

CanOPI NT 1.0 Administrator and User Guide

For Microsoft™ Windows NT Systems

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Preface

Welcome to CanOPI NT! This preface introduces CanOPI NT and describes system requirements, provides an IPT hardware key description, explains conventions used in this guide, and lists the image formats that CanOPI NT supports.

Conventions Used In This Guide

Typeface Conventions

Throughout this guide, several conventions are followed:

- File names and DOS commands in the text appear in **Courier bold**, for example: '**a:\setup**'.
- Keys you are prompted to press appear in bold face type, for example: Press the '**Shift**' key.
- Menu names and options are indicated in bold type, for example: Choose the '**New**' option from the '**File**' menu.
- Buttons within dialog boxes and the like appear in bold type, for example: When you have selected the desired options in the '**Print**' dialog box, click '**OK**'.
- The chapter section headings are indicated by **Helvetica Bold** typeface, aligned flush with the left side of the page.
- Each chapter section is split into individual topics, as indicated by the **Helvetica Bold Underline** typeface, at the beginning of each new topic.
- *NOTES*, that include helpful advice, pertinent information about configuration, and warnings, are indicated by the *times italic* typeface.
- References to other sections in the guide are printed in bold, italic typeface, for example: see the '***Advanced Settings***' section of this guide.

CanOPI for Windows NT Package Contents

You should have the following:

- **‘CanOPI NT’** diskette(s);
(Intel-based machines require one diskette, DEC Alpha machines require two diskettes)
- **‘Sentinel System Drivers’** diskette;
(not required with Evaluation version package)
- CanOPI NT hardware key (also referred to as a “dongle”).
(not required with Evaluation version package)

Evaluation/Demonstration/Licensed Versions

CanOPI for Windows NT is available in three different versions:

1. Evaluation Version - The Evaluation version has a software dongle that allows up to 500 print jobs to be performed. It does not come with a hardware dongle or a **‘Sentinel System Drivers’** diskette. The Evaluation version can be upgraded to a Licensed version by contacting IPT and purchasing a hardware dongle, CanOPI NT diskettes, the **‘Sentinel System Drivers’** diskette, and an authorization key.

You can monitor the number of print jobs remaining by clicking on the **‘IPT Config’** icon (in the Windows NT Control Panel) and selecting the **‘Key’** tab to display the **‘Key’** property sheet. The number of print jobs remaining is also displayed in the ErrorLog window of the Message Monitor.

2. Demonstration Version - The Demonstration version has a hardware dongle that allows a pre-determined amount of print jobs (typically this value will be 2000) to be performed (refer to the **‘Key’** property sheet for the exact number of remaining print jobs). The Demonstration version can be upgraded to a

Licensed version by contacting IPT and purchasing an authorization key.

You can monitor the number of print jobs remaining by clicking on the '**IPT Config**' icon (in the Windows NT Control Panel) and selecting the '**Key**' tab to display the '**Key**' property sheet. The number of print jobs remaining is also displayed in the ErrorLog window of the Message Monitor.

3. Licensed Version - The Licensed version has a hardware dongle that allows an unlimited number of print jobs.

System Requirements

Before you begin installing CanOPI for Windows NT, please ensure that your system conforms to the following specifications:

- Pentium machine running at 133 MHz or faster (CanOPI NT will run on a 486-66 MHz, but system performance is degraded as to be strongly discouraged), or
- DEC Alpha model 1000 or greater;
- Two separate hard drives locally mounted on your Windows NT server machine. We recommend that each of these drives be at least 1 Gbyte in size. At least one of these drives has to be formatted as an NTFS file system, and we recommend that the other be a FAT file system.

CanOPI NT uses the NTFS-formatted drive for image storage. Since only an NTFS-formatted drive is accessible from your Macintosh client machines (a FAT-formatted drive is non-accessible), this is an absolute requirement for CanOPI NT to function.

Windows NT system files should be located on the FAT-formatted drive. This is also where CanOPI NT will be installed, and where CanOPI NT will perform image spooling. We recommend placing your system files on a drive configured as an FAT file system because this type of filing system enables you to utilize system tools to recover data in the event of a drive failure.

It is possible to run CanOPI NT on a single hard drive - configured as one FAT-formatted partition and one NTFS-formatted partition, however, system performance may be so degraded due to read/write operations that we strongly discourage this approach.

- 64 Mbyte of RAM (CanOPI NT will run with 32 Mbyte of RAM, but system performance may be degraded depending upon system load.);
- Windows NT Server v3.5.1 or later loaded onto your machine. CanOPI NT software will not work with NT Server v3.5.

Hardware Key (“Dongle”) Description

***NOTE:** If you have been supplied with an Evaluation version of CanOPI NT, you do not need a hardware dongle. This section does not apply.*

CanOPI NT is protected by a hardware key, (also referred to as a “dongle”) that is physically installed in your machine’s parallel port. If you have a Demonstration version of CanOPI NT, this dongle will allow a pre-determined number of jobs to be printed through the Docman print processor before it expires. As you perform print jobs, the Message Monitor’s ErrorLog window displays the number of print jobs remaining on the CanOPI NT dongle (see the “***IPT Message Monitor***” portion of the “***Using CanOPI NT***” section of this guide). Once expired, CanOPI NT will continue to process print jobs, however, it will not perform image replacement for these print jobs. Additionally, any files placed into the ‘**Input**’ hierarchy for stub generation will remain there, and stub generation will not occur.

After CanOPI NT has printed the allowable number of jobs through the Docman print processor, the message “IPT Demo Dongle has expired. Contact IPT to obtain a full license key. Picture replacement and stub generation are now DISABLED.” appears in the ErrorLog window of the IPT Message Monitor. You can access the IPT Message Monitor by double-clicking on its icon in the ‘**IPT CanOPI**’ group in the Windows NT Program Manager.

In addition to the Message Monitor’s ErrorLog window, you may also monitor the number of print jobs remaining (in the case of Evaluation or Demonstration versions of CanOPI NT) by clicking on the ‘**IPT Config**’ icon (in the Windows NT Control Panel) and selecting the ‘**Key**’ tab to display the ‘**Key**’ property sheet.



In order to register your copy of CanOPI NT and remove the print job limitation of the Evaluation or Demonstration versions, you must contact IPT, Inc. In the case of an upgrade from an Evaluation version, you will need to purchase new software, a hardware dongle, and software activation key number. In the case of an upgrade from a Demonstration version you will need to purchase only a software activation key number.

The software activation key number is entered into the field provided in the '**Key**' property sheet.

Overview

This section introduces CanOPI NT and describes how it works. You will learn about the various program elements, the requisite file structure options, and how everything functions together.

What Is CanOPI?

The Open Prepress Interface (OPI) is a collection of PostScript-language comment conventions that allows a page layout program to use low-resolution images for layout and proofing, and have a pre-press system or OPI server automatically substitute a high-resolution image when the final film or plates are generated. Both desktop pre-press software and high-end pre-press systems can use OPI comments to minimize network traffic and processing time required on client machines, thereby decreasing print time and increasing user productivity.

OPI comments describe the placement and size of images, as well as cropping information and any adjustments made by the user to the brightness or contrast from within their page layout application.

How CanOPI NT Works

CanOPI NT is IPT's software system for storing, retrieving, and printing high-resolution images; from which it generates and stores low-resolution images for page layout work.

CanOPI NT enables Macintosh and PC clients to maintain a central archive of EPS, DCS, TIFF, and SCITEX images on their Windows NT network file server. By placing original, high-resolution images into a particular hierarchy of folders on this file server, users can automatically generate low-resolution versions of the images. Users then work with these low-resolution images (known as stub files) as usual in their documents.

This system, through which users manipulate low-resolution versions of images, results in dramatic reduction of network traffic and processing overhead on client machines, resulting in an expansion of resources and productivity of your network and users.

Stub file generation is implemented as a system service. Picture replacement is implemented as a print processor communicating with its own system service. This effectively means that they both start up when the NT server machine is booted up. Therefore, there is no need to log in and launch the CanOPI NT application after start-up.

Stub File Generation

Stub file generation takes place when the user saves high-resolution image files into a specified hierarchy of input folders, residing on the NT server, from their Macintosh or PC client machines. The names of these input folders are user-defined. Once the user saves the image, CanOPI NT automatically moves it to an identi-

cally mirrored high-resolution folder for storage, whereupon it generates a low-resolution stub file. It is this low-resolution stub file image that is to be used for page-makeup.

The type (file format) and location of the stub file generated depends upon the options specified within the **‘OPISconfig’** configuration file(s). OPISconfig files are located within the input folder hierarchy, where the user places the original image for stub file generation. The values within the OPISconfig file apply to both the current directory and all subsequent (lower level) sub-directories. If you require all stub files to be generated in the same format, then only a single OPISconfig file is required, at the root directory (top-most level), of the input folder hierarchy. For more information concerning the types of file structure you can use with CanOPIS NT, see the **“Stub File Generation Options”** portion of the **“Advanced Settings”** section of this guide.

CanOPIS NT also provides an easy way to delete both stub files and the corresponding original images at the same time, in one quick step. A special folder called **‘DeleteGraphics’** is automatically generated in the same directory as the LoRes directory, the exact location of which is dependent upon the user-specified structure determined by the **‘PathType’** option in the **‘OPI Stub’** property sheet. (See the **“Stub File Generation Options”** portion of the **“Advanced Settings”** section of this guide.)

By dragging and dropping a stub file into this directory, the user causes CanOPIS NT to delete not only the stub file, but it will also find and delete the original, high-resolution image from which the stub file was created. However, dragging and dropping the high-resolution file into the **‘DeleteGraphics’** folder does not cause the corresponding stub file to be deleted.

***Note:** Dragging and dropping anything (files or folders) into the **‘DeleteGraphics’** folder causes them to be deleted.*

Image Replacement

CanOPI NT performs picture replacement by using a user-configured Windows NT print processor called **'Docman'**. Docman, selected when the user creates a printer, interprets the OPI comments in client print jobs and automatically substitutes high-resolution versions of the included images. Users access Docman as a published AppleTalk Chooser device, which then performs OPI picture replacement as print jobs are spooled from the server to the final output device. Therefore, jobs waiting to be spooled do not contain any high-resolution image data.

If a graphic included in the print job is missing, the user can choose for that print job to be aborted (see the ***"Image Replacement Options"*** portion of the ***"Advanced Settings"*** section of this guide), and the Message Monitor's ErrorLog will display a message to that effect. A graphic is considered missing when it cannot be found in its original location or in any of the user-specified search paths.

IPT Message Monitor

CanOPI NT uses the IPT Message Monitor to provide the user with OPI process information. There are three types of windows in the Message Monitor: OPIStub, which concerns the status of stub file generation; Docman printers, which display information for each print job performed by each print processor; and the ErrorLog, where messages regarding dongle problems and missing graphics are displayed.

The Message Monitor is accessible by double-clicking on the **'IPT Message Monitor'** icon located in the **'IPT CanOPI'** group in the Windows NT Program Manager.

When stub file generation takes place, the OPIStub window of the Message Monitor lists information regarding: when the stub file generation was performed; the location, size, and type of the original, high-resolution image; and the location, size, and type of the low-resolution stub file. You can also scroll through the historical listings to obtain information about previous stub file generation.

