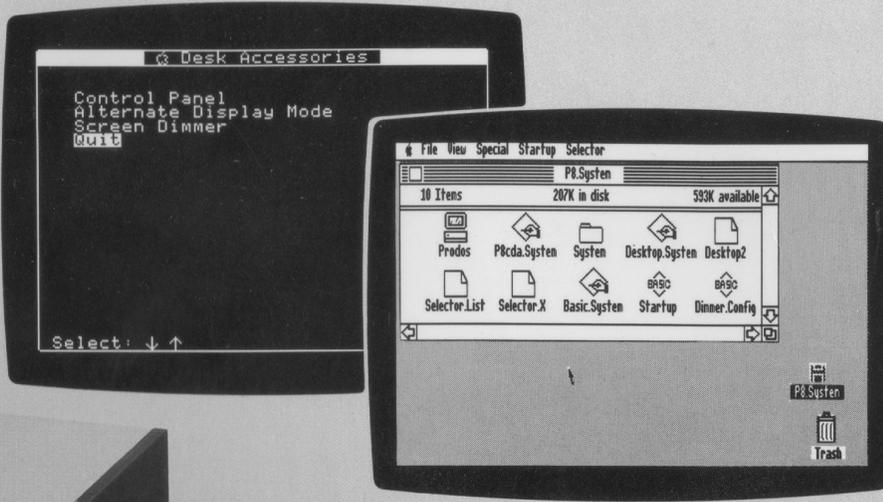


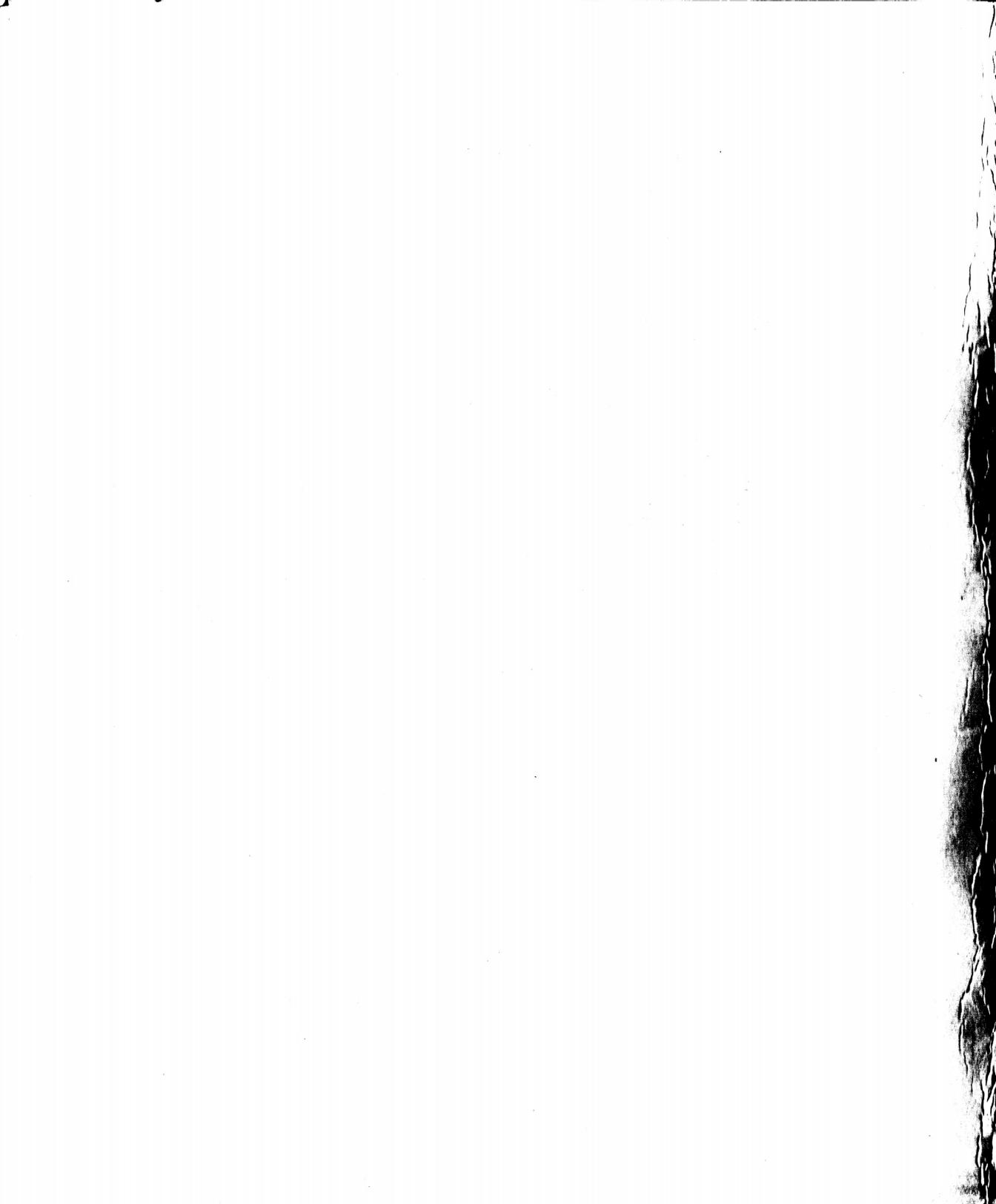
# P8CDA™

ProDOS 8 CDA Loader

by David Lyons



Roger Wagner™  
PUBLISHING, INC.



***P8CDA***<sup>TM</sup>

**ProDOS 8 CDA Loader  
for the Apple® IIGS**

by David Lyons

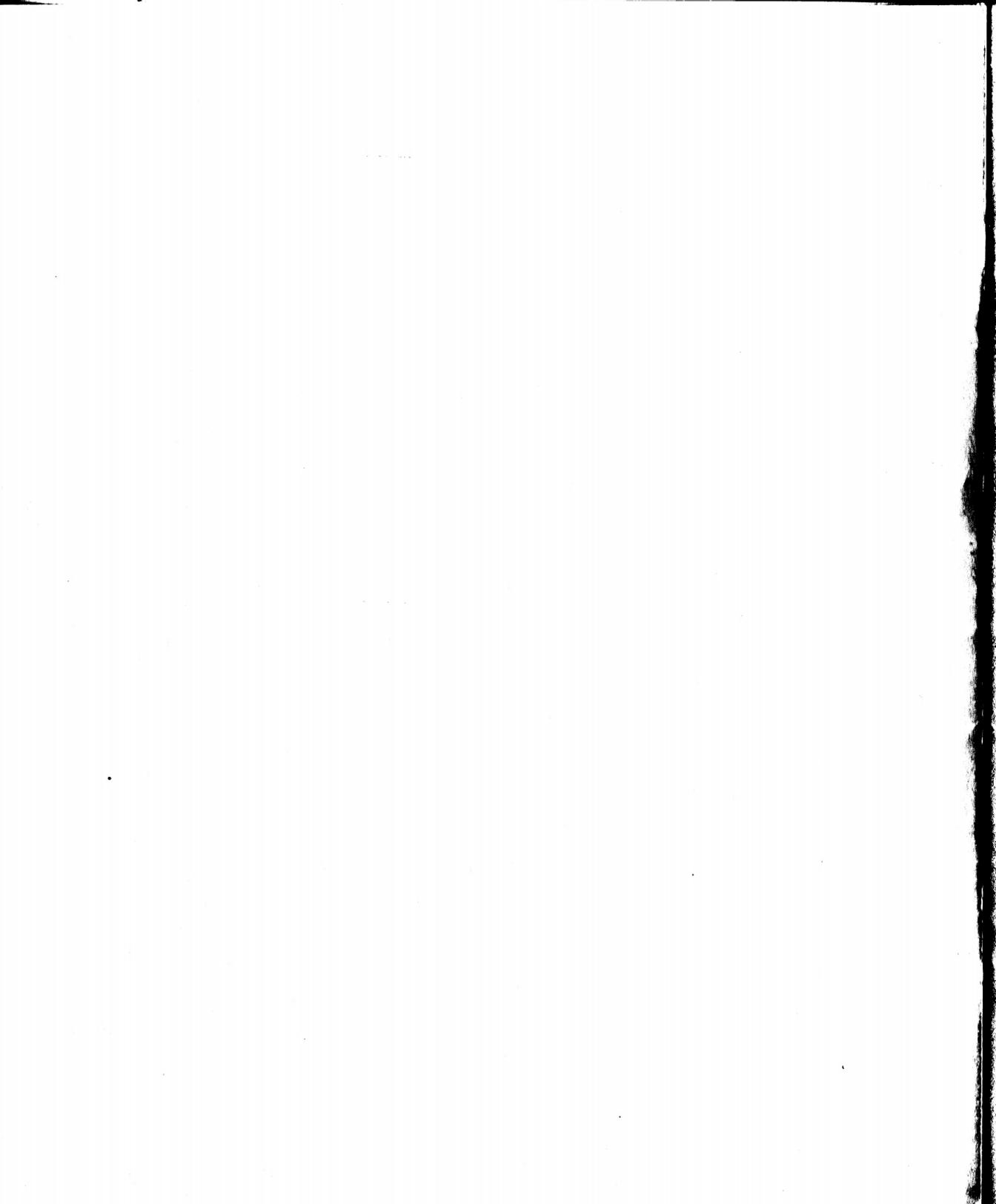
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## Chapter 1: Overview

P8CDA stands for "ProDOS 8 Classic Desk Accessory Installer." P8CDA lets Apple IIgs users load Classic Desk Accessories (CDAs) during the startup process of a ProDOS 8 disk, that is, without starting up a ProDOS 16 disk.

