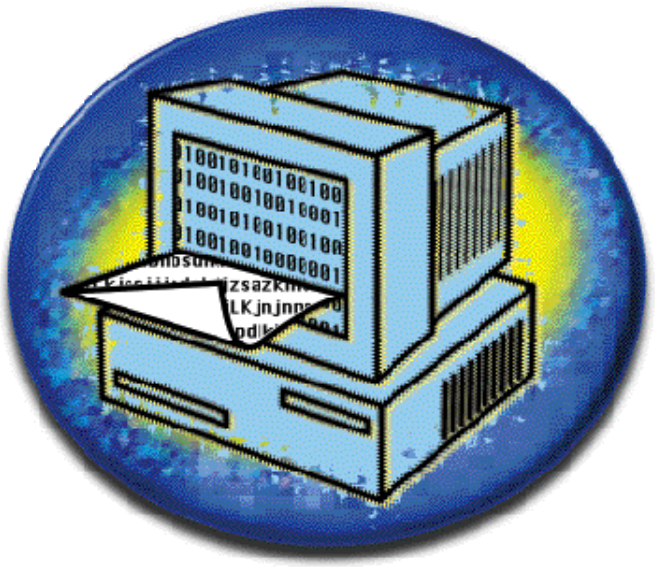
OCR Shop®

Users Guide



OCRShop quickly and accurately converts printed pages into readable text for use in your favorite Unix and Linux applications.

For version 4.6

VIVIDATA
IMAGING SOFTWARE

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Chapter 1: Before You Begin

OCR Shop XTR Overview

OCR Shop XTR quickly and accurately turns printed pages and faxes into editable documents that you can use with your favorite programs.

The technology used is Optical Character Recognition (OCR). During OCR, OCR Shop XTR looks for and defines characters in an image to produce text that you can revise without retyping. You can export the recognized text from OCR Shop XTR for use in a wide variety of word processing, page layout, and spreadsheet programs.

General description

OCR Shop XTR utilizes Scansoft SDK 5.0 OCR technology to accomplish its fast and accurate optical character recognition.

OCR stands for optical character recognition: the process of transferring text from printed pages into a computer file on screen that can be edited— without retyping.

A scanner is more than a copy machine that simply transfers an image into your computer. Rather, it translates a page into data by dividing up the image into millions of dots or bits (usually from 40,000 to 90,000 per square inch) and then assigns a value to each dot, depending upon whether it is inked, partially inked, or blank.

The composite document stored in your computer is the map of these dots, that is, a bitmap. Your computer sees this data not as editable text, but as one bitmapped image.

OCR then, is the process of translating this bitmap into editable text. Text characters are designed by assigning a code corresponding to each key on the keyboard, be it a letter, number or symbol. There are a variety of different code sets in use, but the most common code set is the ASCII (American Standard Code for Information Interchange) table of character equivalents. ASCII is generally recognized as the universal code for most computers. Almost every program that uses text and/or numbers understands ASCII.

Prior to 1988, matrix-matching, the process by which a bitmap's shape is compared to a library of character shapes, was the only method of text recognition. Because matrix-matching required exact matches, it only worked for a small number of fonts and sizes. Thus, it was neither widely used nor recognized as a useful process. This changed when Caere released OmniPage, a page-recognition program that incorporated OCR technology based on feature-analysis. Now, the process involved individual character features being analyzed for recognition rather than matrix-matching for shapes as earlier OCR had done. Caere was acquired by ScanSoft in 2000 and its technology incorporated into ScanSoft's offerings.

Now in OCR Shop XTR, Vividata utilizes Scansoft's proprietary OCR Engine technology from the ScanSoft SDK 5.0.

Type Conventions

Different kinds of typefaces used throughout this manual indicate text that will appear on the screen or need to be entered by the user.

Type:	Indicates text is:
`courier`	text generated by the computer
`courier bold`	text typed in by user
`<brackets>`	text to be replaced by user

When asked to enter commands preceded by a pound sign (‘#’), the user should be in super-user mode or ‘root’ first. (The command to be entered does not include the pound sign itself.)

System Requirements

OCR Shop XTR is available for a variety of Unix-based workstations. The following platforms are currently supported:

Manufacturer	Operating System / CPU
Sun	Solaris SPARC (Solaris 2.7+)
Linux: RedHat, Mandrake, etc.	Linux x86 (Kernel 2.0 and higher)

Table 1: Supported Platforms

If your platform is not listed above, you can contact Vividata, Inc. to see if your platform has been added since this printing of the manual.

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- Online email form: http://www.vividata.com/support_contact.html
- Fax: USA (510) 658-6597
- Telephone: USA (510) 658-6587

Customer Service is available on regular business days from 8:00 AM to 5:00 PM (PST/PDT).

Chapter 2: Software Installation

Overview

This section describes the installation procedures for OCR Shop XTR, including the License Manager. Please consult the release notes supplied with the product for any last-minute information relevant to your particular system.

Installing OCR Shop XTR

Installing OCR Shop XTR on your system consists of a few simple steps. You may have obtained your OCR Shop XTR distribution either from the internet or from a CD-ROM. In both cases, you should have a OCR Shop XTR distribution file called, "**<product>-<platform>-<version>**". The file name will vary depending on the product name, operating system, release number.

Vividata's installer is a text-based installer and does not require a graphical interface or user interaction.

Installing OCR Shop XTR from the Distribution File

- For a CD distribution, mount the CD-ROM.
- As root, change to the directory containing the distribution. For a CD, this is the top level directory; for an internet download, it is whereever you saved the download.

```
# su              (become root)
# cd /mnt/cdrom   (or the saved location for a download)
```

- Run the self-extracting executable:

```
# ./<product>-<platform>-<version>
```

You will see output similar to this:

```
Extracting...
Installing...
Killing currently running licensing and <product> processes...
```

Files are installed in /opt/Vividata, approximately 16 MB of space is needed there.

Installing the License Keys

Vividata normally distributes license keys through the Vividata website or by email. The encoded license key string is typically wrapped within a self-installing shell script. To install the license key using the self-installing script, run the script:

```
# sh vvkey.sh
```

The filename of the script may vary.

The license key will be installed in /opt/Vividata/config/vvlicense.dat. If you received a license key on paper, you must manually install it in this file.

Configuring the Environment

Please see "Configuring the Environment" on page 7 for details on setting up your environment.

Installation Complete

You are now ready to use OCR Shop XTR.

Removing OCR Shop XTR

Should it be necessary to remove OCR Shop XTR from your system, become root and execute the following commands:

```
# rm -r <vividata install directory>
```

Configuring the Environment

Environment Variables

A number of environment variables affect the operation of OCR Shop XTR. These are normally either unnecessary or set automatically during installation, but you may want to change their default values if you are customizing your system. If you would like to check on their settings, you can inspect the wrapper script(s) in $VV_HOME/bin. An explanation of each environment variable follows:

VV_HOME is the location where OCR Shop XTR is installed. By default, /opt/Vividata on Solaris 2.x, and /usr/vividata on all other systems. It is set by default when the program is executed and need only be changed if there is some specific reason for doing so.

Setting the Environment Variables

You can set the appropriate environment variable(s) in your .cshrc or .profile file. When the next C or Bourne shell is started, its environment will be automatically configured for Vividata's environment variables.

You can also add the name of the directory that contains OCR Shop XTR to the PATH environment variable assignment in your .cshrc or .profile file. This will allow you to launch the application from any directory.

After modifying your .cshrc or .profile file, logout from the system and then login again to start your session with the modified initialization files.

Chapter 3: Starting Up OCR Shop

Overview

In running OCR Shop, there are a number of ways to speed up recognition, increase accuracy, and streamline OCR workflow. These are covered in the following topics:

- Running OCR Shop
- Session Settings Files
- Command Line Options
- Improving Speed
- Improving Accuracy
- Legal Documents
- Spreadsheets and Tables
- Foreign-Language and Multilingual Documents
- Scanning Large Jobs

Running OCR Shop

To run OCR Shop using the current settings, simply go to the directory where you installed OCR Shop and type:

```
./ocrshop
```

(If the OCR Shop directory was included in the variable assignment of your PATH environment, then you may begin running the program from any directory.)

The graphical user interface will then pop up and the program will ready to be launched.

Session Settings Files

After you have finished a session with OCR Shop, several files are updated in order to preserve the current OCR Shop settings. The next time that it is run, OCR Shop will automatically load the saved session settings, and you may continue where you left off.

Each user who runs OCR Shop will have set of files saved in the user's home directory. They will consist of the following:

Table 1: OCR Shop Settings Files

`.ocrshop.rc`	top-level settings (contains the names of the .rrc, .brc, .drc, and .trc files to be used)
`.ocrshop.rrc`	OCR settings
`.ocrshop.brc`	batch scan settings
`.ocrshop.drc`	dictionary file list
`.ocrshop.trc`	training file list
`.ocrshop.r.scn`	OCR scanner settings
`.ocrshop.b.scn`	batch scan scanner settings
`.ocrshop.fmt`	output formats
`.ocrshop.prf`	proofing editors

When OCR Shop first starts up, it checks to see if these files exist in the current user's home directory. If it finds them, it loads them into the current session. If not, it creates them.

Improving Speed

Although OCR Shop is designed to run most efficiently using its automatic features, in some cases, operating OCR manually can actually speed up your job completion time. Factors most affecting processing speed in OCR Shop include:

- Computing Power
- Recognition Settings Window Options
- Specific Zones

Improving Accuracy

Typeset, high-quality printed pages return the best recognition accuracy. The following factors most affect text-recognition accuracy:

- Recognition Settings Window Options
- Line Art
- Document Quality

- Scanning Angle
- Scanner Glass Clarity
- Paper Transparency

Recognition Settings Window Options

No single combination of settings always results in the quickest, most accurate recognition job. However, if you use the settings most appropriate to each document's page such as layout, printing, quality, font and size, OCR Shop's speed and accuracy will be maximized. (See "The Recognition Settings Window" on page 67. for details on determining the settings.)

Line Art

OCR Shop may recognize some line-art graphics as text if the artwork is poor and the lines resemble letter strokes. To avoid OCR Shop incorrectly recognizing art of this type as text, draw a manual zone around each graphic, and designate the contents as Graphic under the Zone Contents menu in the Zone Editor Window.

Document Quality

OCR Shop recognizes characters in almost any font from 6 to 72 point although the following pointers may improve recognition accuracy:

- The print should be as clean and crisp as possible. Characters should be distinct, separated from each other and not blotched together or overlapping.
- The document should be free of handwritten notes, lines and doodles. Anything that is not a printed character slows recognition, and any character distorted by a mark will be unrecognizable.
- Try to avoid highly stylized fonts. For example, OCR Shop may not recognize the Zapf Chancery font accurately.
- Try to avoid underlined text. Underlining changes the shape of descenders on the letters q, g, y, p, and j.

Scanning Angle

Make sure that the document is positioned correctly in your scanner and is not slanted. Even if you place a document in the scanner correctly, it can still shift enough as the lid is dropped to affect recognition. In such cases, the recognized text may contain missing characters, split lines of text, or unidentifiable words.

You may also notice slanted text in the window that appears during recognition and/or the Zone Editor. If you are scanning a multiple-page document and notice poor recognition on certain pages, re-scan those specific pages as they were probably crooked in the scanner.

Scanner Glass Clarity

The sheet of glass on the flatbed of the scanner must be clean and clear. If it gets dirty, wipe it gently with a soft, damp, lint-free cloth or tissue. Be sure it is completely dry before you place anything on it.

Paper Transparency

Some paper is so thin that the scanner reads text printed on the back side of the scanned page. This is often the case with telephone book pages. To correct this problem, put a black piece of paper between the sheet and the lid of the scanner.

Legal Documents

General Tips

- Many legal documents consist of page-wide text. If this is the case, select Single Column/Table as the zoning method in the Recognition settings window.
- It may be necessary to experiment to find the best process for scanning and saving your specific documents.

Pleading Papers

- Generally, you should select Whole Page as the recognition area in the Recognition settings window.
- If numbers on pleading papers are printed less than five spaces from the text, OCR Shop will consider the numbers to be part of the text body and place them on the text line. Try drawing a zone around the body of the text to omit the line and line numbers from the recognition process.

  This is also a good option if you are going to add text that will affect the line numbers. In such cases, use your word-processing application to renumber each line.
- Experiment on a sample page to find the best process for scanning and saving

each document, and then try scanning the entire brief.

Spreadsheets and Tables

The following tips are useful when scanning spreadsheets, charts, tables, single-column pages, or memos with page-wide text and tabs:

- Select Single Column/Table as the column selection in the Recognition settings window to preserve the spreadsheet format. When OCR Shop detects five or more spaces, the Single Column/Table option converts the spaces to a tab.
- Manually create a zone around a table of numbers and designate the zone contents as Numeric to improve recognition. You can also make up a new zone contents files for special characters in your spreadsheet. See “The Zone Editor Window” on page 89..

Foreign Language and Multilingual Documents

Foreign language and multi-language documents, call for selecting the appropriate language(s) from the Languages and Dictionaries sections in the Languages window. OCR Shop utilize all selected entries and the User Dictionary(ies) selected.

Scanning Large Jobs

You can process a stack of documents through your scanner if you have an automatic document feeder (ADF). You can choose to recognize every page immediately or defer recognition until a later time. See “Batch Scan” on page 59. for more information.

Chapter 4: Tutorials

Overview

The following five tutorials guide the user through OCR Shop's main functions and procedures of operation:

- Tutorial 1 — Introduction to OCR Shop, Basic Text Recognition
- Tutorial 2 — Languages, Dictionaries and User Dictionaries
- Tutorial 3 — Deferring OCR with Batch Scans
- Tutorial 4 — Training OCR
- Tutorial 5 — Using the Zone Editor

Tutorial 1 — Introduction to OCR Shop, Basic Text Recognition

This tutorial offers a brief introduction to OCR Shop. It contains the following sections:

- Launching OCR Shop
- What Is Optical Character Recognition (OCR)?
- The OCR Process
- OCR Filename Suffixes
- Scanning the Quick Scan Page Sample

Launching OCR Shop

OCR Shop is started in the same way as other applications on the user's system. When it is correctly launched, the user's display will show the OCR Shop Main Menu, a window showing six user-accessible buttons as show in Figure 4-1

Figure 4-1 Main Menu and Toolbar

What Is Optical Character Recognition (OCR)?

Optical Character Recognition (OCR) is the process of converting a text *image* file into a text file that a user can edit on screen. OCR is also referred to as *text* or *page recognition* software as it 'recognizes' imaged characters and turns them into type. OCR Shop can use as its source either an image acquired by scanning a hard-copy document or obtained by loading an image file already stored somewhere in a format such as a TIFF file.

In either case, OCR Shop begins with an image that is really just a ‘picture’ of text and graphics and which cannot be edited directly by the user. The process of OCR transforms this ‘picture’ into separate characters of text and specific areas of graphics that can then be altered or edited individually by the user.

From here, the recognized text from OCR Shop can be exported to a variety of word-processing, page-layout and spreadsheet applications.