For each print job that is performed, the user can open the corresponding Docman printer's window in the IPT Message Monitor to access information such as when the job was completed, how long it took to complete, which images were used, what output device was employed, and more.

The ErrorLog window displays a message confirming the number of print jobs remaining on the dongle. For non-licensed versions (either Evaluation or Demonstration versions), CanOPI NT allows only a pre-determined number of print jobs. Beyond this number, stub generation and image replacement are disabled until the user contacts IPT, Inc. and purchases the necessary upgrade materials. In the case of an upgrade from an Evaluation version, you will need to purchase new software, a hardware dongle, and software activation key number. In the case of an upgrade from a Demonstration version you will need to purchase only a software activation key number. Once the pre-determined number of print jobs have been performed, a message to that effect appears in the Message Monitor.

All messages displayed in the Message Monitor's ErrorLog window are written in red text. This was designed so that if multiple windows are open simultaneously, you can quickly determine if any problems have occurred that require administrator or user attention at a glance or from a distance.

If a graphic included in the print job is missing, the Message Monitor's ErrorLog window will display a message to that effect. A graphic is considered missing when it cannot be found in its original location or in any of the user-specified search paths.

Whether or not the print job is aborted due to a missing graphic is an option set by the user (see the “***Image Replacement Options***” portion of the “***Advanced Settings***” section of this guide).

CanOPINT truncates all Message Monitor logs down to a file size of 128 Kbytes when they reach a file size of 256 Kbytes.

Image Formats Supported

The following image formats are supported by CanOPI NT:

- Mac EPS
- Mac DCS v1
- Mac DCS v2 single file format
- PC EPS
- PC DCS v1
- PC DCS v2 single file format
- TIFF 1/4/8/24/32 bit
- TIFF 8 bit indexed
- Handshake SCITEX CT 8/24/32 bit
- Handshake SCITEX LW
- LZW

Installing CanOPI NT

This section contains all the information that you will need to install CanOPI NT and it's hardware key.

Pre-requisites:

Before installing CanOPI NT, please make sure of the following:

- You have at least two separate hard drives locally mounted on your Windows NT server machine. We recommend that each of these drives be at least 1 Gbyte in size. At least one of these drives has to be formatted as an NTFS file system, and we recommend that the other be a FAT file system.

CanOPI NT uses the NTFS-formatted drive for image storage. Since only an NTFS-formatted drive is accessible from your Macintosh client machines (a FAT-formatted drive is non-accessible), this is an absolute requirement for CanOPI NT to function.

Windows NT system files should be located on the FAT-formatted drive. This is also where CanOPI NT will be installed, and where CanOPI NT will perform image spooling. We recommend placing your system files on a drive configured as an FAT file system because this type of filing system enables you to utilize system tools to recover data in the event of a drive failure.

It is possible to run CanOPI NT on a single hard drive - configured as one FAT-formatted partition and one NTFS-formatted partition, however, system performance may be so degraded due to read/write operations that we strongly discourage this approach.

- 64 Mbytes of RAM (CanOPI NT will run with 32 Mbytes of RAM, but system performance will be degraded depending upon system load).

- You are running Windows NT version 3.51 or greater. CanOPI will not run on a Windows NT release prior to version 3.51.
- You possess the CanOPI NT hardware key (not necessary with the CanOPI NT Evaluation Copy package). You install this small device in your Windows NT server machine's parallel port.
- You possess the diskettes entitled: '**CanOPI for Windows NT**' and '**Sentinel System Drivers**'. (Intel-based machines require one '**CanOPI for Windows NT**' diskette, DEC Alpha machines require two '**CanOPI for Windows NT**' diskettes - labeled as diskettes 1 and 2. The '**Sentinel System Drivers**' diskette is not necessary with the CanOPI NT Evaluation Copy package.)
- You are logged on to your Windows NT server machine as '**Administrator**'.

Installing the Hardware Key

***Note:** The CanOPI NT Evaluation version package does not require a key. If you have an Evaluation version, you need not install either the hardware dongle or software ‘Sentinel System Drivers’. Proceed directly to “Installing CanOPI NT” step on page **Install-26**. If you choose to upgrade to a fully authorized copy of CanOPI NT, you will need to install these components at that time.*

If you have a Demonstration version or a Licensed version of CanOPI NT, proceed with the steps outlined below.

The following information pertains to installation of the hardware and software comprising the Sentinel hardware key (dongle) that CanOPI NT requires for proper operation. If you have a Demonstration version of CanOPI NT, the key will allow you to print up to a pre-determined number of jobs with IPT’s CanOPI NT picture replacement. You can achieve unlimited print job capability at any time by contacting IPT, Inc. and purchasing a key authorization number.

CanOPI NT displays the status of the dongle (number of print jobs processed, authorization number input field, et cetera) on the Key property sheet. Access this sheet after installing the CanOPI software by double-clicking on the ‘**IPT Config**’ icon in the Windows NT Control Panel window, and clicking on the ‘**Key**’ tab in the resultant ‘**IPT OPI Properties**’ dialog box. This property sheet is also where you enter the key authorization number that changes your demonstration version of CanOPI NT to a fully registered version.

If you suspect that your dongle has expired, you can confirm it’s expired status by looking for the following message in the IPT Message Monitor’s ErrorLog window (accessible by double-

clicking on the **'IPT Message Monitor'** icon located in the **'IPT CanOPI'** group in the Windows NT Program Manager):

“IPT demo hardware key has expired. Contact IPT to obtain a full license key. Picture replacement and stub generation are now disabled.”

For advanced configuration options, refer to the *“Advanced Settings”* section of this guide.

Hardware

1. You install the Sentinel hardware key (dongle) in the parallel port located on the back of your Windows NT server machine (the parallel port is the one with the 25-pin connector). You can use this dongle either with or without a printer cable connected to this port.

To install the dongle, simply plug it into the parallel port. The software you install (see below) will automatically find it and configure it to work with CanOPI NT.

2. If you currently have a device connected to your parallel port, disconnect it, install the dongle in its place, and connect the device to the dongle. The dongle will not affect the operation of the device.

If the dongle is disconnected, CanOPI NT will display the following message in the IPT Message Monitor's ErrorLog window whenever you attempt to print a job (accessible by double-clicking on the **'IPT Message Monitor'** icon located in the **'IPT CanOPI'** group in the Windows NT Program Manager):

“IPT OPI hardware key cannot be found. Please check that you’re using a valid IPT hardware key. Picture replacement and stub generation are now disabled.”

Software

To install the Sentinel System Drivers, you must perform the following steps:

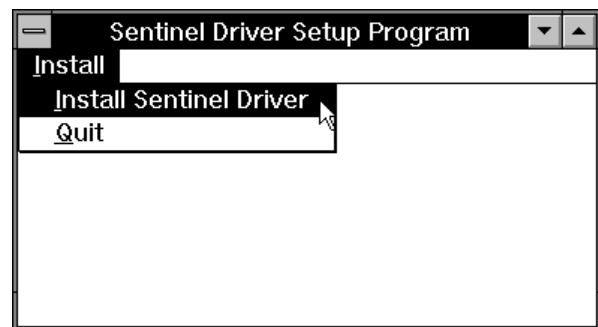
1. Log on to Windows NT as **Administrator**, and insert the diskette entitled **Sentinel System Drivers** into your machine’s floppy disk drive.
2. Select the **‘Run’** option from the Program Manager’s **‘File’** menu.



3. Type **‘a:\win_nt\INSTALL.BAT’** in the command line, and click **‘OK’**.



4. Windows NT displays a window with the title bar '**Sentinel Driver Setup Program**'. Select the '**Install Sentinel Driver**' option from the '**Install**' menu.



5. The Sentinel installer displays a dialog box with the default path for the NT driver source files (this path should reflect your floppy diskette drive). Change the drive letter if necessary and click '**OK**'.



6. The Sentinel installer copies the driver and associated files to your hard disk. One of the DLL's (either SNTI386.DLL or SNTALPHA.DLL, whichever is applicable for your hardware platform), and SENTTEMP.HLP are copied to \%SYSTEMROOT%\SYSTEM32 (where %SYSTEMROOT% is the directory where Microsoft Windows NT is installed on your machine). The Sentinel installer also copies the file SENTTEMP.SYS to the \%SYSTEMROOT%\SYSTEM32\DRIVERS\SENTINEL.SYS file.
7. If the driver installation is successful, the installer displays a dialog box with the message **'Sentinel Driver Files Copied Successfully'**. Click the **'OK'** button to dismiss this box.



8. When complete, the installer displays a dialog box with the message **'Driver Installed! Restart your system'**. Click **'OK'** to continue (by clicking **'OK'** you will not cause your system to re-start, you will merely complete the Sentinel installation procedure).



NOTE: You need not re-start your computer at this point. Continue with the installation of the CanOPI NT software, below, and you will be prompted to re-start your computer upon completion.

Installing CanOPI NT

The following steps detail the installation procedure necessary to run CanOPI and display the IPT Config icon in your Windows NT Control Panel. This allows you to configure stub generation and picture replacement parameter options, as well as access hardware key information.

1. Make sure that you are logged on to your Windows NT server machine as **'Administrator'**.
2. Insert the **'CanOPI for Windows NT'** diskette into the floppy drive of your Windows NT server machine. If you are installing this product on a DEC Alpha machine, insert the diskette labeled as **'CanOPI for Windows NT - diskette 1'**.
3. Select the **'Run'** option from the **'File'** menu of the Windows NT Program Manager.



4. In the '**Command Line:**' field, type '**a:\setup**' and click the '**OK**' button (or press the '**Enter**' key).



5. After a short pause (during which time a white, intermediate box appears), Windows NT will display an '**IPT Setup**' dialog box:



Click the '**Continue**' button once.

The installation program will now verify that you are running the correct version of the Windows NT Server (version 3.51 or greater), and that you have a minimum of 2 Mbytes of disk space available for the CanOPI NT system files. If your system does not satisfy either of these conditions, the installer will display a dialog box informing you of the problem. You should click on the '**Exit Installation**' button and take the necessary corrective measures.

6. The installer will display one of two dialog boxes:
- If you are installing CanOPI NT on this machine for the first time, Windows NT will display the '**Install**' dialog box. Click '**Continue**' to install CanOPI NT.

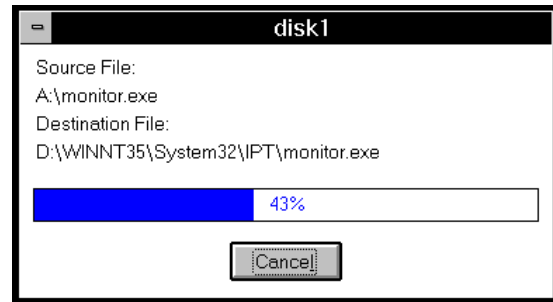


- If you have previously installed CanOPI NT, the installer will automatically detect this and display the '**Files Already Exist**' dialog box, asking if you wish to overwrite the currently installed files.



Click '**Overwrite**' to install CanOPI NT over the existing version.

7. CanOPI NT will now install. As it does so, the installer will display the following dialog box:



If installing CanOPI NT on a DEC Alpha machine, the installer will prompt you to insert the second installation diskette (labeled as '**CanOPI for Windows NT - diskette 2**') at this point. Remove the first installation diskette and replace it with the second diskette.