P8CDA can also load Permanent Initialization Files (PIF, \$B6) and (TIF, \$B7) files as well as CDAs. To have P8CDA load PIF and TIF files, put them in the SYSTEM/SYSTEM.SETUP directory. (\$B6 files are also known as STR, Startup files; \$B7 files are also known as TSF, Temporary Startup Files.)

Ordinarily, CDAs can only be installed in the Apple IIgs during the startup process of ProDOS 16. However, ProDOS 16 takes much longer to start up than ProDOS 8, with the result that you may be less likely to use valuable CDAs such as SoftSwitch™ or MacroMate™ with programs like AppleWorks™, Copy II+™, MouseWrite® and others.

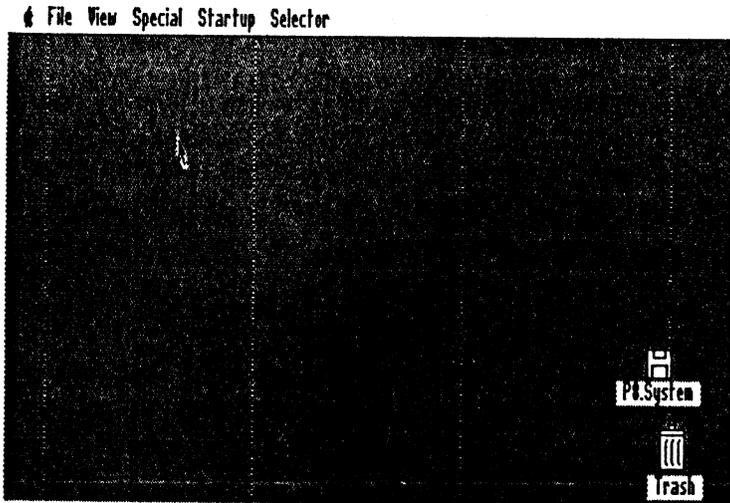
P8CDA can be installed on any ProDOS volume, including 5.25" drives, 3.5" drives, hard drives, and RAM/ROM drives.

Stated briefly, P8CDA is installed on any ProDOS 8 disk by simply moving the file P8cda.System to the desired disk, and making sure it is the first file that ends in the suffix ".System" in the main (or "root") directory of that disk. Desk Accessories to be loaded by P8CDA must be in a folder (subdirectory) named Desk.Accs, which is in turn located in a folder named System. This folder can be located anywhere in the main directory.

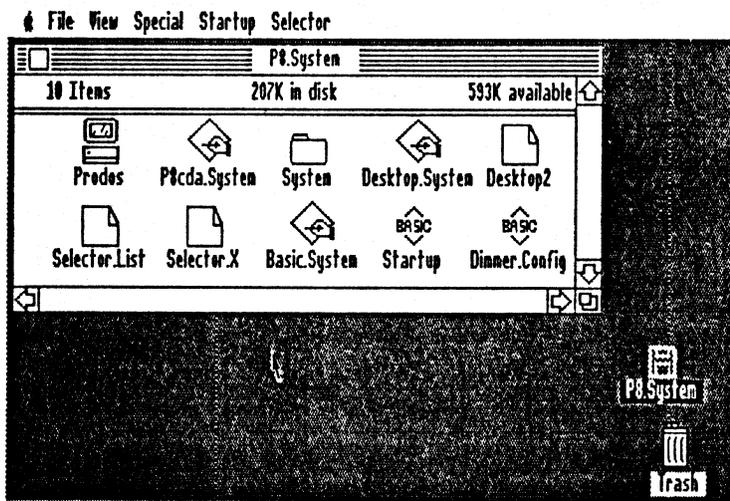
When started up, P8CDA will load all the CDAs located in the System/Desk.Accs folder. It will then run whatever the *second* .System file is in the main directory. For example, if you wanted to create an AppleWorks disk that loaded the CDA MacroMate, you would put P8cda.System as the first .System file, followed by Aplworks.System. The folder System would have in it a folder named Desk.Accs, and in that folder would be the CDA file Macromate. Remember, the System folder can be located anywhere in the main directory.

