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Installation of PRAGMA

Manual Installation of PRAGMA Tutorial

To the subdirectory that contains PRAGMA add a subdirectory called TUTORIAL.

Copy the following files to that directory:

PRAAPPL.HLP
PRAAPPL.CHM
PRAGMA.DES
PRVOCAB.PFM
ADRESSE.PFM
BMP_BIN.PFM
TESTPFM.PFM
TESTBTR.BTR
TUTORIAL.BMP

PRAAPPL.HLP
A sample help file.

Move it to the directory where Windows keeps all the help files (usually \WINDOWS\HELP).

PRAAPPL.CHM
A sample help file in the new Windows HTML help format.

PRAGMA.DES
The text file that contains various parameters which are user definable.

PRVOCAB.PFM
The file that contains the user vocabulary with the tutorial program.

ADRESSE.PFM
The tutorial address file.

BMP_BIN.PFM
The file with bitmap pictures.

TESTPFM.PFM
A PFM file used for testing PFM.

TESTBTR.BTR
A Btrieve file used for testing Btrieve.

TUTORIAL.BMP
A bitmap picture used for testing.

See also:

[Installation of PRAGMA 5 - Automatic Installation](#)
[Installation of PRAGMA 5 - Manual Installation](#)

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Installation of PRAGMA 5

Manual Installation of System Files

Pragma 5

Pragma 5 requires two recent versions of Windows DLL's: MSVCRT.DLL and MFC42.DLL.

The DLL's can be in the directory where Pragma resides, but then you must add them to every directory that contains a copy of Pragma 5.

A more efficient approach is to copy the two DLL's to the directory where Windows keeps all the DLL's, usually WINDOWS/SYSTEM32. In that case you must make sure that you do not overwrite a newer version of the files.



Some DLL's cannot be upgraded while Windows is running. You must start Windows in the DOS mode to be able to change these DLL's.

To run Pragma 5 needs that Windows has ODBC installed.

The installation of ODBC is made by running the program ODBCMIN.EXE (a Microsoft program) that you can find on the Pragma CD ROM or in the Pragma 5 downloads page of the Logical web site. For a complete description of ODBC please refer to the entry [ODBC](#) in this manual.

Pragma Help

Please note that to properly view with two windows the Pragma compiled HTML help file from within Pragma you must have a recent version of the help OCX file HHCTRL.OCX.

The OCX can be in the directory where Pragma resides, but then you must add it to every directory that contains a copy of Pragma 5.

A more efficient approach is to copy the OCX file to the directory where Windows keeps all the DLL's, usually WINDOWS/SYSTEM32 or WINDOWS/SYSTEM. In that case you must make sure that you do not overwrite a newer version of the file.

Pragma 4.EXE

Pragma 4 (P4.EXE) requires the Windows DLL MSVCP60.DLL.

The DLL can be in the directory where Pragma resides, but then you must add it to every directory that contains a copy of Pragma 4.

A more efficient approach is to copy the DLL to the directory where Windows keeps all the DLL's, usually WINDOWS/SYSTEM32. In that case you must make sure that you do not overwrite a newer version of the file.

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Running PRAGMA

Running PRAGMA 5

After having installed PRAGMA 5 and all the necessary files are present, create a shortcut to P5.EXE. Start Pragma 5 by clicking on the shortcut. If this is your first time that you are running Pragma, you will get a warning that the PRAGMA.DES file is not present but will be created.

Should you experience difficulties in starting Pragma 5, please read the topic [Startup Problems of Pragma 5](#).

The last item to check is whether all the parameters in the Tools, Options menu, are correct.



Always exit PRAGMA in an orderly way. Improper termination, like simply turning the computer off, can cause file corruption and loss of data.

Running a Native PRAGMA 5 Program

A native PRAGMA 5 program is a program written specifically for PRAGMA 5 and consists of various forms and elements.

A native Pragma 5 program cannot contain verbs that directly access the screen, like DISPLAY, SET CURSOR POSITION, etc.

A PRAGMA 5 program is run from the RUN dialog box in the VOCAB menu option or from the Forms editor.

You can run a PRAGMA 5 program from the Start dialog, but in that case the program will run in the DOS window and not use the full screen. You cannot run menu forms from the Start dialog message and in the DOS window.