8. Once the installation of CanOPI NT is complete, the installer will display an '**Installation Successful**' dialog box.



At this time, the only portion of the CanOPI NT application that is available to you is the IPT Message Monitor (located in the '**IPT CanOPI**' Program Group in the Windows NT Program Manager).

Before you can use the entire CanOPI NT application, you must reboot Windows NT. If you wish to do this now, click the **'Restart...'** button. When your system re-boots, all of the CanOPI NT software will be accessible.

Configuring CanOPI NT

This section contains all the information that you will need to configure CanOPI NT, including creating Macintosh-accessible volumes, configuring stub file generation options, creating a printer, and configuring image replacement options.

Creating Macintosh-accessible Volumes

This section describes how to create volumes on your Windows NT server for display on the Macintosh user's screen. Users then place high-resolution images (which CanOPI NT converts to low-resolution stub files for page layout work) in these volumes.

Before you can create a Macintosh-accessible volume, you must fulfill two pre-requisites. First, the disk drive of the Windows NT server machine, upon which you wish to create your Macintosh-accessible volumes, must be formatted as an NTFS filing system. Second, you must have the **'Services for Macintosh'** software installed on your Windows NT server machine. If you need to format a disk drive as an NTFS partition or install **'Services for Macintosh'** please consult the Windows NT on-line documentation.

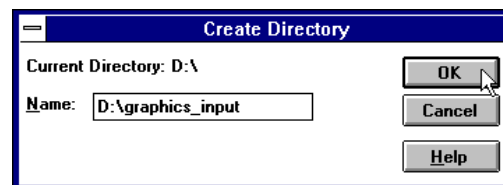
To create a Macintosh-accessible volume, perform the following steps:

1. Launch the **'File Manager'** application from the **'Main'** group of the Windows NT Program Manager.
2. Select the **'Create Directory...'** option from the File Manager's **'File'** menu.



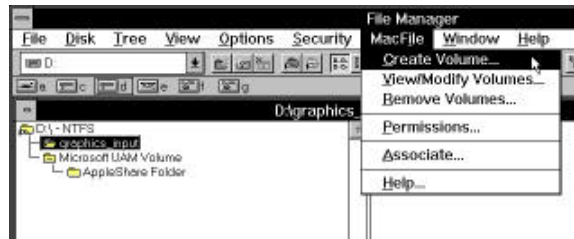
Windows NT will display the ‘**Create Directory**’ dialog box, prompting you to enter the name of your new directory. For this example, enter ‘**D:\graphics_input**’ (see *NOTE*, below).

***NOTE:** The ‘D:\’ drive specified here for illustration purposes is meant to represent your Windows NT server machine’s locally-mounted NTFS-formatted drive. This is absolutely necessary in order to create image-storage directories that will be Macintosh-accessible. During this (and subsequent) steps of the installation procedure, you should use the drive letter designating the NTFS-formatted drive on your system.*



When you have entered the proper text, click on the **'OK'** button to create the new directory.

3. Verify that the CanOPI NT installer properly created this directory by using the File Manager to examine your **'D:\'** drive, then use the mouse to select it by clicking on it once. Now, with this new directory selected, choose the option **'Create Volume...'** from the **'MacFile'** menu. (If the **'MacFile'** menu is not present, then the **'Services for Macintosh'** software has not been installed. Consult the Windows NT on-line documentation for the installation procedure.)



***NOTE:** The **'D:\graphics_input'** directory must be selected during this operation so that the new, Macintosh-accessible volume will be associated with it.*

4. Windows NT will display a dialog box entitled **'Create Macintosh Accessible Volume'**.



Configure the fields as follows:

Volume Name: This is the name of the Macintosh-accessible volume as it will appear on the Macintosh user's screen. The default is the same as the directory name to be published. Change this so that Macintosh users can see a different, more meaningful name. For this field enter '**Graphics Input**'. Users place their high-resolution image files in this volume for low-resolution stub generation.

Path: Specify the drive letter and path to the directory that you are designating as a Macintosh-accessible volume. For this field, enter '**D:\graphics_input**'.

Password: Specify the password that users must provide to use this volume. Leave this blank for the moment.

Confirm Password: This is where you would enter the password for a second time to confirm that the first password you entered was correct. Again, leave this blank for the moment.

5. Click the **'OK'** button to create the Macintosh-accessible volume.
6. Repeat the above steps to create another Macintosh-accessible volume entitled **'D:\graphics_hires'** (call it **'Graphics Hires'** in the **'Volume Name'** field of the **'Create Macintosh-Accessible Volume'** dialog box).

CanOPI NT places the original, high-resolution images in the **'graphics_hires'** directory for storage.

***NOTE:** You must create both **'Graphics Input'** and **'Graphics Hires'** volumes for CanOPI NT to function. Also, both directories must be located on the same drive.*

Now that you have created two Macintosh-accessible volumes, you need to tell your Macintosh client machine(s) to look for them.

1. To mount the volumes on the Macintosh, select the **'Chooser'** from it's **'Apple'** menu.



Your Macintosh will display the **‘Chooser’** dialog box.



2. Click on the **‘AppleShare’** icon and select your Windows NT file server machine’s name (**‘Monday’** in this example) from the supplied list of file servers, then click **‘OK’**. Your Macintosh will display the **‘Connect to the file server’** dialog box and prompt you to enter a name and a password.



3. Select the **‘Registered User’** radio button. Enter **‘Administrator’** in the **‘Name’** field and enter your System Administrator password in the **‘Password’** field. Click **‘OK’**.

Your Macintosh will display a dialog box listing available volumes. If you have properly completed the previous steps, you will see the entries **'Graphics Input'** and **'Graphics Hires'**. Select both by first clicking on one with the mouse, then clicking on the other while holding down the **'Shift'** key as you click on it. (You can make these volumes appear each time you start your Macintosh by placing a check mark in their respective check boxes, but leave these blank for now.)

When your dialog box looks like the one below, click the **'OK'** button.



The volumes **'Graphics Input'** and **'Graphics Hires'** will now appear on the Macintosh user's screen. Before you can use them, however, you need to finish the configuration steps below.

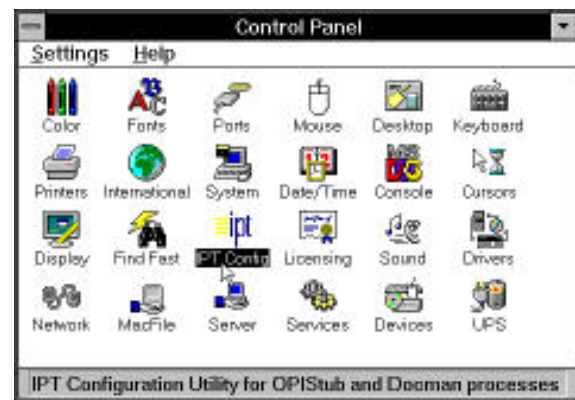
For more information on how to use CanOPI NT, refer to the ***"Using CanOPI NT"*** section of this guide.

Configuring Stub File Generation Options

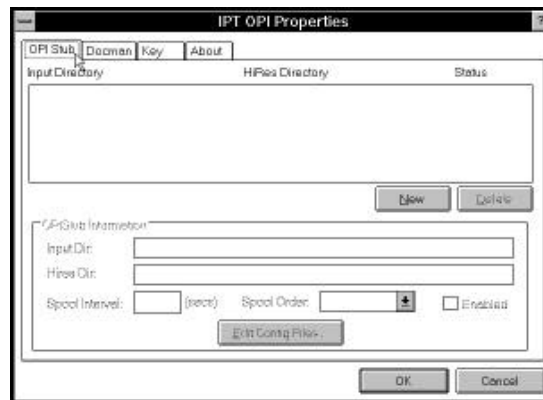
This step outlines how to set parameter options from the Windows NT server machine that control how and where CanOPI NT creates and stores the low-resolution stub files that the user works with in page layout.

You configure stub file generation parameter options via the Windows NT Control Panel applet named **'IPT Config'**. These options determine where and how CanOPI NT stores and creates the low-resolution stub files from the original, high-resolution images.

1. Open up the Windows NT Control Panel from within the Program Manager's **'Main'** group and double-click on the **'IPT Config'** icon.



Windows NT will display the IPT OPI Properties dialog box. If not already selected, click on the **'OPIStub'** property sheet tab, and Windows NT will display that sheet on top of the others.



2. Click the 'New' button on the right of the property sheet, and Windows NT will enable the lower, 'OPIStub Information' portion of the dialog box.
3. You must now specify both an input directory (where the CanOPI NT user places a file for processing from their Macintosh) and a high-resolution directory (where CanOPI saves the high-resolution images). Use the two Macintosh-accessible volumes that we created in the previous step (see ***"Creating Macintosh-accessible Volumes"*** on page *Configure-32*). Assuming that you have previously created these volumes on drive 'D:\' (or whatever drive is your NTFS-formatted drive), enter the following information:

Input Dir: **D:\graphics_input**

Hires Dir: **D:\graphics_hires**

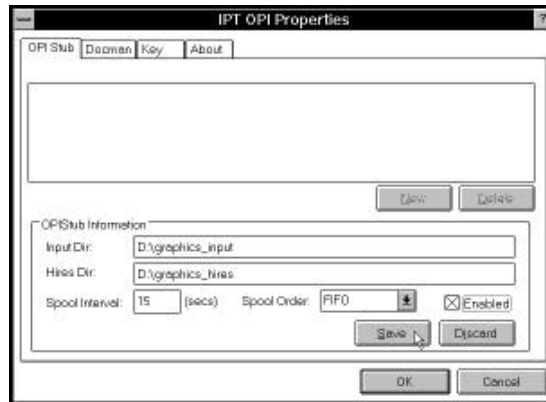
NOTE: You must locate the '**graphics_input**' and '**graphics_hires**' directories on the same drive.

4. Next you must specify the Spool Interval. The Spool Interval defines how often (in seconds) the OPIStub utility will look in the input directory for new image files for processing. Enter **'15'** in this field (this is the recommended time).
5. Now select the required spool order from the **'Spool Order'** drop down list. CanOPI NT offers two options are available here: **'FIFO'** and **'First Found'**.

Choosing **'FIFO'** tells CanOPI NT to process the images on a first in/first out basis. Select this option if you are going to have a high volume of images being saved to your server. This assures that during peak production times, CanOPI NT will not leave certain images in the input folder in preference of other files that are currently being copied.

If your system has a steady (but relatively slow) trickle of images being saved to the server, select the option **'First Found'**.

6. Finally, select the **'Enabled'** check box to make your newly entered setup active. Your dialog should now look like this:

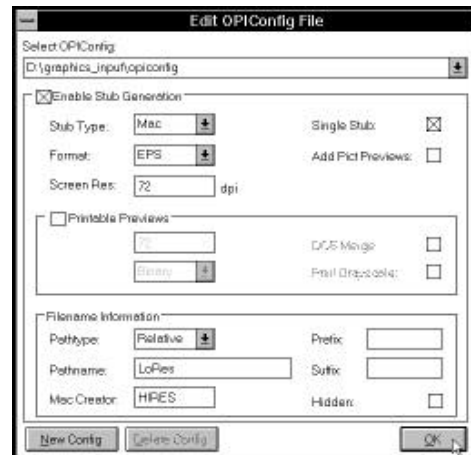


You have now specified both the **'input'** and **'hires'** directories as the locations where the user will place high-resolution images and where they will be stored on the server. You must now select your stub file generation options.