The OCR Process

OCR Shop operates in a three-step process by first acquiring an image, then editing that image into zones and finally recognizing the image. The process begins by the user accessing the OCR Shop Main Menu which contains both the menu items and the OCR Shop Toolbar. The first step is to click the Interactive

Recognize button on the Toolbar and bring up the OCR Shop Interactive Recognition window as shown in Figure 4-2

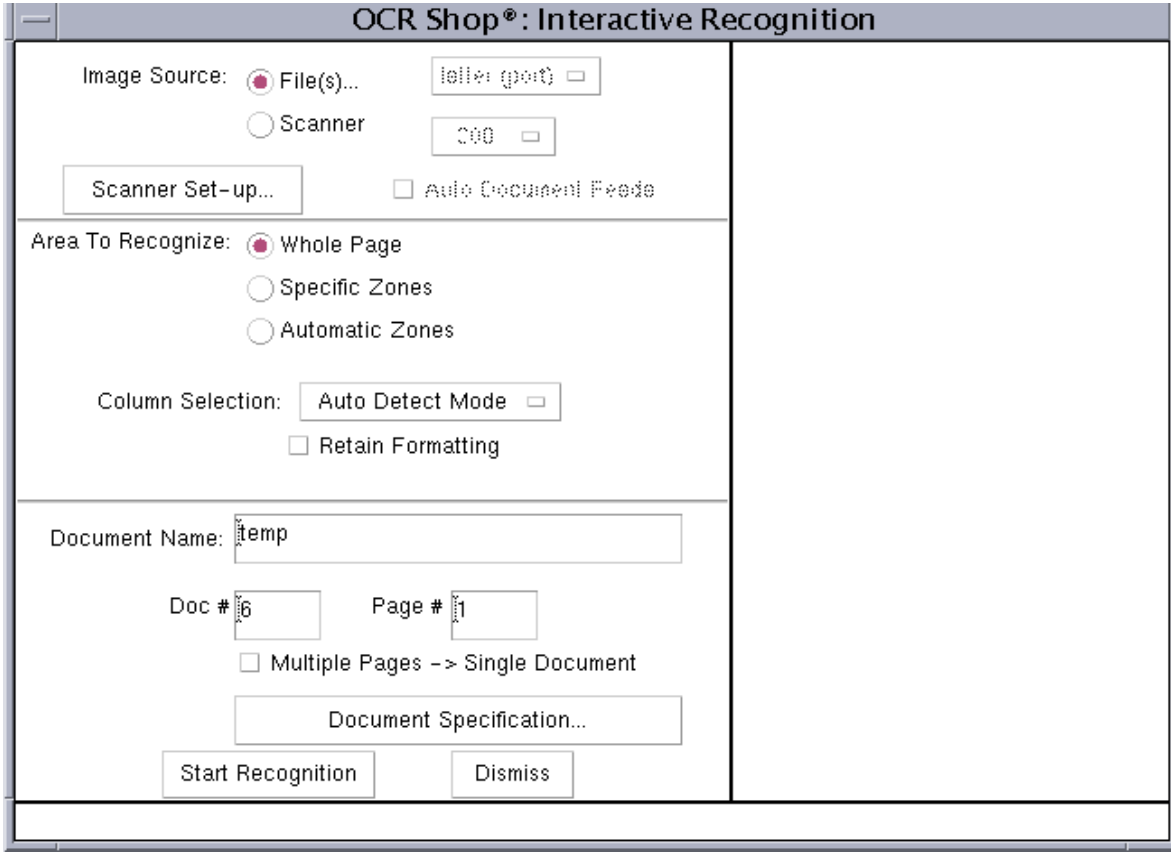

Figure 4-2 Interactive Recognition Settings

Before the process can begin, the user must decide whether to use the Interactive Recognition or Automatic Recognition mode. The utility of one or the other is chosen by clicking on the appropriate button within the OCR Shop Tool Bar. Each button will bring up the associated window with which the user can customize the OCR process for each document to be recognized.

After the applicable settings are chosen in either the Interactive Recognition or the Automatic Recognition windows, the user can then start the process by

clicking on the “Start Recognition” button. Once the scanned document or image file is recognized, the resulting text is displayed in a Text Editor window.

If a scanner is used as the source of the image, the document’s text will be ready to be saved to a file. You can elect to retain all of the scanned images by selecting "Save Image(s) of Whole Document" in the Document Specification window (See “Save Image(s) of Whole Document” on page 86) If you don’t click this option, none of the scanned images will be retained.

OCR Shop Filename Suffixes

There are several types of files, which you will save, load and edit while using OCR Shop. By default, OCR Shop adds different suffixes onto your filenames, depending on their contents and purpose. OCR Shop offers the option to customize the suffixes but, for these tutorials, you will be using the predetermined ones specified in OCR Shop.

OCR Shop settings are stored in the following files:

.prf	proofing editors
.rc	overall settings
.rrc	OCR settings
.brc	batch scan settings
.drc	dictionary file list
.trc	training file list
.r.scn	OCR scanner settings
.b.scn	batch scan scanner settings

Image files and recognized text files generally have suffixes which reflect the format in which the image or text is stored. The initial defaults are:

.tif	TIFF image file format
.txt	ASCII text format

Other settings are stored in files with the following suffixes:

.trn	trained character files
.dict	user dictionary files

.zcn	zone contents files
.ztm	zone template files

Scanning the Quick Scan Page Sample

Scanning this page from the manual (or any simlilar machine-printed document) will serve as a quick introduction to the OCR process.

1. Place the sample page in your scanner, taking care to align it properly.
2. Select the Recognition Type. For this exercise, click Interactive Recognition from the Toolbar. The Interactive Recognition settings window will appear.
3. Select Scanner as the Image Source. You can also click on Scanner Set-up… to do a preview scan and verify that your scanner is connected properly. (See “The Scanner Set-up Window” on page 75 for more detailed information on scanner parameters.)
4. Select Whole Page to designate recognition of the entire Page Sample as one zone.
5. Select Auto Detect Mode for the Column Selection in the Whole Page.
6. Enter temp in the Document name: field. Enter 1 in the Doc. # field, and 1 in the Page # field. The recognized text file will be saved to the file name: tempd001p001.txt.
7. Click on the Document Specification… button. The Document Specification window will appear.
8. Select Save Image(s) of Whole Document to instruct OCR Shop to save the scanned document’s image file. The Image Directory, Image Format and Image Suffix fields will become active.
9. Click on the Image Directory: button to choose a directory for your images. Its name will appear in the text field. Enter tif as the Image Suffix. The image file will be saved as: tempd001p001.tif.
10. Click OK to close the Document Specification window.
11. Click Start Recognition. OCR Shop will scan your document and display the recognized text in a Text Editor window. The text and image files are saved automatically.

Tutorial 2 — Languages, Dictionaries and User Dictionaries

Tutorial 2 concerns the user's choice of languages and dictionaries and the forming a New User Dictionary to use in the OCR process. Unlike Tutorial 1 in which OCR Shop's default settings were used, this tutorial involves changing the settings in the OCR Shop Options Menu and entering other specific choices. The areas to be covered are:

- Selecting Languages and Dictionaries from the Languages Menu
- Creating, Saving, and Selecting a New User Dictionary
- Saving Settings into a Settings File

Selecting Languages and Dictionaries from the Languages Menu

An important part of OCR is determining the language to be recognized in the text image being utilized. by the user. Specific languages can be selected by using the OCR Shop Options Menu and OCR Shop will know what characters to expect. For example, if you select German, OCR Shop knows that it will probably encounter such unique German language characters as an "ß' or double-ess. If OCR Shop cannot recognize a letter in a word, it refers to the dictionary selected by the user and seeks out the letter it needs to create a word in the finished text.

For this tutorial, you will set up the Languages window for a document containing English and Spanish.

Selecting Languages

1. Choose Languages… from the Options Menu in the Main Menu. The Languages window will appear, see Figure 4-3.
2. Select English (US) from the Recognition Languages scrolling menu by clicking on it. Also click on Spanish to select Spanish.
3. For practice, click on Swedish. Deselect Swedish by clicking on it again.

Selecting Dictionaries

1. With the Languages window still open, select English (US) from the Dictionaries: scrolling menu by clicking on it. Also click on Spanish to select the Spanish dictionary.

2. Now that you have selected the appropriate languages and dictionaries, click OK to close the window.

Figure 4-3 Languages

Creating, Saving and Selecting a New User Dictionary

In many instances, OCR Shop will try to recognize a word or character not normally included in dictionaries, such as company or product names, neologisms or coined terms. The OCR Shop Main Menu allows the user to pop up the OCR Shop Languages window (Figure 5-3) from the Options menu and add new words to a User Dictionary. OCR Shop can then be set to refer to this and any other User Dictionary like any other dictionary in the Language window.

For this exercise, you will make a user dictionary for company brochures repeatedly containing the following unique words:

- Vividata
- ScanShop
- PostShop
- FaxShop
- OCR Shop

Creating a New User Dictionary

1. Choose User Dictionary… from the Options Menu. The User Dictionary List window will appear, see Figure 4-4.

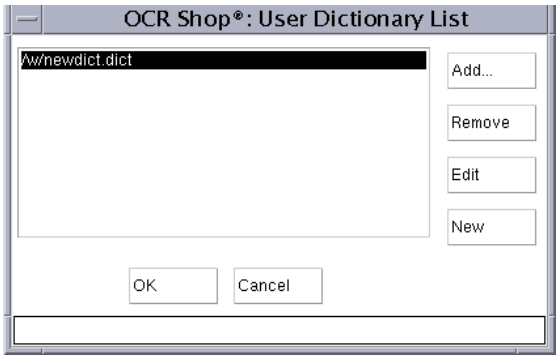

Figure 4-4 User Dictionary List

2. Click New to create a new dictionary. The Edit User Dictionary window

will appear, see Figure 4-5.

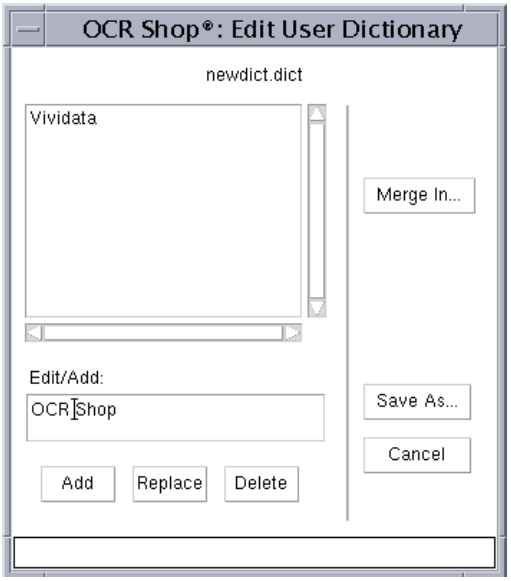

Figure 4-5 Edit User Dictionary

3. Click in the Edit/Add text field to activate it, and enter **`Vividata`**.
4. Click Add. “Vividata” will appear in the dictionary window.
5. Click in the Edit/Add text field again, and enter **`ScanShop`**.
6. Click Add. “ScanShop” will appear in the dictionary window.
7. Repeat for “PostShop”, “FaxShop”, and “OCR Shop”. All five new words should appear in the dictionary window.
8. .Click `Save as...` and enter a file name in the Save Dictionary As window by which the new dictionary will be known. The new user-defined dictionary will be saved with the suffix: `.dict` and will appear in the User Dictionary List Window. Close this window and return to the OCR Shop Main Menu.

Selecting and Deselecting Your Dictionary for Recognition

When a new User Dictionary is created and saved, it automatically appears in the User Dictionary List Window indicating which dictionaries will be used when

recognizing images. Among the list, the user can select or de-select User Dictionaries for running an OCR process.

For this exercise, since your new dictionary is already listed in the User Dictionary List, you will first bring it back for the next recognition process.

1. If you closed the User Dictionary List window from the last exercise, go to the OCR Shop Main Menu, choose User Dictionary… from the Options Menu. You should see your new dictionary listed.
2. Select it, if it is not already selected, by clicking on it.
3. Click Remove. Your dictionary will disappear from the window, and therefore will not be used for the next recognition process.
4. Now click Add… to re-select your user dictionary.
5. Verify that the correct directory is being displayed in the file selection box, and then select your dictionary from the Add Dictionary to List window by clicking on its filename.
6. Click OK to load the selected dictionary. Your dictionary will appear in the User Dictionary List window, and will be used for the next recognition process.
7. Click OK to close the User Dictionary List.

Saving Settings into a Settings File

In future OCR sessions, the user can load and apply customized combinations of language dictionaries and User Dictionaries by having saved them previously. In this way, a specific combination can be quickly used without re-selecting items all over again. Since you have just set the Languages and User Dictionary windows, you will now save them.

1. Choose Save Settings As… from the File Menu in the OCR Shop Main Menu.
2. Enter the filename of your choice in the Selection field.
3. Click OK. This file will be saved with the suffix: .rc. At the same time, several other settings files will be created with the suffixes given above. However, you need only load and save settings to your filename with the .rc suffix. This settings file references the others.
4. Your new settings file is available to be reloaded at any time using the Load Settings menu command.

Tutorial 3 — Deferring OCR with Batch Scans

There may be occasions when it is not possible to process image files right away and recognition must be deferred to a later time. OCR Shop enables the user to retrieve these files from a Batch Scan for a subsequent recognition and training session. If the available scanner does not have an Auto Document Feeder (ADF), each page will have to be loaded individually. This section contains:

- The Batch Scan Window
- Setting Up a Batch Scan

The Batch Scan Window

By clicking on Batch Scan from the Toolbar within the OCR Main Menu, the OCR Shop Batch Scan window (Figure 4-6) will appear from which selections can be made allowing documents to be scanned and saved for future use.

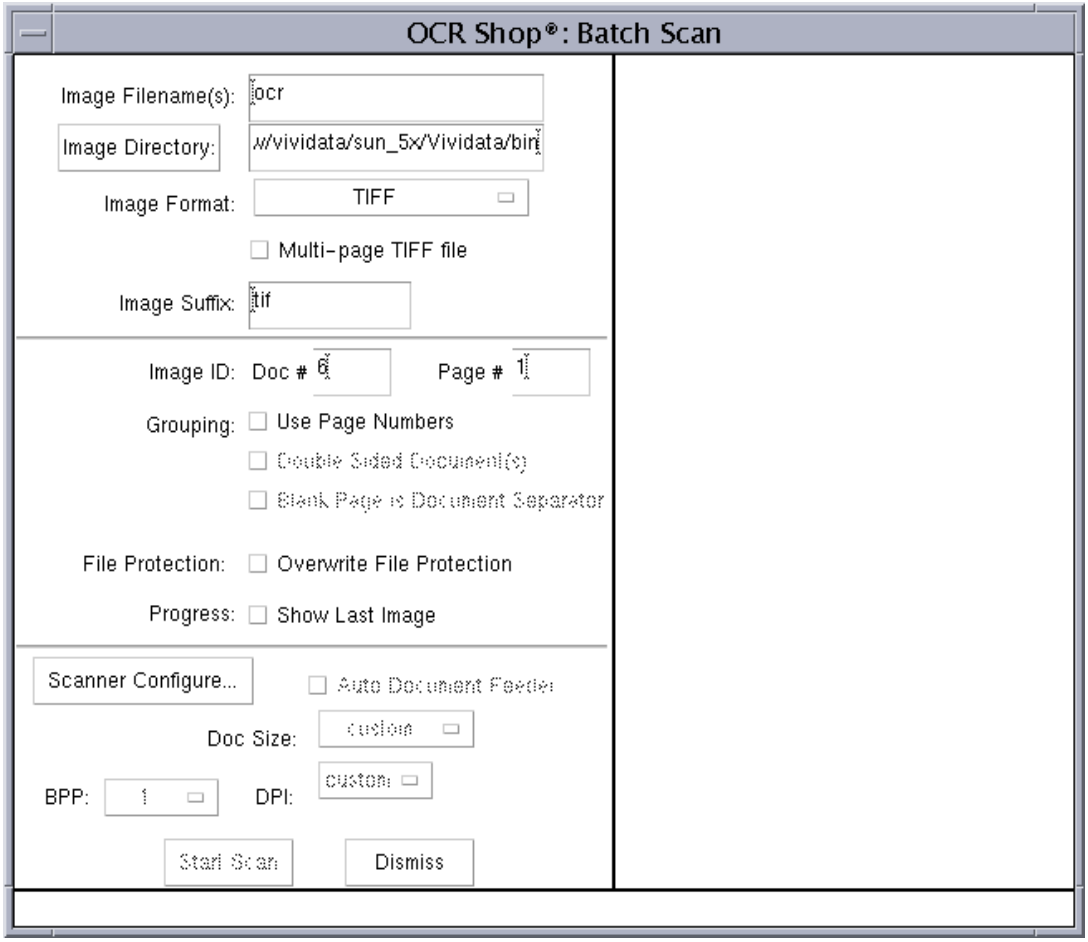

Figure 4-6 Batch Scan

Setting Up a Batch Scan

The Batch Scan can be demonstrated by using the sample documents included.