See also:

[Keyboards](#)
[Operating Modes](#)



Running Pragma

Startup Problems

Pragma 5

We try to make Pragma 5 as user friendly as possible and incorporate at times the latest technology supplied by Microsoft. We also have to use the latest tools supplied by Microsoft in order to get a decent support from them in case of trouble.

Unfortunately this sometimes means that machines which use older versions of Windows cannot run the latest versions of Pragma 5 because they lack some functionality.

- Pragma 5 version 5.42, build 13 and up have been compiled with the new Microsoft C++ 6.0 compiler and must use shared DLL's as opposed to statically linked DLL'S.

This means that in the directory where Windows keeps all the DLL's (usually \WINDOWS\SYSTEM or WINNT \SYSTEM32) there must be the **new versions** of the files MFC42.DLL and MSVCRT.DLL.

If you get an error "MFC42.DLL or MSVCRT.DLL" not found, download from the Pragma 5 Downloads page the file MFC_DLL.ZIP, extract the two files and then move them to the directory where Windows keeps all the DLL's. Be careful not to overwrite newer, existing files!

If you perform an installation from the Pragma 5 diskettes or CD ROM, the program automatically adds these two files if they are not present. If older MFC42.DLL and MSVCRT.DLL files are present, they will **not** be overwritten. If the startup problem persists, you must manually upgrade the files. Or better still, upgrade your Windows version!

- Pragma 5 will not start on Windows 95 versions that are older than Windows 95 OEM SR2. The cause is missing DLL. The recommended solution is to upgrade your machine to Windows 98, although unconfirmed rumor say that it is enough to install the Microsoft Internet Explorer version 4.
- ODBC.DLL not found. Pragma will not start unless the ODBC Administrator is installed. For more information read the section [ODBC Installation](#).
- Old COMCTL32.DLL. If you have an old version of Windows you could get a crash at startup of Pragma 5 with the following message:

Debug Assertion Failure

Program: C:\970506\P5.EXE
File: tooltip.cpp
Line 383
Abort Retry Ignore

The problem is caused by an old version of the file COMCTL32.DLL in the Windows\System directory. The new file must be dated October 15, 1996 or newer. The new file is usually part of the Microsoft Internet Explorer version 3 or up.

Pragma Help

When opened correctly the Pragma Help consists of two windows, one with the help itself and the other with the contents and index of the help. If you see only the help itself when you open the help from within Pragma you must add or update the file HHCTRL.OCX on your machine.

Download from the Pragma 5 Downloads the file HELP_DLL.ZIP, extract it and move it to the directory where Windows keeps all the DLL's.

P4.EXE

Before starting P4.EXE be sure that Pragma 5 starts correctly.

The following startup problems may occur:

- MSVCP60.DLL not found. Download from the Pragma 5 Downloads page the file P4_DLL.ZIP, extract it and move it to the directory where Windows keeps all the DLL's.



Some DLL's cannot be upgraded while Windows is running. You must start Windows in the DOS mode to be able to change these DLL's.

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v_run02.htm



Running PRAGMA

Running Pragma 4

Running a Native PRAGMA 4 Program

A PRAGMA 4 program is a program that contains verbs that directly access the screen, like DISPLAY, SET CURSOR POSITION, etc.

You can run a Pragma 4 program in two ways:

- From Pragma 5, from the Start dialog and the DOS window.
- With the separate executable P4.EXE.

Which way you choose to run a Pragma 4 program depends on what you want to do.

The Pragma 5 DOS window has the following characteristics:

- You can run forms mixed with your Pragma 4 program.
- You can use all the new Pragma 5 verbs, including the new Windows way of printing.
- You cannot use the Pragma 5 menus.

The P4.EXE has the following characteristics:

- You can run P4.EXE, when you have a screen size of 25 X 80, in the "old fashioned" DOS window, the one that fills all the screen.
- You can call your Pragma 4 verbs from a Pragma 5 menu, giving you a more Windows look while upgrading your Pragma 4 application to Pragma 5. A good example is the MENU TEST in the tutorial vocab.
- You cannot run forms or print the Pragma 5 way.

The Pragma 5 DOS Window

The DOS Window is an emulation of DOS inside Pragma 5 that lets you run Pragma 4 programs without any changes to them. The DOS Window is also used by the verb definition editor.