CanOPI NT stores these stub file generation options as **'OPIconfig'** files that reside within the **'graphics_input'** directory hierarchy. CanOPI NT allows you to have a different OPIconfig file in each sub-directory level of the **'graphics_input'** file structure, with each one automatically overriding those located above it. In this way it is possible to place your high-resolution images in different sub-directories (each with a different OPIconfig file) and achieve different low-resolution image configurations. At minimum, you must have one OPIconfig file, located in the root directory of your input volume. CanOPI NT places your initial OPIconfig file here, by default.

For this example, you will generate your initial OPIconfig file. CanOPI NT automatically places it in the root directory of your input folder, in this case, **'D:\graphics_input'**. Follow these steps to create an OPIconfig file:

1. The dialog box in which you have just specified your **'graphics_input'** and **'graphics_hires'** directories should still be open. Click the **'Save'** button, and Windows NT will display the **'Edit OPIConfig File'** dialog box.



2. Make sure the **'Enable Stub Generation'** check box has a check mark in it. This tells CanOPI NT to generate low-resolution stub files from high-resolution image files that you have saved into the **'graphics_input'** directory or any of its sub-directories. If you do not enable this option, CanOPI will still spool files from the **'graphics_input'** directory to the **'graphics_hires'** directory, but stub generation will not occur.
3. The following default settings should be pre-set for configuring the type of stub file CanOPI NT will generate:

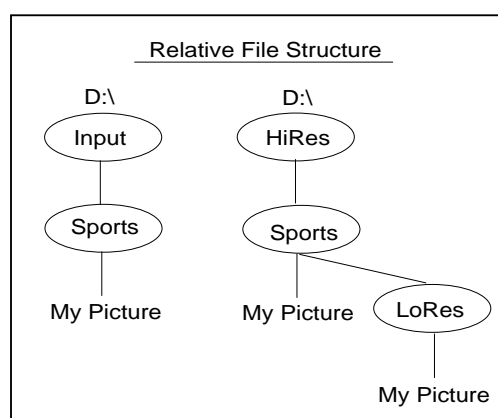
Stub Type -- Mac
Format -- EPS
Screen Preview Resolution -- 72
Single Stub -- Enabled
Add Pict Previews -- Disabled
Printable Previews -- Disabled
PathType -- Relative
Pathname -- LoRes
Mac Creator -- HIRES
Hidden -- Enabled

***NOTE:** For more information regarding these settings, see the “Stub File Generation Options” portion of the “Advanced Settings” section of this guide.*

The **‘PathType’** parameter defines the type of file structure that CanOPI NT uses to store the low-resolution stub file generated from the original, high-resolution image. There are three Path-Type options to choose from: **‘Relative’**, **‘Absolute’**, and **‘Mirror’**.

Regardless of which option you select, CanOPI NT moves the original, high-resolution image from the **‘Graphics Input’** folder and places it into an identically named folder in the **‘Graphics Hires’** directory. The original image is completely unchanged, retaining all of its previous characteristics including file name and size, image format, et cetera. CanOPI NT then generates the low-resolution stub file from this original image and places it in a location defined by the chosen **‘PathType’** and **‘Pathname’** options.

Using the recommended option, **'Relative'**, as specified above, CanOPI NT creates a file structure hierarchy in the **'Graphics Hires'** directory identical to that found in the **'Graphics Input'** directory. When a user places an original, high-resolution image in the **'Graphics Input'** directory (or one of its sub-directories) for stub file generation, CanOPI NT moves that image file to the same hierarchical location in the **'Graphics Hires'** directory, for storage. The low-resolution stub file is placed in a newly created sub-directory (named **'LoRes'** using the recommended settings). The **'LoRes'** sub-directory is located one level below the sub-directory where the original has been stored. (Refer to diagram, below.)



For more information regarding the other two **'PathType'** options (**'Absolute'** and **'Mirror'**), refer to the **'PathType'** portion of the **"Advanced Settings"** section of this guide (on page *Settings-71*).

4. Having selected the satisfactory options, click the **'OK'** button at the bottom of the **'Edit OPIConfig File'** dialog box. CanOPI NT automatically saves the OPIConfig file that you have just created.

5. Windows NT now returns you to the IPT OPI Properties dialog box, from which you can edit the newly created OPIConfig file, if you desire, by clicking on the **'Edit Config Files...'** button. If satisfied with your previous settings, click on the **'OK'** button to dismiss this dialog box and return to the Control Panel window.

You have now configured stub file generation for CanOPI NT by creating an **'OPIConfig'** file in the top level of the **'graphics_input'** folder. To generate an additional **'OPIConfig'** file for a given input directory, use the mouse to select an existing Input/Hires directory pair in the top portion of the **'OPIStub Property'** sheet.

This will enable the **'Edit Config Files...'** button. Click on this button to display the **'Edit OPIConfig File'** dialog box, which lists all the existing OPIConfig files in this input directory. To generate a new OPIConfig file, click on the **'New Config'** button to display a browser window. Navigate to and specify the location of the new OPIConfig file, then click on the **'OK'** button. A new OPIConfig file will automatically be generated and the default options will be displayed in the **'Edit OPIConfig File'** dialog box.

Make any appropriate changes here, which will automatically be saved when you click on the **'OK'** button or select a different file from the **'Select OPIConfig'** drop down list. Each **'OPIConfig'** file will control the stub file generation for the folder in which it is located and all folders below it, unless there is an additional **'OPIConfig'** file located in a lower folder. Then, that **'OPIConfig'** file will take precedence.

To delete an OPIConfig file, select it from the drop down list, then click on the **‘Delete Config’** button.

To change the location settings of an existing Input/Hires directory pair, select that pair and edit the corresponding **‘Input’** and **‘Hires’** fields in the **‘OPIStub Information’** section. Clicking **‘OK’** or selecting a different Input/Hires directory pair will automatically save your changes.

You can specify up to 32 additional **‘xxxx_input’** and **‘xxxx_hires’** Input/Hires directory pairs to allow stub file generation on a different disk or partition (where **‘xxxx’** is a user-defined name). Be aware that each **‘Input’** and **‘Hires’** directory pair must be on the same drive.

Creating a Printer

CanOPI NT performs picture replacement by sending files through a print processor that you create and name **'Docman'**. This step provides instructions for accomplishing this.

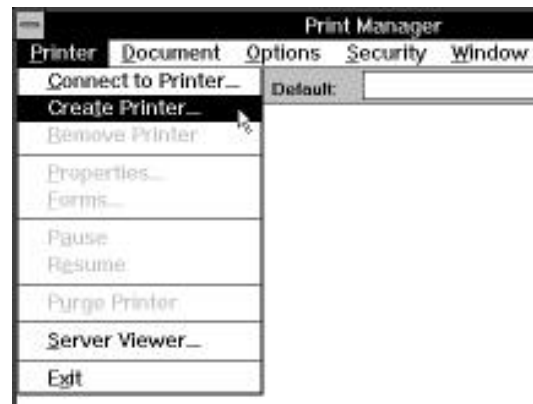
CanOPI NT prints PostScript jobs to the Windows NT server via a published AppleTalk Chooser Device, and performs OPI picture replacement as the server spools print jobs to their final output device. Therefore, jobs waiting to be spooled do not contain any high-resolution image data.

To set up a printer to perform OPI picture replacement, you must perform the following steps:

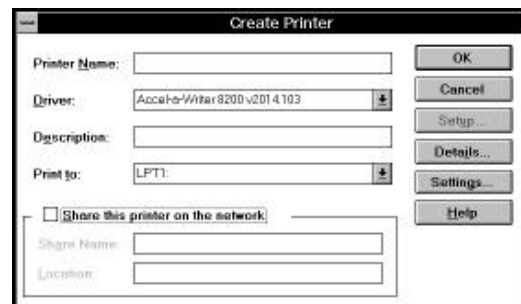
1. Launch the **'Print Manager'** application from the **'Main'** group of the Windows NT Program Manager by double-clicking on its icon.



2. Select the option **'Create Printer...'** from the **'Printer'** menu.



3. Windows NT will display a 'Create Printer' dialog box.



You must now configure the following fields:

Printer Name: This is the name you wish to call your printer. Windows NT will publish the printer under this name on the network. Enter '**My First NT Printer**' in this field.

Driver: Choose a PostScript printer driver that corresponds to the type of printer you will be using as an output device. For

this example, we will select **'HP LaserJet 4/4M PS'**. (We are illustrating the example here of setting up a simple black and white printer for proofing purposes. You will want to select the actual printer or RIP driver to which you want to send print data.)

Description: Enter **'My Printer'** for this field.

Print To: In this example, we are going to be printing to an AppleTalk published device, such as a RIP or a Proofer. Select the field **'Other...'**, and Windows NT will display a **'Print Destinations'** dialog box.



Select the option **'AppleTalk Printing Devices'** and click the **'OK'** button. Windows NT will now display a dialog box entitled **'Available AppleTalk Printing Devices'**.

This dialog box will show either your current AppleTalk zones, or (if you have no zones) a list of all the devices that are publishing themselves on your AppleTalk network. If Windows NT displays zones, you can list the devices being published in any zone by double-clicking on the zone name.

Please select the device that corresponds to the published output device. For example, you may double-click on the zone **'Testing'** and select the printer **'My Test RIP - Lino 530'**.

For our example, we have chosen a black and white HP LaserJet 4 printer for proofing purposes. Once you have selected an output device, click the **‘OK’** button at the bottom of the dialog.



When Windows NT asks you: **‘Do you want to capture this AppleTalk printing device?’**, click the **‘No’** button, and you will return to the **‘Create Printer’** dialog box.



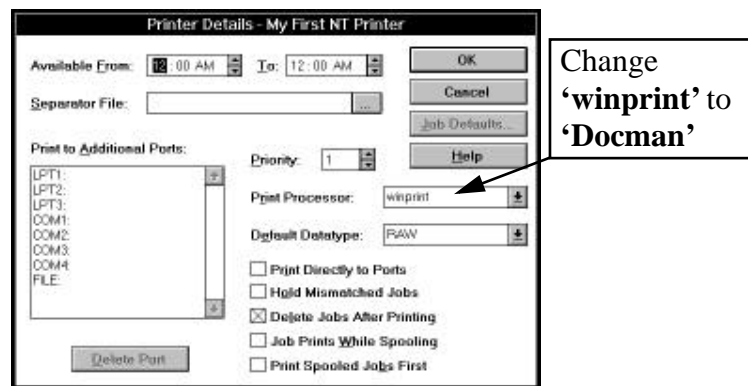
NOTE: By capturing an AppleTalk device, you remove that device from the list of available printers in Macintosh user's **‘Chooser’** window. This may be preferable, if you want to deny access to that device to all users and force them to process print jobs through the print processor you set up to use Docman.

We recommend not capturing the AppleTalk device, thereby leaving it available to users who may need to print directly to it (bypassing the potential queue), or have no need for image replacement.

You can change the setting of this parameter by clicking on the **'Settings'** button of either the **'Create Printer'** or the **'Printer Properties'** dialog boxes.