1. If your scanner has an ADF, place the Batch Scan Sample Documents in your scanner's document feeder, ensuring that they are aligned properly. If your scanner does not have an ADF, place a single document on the scan bed, in preparation for scanning.
2. Click Batch Scan from the Toolbar. The Batch Scan window will appear.
3. Enter **`temp`** in the Image Filename: field.
4. Enter a directory name in the Image Directory: text field.
5. Select TIFF as the Image Format.
6. Enter **`tif`** in the Image Suffix: field.
7. Enter a **`2`** in the Doc # field and a **`1`** in the Page # fields.
8. Select Auto Document Feeder, if your scanner has one.
9. Select letter for the Doc Size: field.
10. You can leave the BPP: and DPI: fields set to their defaults.
11. Click Start Scan. Your image files will be saved beginning with the file-name: tempd002p001.tif.

Note: If you do not have an ADF on your scanner, you will be prompted to load each page.

Tutorial 4 — Training OCR

Many times scanned images will encounter characters that were scanned or saved incompletely or even imperfectly. In these cases, a standardized character (usually the tilde'~') is used to indicate items not recognized. This exercise involves the following:

- Loading an Image File for a Training Session
- Training OCR Shop
- Saving a Training File

Loading an Image File for a Training Session

OCR Shop creates a Trained Character File to produce a complete set of characters from an image or scan that included some it could not recognize. By going to the OCR Main Menu and clicking on the Training Session button from the Toolbar, a modified Recognition window entitled "Training" (Figure 4-7) will appear with which the user can load deferred recognition files from the last Batch Scan tutorial.

Note: Use of a trained character file (or files) is ideal when there are unusual or difficult-to-read characters throughout the document. A trained character file then helps OCR Shop recognize these characters with greater accuracy. However, for most documents, use of a trained character file is not necessary and may even slow the recognition process down.

---

1. Click Training Session from the Toolbar. The Training window will appear.

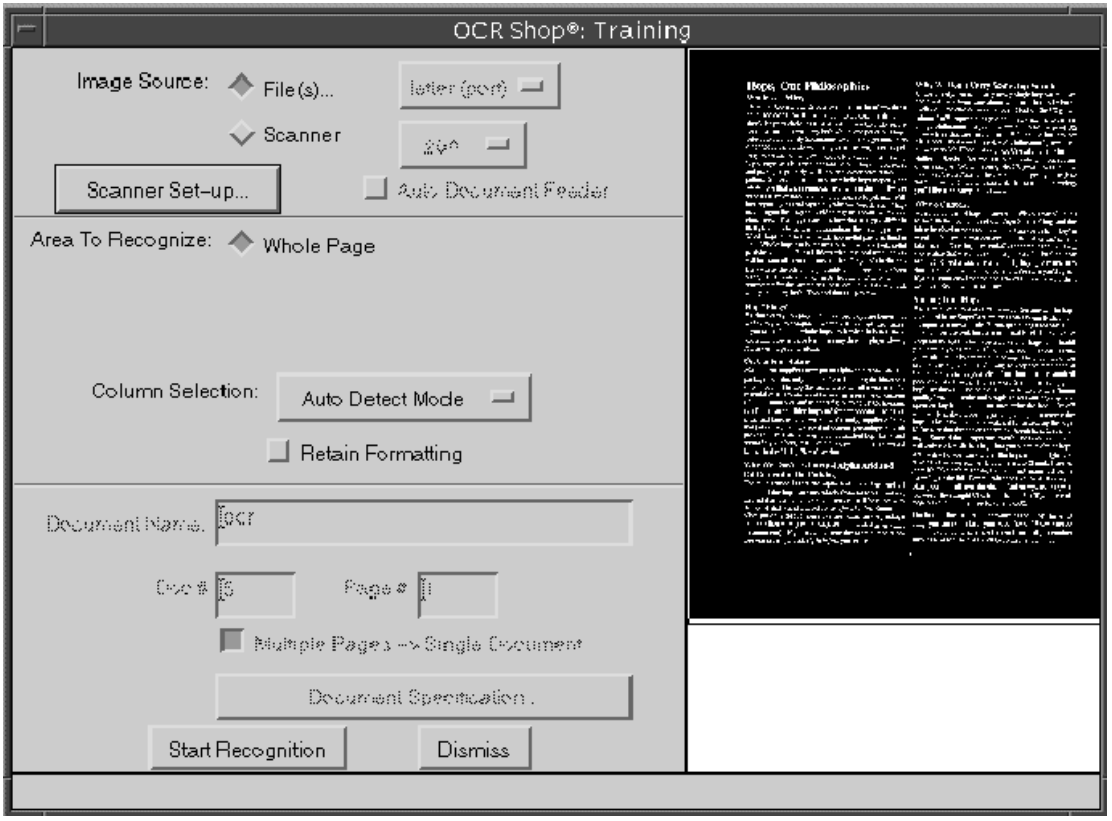

Figure 4-7 Training

2. Select File(s)… as the image source to load the images from the Batch Scan tutorial. The Select Image Files window will appear, see Figure 4-8.

3. Verify that the correct directory is being displayed in the file selection box,

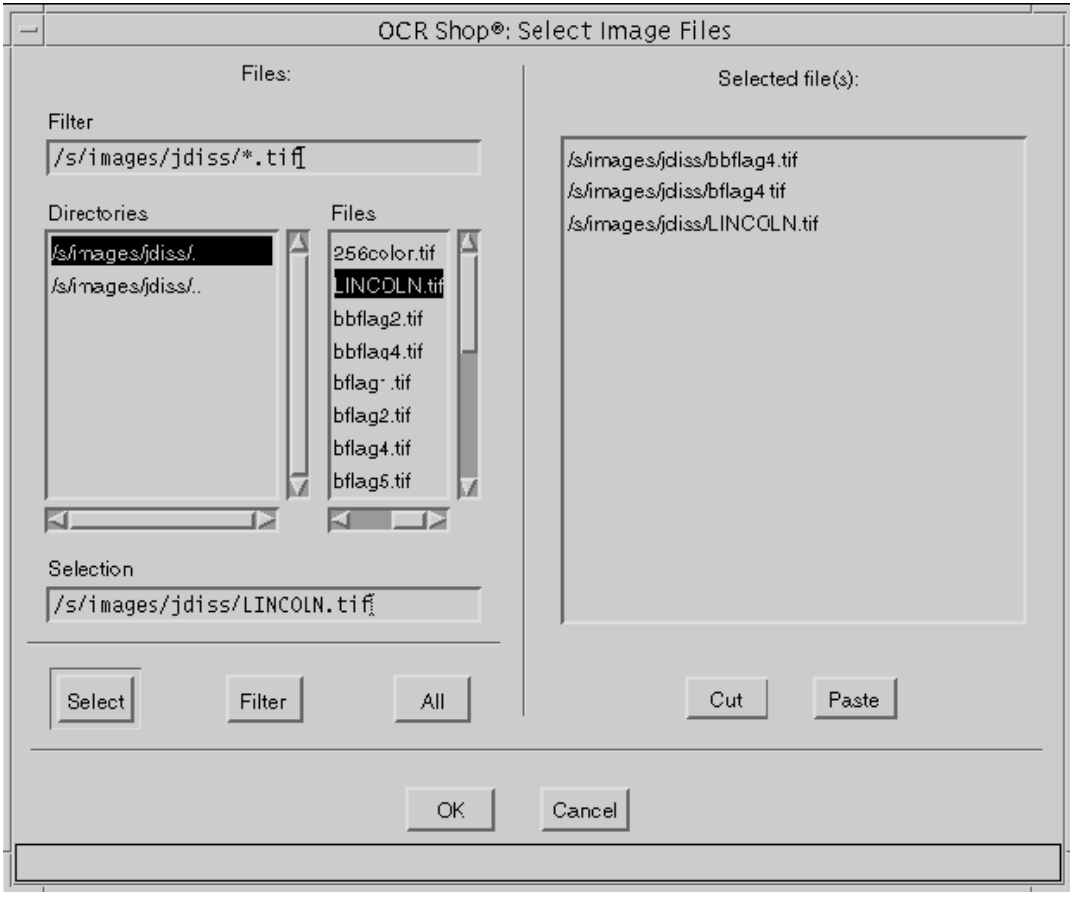

Figure 4-8 Select Image Files

and then double-click on the file, tempd001p001.tif (from Tutorial 1) under Files:. The selected file will appear in the Selected file(s): scrolling menu.

4. Click OK to close this window and return you to the Training window.
5. Note that Whole Page is selected automatically. Select Auto Detect Mode for the Column Selection.
6. Click Start Recognition. OCR Shop will scan the image file, and then the Train Characters window will appear, see Figure 4-9. You are now ready to

train OCR Shop.

Note: The characters you see in the Train Characters window may vary depending on your scanner, see Figure 4-9.

Training OCR Shop

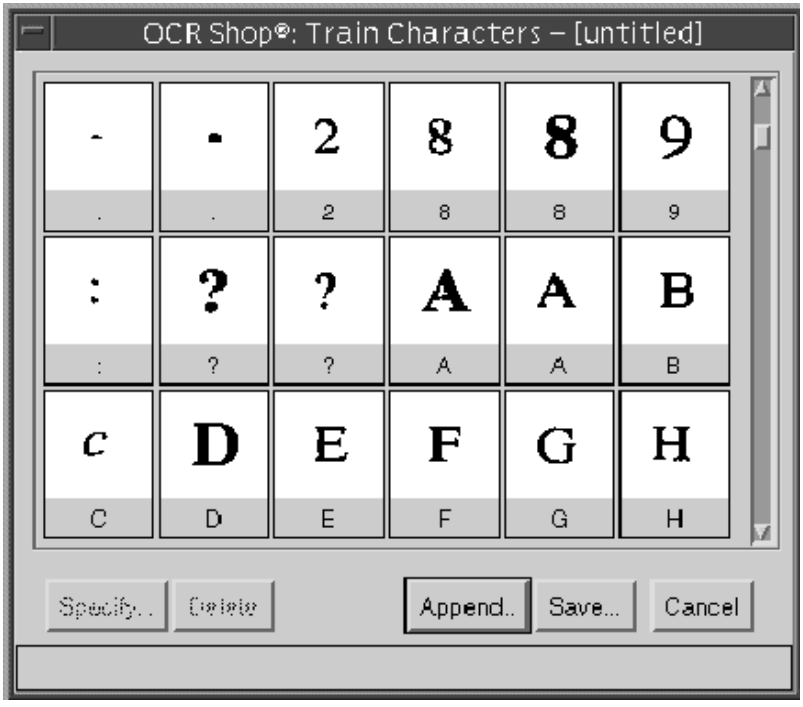

Figure 4-9 Train Characters

OCR Shop displays each character image it recognized as well as those it rejected in the Train Characters window. Recognized characters appear first, with OCR Shop's attempted identification appearing underneath each character or symbol image. Unrecognized characters are indicated with a tilde, "~", and are listed at the end. You can scroll through the Train Characters window, making corrections and/or additions — thereby "training" OCR Shop, in order to increase recognition accuracy.

1. If you have not completed the first part of this exercise, “Loading an Image File for a Training Session,” do so now. You should have the Train Characters window on your screen.
2. Scroll through the list and note which were recognized correctly, recognized incorrectly, and rejected.
3. Click on the first incorrectly recognized or rejected character. then, click Specify… and the Specify Character window will appear as shown in Figure 4-10. The character will be displayed, along with OCR Shop’s best guess as to what the character is, as shown in the Characters: text field. Alternatively, by double-clicking on the character, the user can call up the Specify Character window

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Note: You can only specify one character at a time.

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4. Correct the character specification either by going to the Extended ASCII scrolling menu and double-clicking on the correct character, or by directly typing the correct character(s) into the Character(s): text field.
5. Click OK to accept the new character specification and close the window.
6. Repeat steps 4-6 until you have trained all necessary characters that were

incorrectly recognized or rejected characters.

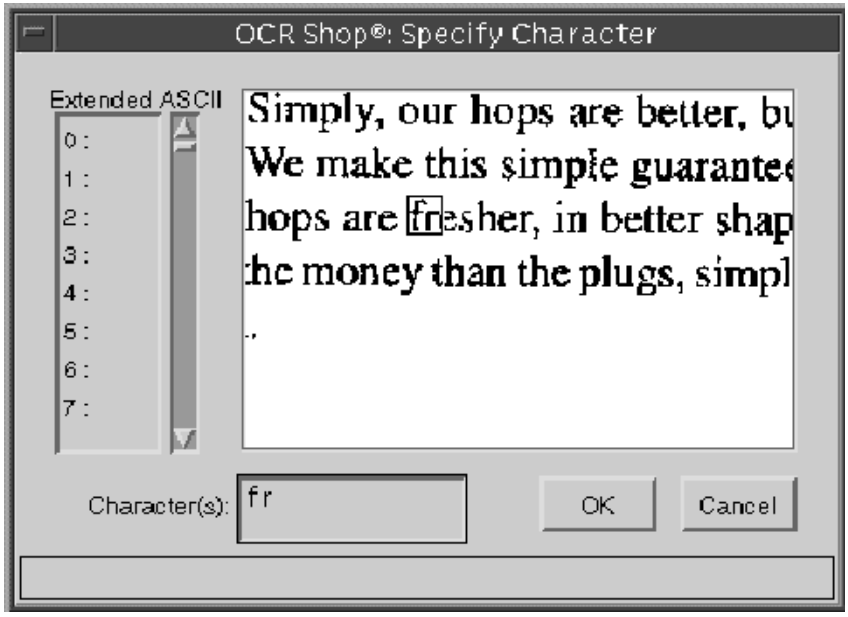

Figure 4-10 Specify Character

Saving a Training File

OCR Shop saves a file of characters processed through the Train Characters as a Trained Characters file which can reloaded in the future for recognition of similar documents. An example of this would be documents with the same font or from the same source.

1. If you have not completed the first two parts of this exercise, “Loading an Image File for a Training Session” and “Training OCR Shop,” do so now.
2. Click Save….
3. Enter a filename for your new training file, and click OK. Your file will be saved with the suffix .trn and will be available to add to the Trained Character Sets window under the Options Menu. (see “Trained Character Settings” on page 50).