When you start up the P8.System Disk, you will soon be presented with the Apple DeskTop program. This is not P8CDA itself, but only a utility program provided as a basis for the discussions in this manual, and also for your convenience in copying files, formatting disks, etc. The DeskTop program is not a Roger Wagner Publishing, Inc. product, but rather is licensed from Apple Computer Co., Inc.

When the desktop first appears, your screen should look like this:



An icon representing the P8.System disk is shown on the desktop. To see the files on the P8.System disk, double-click on the disk icon. A window will then open that looks like this:



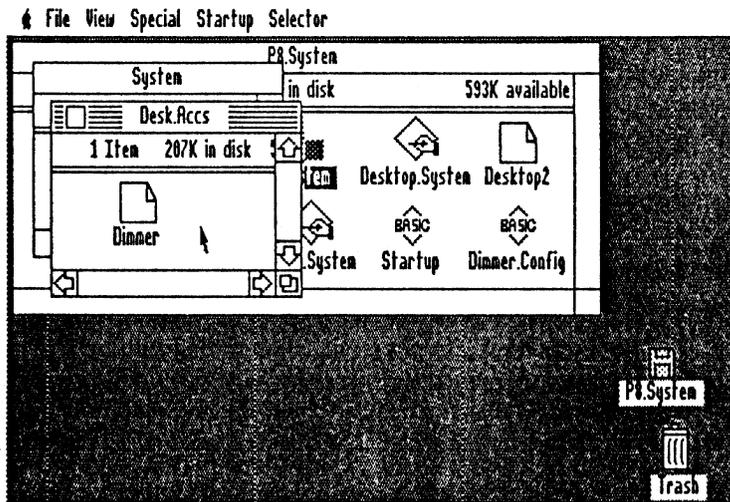
The files included on your P8.System disk are as follows:

**Prodos:** This is equivalent to the file P8 on a ProDOS 16 startup disk, and is the Prodos 8 disk operating system. When Prodos 8 starts, it looks for the first file in the main directory (this window) that ends with ".System".

This is *not* the folder System, but in this case, the file P8CDA.System.

**P8cda.System:** This is the actual P8CDA software file. Moving this file to another Prodos 8 disk in the proper position in the directory installs P8CDA on any disk you wish. P8CDA loads Desk.Accessories that are located in the System folder. Double-click on the System folder now.

**System:** The System folder on a Prodos 16 startup disk contains quite a few different files that are used by the Prodos 16 disk operating system. In our case, the only file in this System folder is the folder Desk.Accs. Double-click on the Desk.Accs folder to open it up.



**Desk.Accs:** This folder contains any of the Classic Desk Accessories (CDAs) that you want P8CDA to load during the startup process. These files could include programs like SoftSwitch or MacroMate, or many others. In this case, a sample CDA called Dimmer is provided on the P8.System disk to demonstrate how the system works.

**Dimmer:** This sample CDA automatically darkens your monitor screen if there is no keyboard activity for a predetermined length of time. The idea behind this is to prevent your monitor screen from becoming "burned in" with an image of a program that is left on the screen all the time. This is not usually a problem, but if you are accustomed to leaving your computer on for many hours each day with the same program on the screen, this CDA will help extend the life of your monitor screen.

The Dimmer was loaded automatically when the P8.System disk was started up, and is accessed via the Classic Desk Accessory Menu. You have probably already used this function of the Apple IIgs when you used the Control Panel to set the clock time and date, configure slots for printers, disk drives, etc.

Press Control-Apple-Escape now to go to the Desk Accessory Menu. The following screen will appear:



To access the Screen Dimmer CDA, use the arrow keys to select Screen Dimmer and press Return.

By using the up and down, and left and right arrow keys, you can turn the Screen Dimmer off and on, and also set the time period to wait before dimming the screen.

Depending on the CDAs you install, different types of functions will be available to you.

Press the Escape key to return to the Desk Accessory Menu, and then Return to go back to the DeskTop program.

**GS Bug Alert:** The Desk Accessory Manager on the Apple IIGs has a built-in malfunction that affects programs that use Double Hi-Res, as is the case of the DeskTop program supplied on the P8.System disk. The problem is that if your "Display" setting in the Control-Panel is set to "Color", and you interrupt a program like the DeskTop by going to the Desk Accessory Menu, when you return, the screen will look unreadable. This is because the Desk Accessory Manager has over-ridden the program, and forced the display to "Color", when in fact the program is designed to run in "Monochrome".

Therefore, when using the DeskTop program with CDAs, we recommend that you set your "Display" to "Monochrome".