Share this printer on the network: You must enable this check box to share your defined printer on the network. By default the Print Manager creates a share name compatible with MS-DOS based computers. You may edit this share name if required. For our example, this is not necessary.

4. Now click the **'Details...'** button displayed on the **'Create Printer'** dialog box. Windows NT displays a **'Printer Details - My First NT Printer'** dialog box.



5. The default value for the **'Print Processor'** field is **'winprint'**. Click on this field and select the print processor **'Docman'**. This is IPT's own print processor, which is responsible for performing the picture replacement.

6. Click the **'OK'** button to dismiss the **'Printer Details'** dialog box, returning you to the **'Create Printer'** dialog box.
7. Click the **'OK'** button to dismiss the **'Create Printer'** dialog box.
8. If this is the first time that you have specified your particular printer driver, Windows NT may display a dialog box entitled **'Windows NT Setup'**, asking for the full path of your Windows NT distribution files. Follow the instructions, and insert your diskette or CD-ROM in the appropriate drive. For example, if your CD-ROM drive is mounted as drive E:\, you must enter **'E:\i386\'**, making sure that your Windows NT Server CD is in drive E:\. When you have finished, click the **'Continue'** button.
9. If Windows NT displays the **'PostScript Printer Setup'** dialog box, select the appropriate options for your specified output device and click the **'OK'** button.

You have now configured your Windows NT printer.

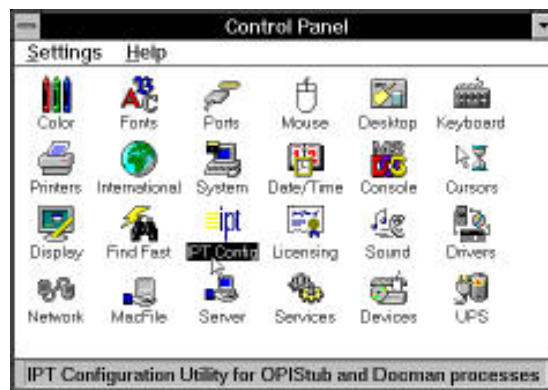
To test that this configuration actually works for printing from your Macintosh machine (without OPI picture replacement), select the printer **'My First NT Printer'** from your Macintosh's **'Chooser'** and try printing a desktop or a simple document. You can monitor the **'My First NT Printer'** status window in the Print Manager to watch the spooling and printing operations.

Configuring Image Replacement Options

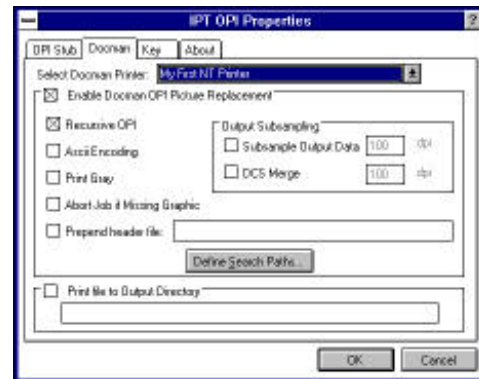
This step describes how to configure the picture replacement options for a given print device. These options control how CanOPI NT replaces the low-resolution images that you use in page layout with the original, high-resolution images during the final output process.

To configure the options for OPI Picture Replacement, first make sure that you have set up at least one printer using the **'Docman'** print processor. If you have not yet done this, please consult the previous section entitled *"Creating a Printer"* on page *Configure-48*.

1. Launch the IPT Config control panel applet from the Windows NT Control Panel by double-clicking on its icon.



Windows NT will display the **'IPT OPI Properties'** dialog box. Select the **'Docman'** property sheet by clicking on its tab. Windows NT will display that sheet on top of the others.



2. At the top of the Docman property sheet you will see a drop-down list box entitled '**Select Docman Printer:**'. This list box contains all the defined printers that are using the IPT Docman print processor. To configure the picture replacement options for a given printer, you must first select the printer. Please select the printer entitled '**My First NT Printer**'.

3. Select the following options:

Enable Docman OPI Picture Replacement -- Enabled

Recursive OPI -- Enabled

ASCII Encoding -- Disabled

Print Gray -- Disabled

Prepend Header File -- Disabled

Abort Job if Missing Graphic -- Disabled

Subsample Output Data -- Disabled

DCS Merge -- Disabled

Print file to Output Directory -- Disabled

***NOTE:** For more detailed information concerning these options, refer to the “**Image Replacement Options**” portion of the “**Advanced Settings**” section of this guide.*

4. Once you are satisfied with the options you have selected, click the **‘OK’** button to save the changes that you have made.

To configure additional Docman printers, follow the instructions listed above. You are now ready to print your first OPI job. Please refer to the “**Image Replacement**” portion of the “**Using CanOPI NT**” section of this guide for more information.

Using CanOPI NT

This section describes how to use CanOPI NT (assuming that CanOPI NT has been installed and configured in accordance with the previous instructions). Discussion will include setting up the Macintosh client machines, stub file generation, working with stub files, image replacement, and the IPT Message Monitor.

Setting Up the Macintosh Client Machines

In the “*Configuring CanOPI NT*” section of this guide, we described how to publish both ‘**Graphics Input**’ and ‘**Graphics Hires**’ folders on the Macintosh client machines. This is the recommended configuration for most users, where the individual needs access to both the stub file generation capabilities (placing images into ‘**Graphics Input**’) and the low-resolution images for page layout work and image re-touching (located in the ‘**Graphics Hires**’ folder using the ‘**Relative**’ file system ‘**PathType**’ option).

In certain situations, it may not be necessary to publish both the ‘**Graphics Input**’ and ‘**Graphics Hires**’ folders on a given Macintosh client. For instance, someone responsible for image input, such as a scanner operator, may need only the ‘**Graphics Input**’ folder mounted.

For most situations, however, both folders are necessary. Individuals working with image re-touching or page layout need both: the ‘**Graphics Hires**’ folder for access to high and low-resolution images, and the ‘**Graphics Input**’ folder for stub generation.

If you are using the ‘**Mirror**’ file system option, all of your low-resolution files are stored in a third published volume, ‘**Graphics LoRes**’. Only operators who require access to low-resolution images for page layout or image re-touching need to mount this volume. The advantage of having a separate low-resolution volume is that it is impossible for the operator to select the high-resolution image by mistake.

Stub File Generation

There are several ways to move a high-resolution image file into the **‘Graphics Input’** folder to generate a low-resolution stub file. You can drag and drop the image using the mouse on your Windows NT server or Macintosh client. You can use the Windows NT File Manager. You can save an image directly into an input folder from such packages as PhotoShop. Either way, placing the image anywhere in your **‘Graphics Input’** file hierarchy will cause CanOPI NT to generate a stub file.

***NOTE:** Image files whose names contain illegal characters do not generate stub files when placed in the **‘Graphics Input’** folder. Illegal characters are: *, “, “/, \, <, >, ?, or |. Re-name and re-save the image file without these characters.*

You can verify the stub file generation process is running by opening the IPT Message Monitor’s **‘OPIStub’** window (the **‘IPT Message Monitor’** program group is automatically generated in the Windows NT Program Manager during the CanOPI NT installation process). Double-clicking on this icon displays the IPT Message Monitor window. Choose the **‘OPIStub’** window contained therein. This is where CanOPI NT lists information regarding when stub generation was performed; the location, size and type of the original, high-resolution image; and the location, size and type of the low-resolution stub file. You can scroll through the historical listings to obtain information about previous jobs.

Working With Stub Files

The power of CanOPI NT lies in its ability to allow the user to work with low-resolution image files while performing page layout and other similar tasks. By using these low-resolution images (stub files), the processing time and network overhead are greatly reduced.

Once the stub files have been generated (see “*Stub File Generation*”, on page *Using-59*) you can access them for insertion into your documents. You can work with these stub files just as you would their corresponding high-resolution, original counterparts. Place or import them into your page layout package and move, resize, and crop them to suit your needs. You can make adjustments to the brightness and contrast.

Any manipulation or modification that you make to the stub file will be performed automatically by CanOPI NT to the original, high-resolution image upon printing, when image replacement takes place.

CanOPI NT also provides an easy way to delete both stub files and the corresponding original images at the same time, in one quick step. A special folder called ‘**DeleteGraphics**’ is automatically generated in the same directory as the LoRes directory (exact location is dependent upon the user-specified structure determined by the ‘**PathType**’ option in the ‘**OPI Stub**’ property sheet (See the “*Stub File Generation Options*” portion of the “*Advanced Settings*” section of this guide.)

By dragging and dropping a stub file into this directory, the user causes CanOPI NT to delete not only the stub file, but it will also find and delete the original, high-resolution image from which the

stub file was created. However, dragging and dropping the high-resolution file into the **'DeleteGraphics'** folder does not cause the stub file to be deleted.

***Note:** Dragging and dropping anything (files or folders) into the **'DeleteGraphics'** folder causes those items to be deleted.*

The **'DeleteGraphics'** folder is installed automatically, and runs as a system service. Like any system service, it can be turned off by the user from the Windows NT server. Simply double-click on the **'Services'** icon in the Control Panel to display the **'Services'** window. Select the **'IPT Delete Manager'** entry, and click on the **'StartUp...'** button. Then select the **'Disabled'** radio button and restart the machine. The **'DeleteGraphics'** folder will not be created. If you attempt to remove the **'DeleteGraphics'** folder by deleting using the Windows NT File Manager, it will reappear in approximately ten minutes, as the system continually polls itself and re-establishes this folder.

Image Replacement

Having generated low-resolution stub file images with CanOPI NT, the user would most typically use these for page layout work. CanOPI NT places these stub files in the user-specified directory structure determined during configuration.

When the user sends a document to a printer, a RIP (Raster Image Processor), or any other final output device, CanOPI NT automatically replaces the stub files used in page layout with the corresponding high-resolution originals. CanOPI NT sends the document to the final output device determined by the user through the **‘Chooser’** dialog in the **‘Apple’** menu on their Macintosh client machine.

In order for CanOPI NT to perform image replacement, this output device must have been previously created and configured to use the IPT **‘Docman’** print processor. The user can have more than one output device use the Docman print processor, and each one can have different configuration options. For more information regarding the various parameters available for picture replacement options, see either the *“Configuring CanOPI NT”* or *“Advanced Settings”* sections of this manual.

You can monitor the status of a print job while it is in progress by opening the appropriate Docman print devices window in the Windows NT Print Manager. This will display information regarding the job size, whether the job is currently spooling or printing, what final output device is being used and more.

For a more detailed listing of information regarding a particular print job, the user can open the print device’s window in the IPT Message Monitor. This allows access to information such as when

the job was completed, how long it took to complete, which images were used, what output device was employed, and more.

If a graphic included in the print job is missing, the Message Monitor's ErrorLog will display a message to that effect. A graphic is considered missing when it cannot be found in its original location or in any of the user-specified search paths. Whether or not the print job is aborted due to a missing graphic is an option set by the user (see the ***“Image Replacement Options”*** portion of the ***“Advanced Settings”*** section of this guide).