Tutorial 5 — Using the Zone Editor

Often OCR Shop is presented with an image that includes text but also graphics that may not be desired such as graphs or pictures. The Zone Editor allows the user to disregard these areas and concentrate on specific areas of text for recognition. To accomplish this, the Zone Editor window (Figure 4-11) appears during Interactive Recognition for Specific or Automatic Zones and during Automatic Recognition for Specific Zones. This section contains:

- Using the Zone Editor
- Creating a Zone Template
- Completing Recognition

Working with the Zone Editor

OCR Shop provides complete control over which sections of text image are to be recognized in a number of ways. The User can specify the order in which these sections are processed as well as indicate what the possible contents of the zones might be. Examples include contents that are text and numbers, numbers only, graphics or custom character sets.

Interactive Recognition specifies zones ‘on the fly’, in which the zone editor is popped up as each new image is scanned or loaded. Automatic Recognition sets a group of zones once and the same zone template is used for all images. The Zone Editor tutorial will use the Interactive Recognition to specify the zones.

You will need the image file from Tutorial 1, tempd001p001.tif.

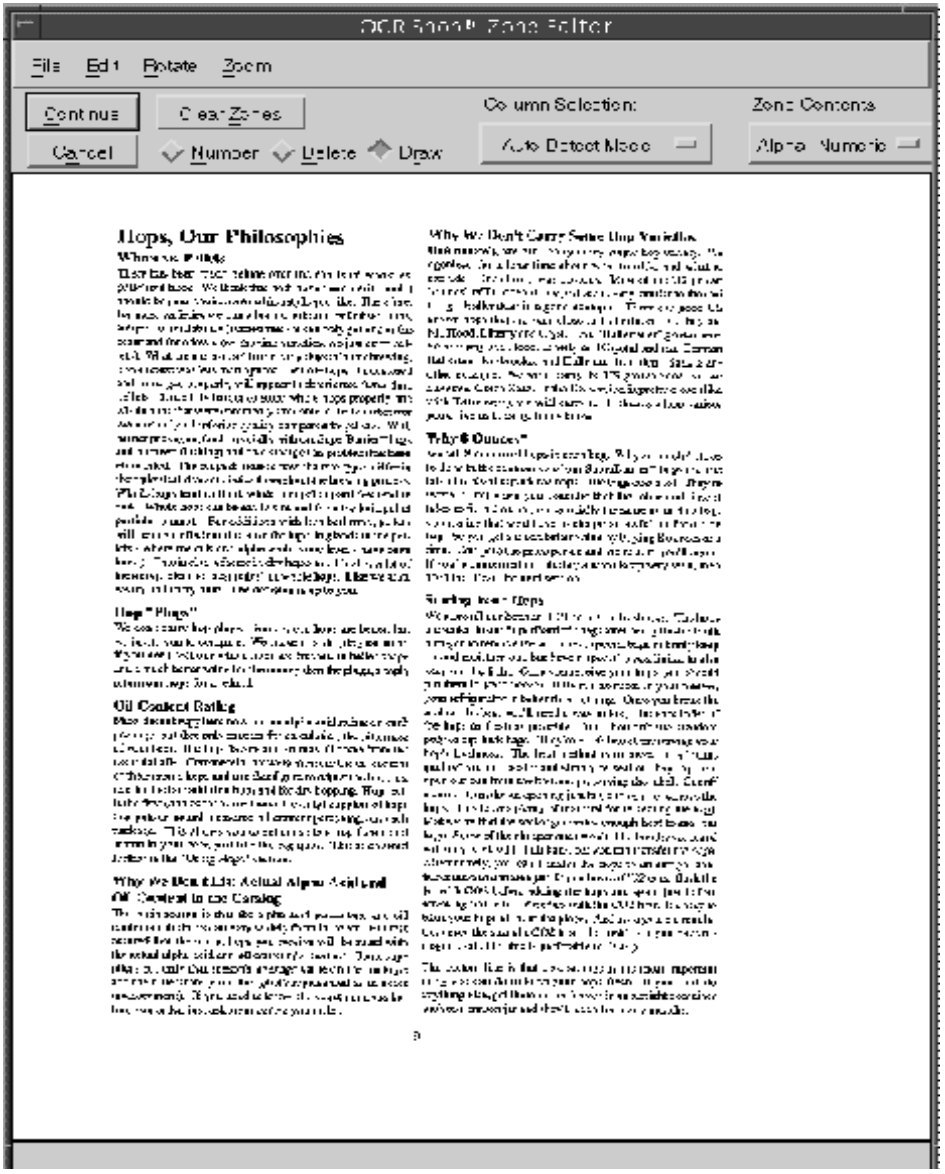

Figure 4-11 Zone Editor

Accessing the Zone Editor

1. Click Interactive Recognition from the Toolbar. The Interactive Recognition window will appear.
2. Choose File(s) as the Image Source. The Select Image Files window will appear.
3. Verify that the correct directory is being displayed in the file selection box, and then double-click on tempd001p001.tif. under Files:. It should appear in the Selected file(s): scrolling menu. If there are any other files in the Selected file(s): menu, select them by clicking on them, and click Cut.
4. Click OK. The Recognition window will reappear.
5. Select Specific Zones as the Area to Recognize.
6. Select AutoDetect Mode as the Column Selection.
7. Enter a **3** in the Doc #: field and a **1** in the Page #: field. The files' names will be saved as: tempd003p001.txt.
8. Click Start Recognition. After scanning the image file, the Zone Editor window will appear with the scanned image displayed in the background.

Creating Zones

Create zones by click-draging on the portions of the the scanned image in the order in which you want zones to be recognized. Each zone appears labeled in numeric order with its character type defaulted to alpha-numericand its column selection defaulted to the "Auto Detect Mode". Zones are delimited by borders that can be modified with grab-bars which appear when the zone is selected. As many zones as can fit within the scaned image can be created. Each zone is moved around by click-dragging within the limits of other neighboring zones.

Renumbering Zones

1. Select "Number Mode" (all number counts will be removed)
2. Begin clicking within zones in the order you wish them to be recognized. They will be numbered as you select them.
3. When you have selected the final zone, the mode will revert to "Draw Mode"

Deleting Zones

1. Select “Delete” mode
2. Click within a current zone to delete it
3. Click on the “Draw” button to create more zones.

Selecting Columns

1. To change from Auto Detect Mode when doing recgnition of text with columns, choose other options under Column Selection.
2. Choose Single Column/Table for more specialized recogniton
3. For more customization, choose No Parsing or Multiple Columns which can be set for from two to nine columns

Changing Zone Contents

1. To change a given zone’s contents, select it and then change the value of the “Zone Contents” option menu.
2. To change from the default of both Alpha and Numeric type characters, select from the Zone Contents option menu either Alpha or Numeric types as well as either Graphics or Custom character selection.
3. Select Custom from the option menu to list specific ASCII characters and apply them to the current scanned image or save them to be loaded later. The customized list can be cleared or saved to a “Zone Contents File” in a designated directory as a named file with the suffix “ .zcn”.

Creating a Zone File

In some cases, you will want to save the zone locations and contents for future recognition processes. You can save them in the form of a template by creating a Zone File.

1. If you have not completed the previous exercises in this tutorial, do so now.
2. Choose Save Zone File As… from the File menu. The Save Zone File window will appear.
3. Enter a filename in the Selection field.
4. Click OK. Your Zone File will be saved with the suffix .ztm to the designated directory and will become the new default zone set.

Completing recognition

Once you have set the zones and saved the template, click Continue, and OCR Shop will finish the recognition process and generate the text in the Text Editor.

Chapter 5: The Main Menu

Overview

There are three main components of the OCR Shop Main Menu:

- The File Menu
- The Options Menu
- The Help Menu

The File Menu

Figure 5-1 Main Menu

The File Menu lets you manage OCR Shop settings files.through specific commands and they include:

- Load Settings…
- Save Settings
- Save Settings As…
- Exit

Load Settings…

Choose Load Settings… from the File Menu to load previously saved settings. These settings can include combined settings for recognition, languages, user dictionaries, trained character lists, scanners, and other preferences saved by the user.

Loading User Settings

1. Choose Load Settings… from the File Menu. The Load Settings window will appear. See Figure 5-2
2. Verify that the correct directory is being displayed. Then, select the desired settings file by clicking on it, or by directly typing in its name.
3. Click OK.

Figure 5-2 Load Settings File

Save Settings / Save Settings As…

Choose Save Settings As… to save the current OCR Shop settings under a new name for later use. This is especially useful if there are settings particular to particular documents or to particular scanners.

The default main settings file suffix is: .rc.

1. Choose Save Settings… from the File Menu. The Save Settings window will appear.
2. Enter the new settings file name.
3. Click OK.

Selecting Save Settings will save the current settings to the filename that was last loaded from or saved to.

Exit

Choose Exit to quit the OCR Shop program.

The Options Menu

Various options can be used to specify the parameters needed to control the OCR Shop process and they include:

- Languages
- User Dictionary
- Trained Character Settings
- Proofing Editor Options
- Recognition Options
- Output Format Editor

Languages

Choose Languages… to select one or more language character sets and dictionaries for text recognition. OCR Shop uses your selection from the Languages scrolling menu to identify unique characters to a particular language. It uses your selection from the Dictionaries scrolling menu to improve the accuracy of identifying characters within complete words.

For example, if you choose English under Languages, foreign characters such as “ü” and “å” would likely be mis-identified as “u” and “a”.

At the same time, a specific selection under `Dictionaries` can aid OCR Shop in determining a problematic character. For instance, choosing the English dictionary can help determine the choice of either an “f'” or a “t” if the two previous characters are “ca”. Within the dictionary, “cat' is listed while “caf” is not and therefore the character in question must be a “t”.

More than one language and/or dictionary can be selected at a time but, for faster recognition, use only the minimum necessary number of selections.

Selecting a Language and Dictionary

1. Choose Languages… from the Options Menu. The Languages window will appear, see Figure 5-3.
2. Click once on a language to select it. To deselect a language, click on it again. Select as many languages as are appropriate.
3. Click once on a dictionary to select it. To deselect a dictionary, click on it again. Select as many dictionaries as are appropriate.
4. Click on the appropriate selection boxes depending on if you want OCR Shop to Ignore Acronyms, Ignore Abbreviations and/or Ignore Proper Nouns.
5. Click OK.

User Dictionary

Figure 5-3 Languages

Choose User Dictionary… to create, edit or delete a user dictionary. User Dictionaries allow you to teach OCR Shop unique words that may appear repeatedly in your documents. For example, you may want to create a User Dictionary for all of your company's product names, so OCR Shop will recognize them as complete words.

Once user dictionaries have been created, they can easily be selected for use with future OCR Shop documents and called back from the User Dictionary List in the next recognition process.

User dictionaries are saved with the suffix: .dict.

Creating a User Dictionary

1. Choose User Dictionary… from the Options Menu. The User Dictionary List will appear as shown, see Figure 5-4. The scrolling list contains all user dictionary files in the directory.
2. Click New. The Edit User Dictionary window will appear, see Figure 5-5.
3. Enter the first word you would like to add to the dictionary in the Edit/Add text field.
4. Click Add.
5. Repeat Steps 3-4 until you have completed your new user dictionary.
6. Click Save As…, and enter a filename in the Save Dictionary As window.
7. Click OK to save the dictionary. Your new user dictionary will appear in the User Dictionary List.

See “Editing a User Dictionary” on page 49. for an explanation of commands within the Edit User Dictionary window.

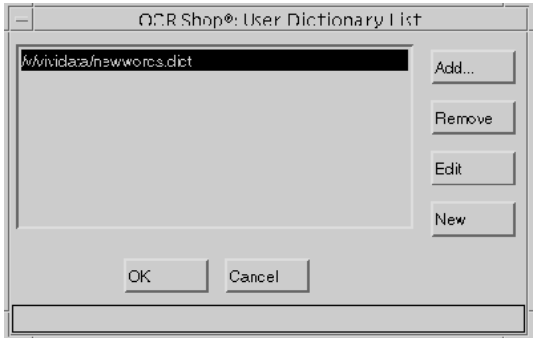

Figure 5-4 User Dictionary List

Adding an Existing Dictionary to the User Dictionary List

1. Choose User Dictionary… from the Options Menu. The User Dictionary List will appear; see Figure 5-4.
2. Click Add….
3. Select a dictionary from the Add Dictionary to List window.
4. Click OK. The added dictionary will appear in the User Dictionary List.

Figure 5-5 Edit User Dictionary

Editing a User Dictionary

1. Choose User Dictionary… from the Options Menu. The User Dictionary List will appear; see Figure 5-4.
2. Select the dictionary you would like to edit by clicking on it, and click Edit. The Edit User Dictionary window will appear.

3. To add a new word, enter it in the Edit/Add text field, and click Add.
4. To replace a word already in the dictionary, select it by clicking on it. Enter the replacement word in the Edit/Add text field, and click Replace.
5. To delete a word in the dictionary, select it by clicking on it, and click Delete.
6. To include all of the words from another user dictionary, click Merge In… and enter the filename of the dictionary you wish to load in. Click OK.
7. Once you have made all necessary changes, click Save As….

Removing a User Dictionary from the list

1. Choose User Dictionary… from the Options Menu. The User Dictionary List will appear; see Figure 5-4.
2. Select the dictionary you want to remove by clicking on it.
3. Click Remove.

Trained Character Settings

OCR Shop allows the user to add, edit and delete training files by selecting sets through the Options Menu. (See “Training Session” on page 85 for information on training OCR Shop and saving training files.) Whichever training files are currently in the Training Files window will be used in the next recognition process.

Training files are saved with the suffix: .trn.

Adding Trained Character Sets

1. Choose Trained Character Sets… from the Options Menu. The Trained Character Sets window will appear; see Figure 5-6
2. Click Add….
3. Select the training file you want to add from the Add Training File to List window.
4. Click OK. The added file will appear on the Training Files list.

Figure 5-6 Trained Character Sets

Editing Trained Character Sets

1. Choose Trained Character Sets… from the Options Menu. The Trained Character Sets window will appear.
2. Select the training file you want to edit by clicking on it.
3. Click Edit.

Please see “The Train Characters Window” on page 99 for detailed information on editing trained character sets.

Removing Trained Character Sets

1. Choose Trained Character Sets… from the Options Menu. The Trained Character sets window will appear.
2. Select the training file you want to remove by clicking on it.
3. Click Remove.

Proofing Editor Options

The Proofing Editor dialog allows you to set the character used as the reject character in recognition as well as the editor to be used for editing the recognized text.

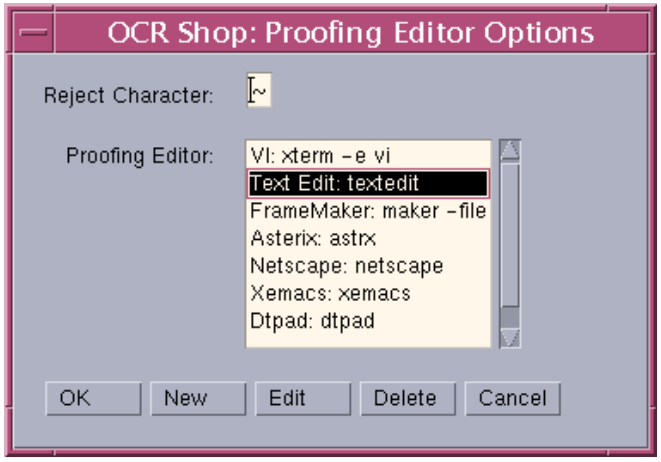

Figure 5-7 Proofing Editor Opttions

The default reject character is '~'. This character will appear in the recognized text when OCR Shop has a low confidence in the recognition of a character or section of text.