The software product "SoftSwitch", from Roger Wagner Publishing, Inc., includes an improved Desk Accessory Manager which fixes this bug and approximately five others in the Desk Accessory Manager (including problems with mouse-driven software and others). Therefore, if you are using SoftSwitch, you will not have to worry about this problem, and may make your "Display" setting either Color or Monochrome, as you wish.

\* \* \* \* \*

Click in the upper-left corner to close the Desk.Accs and System folders now, and we'll look at the other files on the P8.System disk.

**Desktop.System:** After P8cda.System has loaded any available CDAs, it then looks for the *next* file that ends in .System in the main directory. On this disk, Desktop.System is the system file that brings up the DeskTop program that you are now using.

**Desktop2:** This is a file used by the DeskTop program.

**Selector.List:** In the menu bar of the DeskTop program is the Selector function. The Selector lets you run programs by just pressing the Apple key and one of the number keys. The list of programs offered by the Selector menu is stored in the file Selector.List. You do not have to deal with this file directly since the DeskTop program will automatically add and delete names from this file as you use the Add an Entry and Delete an Entry functions in the Selector menu.

**Selector.X:** The P8.System disk can also be set up to bring up a list of the programs in the Selector menu *before* the desktop is displayed. This gives you an opportunity to select a program from the keyboard immediately on starting up your disk. When Selector.X is renamed to simply Selector, this menu program will be automatically run when the disk is started up.

**Basic.System:** This is the file used to bring up Applesoft BASIC.

**Startup:** This is the BASIC program that is first run when Basic.System is started. In this case, this gives a title screen with the version number of your P8.System disk.

**Dimmer.Config:** This is a configuration program used to set the default time and on/off status of the Screen Dimmer CDA. It can be run by either double-clicking on the icon, or choosing Dimmer Config. from the Selector menu.

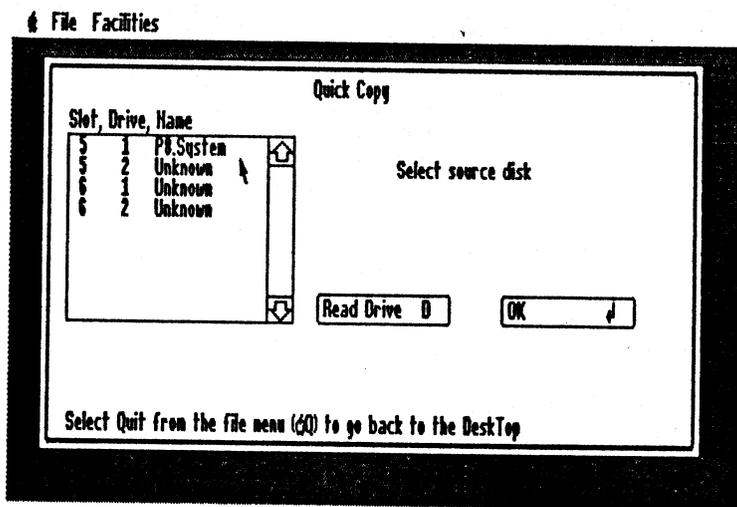
Other program files can be added to your backup copy of the P8.System disk as you wish. You can also put P8cda.System on any disk you wish. If you want to put the DeskTop program on another disk, see the instructions in Chapter 3 for more details on how to do that. The next chapter explains how to make a backup copy of the P8.System disk.

## Chapter 2: Backing Up Your P8CDA Disk

Before trying out the P8CDA disk, the first thing you should do is to make a backup copy. That way, if you should accidentally erase or otherwise alter the disk, you will always have the option of starting over with a fresh copy of the original. Backups can be made with any copy utility that copies either files or an entire ProDOS disk.

To make your backup disk using the P8CDA disk, you will need your original P8.System disk, and a blank 3.5" disk. You can use the P8CDA Backup disk label supplied in the P8CDA package for this disk. Begin the process by placing your P8CDA disk in the disk drive. If you have a second 3.5" disk drive, you may place the blank disk in your second drive now. Now start up the P8CDA disk, and press Return when you see the main title screen.

When the desktop appears, use the mouse to choose Disk Copy from the Special menu. A dialog box titled Quick Copy will come up, prompting you to select your source disk. Click on the name P8.System shown in the box (probably in slot 5, drive 1), and then click on OK.



The screen will then prompt for the destination disk. If you have two drives, the second disk will be listed as Unknown, or possibly with the pathname of whatever was on the disk if you are re-copying onto an unwanted disk. If you only have one drive, you should now remove the P8.System disk, replace it with the destination disk, and then click on Read Drive. This will then display Unknown, or the old volume name as just discussed.