IPT Message Monitor

CanOPI NT uses the IPT Message Monitor to provide the user with messages concerning the status of stub file generation, image replacement in print jobs, and the status of the hardware key (for non-registered demonstration versions). The Message Monitor is accessible by double-clicking on the '**IPT Message Monitor**' icon located in the '**IPT CanOPI**' group in the Windows NT Program Manager. There are three types of windows in the Message Monitor:

OPIStub

When stub file generation takes place, CanOPI NT documents information regarding the event in the OPIStub window. Included are: when the stub file generation was performed; the location, size, and type of the original, high-resolution image; and the location, size, and type of the low-resolution stub file. You can scroll through the historical listings here to obtain information about previous jobs.

Image Replacement

For each print job performed, the user can access information such as when the job was completed, how long it took to complete, which images were used, what output device was employed, and more. Each CanOPI NT printer has its own window in the Message Monitor.

ErrorLog

Messages concerning dongle malfunctions or missing graphics in a print job are listed in the Message Monitor's ErrorLog.

When CanOPI NT processes a print job with a missing graphic, a message containing the date, time, jobname, and name of the missing graphic is displayed. The status of the print job, aborted

or continued, is also displayed (dependent upon the user-selected option on the Docman property sheet).

If you have an Evaluation or Demonstration version of CanOPI NT, you will be allowed you to print up to a pre-determined number of jobs with IPT's CanOPI NT picture replacement. The number of remaining print jobs is displayed in the ErrorLog.

You can configure the dongle to perform an infinite amount of print jobs with picture replacement by contacting IPT, Inc. and purchasing a key authorization number. If you suspect that your hardware key has expired, you can confirm its status by looking for the following message in the Message Monitor's ErrorLog:

“IPT OPI Demo Dongle has expired. Contact IPT to obtain a full license key. Picture replacement and stub generation are now DISABLED.”

If the dongle becomes disconnected, CanOPI NT will display the following message in the Message Monitor's ErrorLog following an attempted print job:

“IPT OPI Dongle cannot be found. Please check you are using a valid IPT dongle. Picture replacement and stub generation are now DISABLED.”

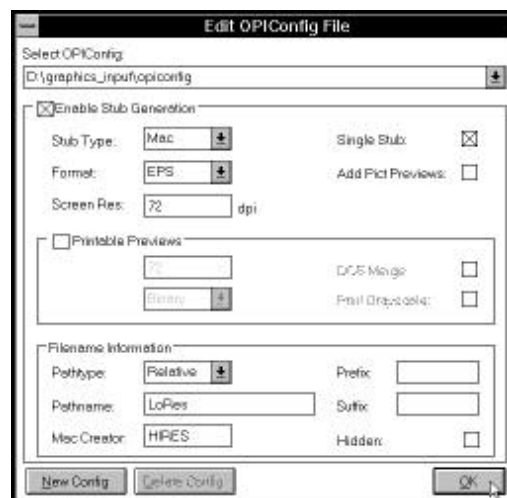
Advanced Settings

This section explains the effect and operation of the various parameter options concerned with Stub File Generation, Image Replacement, and the Hardware Key.

Stub File Generation Options

The options that control how CanOPI NT creates a low-resolution stub file are contained in the OPIConfig file. This section explains, in detail, the configuration options available to you for each parameter controlled by the OPIConfig file. You must have at least one OPIConfig file (located in the root directory of your graphic input folder). You may create subsequent OPIConfig files in lower levels of the file structure, each one controlling all stub generation occurring when the user places images in that folder or any lower (hierarchially subsequent) folders.

To edit an OPIConfig file, double-click on the **'IPT Config'** icon in the Windows NT Control Panel, and select the **'OPI Stub'** property sheet. Select the input directory containing the OPIConfig file that you want to configure, and click on the **'Edit Config Files'** button. Windows NT will display the 'Edit OPIConfig File' dialog box:



Make sure the **‘Enable Stub Generation’** check box has an “X” in it, allowing you to set the following options:

Stub Type

OPTIONS -- Mac, PC

Selects the type of stub file CanOPI NT will generate.

The option **Mac** will generate stub files that have a Macintosh PICT screen preview. You would select this option if you were using an all Macintosh page-makeup system.

The option **PC** will generate stub files containing an embedded TIFF screen preview. PC Stub files always begin with the byte sequence 0xc5d0d3c6. PC Stubs will allow both Macintoshes and PCs to use the stub files.

***NOTE:** Some restrictions do apply - see **‘Format’** list below.*

Format

OPTIONS -- EPS, HIRES

The format option of **EPS** will ensure that all stub files generated will be either EPS or DCS v1. No TIFF stub files will be generated with this option.

The **HIRES** format option will generate stub files depending upon the format of the hi-resolution image. TIFF/SCITEX CT/SCITEX LW images will have TIFF stub files generated. EPS/DCS images will have EPS/DCS stub files generated.

Screen Resolution

OPTIONS -- ‘n’ dpi

DEFAULT -- 72

Specifies the resolution (in dpi) for the stub file's screen preview image.

Single Stub

OPTIONS -- ENABLED/DISABLED

DEFAULT -- ENABLED

If **Enabled**, this option will only generate a single stub file from the hi-resolution image formats: DCS v1, 32-bit TIFF, 32-bit SCITEX CT and SCITEX LW.

If **Disabled**, this option will generate 5 file DCS stub files for the above mentioned image formats.

Add PICT Previews

OPTIONS -- ENABLED/DISABLED

DEFAULT -- DISABLED

This option works in conjunction with the '**Stub Type**' option. If stub type is set to '**PC Stubs**', then by enabling '**Add PICT Previews**', a Macintosh PICT preview will be added to the PC Stub file generated.

Printable Previews

OPTIONS -- ENABLED/DISABLED

DEFAULT -- DISABLED

Determines if the Stub File is to contain composite printable preview data for output directly to a proofing device.

Preview Resolution

OPTIONS -- '**n**' dpi

DEFAULT -- 72

Specifies the resolution (in dpi) for the stub file's composite printable preview image.

Encoding

OPTIONS -- BINARY/ASCII

DEFAULT -- BINARY

Specifies type of data encoding used for the printable composite preview within the stub file. ASCII will store each pixel as a 2 byte ASCII value. BINARY will store each pixel as a single byte. BINARY is preferred, as the stub file generated will be smaller.

DCS Merge

OPTIONS -- ENABLED/DISABLED

DEFAULT -- DISABLED

When enabled, this option will read all four PhotoShop DCS plate files in order to generate composite printable preview data in the stub file at the resolution specified by the **'Printable Previews Resolution'** field. Hence, it is possible to proof PhotoShop DCS files at a resolution greater than the default 72 dpi.

Print Grayscale

OPTIONS -- ENABLED/DISABLED

DEFAULT -- DISABLED

When enabled, this option will convert CMYK/RGB TIFF/CT/LW composite printable preview data to grayscale for output to a black and white printer directly.

The **'PathType'** parameter defines the type of file structure that CanOPI NT uses to store the low-resolution stub file generated from the original, high-resolution image. There are three **'PathType'** options to choose from: **'Relative'**, **'Absolute'**, and **'Mirror'**. Regardless of which option you select, CanOPI NT moves the original, high-resolution image from the **'Input'** folder and

places it into a folder with an identical name under the **'HiRes'** directory, maintaining the **'Input'** directory structure hierarchy. CanOPI NT simultaneously generates the low-resolution stub file from the original image and places it in a location defined by the **'PathType'** option chosen.

PathType

OPTIONS -- RELATIVE/ABSOLUTE/MIRROR

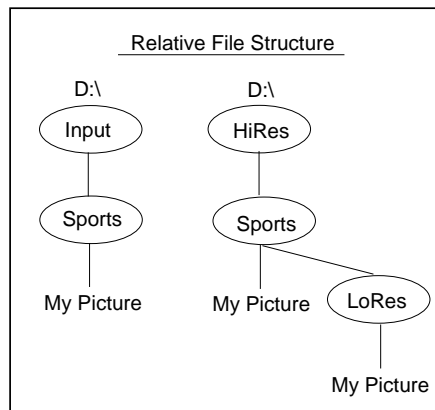
DEFAULT -- RELATIVE

RELATIVE -- CanOPI NT generates stub files in the **'HiRes'** directory hierarchy, relative to their placement in the **'Input'** directory.

CanOPI NT creates a file structure hierarchy in the **'HiRes'** directory identical to that found in the **'Input'** directory.

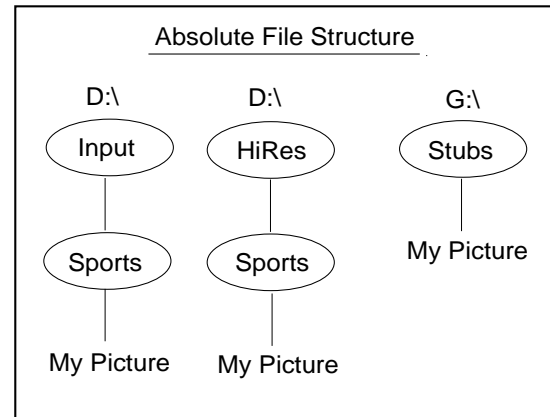
When the user places an original, high-resolution image in the **'Input'** directory (or one of its sub-directories) for stub file generation, CanOPI NT moves that original image file to the same location in the **'HiRes'** directory and stores it there.

CanOPI NT then places the low-resolution stub file in a newly created sub-directory (named **'LoRes'** using the recommended settings) one level below the sub-directory where it stored the original. (Refer to diagram, below.)

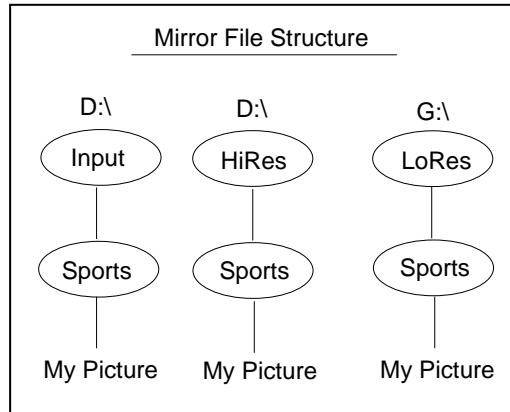


For example, if we have our **'Pathname'** parameter set to **'LoRes'**, and we save an image into the input directory **'D:\Input\Sports'**, the original, high-resolution image is moved to the folder **'D:\HiRes\Sports'**, and the stub file is generated in the folder **'D:\HiRes\Sports\LoRes'**.

ABSOLUTE -- CanOPI NT generates stub files at the absolute path specified. If the **'Pathname'** parameter is set to **'G:\Stubs'**, and the user saves an image into the input directory **'D:\Input\Sports'**, then CanOPI NT places the generated stub file in the **'G:\Stubs'** directory. CanOPI NT moves the original, high-resolution image to the folder **'D:\HiRes\Sports'**. (Refer to diagram, below.)



MIRROR -- CanOPI NT generates stub files in a separate, user-specified directory hierarchy which mirrors the image's current location. For example, if we have our **'Pathname'** parameter set to **'G:\LoRes'**, then an image saved into **'D:\Input\Sports'** will be moved to **'D:\HiRes\Sports'** and the stub file will be generated in **'G:\LoRes\Sports'**. (Refer to diagram, below.)

**Pathname**

OPTIONS -- User defined path

DEFAULT -- LoRes

Specifies either an Absolute, Relative, or Mirrored path depending upon the PathType parameter.

FileName Prefix

OPTIONS -- User defined path

DEFAULT -- NONE

Instructs CanOPI NT to add a user-defined prefix to the CanOPI NT-generated stub file name.