The proofing editor list gives a number of different applications which can be used to view the recognized text. The user can select among those listed or add their own editor. When editing an entry or creating a new one, the command entered should assume that the filename to be viewed will be appended to the command. In the case that the filename is not the last item of the command line, the user can create a shell script which will place the filename in the correct spot for the command. An example of this can be found in the netremote script, which allows the user to use Netscape as the proofing editor, loading the recognized file into an existing session of Netscape if one is running or invoking a new instance if one is not. This example script can be found in the bin directory in the installation.

Recognition Options

Choose Recognition Options… to set the default recognition settings. See Figure 5-8.

Recognition Mode

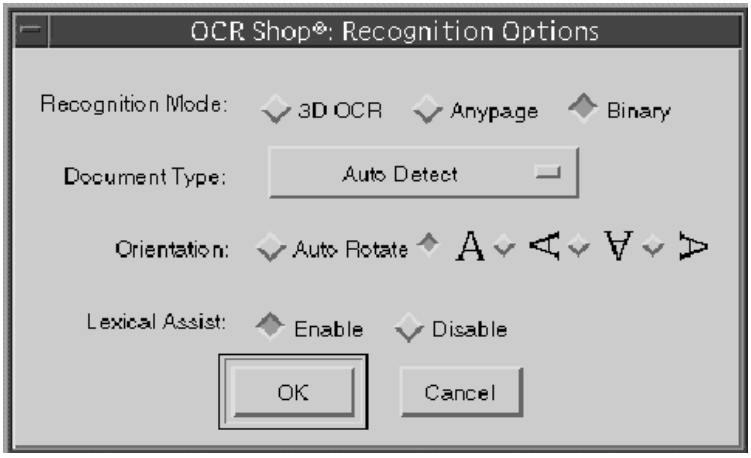

Figure 5-8 Recognition Options

The OCR Shop Recognition Options windows lists three recognition modes including 3D OCR, Any Page, or Binary The fastest recognition mode is the Binary mode, but is best utilized when processing high-contrast documents where characters are distinct and sharp. The AnyPage mode allows for varying background shades in a document. 3D OCR mode is the most versatile of the three modes and, while occasionally a bit slower, can handle very difficult documents, such as multi-generational photocopies, documents with very small type, and images with a variety of color shades.

Document Type

Select the desired document type: Fully Formed Characters, Dot Matrix Printed, or AutoDetect.

Orientation

OCR Shop makes recognition easier by specify whether or not to rotate images to be processed. While the default setting is o" (no rotation), rotation can be done automatically by choosing AutoRotate or accomplished manually by selecting 0°, 90°, 180°, or 270°.

Lexical Assist

If `Lexical Assist` not selected, OCR Shop will refer only to the selected languages. But if `Lexical Assist` is enabled, OCR Shop will refer to both the specifically selected languages and dictionaries in the Languages window during recognition.

Ouput Format Editor

The Ouput Format Editor dialog (see Figure 5-9 below.) allows you to select which formats among the possible output formats will appear in the Text Format menu in the Document Specification dialog. By default there will be approximately 20 formats. You may select and unselect any of the items. The maximum number of formats which can be selected is 40. Any more will be ignored.

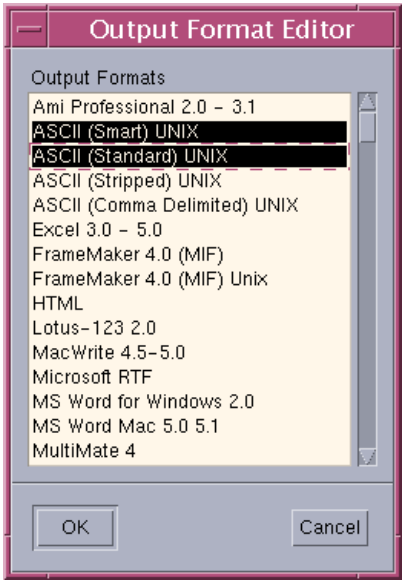

Figure 5-9 Output Format Editor

The Help Menu

On-Line Help and the OCR Shop Manual

The manual for OCR Shop is only available with Netscape (VVNET set). On-Line Help however, will either work with vvhelp or Netscape if VVNET is set.

Product Information

Choose Product Information for software version numbers and detailed information about Vividata contacts and tech support.

Show Activity Log

Choose Show Activity Log… to display a listing of all jobs, actions and operations completed in OCR Shop. The Activity Log window can be closed by clicking Dismiss.

Chapter 6: The Toolbar

Overview

This chapter covers the functions of each of the buttons on the Toolbar:

- Interactive Recognition
- Automatic Recognition
- Batch Scan
- Training Session
- Proofing Editor
- Image Viewer

The Toolbar

Figure 6-1 Toolbar

Interactive Recognition

Choosing Interactive Recognition calls up the Interactive Recognition window, where you may adjust any or all of the recognition settings and options, and then begin scanning or loading of images for recognition. The output text will be saved to the filename that you specify, as well as the original scanned images, if so selected.

If Specific Zones or Automatic Zones has been selected, the Zone Editor will be called up after each image is scanned or loaded in, so that you may specify which zones to use for recognition.

See “The Recognition Settings Window” on page 67. for more details on recognition settings.

Automatic Recognition

Choosing Automatic Recognition calls up the Automatic Recognition window, where you may adjust any or all of the recognition settings and options, before scanning or loading of images for recognition. As with Interactive Recognition. the output text will also be saved to the filename specified, and any original scanned images will be saved if so selected.

If you have several documents to recognize such as business forms, all of which are to be processed with the same set of zones, then you may want to use Specific Zones. Selecting Specific Zones... will call up the Zone Editor, so that you can specify the desired zones to be used in recognition.

If you are using images from your scanner, and if your scanner does not have an Automatic Document Feeder (ADF), Automatic Recognition will pause after each page is recognized, so that the next page can be loaded.

See “The Recognition Settings Window” on page 67. for more details on recognition settings.

Batch Scan

Choosing Batch Scan allows you to scan multiple pages and defer their recognition to a later time. The Batch Scan window has two main areas: on the left side, you choose the filename or names under which OCR Shop will save the images; on the right side, you can view the scanned images as they are completed. See Figure 6-2. Later, when you want to recognize the batch scanned image files, you can easily load them in the Image Source field in either the Interactive or Automatic Recognition windows.

Batch scan filenames have the following format:

*image_filename*d*XXX*p*YYY*.*image_suffix*

where “XXX” indicates the document number, and “YYY” indicates the page number. The page number is only used if Use Page Numbers is selected.

So, if the Image Filename is set to “goodboy”, the Doc # is “1”, the Page # is “2”, the Image Suffix is “.tif”, and Use Page Numbers is selected, then the next image scanned will be saved to the filename “goodboyd001p002.tif”. If Use Page Numbers is not selected, then the filename will be “goodboyd001.tif”.

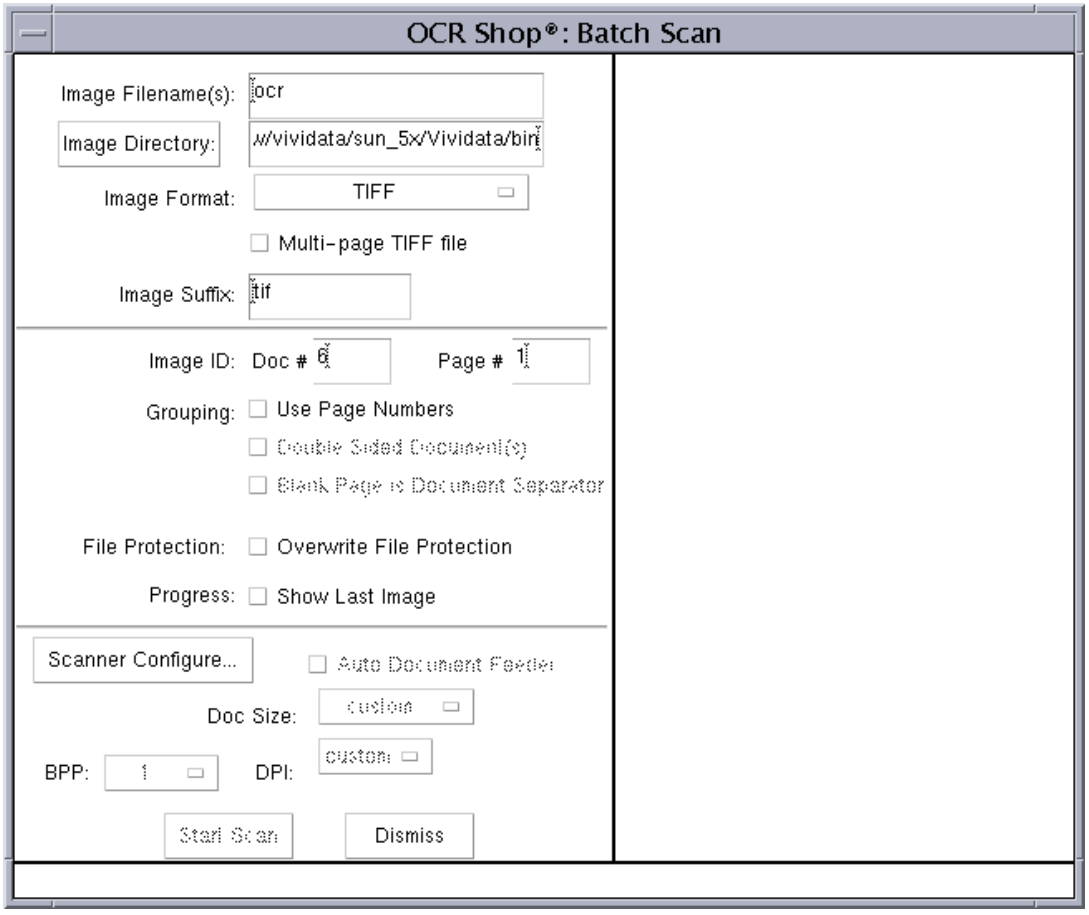

Figure 6-2 Batch Scan

Image Filename(s)

Enter the base filename with which you want the image files to be saved.

Image Directory

Enter the name of the directory in which you want the image files saved; or, click on the Image Directory: button to load a directory name.

Image Format

Select the appropriate image format from the pull-down menu.

Select Multi-page TIFF file if you selected TIFF, and if you want all the images saved into a single file.

Image Suffix

Enter an appropriate image file suffix. This field will is set automatically each time a new Image Format is selected.

Image ID

Enter the document number and page number of your choice in the Doc # and Page # fields, respectively.

Grouping

Select Use Page Numbers if you want filenames to include the page number. Note that when page numbers are used, scanning multiple images will cause the page number for each new image to increase by one, with the document number remaining constant. The document number will only be incremented if Blank Page is Document Separator has been selected and a new document is indicated.

Select Double-sided Document(s), if your documents are double-sided. If you have a single sided scanner (i.e. a "simplex" scanner) OCR Shop will process the entire batch of pages in the ADF and then prompt you to turn the batch over and place it back into the ADF so that the reverse sides can be processed. OCR Shop will track the number of pages, so that in the final document, all pages will be in the correct order. The Double sided documents option is only available when Use Page Numbers is selected.

As an example, if you have four double-sided documents, where the first page is numbered 1 on the front and 2 on the back, and the second page is numbered 3 on the front and 4 on the back, and so on, then the first pass will scan pages 1, 3, 5, and 7, while the second will scan pages 8, 6, 4, and 2. The end result will be a single document with all pages in the correct order.

If you have a double sided scanner (i.e. a "duplex" scanner) OCR Shop will process both sides of the entire batch of pages in the ADF.

If Blank Page is Document Separator is selected, then whenever OCR Shop encounters a blank sheet of paper in the ADF, it will increment the document

number, and reset the page number to one. In this way, a whole stack of documents, each consisting of many pages, could be scanned as one batch. You would simply slip a blank piece of paper in between each document. Again, this option is only available if Use Page Numbers is selected.

Overwrite File Protection

Select Overwrite File Protection if you want OCR Shop to notify you whenever OCR Shop tries to write over a filename which already exists.

Select Show Last Image if you want OCR Shop to display each scanned image in the preview window.

Scanner Set-up

Click Scanner Set-up to call up the Scanner Set-up window.

Document Size

Select the appropriate document size from the given list.

BPP

Select the appropriate bits per pixel dimension from the given list.

DPI

Select the appropriate dots per inch from the given list.

ADF

Select ADF if your scanner has an automatic document feeder (ADF) and you want to enable its use.

Note: If you do not have an ADF, you will be prompted to feed each page into the scanner one-at-a-time.

Start Scan Button

Once you have set all the parameters for the batch scan, click Start Scan.

Dismiss Button

To return to the Main Menu and Toolbar, click Dismiss.

Training Session

Choosing Training Session calls up the Training window, where you may create a trained character file from a scanned or loaded image.

A trained character file is a set of pre-recognized text characters from a scanned image, to which OCR Shop refers when recognizing text. If you have several documents from the same source, creating a training file helps OCR Shop identify potentially difficult characters that appear throughout the text.

When you conduct a training session, OCR Shop scans the image and displays each character image it recognized, as well as those it rejected. All unrecognized characters are indicated with the default reject character -- usually, a tilde, "~". (See "Proofing Editor Options" on page 52. for information on changing the default reject character symbol.) You may then scroll through the Train Characters window, making corrections and/or additions, thereby "training" OCR Shop to increase recognition accuracy. The file of trained characters are saved as a trained characters file, with the suffix: .trn.

Once you save the training file, you can reload it for faster recognition of similar documents, such as those using the same font or from the same source. (See "Trained Character Settings" on page 50. for more information on using trained character sets.)

> Note: Use of a trained character file (or files) is ideal when there are unusual or difficult-to-read characters throughout the document. A trained character file then helps OCR Shop recognize these characters with greater accuracy. However, for most documents, use of a trained character file is not necessary and may even slow the recognition process down.

Creating a Trained Character File

1. Click Training Session from the Toolbar. The Training window will appear.
2. Select the appropriate Image Source. OCR Shop automatically selects Whole Page.
3. Select the appropriate Column Selection.

4. Select Retain Formatting, if desired.
5. Click Start Recognition. Once OCR Shop has looked through the image file or scanned document, the Train Characters window will appear, containing both recognized and rejected characters. A sample Train Characters window will appear. See Figure 6-3.

You may now correct any erroneous symbol assignments and save the trained character file. See “The Train Characters Window” on page 99. for further details.

Figure 6-3 Train Characters

Editing an Existing Trained Character File

To modify a trained character file which has already been created, use the Trained Character Sets window from the Options menu to Add the trained character file

to the list. Then, click Edit to call up the Train Characters window. See “The Train Characters Window” on page 99. for more details on editing a training file.

Proofing Editor

Clicking Proofing Editor calls up the most recently recognized text in Text Editor. From the Text Editor window, you can load other recognized documents for viewing and editing.

Image Viewer

Clicking Image Viewer will call up the most recently scanned image in Image Viewer. From the Image Viewer window, you can load other images for viewing and editing.

Chapter 7: The Recognition Settings Window

Overview

OCR Shop offers precise control through the Recognition settings window which appears once you have selected either Interactive or Automatic Recognition. The various aspects of this process control include:.