Now click on the name of the target disk, and then click on OK to start the copy. As the copy progresses, follow the prompts to insert disks if and when needed. When the process is complete, you will be returned to the DeskTop.

When the backup copy is made, apply the label supplied in the P8CDA package, put the original in a safe place, and use your backup in the chapters that follow.

*Summary: You can backup the P8CDA disk using any ProDOS disk or file copy utility. Backups can be made using the Quick Copy option in the DeskTop program supplied on the P8CDA disk.*

## Chapter 3: Installing P8CDA

A ProDOS 16 disk is set up to have a loader file named Prodos on it, along with a folder named System that has additional files within it. These files include P8 (the "real" ProDOS 8, the file Prodos is just a loader), P16 (the ProDOS 16 file), and many folders with additional device drivers, desk accessories, tools, fonts, and other system software used by the Apple IIGS.

A ProDOS 8 disk, on the other hand, is set up differently. First, the file Prodos is ProDOS 8, i.e., the file P8 on a ProDOS 16 disk has been moved to the main directory and named Prodos. When ProDOS 8 starts up, it looks for the first file that ends in the name .System in the main directory, and runs that file. This system file can be Basic.System, which then runs an Applesoft program named Startup, or it could be any application system file, such as Aplworks.System (AppleWorks), Mw.System (MouseWrite), or any other application system file.

P8CDA lets a ProDOS 8 style disk load CDA files during the startup process by making the program P8cda.System the first system file in the main directory. When P8cda.System is run during the startup process, it looks for a folder named System on the disk, and within that folder another folder named Desk.Accs. It then loads any files with the filetype \$B9 (CDA) into the Classic Desk Accessory menu of the Apple IIGS it is running on. P8CDA does not work on an Apple IIe or IIc.

Installing P8CDA and various CDAs on a disk is fairly simple. First, a folder named System is created on the disk, in which is another folder named Desk.Accs, and in which is finally the CDA files you wish to use. Second, you must replace the existing startup .System file on your disk (in the case of an AppleWorks disk, Aplworks.System) with the file P8cda.System, and to move that system file to a "later" position in the directory.

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## *Adding CDAs and P8CDA to an Existing Disk*

In this first case, we'll assume that you have an existing ProDOS 8 style disk that you want to add CDAs and P8CDA to. A later example will show how to create a new ProDOS 8 disk that not only has CDAs and P8CDA on it, but also starts up directly into the DeskTop program. With the DeskTop, you can run any other program you wish, along with having all the file handling abilities afforded by the DeskTop program.

Assuming you have an existing ProDOS 8 disk onto which you want to install P8CDA and one or more CDAs, first start up the P8.System disk so that you are in the DeskTop environment. Then insert your existing disk (we'll call it the "target disk") into your disk drive. Remove the P8CDA disk first if necessary.

Now double-click on the icon of your target disk to open a window showing the files on that disk. If this is a usual ProDOS 8 style disk, there should *not* already be a folder named System visible in the window. If there is a folder named System, the disk is either a ProDOS 16 startup disk, and does not require P8CDA, or P8CDA has already been installed on the disk. In either case, you can just put your CDAs in the Desk.Accs folder and you're done.

Assuming there is no current folder named System, pull down the File menu of the DeskTop, and select New Folder. When prompted, enter System as the new folder name, and press Return. The disk will come on for a moment, and the window for the target disk should reappear with the folder System now visible. Now double-click on the System folder to open it up (the window will be empty), and again go to the File menu and select New Folder. This time, enter Desk.Accs as the name for the new folder, and press Return.

A new folder named Desk.Accs will appear in the System window. Go to the File menu, and select Close All to close all the open windows.

At this point, you want to copy the Desk Accessories from whatever disk of yours that they are currently on, to your target disk. You can do this using the DeskTop program to drag one or more file icons from one disk to another, or you can use the Copy a File option in the File menu of the DeskTop. This may be easier if you only have one disk drive.

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When using the Copy a File option, you simply type in the source and destination pathnames that you wish to use. For example, if you were copying the Dimmer CDA from the P8.System disk to your Apple IIgs System disk, you would type in /P8.System/System/Desk.Accs/Dimmer as the source pathname, and /System/System/Desk.Accs/Dimmer as the destination.

The Copy a File option also allows you to just click on the directory and file names as they are presented in the dialog box, and the pathname will be automatically built for you as you select new directories.

Once the CDAs have been installed on the disk, the only thing remaining is to make P8cda.System the first system file in the main directory of your target disk, and to put the actual application system file for that disk in the second position to be loaded when the disk starts up.