FileName Suffix

OPTIONS -- User defined path

DEFAULT -- NONE

Instructs CanOPI NT to append a user-defined suffix to the generated stub file name.

Macintosh Creator

OPTIONS -- User Defined/HIRES

DEFAULT -- HIRES

Instructs CanOPI NT to assign a user-defined creator to the stub file. If the keyword '**HIRES**' is used, then the stub file generated will have the same creator as its parent. Otherwise, a 4-character creator can be specified.

Hidden

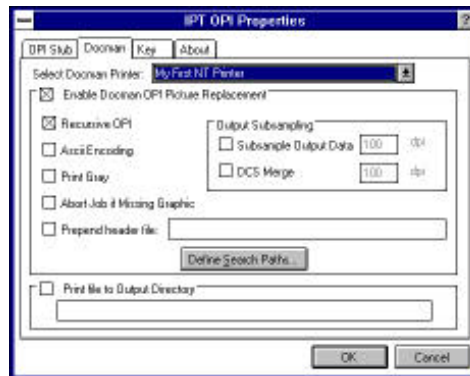
OPTIONS -- ENABLED/DISABLED

DEFAULT -- DISABLED

Instructs CanOPI NT to "hide" the OPICongig file. This way, it is not accessible to users, who may inadvertently modify or remove it, affecting all stub file generation from that folder or any folders below.

Image Replacement Options

CanOPI NT allows you to select different picture replacement settings for different printers from the **'Docman'** property sheet. Access this sheet by double-clicking on the **'IPT Config'** icon in the Windows NT Control Panel window, then clicking on the **'Docman'** tab when Windows NT displays the **'IPT OPI Properties'** dialog box.



The following options are available for each specific printer that you select from the **'Select Docman Printer'** drop-down list box on the **'Docman'** property sheet (printers that you have previously defined - see the *"Creating a Printer"* portion of the *"Configuring CanOPI NT"* section of this guide).

Recursive OPI

DEFAULT -- ENABLED

If this option is enabled, Docman will parse included images for further embedded OPI comments.

ASCII Encoding

DEFAULT -- DISABLED

If this option is enabled, Docman will send ASCII image data (rather than binary image data) to the RIP/Printer. Sending ASCII data will double the amount of image data sent over the network to the output device. This option is only recommended if your output device does not accept binary print data.

PrintGray

DEFAULT -- DISABLED

If enabled, this option will convert CMYK/RGB TIFF/CT/LW data to grayscale for output to a black and white proofing device.

Prepend Header File

DEFAULT -- DISABLED

If enabled, a path and file name to an existing PostScript header file must be specified. Docman will prepend the specified header file to the beginning of the PostScript data stream. This is especially useful if you wish to append a PostScript header to set the resolution of an image setter.

Abort Job if Graphic Missing

DEFAULT -- DISABLED

If enabled, this option causes CanOPI NT to abort a print job and send a message to that effect to the Message Monitor. Graphics are considered missing if they are no longer in the file that they were originally placed in, and cannot be found in the search directories. If disabled, the print job will be processed, and a correspondingly blank space will be left in place of the missing graphic.

Subsample Output Data

DEFAULT -- DISABLED

If enabled, this option will subsample TIFF/CT/LW image data upon output to the specified resolution. By setting the **'dpi'** field to 72, only 72 dpi of image data will be sent to your output device, rather than the full scan resolution. This reduces both network traffic and the amount of data your output device has to process.

DCS Merge

DEFAULT -- DISABLED

If enabled and printing for composite, this option will read and subsample PhotoShop DCS plate files in order to provide a color composite proof at a user-specified resolution. By supplying a resolution greater than 72 dpi, a better composite proof can be obtained than supplied by PhotoShop.

Define Search Paths

DEFAULT -- NONE

Click on this button to display the **'Define Search Directories'** dialog box. Up to 32 different directories can be configured to allow Docman to search for a graphic in the event that it cannot be found in its original location.

Use the **'New'** button to enter a new search directory, then click on the **'Save'** button to save it. The **'Delete'** button can be used to remove a selected search path.

Print file to Output Dir

DEFAULT -- DISABLED

If enabled, the user must specify a path to an existing output directory. Instead of Docman sending the PostScript containing the included images to an output device, the PostScript will be written to the specified directory. The files will be generated with the names 0001.PS, 0002.PS,... et cetera.

NOTE: Each individual printer that is set up to print to disk will start with the file name 0001.PS, so having the same output directory for two printers may mean that the files saved may overwrite each other.

Hardware Key

CanOPI NT uses a Sentinel software driver to communicate with the Sentinel hardware key installed on your Windows NT server machine. The installation procedure for both the physical key and the software that works with it is covered in the “*Installing CanOPI NT*” section of this manual.

When the Sentinel Driver is installed, it must obtain information about each parallel port on the system. Typically, all ports are configured by Windows NT automatically. You will need to manually configure a port only if the port is not detected correctly or if you want the Sentinel Driver to ignore the port when searching for keys.

Changing your port configuration

After the Sentinel Driver has been installed, you can access it through the Windows Control Panel if you need to change the way you configured your parallel ports.

1. Double-click the ‘**Control Panel**’ icon in the Windows NT ‘**Main**’ group window.
2. Double-click the ‘**Drivers**’ icon. Windows NT displays the ‘**Drivers**’ dialog box
3. Select the ‘**Sentinel for I386 option**’ from the ‘**Installed Drivers**’ scrolling list and click the ‘**Setup**’ button.
4. Windows NT displays the ‘**Sentinel Driver**’ dialog box, listing all parallel ports currently defined on your machine. You can see whether the port was defined by the system or a user by looking in the ‘**Created By**’ column. (System-defined

ports are known to the Windows NT operating system; and are configured automatically.) The **'Use?'** column shows whether the Sentinel Driver should use this port when searching for Sentinel keys. The address used by DOS and Win16 applications that are capable of using the Windows NT Sentinel Driver are displayed in the **'DOS Address'** column. Values in this column are automatically filled in upon re-booting the system following installation.

You may now choose one of the following:

To add a user-defined port, click the **'Add'** button and proceed to step 5. Note that when the system starts up, Windows NT finds all parallel ports and their data values. The only reason for adding a port is if Windows NT did not find a port or the data for a port is incorrect. For this reason, it is unlikely that you will ever need to use the **'Add'** button.

To modify a port, highlight it, click on the **'Edit'** button, and proceed to step 5. For a user-defined port, you can modify any data. However, the only parameter you can change on a system-defined port is whether or not the port should be used by the Sentinel Driver.

You can remove a user-defined port by clicking on the **'Remove'** button. You cannot remove a system-defined port.

5. Windows NT displays a dialog box showing the port's current configuration. If you are adding a user-defined port, system defaults are shown. If you are editing a system-defined port, the only field enabled for change is **'Use this port?'**.

Complete the screen as desired, then click **'OK'**. Refer to your computer documentation for the requested information, keep-

ing in mind that if a port is configured incorrectly, the Sentinel hardware key on that port will not be accessible by CanOPINT.

Select the **'Yes'** radio button in the **'Use this port?'** field if you want the Sentinel Driver to search this port for a Sentinel hardware key. Select **'No'** if this port is not to be used by the Sentinel Driver. This setting has no effect on any other applications.

Enter the port's bus address in the **'Bus Address'** field. This is computer-dependent; but for most machines, it is usually one of the hexadecimal values 3BC, 378, or 278.

If the number in the **'Bus Number'** field is not 0, pull down the list box and select the correct number. Usually, the bus number is 0.

Select the port's bus type from the **'Bus Type'** drop-down box. This is usually ISA (Industry Standard Architecture), EISA (Extended Industry Standard Architecture), or Micro-Channel (typical of IBM PS/2 machines).

Select the correct address space (usually I/O) from the **'Address Space'** drop down box.

Use the **'Auto'** option in the **'Port Ownership Method'** unless you need to change it. This setting determines which method the Sentinel Driver uses to acquire exclusive access to the parallel port, depending on what your version of Windows NT provides.

If you need to, you can change the maximum amount of time the Sentinel Driver waits to acquire the parallel port before

returning an error from the '**Acquisition Timeout (ms)**' box. This time is in milliseconds. If you want the Sentinel Driver to wait as long as it takes, enter '**-1**' in this field.

When satisfied with the settings that you have entered, click on the '**OK**' button to return to the '**Sentinel Driver**' dialog box.

6. You can now add or edit another port. When all ports are configured correctly, click '**OK**'.

Windows NT will display a '**System Setting Change**' dialog box. To put the driver into effect right now, click '**Restart Now**'. To have the change take effect the next time you quit and restart Windows NT, click '**Don't Restart Now**'.

For more information

If you desire additional information or help during any step of the Sentinel Driver configuration process, click the '**Help**' button. You may also wish to consult the '**README**' file provided on the '**Sentinel System Drivers**' diskette.

Troubleshooting and Technical Support

This section provides a troubleshooting guide, provides answers to frequently asked questions, and gives instructions for getting help from the Technical Support staff at IPT.

You will find information broken into several categories. Each one addresses common problems and questions related to that category:

- Installing CanOPI NT
- Stub File Generation
- Image Replacement

Please consult the appropriate section for any problem you may be experiencing before calling IPT's Technical Support.

Troubleshooting Guide

This section briefly describes the diagnostic tools that you may use when troubleshooting your network and provides solutions to problems that you may encounter when using CanOPI NT.

Installing CanOPI NT

Symptom or Question:	Solution:
'Error updating the registry' message appears during installation of Sentinel System Drivers diskette.	You may not be logged in as 'Administrator' . Check your login status, and switch to Administrator, if necessary.
'Out of Memory' message appears upon installation of CanOPI NT onto a DEC Alpha machine.	Ignore this message; files are actually installed correctly.

Stub File Generation

Symptom or Question:	Solution:
Stub file generation does not take place when images are placed in the 'Input' directory.	<p>If you have an un-registered version of CanOPI NT, check the 'Message Monitor' or the 'Key' property sheet to see if you have exceeded the allowable number of demonstration print jobs.</p> <p>If you have a registered version of CanOPI NT, check the hardware key to make sure that it has not been disconnected or removed.</p> <p>If the problem persists, check the 'OPI Stub' Property Sheet. Select the desired directory pair in the upper portion of the sheet, then make sure the 'Enabled' check box in the lower portion of the sheet has an "X" in it. Click on the 'Edit Config Files...' button and make sure the 'Enable Stub Generation' box is checked in the resultant 'Edit OPIConfig File' window. Click 'OK' in both windows to dismiss them and save your settings.</p> <p>It is also possible that the original, high-resolution graphic file name may contain illegal characters that CanOPI NT does not recognize. Illegal characters are: *, " , . , / , \ , < , > , ? , or . Re-name and re-save the graphic without these characters.</p>
QuarkXPress crashes when attempting to bring in a low-resolution TIFF image that was generated from a SCITEX CT original saved with a 'CT' extension.	Manually remove the 'CT' extension from the low-resolution TIFF stub file. QuarkXpress is attempting to open the TIFF image as a SCITEX CT image.