To run a native Pragma 4 program in the Pragma 5 DOS window you go to the Start dialog and enter the verb name to run.

Before running a program in the Pragma 5 DOS Windows make sure that the parameters in the "DOS Window" options of the Tools, Options menu are set the way you want them.

The DOS Window uses Pragma 4 legacy code and sequential way of programming, as opposed to being event driven. This has the consequence that when the DOS window is active or has the focus, it uses, in the best of DOS traditions, 100% of processing time. This is not as bad as it sounds, since when you are using the Start

window it has the focus and usually no other programs are running. If you leave the DOS window open or bring Pragma down to the taskbar with the DOS Window open and then run another program, Windows will give the other program priority and preempt Pragma.

Hint

When doing heavy multitasking we recommend that you close the DOS window (exit the Pragma 4 program that is running).

Keep in mind that a Pragma 5 program does not have this problem. Another reason to move your application to Pragma 5.

To graphically view this behavior, under Windows NT you can run the Performance Monitor, showing the % of Processor Time used by the Pragma 5 instance.



After changing over to the Microsoft C++ version 6.0 compiler a bug has appeared in the DOS window (Version 5.42 build 13 and onwards).

If you exit Pragma 5 without closing first the DOS window, the processor time may be **not** released and the processor continues to use 100% of its time for Pragma. The only remedy then is to shut down and reboot the machine.

We are working on eliminating this bug, but in the meantime make sure that Pragma 5 is closed in an orderly way!

You may want to change the font, fontsize and colors of the DOS window. To do so go to the section DOS window in the Tools, Options menu.

The P4.EXE Program

The P4.EXE program is a Pragma 4 interpreter compiled for what Microsoft calls the Windows console mode, in essence 32 bit DOS.

To run a native Pragma 4 program with P4.EXE you can:

- Run from the Start dialog a verb with a SYSTEM CALL for P4.EXE. See the reference for SYSTEM CALL in the Preref manual for more details.
- Run from the RUN dialog box in the VOCAB menu option a verb with a SYSTEM CALL for P4.EXE. See the reference for SYSTEM CALL in the Preref manual for more details.

Before running a program in the P4. EXE make sure that the parameters in the "Console" options of the Tools, Options menu are set the way you want them.

You may want to change the font and colors of the console mode window. To do so right mouse click on the top system bar of the console window and select Properties. At least under Windows NT you can change the colors in this way. Under Windows 98 I don't know how to change the colors.

Hint

When running P4.EXE with a window size of 25 x 80 you can get the old fashioned DOS look by hitting the ALT + RETURN keys.

Except for console code when writing to the screen and getting keyboard input, P4.EXE uses Pragma 5 code. Therefore you no longer need the the Termino file or have to specify environment variables like SET TERM.

If you have startup problems, consult the entry [Running Pragma, Startup problems](#).

Since P4.EXE uses Pragma 5 code, many verbs that are specific to Pragma 5 can also be used in P4.EXE. We do not recommend their use and we do not support them in P4.EXE. An example of this is the verb DISPLAY MESSAGE BOX.



P4.EXE must always reside in the same directory of the parent Pragma 5 program, because P4.EXE uses the same PRAGMA.DES file and registry.

The verb ASSIGN COMMUNICATIONS now has 2 parameters instead of one. P4.EXE will crash if the second parameter has not been set. Trace the verb and enter the second parameter. For compatibility with old applications enter 0 (zero).

P4.EXE is part of the Pragma 5 release and is automatically installed (if requested) during the installation of Pragma 5.

If you have problems running P4.EXE, you can view the start sequence of P4.EXE by adding the parameter DISPLAY DEBUG = TRUE in the PRAGMA.DES file that is in the same directory as P4.EXE. See the entry [Console, PRAGMA.DES Parameters](#).

To see if a certain key or key combination is supported, run the entry: P4 Program/Key Values of the tutorial program from within Pragma 5 (P4.EXE is automatically called).



P4.EXE is still in beta version. Please let us know any problems that you may encounter.

See also:

[Keyboards](#)
[Operating Modes](#)

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h_runng.gif, hint.gif, stop.gif, exclam.gif
v_run03.htm