We will assume that you are reasonably comfortable with moving files around using the DeskTop, Finder, System Utilities, Copy II Plus, MouseFiler, or some other file-handling utility.

What you want to do is to first move the first file that ends with ".System" from your target disk to a temporary holding disk. This can be /RAM5 if you have set this up, or it can be any other ProDOS disk you have with sufficient room on it to hold a few files.

After you have moved the first system file (for example, Aplworks.System) from your target disk to a temporary holding disk, you will also want to move the next system file, if any, in the main directory also to the holding disk. If there is no other file in the main directory that ends with .System (such as Basic.System), you can skip this step.

For purposes of example, we'll suppose at this point that you have moved the files Aplworks.System and Basic.System to a holding disk. Now go back to the target disk, and drag these two files to the trash can on the DeskTop. This will delete these two files from the disk, and make room for P8CDA in the first position. It will also clear the second available position for a system file for when your main application file is brought back to the target disk.

Now go back to the holding disk, and copy the main application program, for example, Aplworks.System from the holding disk to the target disk. When this file is transferred, copy the second system file (for example, Basic.System), if need be, from the holding disk to the target disk. When both files are copied back to the target disk, you can delete them from the holding disk by dragging the file icons on the holding disk to the trash can on the DeskTop.

Now when you open the window for the target disk, you should see the following. The first file on your target disk should be the file ProDOS, with an icon that looks like a computer with monitor. The first system file, looking from left-to-right, should be the file P8cda.System, with an icon showing a hand writing on a piece of paper. The next file, reading across and from top-to-bottom should be your startup application program, for example, Aplworks.System. Finally, any other system files, such as Basic.System, can be located anywhere in the main directory. You should also see the folder System somewhere in the window, and into which you have presumably installed your CDAs in the Desk.Accs folder.

When you start up this disk, your application program will start up as before, but now when you press Control-Apple-Escape, you'll see MacroMate and any other CDA's you've put in the Desk.Accs folder automatically there in the Desk Accessory menu.

---

## *Creating a new ProDOS 8 Disk with P8CDA and the DeskTop*

With the DeskTop and P8CDA, you may wish to create a new 3.5" disk (or hard disk, RAM disk, ROM disk, etc.) that starts up directly into ProDOS 8 with your CDAs loaded, and which then goes to the DeskTop from where you can run programs, copy files, format disks, etc.

We'll start off assuming you have a blank disk that you have just formatted for ProDOS using the DeskTop, or other file utility. The Format a Disk function in the DeskTop is found in the Special Menu.

To create a new disk with your CDAs, P8CDA and the DeskTop, you want to copy certain files in the following order:

1) Copy the file Prodos from the P8.System disk to the main directory of your target disk

You can also copy the file P8 (in the System folder) from your GS System disk (or any other ProDOS 16 disk with a recent version of ProDOS 8 on it), to the main directory of your target disk. You'll have to rename the file from P8 on your new disk to Prodos (use Rename an Icon in the Special menu). If you have a recent version of ProDOS 8 on some other disk, you can also use it here.

2) Copy the file P8cda.System from the P8CDA disk to your target disk.

3) Copy the files Desktop.System, Desktop2, and Selector.List to the target disk.

4) Create a folder named System on your target disk (use New Folder in the File menu), and within that a folder named Desk.Accs. Copy any CDA files you wish to your target disk.

5) Finally, copy any remaining application programs, such as Aplworks.System, Basic.System, etc. that you want to use on your new disk. From here on, files may be added to this disk as you would any other disk.

---

That's it! This disk, when started up, will go directly to the DeskTop program, from where you can launch any other programs you wish. If you want to use the Selector feature, use the Add an Entry function in the Selector menu of the DeskTop to specify a keyboard command, such as Apple-1 through Apple-8 (and the Option key works as well here), for each program you wish to run from the DeskTop Selector menu. You will also want to use the Delete an Entry function to remove the Selector choices already there from the P8.System disk. Adding and deleting items in the Selector menu only changes the names available, it does not actually add or delete the program files themselves.

If you have more than 8 programs to assign, the DeskTop will create a second "run list" that the additional programs will be listed in.

If you would like a keyboard-driven selector menu to come up when you first startup the disk, and before the DeskTop itself appears, copy the file Selector.X in the Desktop folder of the MacroMate disk to the main directory of your target disk, and then rename the file Selector.X to Selector.

---

## *Installation Notes...*

If you have trouble starting up your new disk with the CDAs on it, try deleting all the CDAs, and then adding them back one at a time, restarting each time to see which CDAs are causing the problem.

Do not change the name of P8CDA, because it looks for itself during the startup process.)