Image Replacement

Symptom or Question:	Solution:
<p>Image replacement does not take place when printing.</p>	<p>If you have an un-registered version of CanOPI NT, check the 'Message Monitor' or the 'Key' property sheet to see if you have exceeded the allowable number of demonstration print jobs. If you have a registered version of CanOPI NT, check the hardware key to make sure that it has not been disconnected or removed.</p> <p>If the hardware key is installed and operable, confirm that you have selected the 'Docman' print processor. Open the Print Manager from the Program Manager's 'Main' window. Select the printer that you have created for OPI image replacement, then choose the 'Properties' option from the 'Printer' menu. Click on the 'Details' button in the resultant 'Printer Properties' dialog box. Windows NT will display the 'Printer Details' box. Check the 'Print Processor' drop down list box, and select 'Docman', if necessary. Click 'OK' to back out and save your changes.</p>
<p>Postscript print jobs sent to shared AppleTalk printers through Services for Macintosh (SFM) may not print correctly, or may not get printed at all.</p>	<p>The Services for Macintosh printer monitor incorrectly removes Postscript printer reset characters (0x04) from the end of each print buffer when it sends print data to a shared AppleTalk printer. Both valid printer resets and 0x04 occurrences in binary-encoded data are removed. This keeps valid printer resets from executing, and corrupts binary data streams, preventing the job from printing correctly.</p> <p>Microsoft has confirmed this to be a problem in Windows NT version 3.51. This problem has been corrected in the latest U.S. Service Pack for Windows NT version 3.51.</p> <p>To correct this problem, install the latest U.S. Service Pack for Windows NT version 3.51.</p>

Technical Support

If you have qualified for 30 days of free support, or if you have purchased a maintenance program from IPT, you can call IPT's technical support line: (805) 541-3076 between 9:00 AM and 5:00 PM PDT. In addition, after hours Emergency Support is available for a fee of \$150, billing by credit card is preferred.

When you contact the IPT technical support line, please be prepared to provide the following information:

- A description of your Windows NT server, i.e., the type of machine, hard drive configurations, operating system, et cetera.
- A description of your network.
- A description of your problem.

Appendix A -Technical Information

This appendix provides additional information regarding terminology used in this manual, generating composite data within stub files, and the two methodology options for using CanOPI NT.

Terminology

Mac EPS: By this we mean any EPS file generated from any Macintosh package. This EPS file should have an ASCII data fork and a Macintosh PICT resource to qualify.

PC EPS: By this we mean any EPS file that contains the screen preview as a TIFF file embedded within the EPS data fork. Such a file ALWAYS begins with the 4 byte sequence 0xc5d0d3c6.

All references to SCITEX CT and SCITEX LW refer to the Handshake format, not the Native format.

Composite Data

The following rules apply for generating composite data within stub files for proofing:

1. EPS/DCS stub files generated from all TIFF, SCITEX CT, SCITEX LW, or DCSv1 (saved from Adobe PhotoShop) image file formats can have composite data for proofing at a user-defined resolution.
2. DCS stubs generated from (non-Adobe PhotoShop saved) DCSv1 and DCSv2 file formats can have composite data for proofing at the resolution specified by the particular package. (Here we use the composite data defined in the high-resolution image - this is typically 72 dpi).
3. Currently it is not possible to have composite data in stub files generated from Macintosh EPS files that are not saved from Adobe PhotoShop.

4. If composite data for a stub file is requested, but the OPIStub application is unable to generate the required data, a dummy composite image (displaying the words '**Preview Not Available**') is inserted into the stub file.

Methodology

CanOPI NT is designed to work in one of two ways:

1. IPT OPI Solution:

In this case, all stub files generated must be of an EPS/DCS format. This approach supplies a package-independent method of performing OPI picture replacement. The responsibility of producing valid OPI comments no longer lies with the application, hence a non-OPI compatible product will work with this solution. If supplied, the option to omit TIFF/EPS images within any of the applications should **not** be selected. The disadvantage of this approach is that certain image processing operations, such as colorizing a TIFF image, cannot be performed on EPS/DCS graphics. An acceptable work-around for this would be to colorize the hi-resolution image in PhotoShop prior to inclusion of the image. To always generate stub files of an EPS/DCS format, you must select the option '**EPS**' for the '**Format**' field when generating/editing an OPIConfig file.

2. Aldus OPI Solution:

Here, the page layout package is responsible for generating the OPI comments that CanOPI NT will interpret for picture replacement; i.e., in Quark, the user needs to select the '**Omit TIFF and EPS**' option provided within the '**Print**' dialog. The comments recognized by IPT's CanOPI server will adhere to the Aldus/Adobe 1.3 specification. The main disadvantage of this approach is that all packages (i.e., QuarkXPress, Page-Maker, MultiAd) supply slightly different comments when

trying to achieve the same result. The danger here is that a new release version of a package may result in comments/parameters that are radically different from what the OPI comment parser is expecting.

Glossary

- AFP:** (Apple Filing Protocol) Apple Computer, Inc.'s network file service protocol that allows remote access to data and applications on a server.
- alert:** a box that appears on the screen in a graphical user interface which warns the user of some condition or requests confirmation of a potentially destructive act.
- AppleTalk:** Apple Computer, Inc.'s network protocol provided with all Macintoshes.
- application:** a computer program that performs a specific task, such as word processing.
- archive:** a backup of a file, several files, or a whole system, often stored separately from that system on long-term external storage.
- Authorization Key:** see "key"
- batch:** to give a series of commands to a computer which it receives all at once and then processes one-by-one.
- booting:** the process whereby a computer loads its operating system into memory, or, more generally, starting or restarting a computer.
- checkbox:** in a graphical user interface, a small box which can be blank or contain an X, the state of which can be changed by a mouse-click.
- Chooser:** a Macintosh desk accessory (or application under System7) used to choose network services (e.g., printers and file servers).
- client:** a computer that requests and receives a service (such as file or mail service) from a server.
- configure:** the process of customizing computer hardware and software to suit a specific need (e.g., configuration of a uShare file server entails modification of several files that describe the file server and its volumes).
- Control Panel:** a Windows NT application that provides the user with a way of modifying their system while working within Windows NT.
- database:** a structured collection of data.

- default:** a value that a program assumes in the absence of a user-assigned value.
- dequeuing:** the process of removing a print job from a queue and sending it to a device.
- device:** a peripheral such as a disk drive or printer that is attached to a computer.
- device driver:** software responsible for a computer's I/O interface with a specific peripheral device (e.g., a network interface board).
- dialog box:** in a graphical user interface, a dialog is a box or window in which the user can enter data or answer questions.
- directory:** a file that contains other files. Within the Macintosh environment, a directory is called a "Folder".
- Docman:** a user-created Windows NT print processor that interprets OPI comments and performs picture replacement.
- dongle:** see "hardware key"
- dotted notation:** two numbers (between 0 and 255) separated by a dot, e.g. 179.244. This is one way of expressing a network number.
- driver:** see "device driver."
- drop folder:** on the Macintosh, a drop folder is one which you can add files to but cannot look inside of.
- entity:** a name of a node with more than one name.
- Ethernet:** a coaxial cable system for network communications.
- EtherTalk:** a variety of the AppleTalk protocol for communication over Ethernet hardware.
- File Manager:** an application in Windows NT that allows users to view, create, and manipulate files and directories from within Windows NT.
- file server:** a process, on a networked computer, that allows client computers to store and access files over the network; or, the networked computer itself.
- hardware key:** A small device that is installed in-line between the Windows NT server machine's printer port and the printer cable. Must be present for image replacement and stub file generation. In an unregistered, dem-

- onstration version, the hardware key limits the number of print jobs that CanOPI NT will perform with image replacement to 500.
- icon:** a graphical representation of an element of a computer or network (e.g., the Macintosh and OpenWindows environments use icons to represent files, disks, etc.).
- incremental backup:** a backup only of files that have been modified since a previous backup was performed.
- interface:** 1) the meeting point of two machines, networks or subsystems, 2) that part of a computer program that communicates directly with the user.
- internet:** the combination of two or more AppleTalk networks.
- job:** an encapsulated task or file in the process of having something done to it (e.g. a script file being run, or a text file that has been sent to a printer or spooler).
- key:** an authorization key, available from IPT, allows you to get access to the full range of CanOPI features.
- LaserWriter:** a laser printer from Apple Computers.
- LocalTalk:** the native network hardware of Macintosh computers and other network devices from Apple Computers. Also the name of AppleTalk when implemented over this hardware.
- log in:** the procedure by which a user establishes a work session on a computer (this procedure usually requires a name and password).
- log out:** the procedure by which a user terminates a work session on a computer.
- media:** refers to a method of external storage, such as tape, floppy disk or optical disk.
- mount:** to make a file system available for reading and writing.
- Name Binding Protocol:** the AppleTalk protocol that specifies dynamic assignment of addresses to AppleTalk nodes.
- NBP:** see "Name Binding Protocol."
- network:** a system of connected computers and other devices in communication with each other.
- network address:** (also "network number") The portion of an address that specifies the network as a whole rather than an individual node.

- network number:** see “network address.”
- node:** a network device that sends or receives data.
- node number:** a node’s address within a network.
- OPI:** Open Pre-press Interface (low-resolution image generation and replacement).
- packet:** a structured group of bits sent as a meaningful unit.
- PAP:** (Printer Access Protocol); The AppleTalk protocol that manages interaction between print servers and clients.
- pixel:** “picture element;” the smallest “dot” size on the screen.
- polling:** the act of periodically checking for something, e.g. checking to see if new mail has arrived for a user.
- PostScript:** a programming language by Adobe for formatting printer output.
- Print Manager:** an application in Windows NT that allows the user to install and configure printers, connect to printers on the network, control printing of documents, and more; from within Windows NT.
- print spooler:** see “spooler.”
- print queue:** see “queue.”
- protocol:** a set of rules governing the transmission of data over a network.
- queue:** a list of jobs, such as print jobs, which are processed in order.
- radio button:** in graphical user interfaces, a radio button is a small circle that can be empty (disabled) or can contain a black dot (enabled). The state of the button can be changed by a mouse-click on the button’s location.
- router:** routers connect subnets to an internet and translate between the protocols of different subnets.
- routing table:** the complete list of network numbers assigned to the internet’s subnets.
- RTMP:** Routing Table Maintenance Protocol. RTMP packets on your AppleTalk network are evidence of one or more AppleTalk routers.
- seed router:** the router in a subnet that assigns a network number to that subnet. Each subnet has at least one seed router.
- server:** a host computer running software to serve clients.

- software:** a set of instructions carried out by computing hardware (e.g., programs, scripts).
- stub file:** a low-resolution image file created by CanOPI NT for page layout work from an original, high-resolution image.
- spooler:** a program that queues print requests and forwards them to a printer as it becomes available.
- subnet:** an individual network within an AppleTalk internet.
- system administrator:** a computer user with administrative privileges and responsibilities.
- System Folder:** a special folder on a Macintosh computer that contains the System and other files that provide basic Macintosh functionality.
- terminal emulation:** behavior by a remote node as though it were a specific type of terminal connected directly to a host.
- volume:** a file system within the Macintosh environment— a volume is usually an entire storage device (e.g., a hard disk). Windows NT's MacFile menu in the File Manager lets you publish directories on a Macintosh as AppleShare volumes.
- watch cursor:** when the Macintosh is busy and cannot accept input from the user, it displays the watch cursor, an icon resembling a wristwatch.
- zone:** a group of AppleTalk networks within an internet.

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