- Image Source
- Area to Recognize
- Column Selection
- Document Selection
- Start Recognition button
- Dismiss button

The Recognition Settings Window

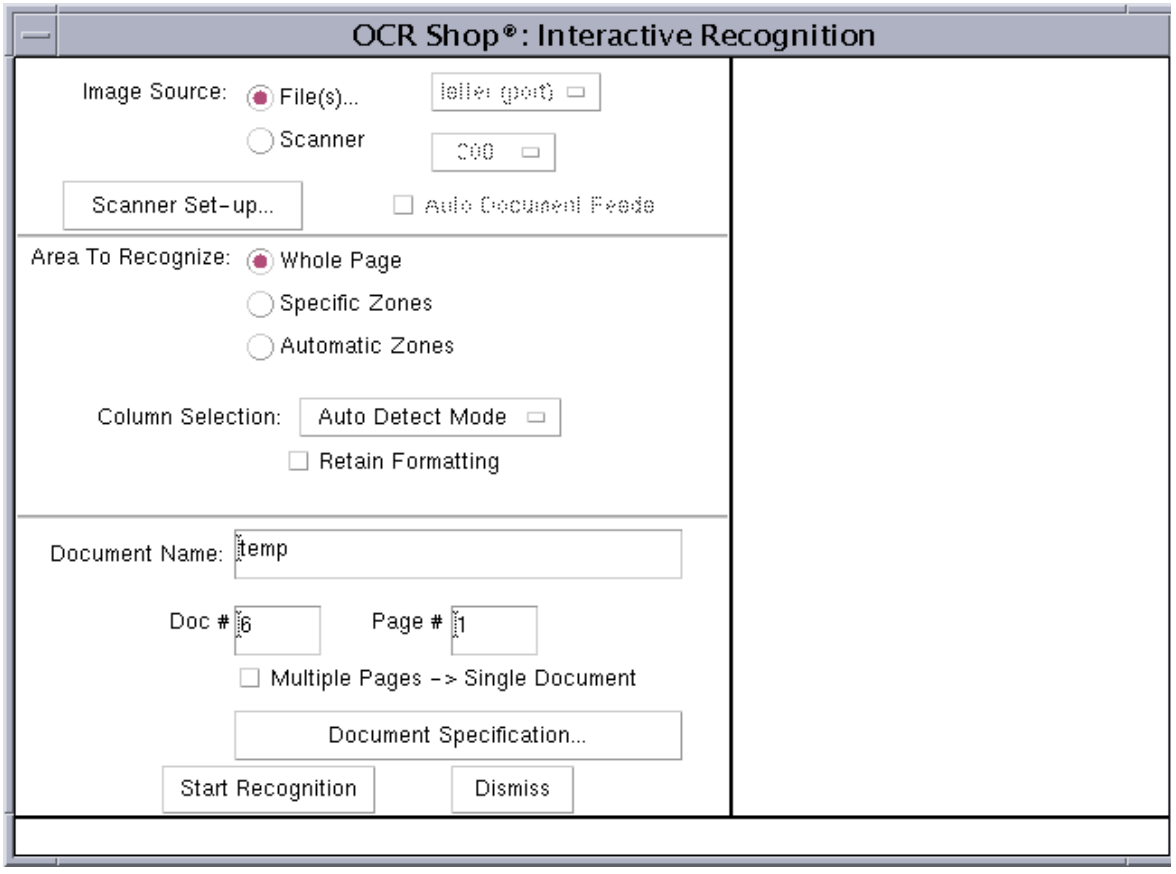

Figure 7-1 Recognition Settings

Image Source

OCR Shop obtains images for recognition from two sources

- Previously saved file(s)
- Scanner-produced images

Processing Previously Saved Files

1. Select File(s)... to load a previously saved image for OCR. The Select Image Files window will appear, See Figure 7-2.
2. After choosing the directory, click on the desired file name under Files:, and then click Select or, simply double-click the filename. The selected file will appear in the Selected File(s): scrolling menu. If you want to select all files, click All.
3. If you want to delete a file from the Selected File(s): menu, select it by clicking on it, and click Cut. If you want to undo the cut, click Paste. You can also insert the filename at a different location (or locations) in the list by clicking on the filename above which you want the filename that was just Cut to appear, and then clicking Paste.
4. Once all the image files you would like to recognize are selected by putting them in the Selected File(s): menu window, click OK. The Recognition settings window will reappear.

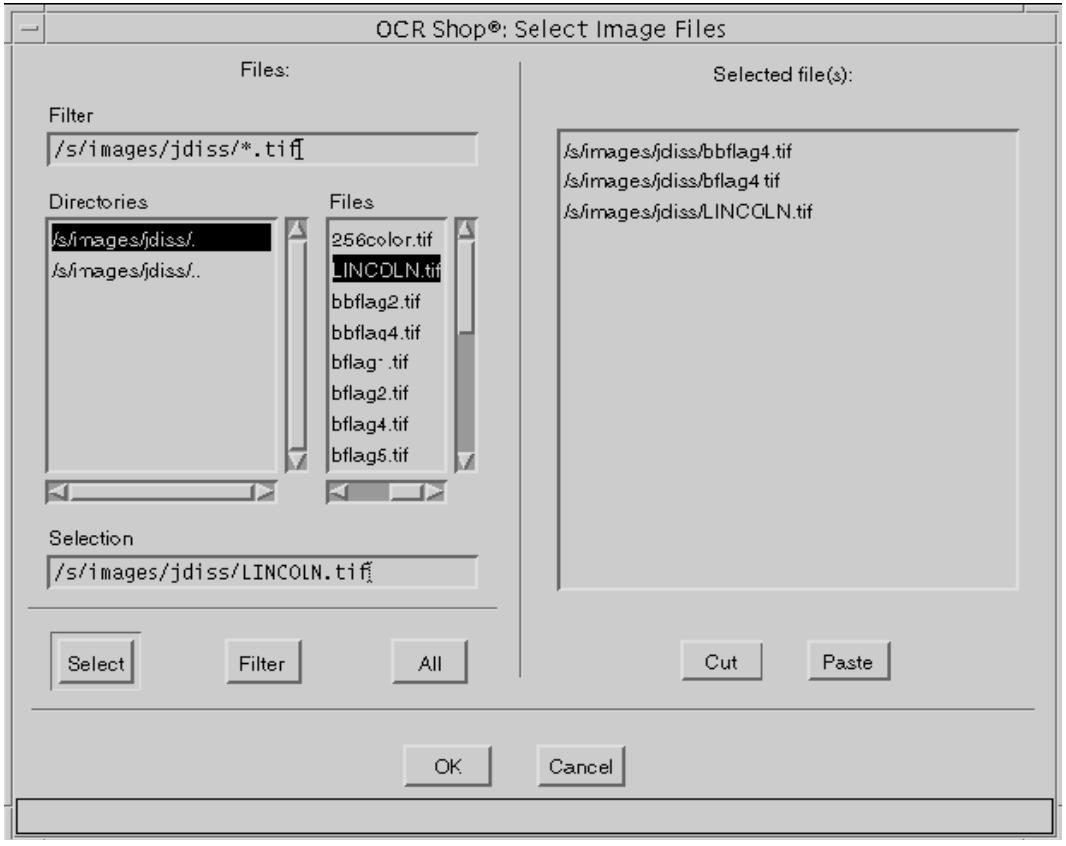

Figure 7-2 Select Image Files

Processing Images from a Scanner

Select Scanner to obtain a new image from your scanner for OCR. Click Scanner Set-up to make adjustments or changes to the scanner set-up. (See “Chapter 8: The Scanner Set-up Window” on page 75 for details.)

In the Image Source area, there is also a Document Size pull-down menu with the most common paper sizes for scanning. The options will vary depending on your selected scanner. Underneath this menu is a DPI menu, with the most common

DPI selections for your particular scanner. For complete menus of document size and DPI available with your scanner, click on Scanner Set-up.

If the scanner has an auto-document feeder, select ADF to use it in the recognition process.

Area to Recognize

OCR Shop controls the area to be recognized with three options:

- Whole Page
- Specific Zones
- Automatic Zones

Whole Page

Select Whole Page if you want OCR Shop to recognize the entire page area. Regions containing text will be parsed and recognized, while graphics regions will be saved into separate image files, if so specified in the Document Specification window. (See “Auto Save Graphic Blocks” on page 86.).

Note: During a Training Session, this is the only option available.

Specific Zones

Select Specific Zones if you want OCR Shop to recognize only the zones you draw yourself in the Zone Editor window. This option is best for documents with complex page layout and/or multiple graphics. It allows you to choose specific areas to recognize as well as help OCR Shop distinguish the different text areas. (See “The Zone Editor Window” on page 89. for more information on using the Zone Editor.)

Automatic Zones

Select Automatic Zones if OCR Shop is to recognize specific zones, but without the zones being chosen by the user. Once OCR Shop has divided the image into zones, the Zone Editor can be used to select which zones to recognize and in which order. This option is best for documents with a simple page layout. (See “The Zone Editor Window” on page 89. for more information on using the Zone Editor.)

Note: This option is not available with Automatic Recognition.

Column Selection

Choices made in Column Selection help OCR Shop distinguish between different columns and/or column layouts within each of the designated zones. For most OCR jobs, Auto Detect Mode can be effectively used by automatically determining the text layout. If different zones contain different column layouts, the user can have the Column Selection individually specify each zone in the Zone Editor Window. (See “The Zone Editor Window” on page 89.). There are four basic options for column selection:

Auto Detect Mode

This selection allows OCR Shop to determine the text layout within each zone by itself.

Single Column/Table

This selection tells OCR Shop that there is one main column in your selected area to recognize.

Multiple Columns

This selection tells OCR Shop that there is more than one main column in the selected area to recognized.

No Parsing

This selection directs OCR Shop to disregard all formatting in your selected area to recognize.

Retain Formatting

This selection box indicates to OCR Shop that you want to retain as much of the original format as possible.

Document Selection

OCR Shop allows the user to name and customize the document be scanned for recognition. Text files are automatically named in numerical order using the entries in the Document fields.

Output filenames have the following format:

*document_name*d*XXX*p*YYY*.*file_suffix*

where “XXX” indicates the document number, and “YYY” indicates the page number. The page number is only used if Multiple Pages -> Single Document is selected.

An example might be one in which the Document Name is set to “green”, the Doc # is “5”, the Page # is “3”, the file suffix is “txt” for a standard text format, and Multiple Pages -> Single Document is selected, In this cas, the next text output might be written to the filename “greend005p003.txt”. If Multiple Pages -> Single Document is not selected, then the filename would be “greend005.txt”.

Document Name

Enter the base filename to be used in building output text and image filenames.

Doc

Enter the current document number to be used in naming output files.

Page

Enter the current page number to be used in naming output files.

Multiple Pages -> Single Document

This selection indicates that filenames should include the page number. Note that when page numbers are used, the document number remains constant while scanning multiple pages will cause the page number for each new text output file to increase by one, The document number will only be incremented in this way if the user has chosen `Blank Page is Document Separator` in the Document Specification window and a new document is indicated. (See “The Document Specification Window” on page 83.).

Document Specification...

Clicking Document Specification... calls up the Document Specification window. See “The Document Specification Window” on page 83. for more details.

Start Recognition button

OCR Shop begins the recognition process once all the settings have been chosen and Start Recognition has been clicked.

Dismiss button

The current settings and recognition process can be canceled by clicking on `Dismiss` and both the Main Menu and the Toolbar will reappear.

Chapter 8: The Scanner Set-up Window

Overview

The Scanner Set-up window appears when you click the Scanner Set-up button in the Recognition settings window or the Batch Scan window.

The Scanner Set-up window contains a set of standard scanner features and a number of features specific to your particular scanner. OCR Shop automatically determines which features are available for your scanner and displays the appropriate control elements. Extended image processing features specific to your scanner are available through the Options... button.

In this chapter, the standard scanner features are described. For specific information about the supported scanners and screnn shots of their Scanner Set-up windows and options windows, please see Appendix A, “Scanner and Printer Specific Features”,.

The Scanner Set-up Window

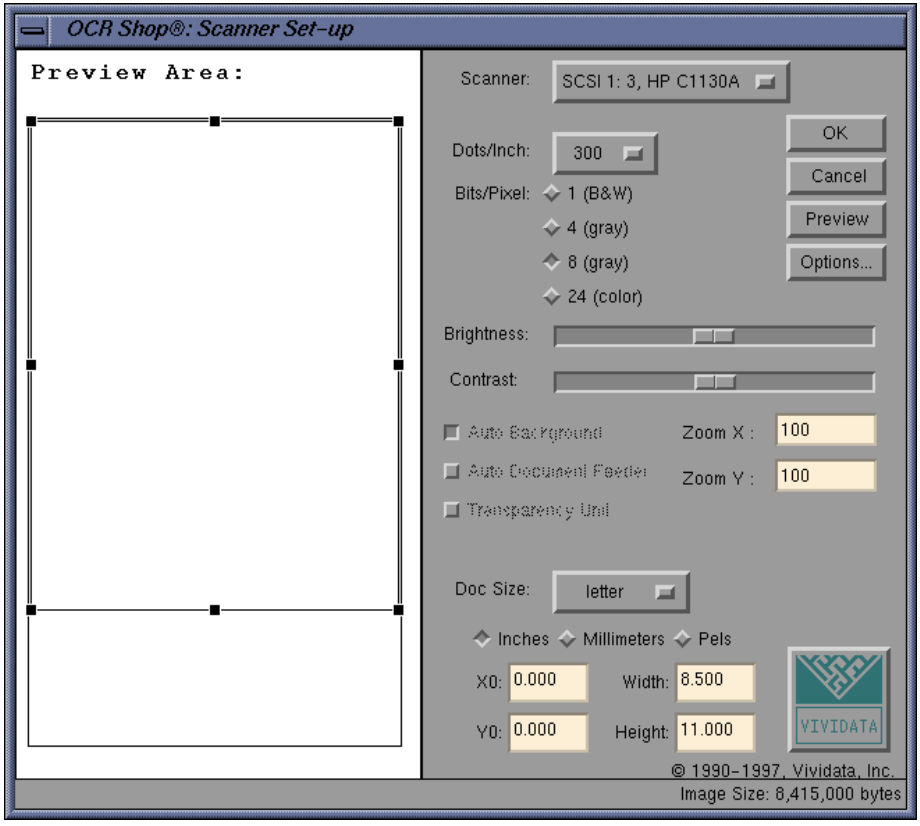

Figure 8-1 Scanner Set-up

The Scanner Set-up window is divided into two sections. The left half is the scan preview area. It contains an area surrounded by a solid line, which represents the scannable area. Inside this area is a resizable selection box containing the portion of the image to be scanned. By click-dragging the corners of the selection box, you can change the size of the region to be scanned. By click-dragging the center of the box, you can move it to another location on the page.

The right half contains the scanner controls. The standard menus and buttons that appear on the right side are described in this section.

Scanner

Click on the Scanner menu button to see all the available scanners. If you have no supported scanners connected, the first item in the box will say “No Scanners Available”. The last item will always be “show all devices”.

Figure 8-2 Selecting the Scanner

The “show all devices” option pops up a dialog which gives you a list of all the SCSI host IDs, the SCSI devices connected to them, and their status. This is a useful feature for determining which SCSI IDs are available, as well as which devices are currently connected. Also, if you have a National Instruments GPIB driver and interface installed, GPIB devices will appear at the end of the list. You can use the scroll bar on the side of the window to view all of the items listed.