If P8CDA can't find another .SYSTEM file to run, it just does a ProDOS "QUIT" call. If you have a custom QUIT built into your version of ProDOS, such as that provided on the Merlin 16 or MouseWrite disks, this may actually be useful.

If you hold down the Apple key while P8CDA is running, you will see a title screen with a the copyright notice. Near the bottom of the screen will be the version number of P8CDA, and a "Press a key" prompt. When you press a key, P8CDA continues and displays the name of each CDA as it is loaded.

---

If you are getting any error messages when loading your CDAs, this will let you find out which CDA was being loaded when the problem occurred.

Error \$0201 means all the available RAM is in use. Solutions, in order of preference:

- 1) Decrease the size of your RAM disk (/RAM5) if you are using it.
- 2) Get a bigger RAM card.
- 3) Don't load so many CDAs.

*Does it work with ALL CDAs?* No. The major source of trouble are CDAs which call ProDOS 16 when they are initialized without first checking that it is available. If this happens, you will be get an appropriate error message from P8CDA.

CDAs containing dynamic segments or initialization segments will not work with P8CDA.

*What should I do if my CDAs don't work?* If you find a CDA that tries to call ProDOS 16, contact the CDA's author or publisher, and explain that the CDA should check that the value at E1/00BC (1 byte) is \$01 before making any ProDOS 16 calls. [See "Apple IIgs ProDOS 16 Reference", APDA Draft of 13-Nov-86, p30.] (The assumption that ProDOS 16 is available when a CDA is loaded is a pretty reasonable one. But under P8CDA, it is false.) You can also refer them to calling RWP directly.

*Technical details* P8CDA supports the old (v1.0) and new (v2.0) Object Module Formats, and multiple-segment CDAs are supported. However, only static code segments and static data segments are supported. Dynamic segments are not supported and will not be. Init segments are not supported, but could be if there is a demand for it.

There are no CDAs currently known that use dynamic segments or initialization segments.

ROM 01's InstallCDA function returns error \$0F05 rather than \$0501 when the Desk Accessories menu is full. Weird, eh? (This happens only when the ROM is used "cold," not when TOOL.SETUP has been loaded.)

P8CDA does not report any error if the Desk Accessories menu is full.

If \$0800..BFFF in banks 0 and 1 is not allocated, P8CDA requests a \$30xx ID (from the miscellaneous toolset) and allocates that RAM with NewHandle.

A CDA can find its pathname at \$280 the first time its ShutDown entry is called if P8CDA loads it. PIF/TIF files can also find the pathname there when they are executed. The pathname may be complete or partial.

**Multiple-segment CDAs** Most CDAs consist of only one segment, but P8CDA can load CDAs with up to 255 segments.

Note that Glen Breton's Master CDA does *not* support multiple-segment CDAs, and cannot reasonably be expected to. (The Master Builder program would have to change the segment numbers on all inter-segment references in the CDAs; for SUPER records in OMF v2.0 CDAs, this would usually result in some segment numbers greater than 12, which cannot be represented in SUPER records!)

Once a Master CDA is built, it *is* a multiple-segment CDA, with one segment for each CDA it controls (so it can't be used inside another Master CDA!).

CDAs produced using TML Pascal have at least two segments, so they do not work under control of a Master CDA. (TML Pascal v1.1 has a \$CDA directive that allows CDAs to be generated easily.)

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## Alternate Installation

If you have a utility like Sean Nolan's Setup.System (see November, 1987 Call-A.P.P.L.E., pp. 14-23), you can put P8cda.System in your Setups directory, and put all the CDAs in there, too. When P8CDA sees that the Prefix is not set to the main directory, it will look where the Prefix is set (instead of in System/Desk.Accs).

You can also put both Setup.System and P8cda.System in the main directory (and put the CDAs in System/Desk.Accs). If you do this, you will have to put P8cda.System *after* Setup.System. This is because Setup.System runs the *second* .System file in your directory. This scheme will fail if Setup.System is the second one!

If you put Setup.System first, it will do its thing and then run P8cda.System. P8CDA will do its thing and run the .System file *after* itself.

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### *Using P8CDA from a command shell*

If you have a command shell like Davex or ECP-8, you can run P8CDA from it. If you pass a pathname to P8CDA, it will try to load the specified CDA.

If you don't pass a pathname, it will try to load all the CDAs in the directory your prefix is set to. Once P8CDA does its thing, it returns you to your command shell (by doing a ProDOS "QUIT" call).

When P8CDA is run from a command shell and passed the pathname of a CDA, PIF, or TIF to load, any errors that occur are not fatal – P8CDA quits back to the command shell when a key is pressed.

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