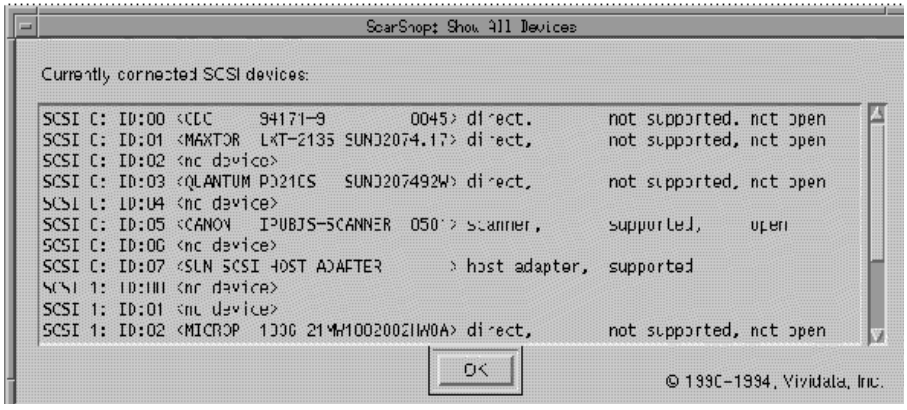

Figure 8-3 Device List

Dots per Inch

The resolution of the scan is user-definable to the extent that the selected scanner allows. The choices are listed in this button menu. When you choose “other”, a pop-up dialog will enable you to set other values and/or separate x and y resolutions (not supported by all scanners).

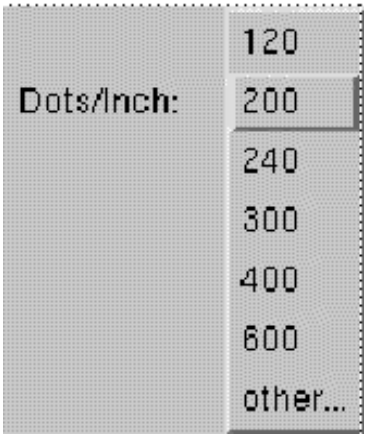

Figure 8-4 Selecting Dots Per Inch

Bits per Pixel

A bit is the basic atom of information in the computer. The bit resolution is the number of bits used to represent each pixel.

Figure 8-5 Selecting Bits Per Pixel

Different selections will be displayed depending on which scanner you have selected.

The following table lists the bits per pixel and pixels per byte required for different types of images:

Table 1:

Image Type	Bits/Pixel
Line Art/B & W Images	1
Grayscale (16 grays)	4
Grayscale (64 grays)	6
Grayscale (256 grays)	8
Color (16.7 million colors)	24

Remember that the more information stored per pixel and the greater your dpi, the larger your file size will be. An 8.5 x 11 inch image at 120 dpi and 1-bit resolution will have a file size of 164K, at 4-bits 655K, at 8-bits 1.3 MB, and at 24 bits 4.0 MB. (The file sizes for 6 and 8 bits/pixel images are the same because 6 bit pixels are stored in 8 bit bytes.)

Brightness

The brightness is set with a slider bar, with a higher degree of brightness at the right end of the scale, and a lower degree of brightness at the left end of the scale.

Figure 8-6 Selecting Brightness

Threshold

The threshold control, available on certain scanners for 1 bit/pixel scans, determines the balance of black and white pixels in the scanned image. You can specify a certain intensity as the threshold, and the scanner will convert all the pixels that are lighter than the threshold to white and all pixels that are darker

than the threshold to black. The effects of thresholding are most noticeable when an image with many medium gray shades is scanned.

Figure 8-7 Selecting Threshold

The Threshold option works in 1 bit/pixel mode only. In gray-scale and color modes, the Threshold option is disabled (i.e. grayed out).

Automatic Document Feeder (ADF)

The Automatic Document Feeder (ADF) (not shown in the scan window example above) feeds documents for scanning in portrait (vertical) or landscape (horizontal) orientation. Automatic Document Feeders are standard for some scanners, and either optional or not available for others.

Figure 8-8 Selecting ADF Usage

Document Size

You can specify the area to be scanned from a predefined list of typical paper sizes, or define your own area by using the mouse, or by entering the dimensions numerically through the keyboard. OCR Shop dynamically loads information about standard document sizes supported by your scanner (for example, letter, legal, A4, etc.). The Document Size menu button will display them and you may

select any of the presets available in the list. Common document sizes are listed here.

Table 2:

Document Name	Inches	Millimeters
letter	8.5x11	216x297
legal	8.5x14	216x356
A3	11.7x16.5	297x420
A4	8.27x11.7	210x297
A5	5.82x8.27	148x210
B4	9.8x13.9	250x353
B5	6.9x9.8	176x250

To select an area to scan within the preview area, drag the rubber-band selection box around the area you wish to scan. Alternatively, enter the x and y origins as well as the desired scan width and height in the editable text fields provided for these values. All dimensions can be entered and displayed in inches, millimeters or pixels (pels).

Important Note: To enter origins and dimensions from the numeric keypad on the keyboard, you must enable Number Lock on the keypad.

Image Size

The image size is displayed in bytes at the bottom right-hand corner of the scan setup window. It changes dynamically as you change the scan area or modify the dpi or bits-per-pixel resolution.

Preview

This button will initiate a preview scan. To produce the preview image, the scanner makes a fast scan of the full scanning area at the lowest possible dpi and

displays it in the preview area. This is a useful, time-saving feature for the following operations:

Checking Scanning Options

When you modify the scanning options for your image, you can use Scan Preview to check the results prior to invoking a full-resolution scan. Scan Preview supports all the scanner options except the Automatic Document Feeder (ADF), which must be disabled, and horizontal mirroring.

Checking the Scanning Area

If you only need to scan a portion of the image, select that portion by holding down the selection button and drawing a box around it in the preview area. A preview scan can be used to verify the enclosed area.

Options

Options pops up a dialog which gives you access to the extended imaging features of your scanner. To activate an option, click on the applicable button box. For more details, please see “Appendix A: Scanner and Printer Specific Features” on page 109 for more information about your scanner’s particular features.

Chapter 9: The Document Specification Window

Overview

Clicking on Document Specification... in the Recognition settings window opens the Document Specification window in which the user has the opportunity to specify text and image variables as well as file saving options. The Document Specification window contains the following components:

- Grouping
- File Save Options
- Text Directory, Format, and Suffix
- Image Directory, Format, and Suffix

The Document Specification Window

Figure 9-1 Document Specification

Grouping

Scanning with an ADF or Automatic Document Feeder is most effective when utilizing Grouping Options of which there are two possible selections:

Double-sided Documents

Select Double-sided Document(s), if your documents are double-sided. OCR Shop will process the entire batch of pages in the ADF and then prompt you to turn the batch over in the ADF so that the reverse sides can be processed. OCR Shop will track the number of pages, such that, in the final document, all pages will be in the correct order. This option is only available if Use Page Numbers is selected.

For example, images to be scanned may consist of double-sided documents in which the first page is numbered 1 on the front side and 2 on the back, while the second page is numbered 3 on the front and 4 on the back, and so on to the end.

then On the first pass, OCR SHOP will scan pages 1, 3, 5, and 7, and then on the second will scan pages 8, 6, 4, and 2. The end result will be a single document with all pages in the correct order.

Blank Page is Document Separator

When Blank Page is Document Separator is selected, OCR Shop will increment the document number by one whenever it encounters a blank sheet of paper in the ADF. and then reset the page number to page one. In this way, a whole stack of different, multi-page documents could be scanned in one batch. By simply slipping a blank piece of paper in between each document, OCR Shop will repaginate them as if they were done separately. This option is only available if Use Page Numbers is selected.

File Save Options

OCR Shop allows the user to customize the Save settings with the following options:

- Overwrite Protection
- Auto Save Text without Editing
- Auto Generate Output File Suffixes
- Auto Save Graphic Blocks
- Save Image(s) of Whole Document

Overwrite Protection

OCR Shop automatically assigns filenames to recognition documents and image files based on the Document name:, Doc #: and Page #: fields. Select Overwrite Protection if you want OCR Shop to notify you whenever it is about to write to a filename which already exists.

Auto Save Text without Editing

After a scanned image or image file has been recognized, OCR Shop saves the file and displays the recognized text in a text editor window. If this is not desired, select Auto Save Text without Editing.

Auto Generate Output File Suffixes

Select Auto Generate Output File Suffixes if you want OCR Shop to automatically generate an appropriate file suffix whenever you change the Text or Image Format.

Auto Save Graphic Blocks

Select Auto Save Graphic Blocks if you want OCR Shop to save the graphics from graphic zones in the recognized document. You must also select Specific Zones or Automatic Zones and specify zone contents as Graphics in order for the graphics to be retained.

Save Image(s) of Whole Document

OCR Shop normally does not save the scanned images of your documents but only the recognized text in the Text Editor. Select Save Image(s) of Whole Document to have OCR Shop automatically save image files as well as the text files otherwise the images scanned will be lost.

Text Directory, Format, and Suffix

OCR Shop can be set for specifying text output file settings with the following:

Text Directory

Click Text Directory: to display the Select Text Directory window. Select the directory you would like to use for your files, and then click OK. Your selection will appear in the Text Directory: text field.

Text Format

Your selection from the Text Format pull-down list indicates how you want your recognized files to be created and saved.

Text Suffix

Your Text Suffix selection determines the default suffix that will be added onto your recognized text filenames. This will be set automatically if Auto Generate Output File Suffixes is selected.

Image Directory, Format, and Suffix

Since by default, OCR Shop, does not save your documents' scanned images, this area can only be accessed if you select Save Image(s) of Whole Document from the File Save Options: list thereby enabling image file settings to be saved.

Image Directory

Click Image Directory: to display the Image Directory window. Select the directory you would like to use for your images, and then click OK. Your selection will appear in the Image Directory: text field.

Image Format

Your selection from the Image Format pull-down list indicates how you want your image files created and saved.

Select Multi-Page TIFF file if you would like all the image files from each document to be saved into a separate, multi-image TIFF file.

Image Suffix

Your Image Suffix selection determines the default suffix that will be added onto your image filenames. This will be set automatically if Auto Generate Output File Suffixes is selected.

Chapter 10: The Zone Editor Window

Overview

The Zone Editor can be called up from either Interactive or Automatic Recognition processing modes. It appears during Interactive Recognition, after each image is scanned or read in, and before recognition begins. While in Automatic Recognition, the Zone Editor is called up as part of the Automatic Recognition set-up, so that once recognition has commenced, the same set of zones is used for all images.

OCR Shop does this using the following concepts:

- Zone Editor usage and the Zone Editor window components
- File Menu
- Edit Menu
- Rotate Menu
- Zoom Menu
- Number, Delete, and Draw Selections
- Column Selection
- Zone Contents
- Continue, Clear Zones, and Cancel Buttons

The Zone Editor Window

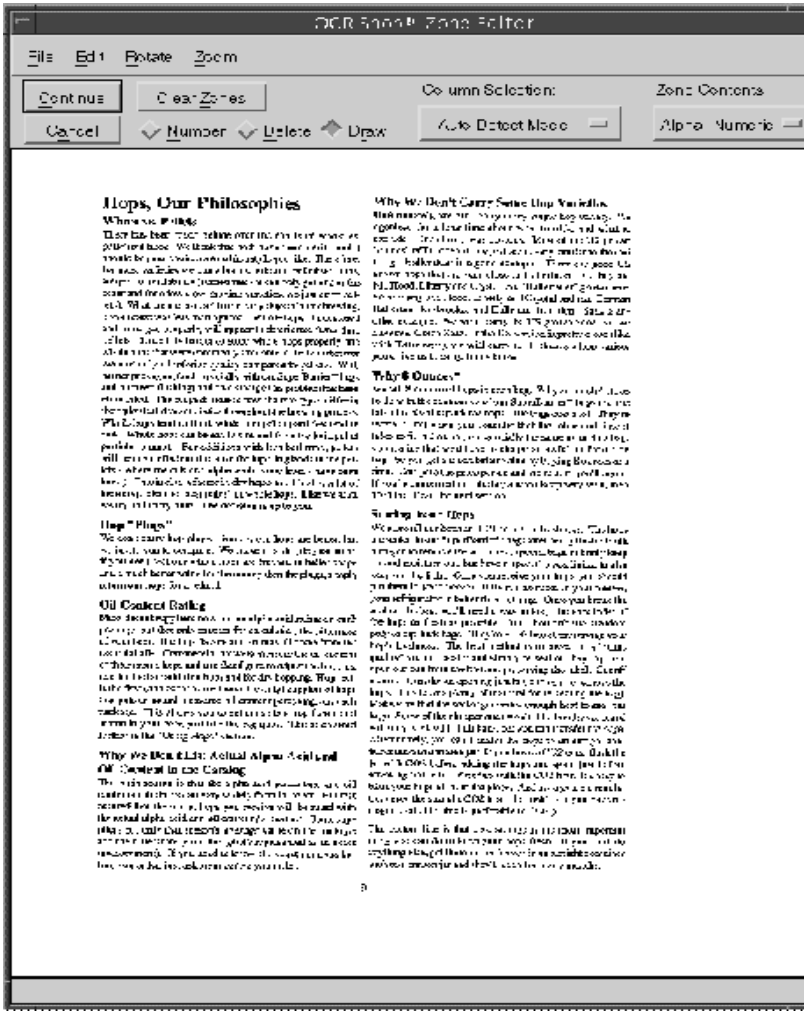

Figure 10-1 Zone Editor

Zone Editor Usage

OCR Shop provides the Zone Editor for the following purposes:

Selecting only a portion of a page for recognition

Zones can be drawn around the sections of text intended to be recognized and the sections to be omitted are ignored.

Determining the order in which text it to be recognized.

You can specify the order in which the zones will be recognized, editing the order to make recognition easier and more accurate.

Specifying the contents of each zone

You can specify whether particular zones contain letters, numbers, symbols and/or custom character sets for increased recognition speed and accuracy.

Creating zone files for standardized page processing

After you have drawn, ordered and specified the zones for a certain document, you can save the parameters as a zone template for use with similar, standardized pages.

File Menu

The Zone Editor File Menu allows you to load and save zone files, so you don't have to reset zones each time you recognize a new document. The menu commands include:

- Load Zone File
- Save Zone File As
- Load Background Image

Load Zone File...

Choose Load Zone File... to load the zones from a previously saved zone file. This is useful for quickly restoring the zoning variables specific to particular documents.

1. Choose Load Zone File... from the File Menu. The Load Zone Template window will appear.
2. Select the zone file you want to use.
3. Click OK.

Save Zone File As...

Choose Save Zone File As... to save the currently loaded zone file under a new file name.

1. Load the zone file you want to save under a different name, if you have not already.
2. Choose Save Zone File As... from the File Menu. The Save Zone Template window will appear.
3. Enter the new file information in the appropriate fields.
4. Click OK.

Load Background Image...

Choose Load Background Image... to load a new image into the Zone Editor window. which will be used only as a reference for drawing and editing zones.

1. Choose Load Background Image... from the File Menu. The Open Image File window will appear.
2. Select the image you want to use.
3. Click OK. The new image will appear in the Zone Editor window.

Edit Menu

The Edit Menu allows you to undo changes you have made in the Zone Editor.

Undo

Choosing Undo erases the last change you made.

Undo All

Choosing Undo All erases all changes you made while in the Zone Editor since it was called up.

Rotate Menu

The Rotate Menu allows you to manipulate the position of the image loaded in the Zone Editor window. Menu options include:

No Rotation

This default selection leaves the image as is.

90 Clockwise

This selection rotates the image 90º in a clockwise direction.

90 Counter-clockwise

This selection rotates the image 90º in a counter-clockwise direction.

180 Rotation

This selection rotates the image, so it is upside-down.

Zoom Menu

The Zoom Menu allows you to manipulate the view of the image loaded in the Zone Editor window. Menu options include:

Fit to Window

This default selection lets you view whole pages of a document.

1:1

This selection displays every pixel of the image as a pixel on the screen.

Zoom In

This selection zooms in on whatever image view is on the screen at the time.

Zoom Out

This selection zooms out of whatever image view is on the screen at the time.

Number, Delete, and Draw Selections

These three buttons allow you to add and delete zones as well as specify the zone content, format and recognition order.

Number

Numbering the zones designates in which order OCR Shop will recognize the text.

1. Select Number from the Zone Editor window. Note that the zones turn red and the Number: fields are emptied.
2. Click on the zone you would like to be recognized first. Note that the zone turns back to green and contains the number 1.
3. Click on the zone you would like to be recognized second. Note that the second zone turns back to green and contains the number 2.
4. Repeat until all the zones you wish to be recognized are numbered.

Note: You can renumber zones you draw yourself as well as Automatic Zones OCR Shop has drawn for you.

Second note: Selecting Delete or Draw will take you out of Numbering mode. Any zones which have not been numbered when you leave Numbering mode will be deleted.

Delete

Deleting zones erases zone boundaries from the image.

1. Select Delete from the Zone Editor window.
2. Click on the zone you want to delete. Note that the zone disappears.
3. Click on the next zone you want to delete. Note that the second zone disappears.
4. Repeat until all the zones you wish to be deleted have been erased.

Note: Any other zone you click on will be deleted until you leave Delete mode by choosing Number or Draw.

Draw

Select Draw to draw your own zones.

1. Select Draw from the Zone Editor window.
2. Click and hold the mouse button down where you want the new zone's corner to be. Stretch the box until it contains the desired area of text or graphics.
3. Release the mouse button. The new zone will be in position.
4. Repeat until you have drawn your desired zones.

Column Selection

The Column Selection options are the same as in the Recognition settings window although in the Zone Editor, you can specify different selections for each zone. (See "Column Selection" on page 72.).

1. Select the zone, for which you want to specify the Column Selection, by clicking on it.
2. Select the desired layout from the Column Selection: pull-down menu.
3. The zone will contain the new layout under the Contents: field.

Zone Contents

The zones' Contents: field helps OCR Shop determine whether it should be looking for letters, numbers, graphics, and/or symbols during recognition.

There are five possible zone content descriptions:

1. Alpha-Numeric--This indicates that the zone contains letters and/or numbers.
2. Alpha--This indicates that the zone contains only letters.
3. Numeric--This indicates that the zone contains only numbers.
4. Graphic--This indicates that the zone contains only graphics.
5. Custom--This indicates that the zone contains a special set of characters as specified in a zone contents file.

Specifying the Contents of a Zone

1. Select the zone, for which you want to specify the contents, by clicking on it.
2. Select the appropriate content description from the Zone Contents pull-down menu.
3. The zone will contain the new content description in the Contents: field.

Using Custom Zone Contents Files

A file saved with the Zone Contents File Editor lets the user determine specific characters for OCR Shop to look for during recognition. This is particularly useful for increasing recognition speed and accuracy when you know certain zones will contain unique characters or symbols.

For example, if you were to collect a survey, in which each of the responses was one of the letters *a, b, c, d,* or *e,* you could create a contents file containing only those letters. OCR Shop would then know that each recognized character would have to be one of the five letters and could quickly distinguish between them.

You can also create contents files for unusual symbols, such as copyright or trademark symbols.

Such custom zone contents files are created using the features of the Zone Contents File Editor. See Figure 10-2.

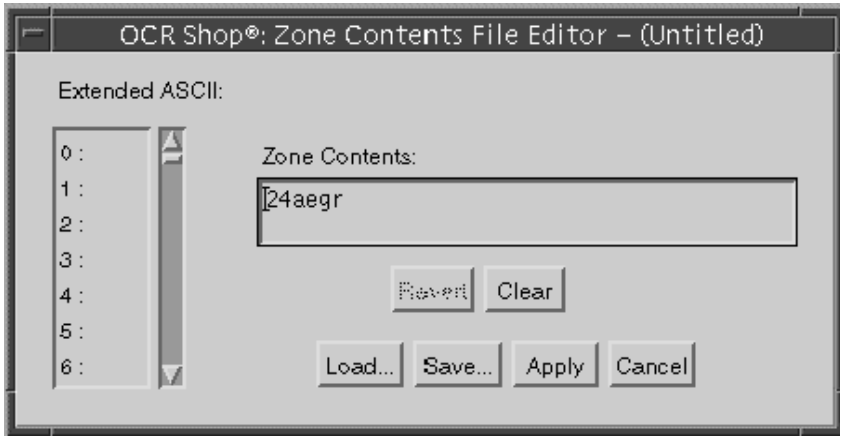

Figure 10-2 Zone Contents File Editor

Creating a New Custom Zone Contents File

1. Choose Custom... from the Zone Contents pull-down menu. The Zone Contents File Editor will appear.
2. Select characters from the Extended ASCII scrolling menu, and/or enter the characters you would like to add in the Zone Content(s): field.
3. You will need to save the zone contents file before you can assign its contents to the a particular zone. Click Save... and enter the desired filename.
4. Click OK. The file will be saved with the suffix: .zcn.
5. Click Apply to accept the new zone contents file and assign it to the selected zone, if any.

Editing a Custom Zone Contents File

To assign a zone contents file to a particular zone or zones, make sure that the appropriate zones have been selected. Call up the Zone Contents File Editor by choosing Custom... from the Zone Contents pull-down menu.

1. Click Load... to load an existing zone contents file.
2. Click Save... to save the current zone contents file.

3. Click Revert to reset the editor to the last saved file.
4. Click Clear to clear the Zone Content(s): field.
5. Click Apply to quit the editor and assign the current zone contents field to the currently selected zone(s). The zone contents filename will appear in the selected zone(s).
6. Click Cancel to quit the editor without making any zone contents file assignments.

Continue, Clear Zones, and Cancel Buttons

Use these buttons to control the Zone Editor window as a whole.

Continue

Clicking on Continue will close the Zone Editor once all necessary editing of the zones is completed, and either recognition will begin (Interactive Recognition) or the user will be returned to the Recognition settings window (Automatic Recognition).

Clear Zones

Clicking Clear Zones will erase all zones from the Zone Editor window.

Cancel

If you wish to abort zoning altogether, click Cancel. Clicking Cancel in the middle of a recognition process, will also bring up a window asking if you would like to abort recognition altogether.

Chapter 11: The Train Characters Window

Overview

The OCR Shop Train Characters window has the following functions:

- Specify...
- Save...
- Append...
- Cancel

The Train Characters Window

The Train Characters window contains the set of all symbols collected by the OCR driver, during recognition along with their ASCII translations. If OCR Shop is unable to match a particular symbol to its known set of characters which include foreign language characters specified in the Languages Menu, then the reject character set as the default will appear beneath the symbol. See Figure 11-1.

Figure 11-1 Train Characters

Specify...

A particular character assignment made to a symbol, can be modified by double-clicking on the symbol below, Alternatively, the user may first select the symbol by clicking on it, and then click Specify... to call up the Specify Character window. See Figure 11-2.

Note: You can only specify one character at a time.

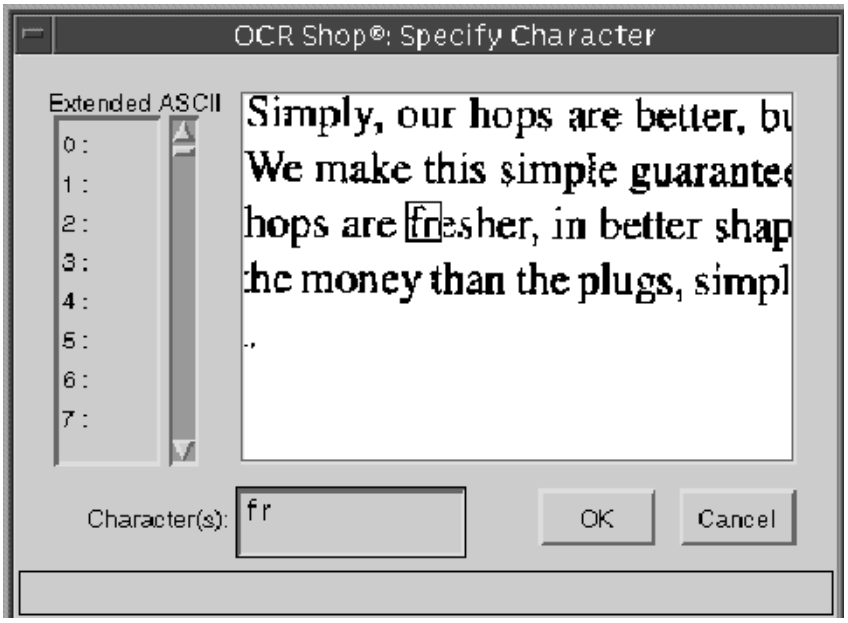

Figure 11-2 Specify Character

The Specify Character Window

1. Select the correct character by locating it in the Extended ASCII scrolling menu and double-clicking on it Another way would be to enter it directly into the Character(s): text field by clicking on the text field and typing in the correct character(s).
2. Click OK to accept the new character(s).

Delete

Use Delete to remove a particular symbol from the trained character set.

1. Click on the unwanted symbol to select it.
2. Click Delete to remove it.

Append...

Use Append... to merge the current trained character set with another, pre-existing trained character set.

1. Click Append... to call up the Append Training Glyphs To... window.
2. Verify that the directory is correct, and select the filename of the existing trained character set.
3. Click OK.

Save...

Use Save... to save the current trained character set to a new file.

1. Click Save... to call up the Save Training Glyphs To... window.
2. Entire the desired filename.
3. Click OK. The trained character file suffix .trn will automatically be added.

Cancel

Click Cancel to discard the current trained character set and exit the Train Characters Window.

Chapter 12: How OCR Works

Overview

OCR Shop utilizes Caere OCR technology to accomplish its fast and accurate optical character recognition.

General description

OCR stands for optical character recognition: the process of transferring text from printed pages into a computer file on screen that can be edited— without retyping.

A scanner is more than a copy machine that simply transfers an image into your computer. Rather, it translates a page into data by dividing up the image into millions of dots or bits (usually from 40,000 to 90,000 per square inch) and then assigns a value to each dot, depending upon whether it is inked, partially inked, or blank.

The composite document stored in your computer is the map of these dots, that is, a bitmap. Your computer sees this data not as editable text, but as one bitmapped image.

OCR then, is the process of translating this bitmap into editable text. Text characters are designed by assigning a code corresponding to each key on the keyboard, be it a letter, number or symbol. There are a variety of different code sets in use, but the most common code set is the ASCII (American Standard Code for Information Interchange) table of character equivalents. ASCII is generally recognized as the universal code for most computers. Almost every program that uses text and/or numbers understands ASCII.

Prior to 1988, matrix-matching, the process by which a bitmap's shape is compared to a library of character shapes, was the only method of text recognition. Because matrix-matching required exact matches, it only worked for a small number of fonts and sizes. Thus, it was neither widely used nor recognized as a useful process. This changed when Caere released OmniPage, a page-recognition program that incorporated OCR technology based on feature-analysis. Now, the process involved individual character features being analyzed for recognition rather than matrix-matching for shapes as earlier OCR had done.

OCR Shop utilizes Caere's proprietary OCR technology, OmniPage.

Basic OmniPage OCR Technologies

When converting the bitmapped image into usable text, OCR software must do the following:

- Analyze the structure of the text to detect the presence of columns or headlines.
- Separate text from graphics.
- Isolate each character in the text in order to correctly identify it.
- Interpret the recognition results and resolve any ambiguities.
- Format the results by examining and reproducing the font and page layout information.

AnyFont

AnyFont technology is the first true page-recognition approach to OCR. Rather than work from the matrix-matching approach, OmniPage takes an expert system approach with entire pages, recognizing most typed, proportional, and typeset fonts automatically. This is accomplished by using recognition algorithms, small program-like procedures that make the process possible.

Page Analysis

An 8 1/2" by 11" document at 300 dots per square inch will create a 1.2 MB file. AnyFont first puts that entire file into RAM and looks at the complete page. From there, the recognition algorithms search for and identify areas which may contain graphics by using image-processing techniques, such as texture and density analysis and edge detection.

Next, the recognition algorithm looks for columns of text as well as white lines between text, immediately determining their size and shape. Finally, spaces between the letters are identified, and OmniPage determines that a character with a specific point size lies within this variable-sized zone. This technique of zooming in from a full-page view allows OmniPage to recognize one of the widest variety of font sizes in the industry.

Character Experts

Each character zone is sent to a team of 100 expert systems whose individual subsystems are responsible for the identification of a single character. This is a

marked contrast to other OCR technologies that are based upon probability analysis of dots within a matrix field.

The first of AnyFont's 100 experts evaluates the image and decides if it is the character for which the expert is responsible within the process. If it is not certain, it passes the character on to the next expert. This continues until each character is recognized by its appropriate expert. No probabilities or guesses are used. This individual expert technology is theoretically the most accurate method possible for recognizing characters.

Each expert for each character can be infinitely tuned and re-tuned as new fonts or new problems arise. If there is a problem with a "c" and an "e," for example, additional tuning of the two appropriate experts continues until the two characters are distinguished from one other. To distinguish a foreign language's characters, such as an "a" and an "å," an additional expert is added to identify the new character. This approach to recognition is what allows OmniPage to recognize more languages, with remarkably fewer substitution errors, than any other OCR package.

Self-Learning OCR

One patent pending of Caere's expert systems has to do with an accelerating, self-learning routine which only requires each unique character to be recognized as "new" once. From then on, the system is able to identify new characters as easily as the others without having to reanalyze it each time. This accelerator technique makes OmniPage actually speed up as it reads a document. This technology, operating in true 32-bit mode, makes AnyFont the fastest omnifont OCR algorithm in the world.

In some cases, none of the experts are able to identify a character because of broken or overlapping characters in the image. AnyFont remedies this in its second pass. The characters, or pieces of characters, which AnyFont cannot identify, are put in a separate buffer to be dealt with later. A series of exacting routines are then activated for splitting, combining, fattening, thinning, analyzing, and context checking of the fragments. The quality and exactness of this second pass provide greater recognition accuracy, even for problem and incomplete characters. In addition, a third pass allows the Language Analyst to further refine accuracy.

AnyPage Technology

AnyPage is Caere's proprietary dynamic auto-thresholding technology. In many ways it is similar to the HP AccuPage 2™ technology available for Hewlett-Packard scanners. AnyPage's main function is to identify and distinguish the varying scales of gray images. Utilizing the relationships between the numerous gradients, AnyPage determines what areas of a page are actual text and what areas are only background, all on a dynamic, real-time basis.

AnyPage repeats this process of automatically designating "text" and "background" areas not just once for the entire page, or in large blocks at a time, but over thousands of regions per page. The "backgrounds" are dropped out, leaving a very clean and sharp "text" image, which is then transformed into a bi-modal black and white image to be delivered to the AnyFont OCR engine.

This technology allows OmniPage to recognize areas in documents that other OCR packages cannot even see, such as black print on grey stationery, sidebars in the Wall Street Journal, or even stained and yellowed documents.

Compound Neural System

Just as our brain can still recognize letters when some characters are fragmented, Caere has developed a computerized compound neural system that has "learned" to recognize damaged characters in documents.

OmniPage's neural system consists of several neural networks, which are made up of rows and columns containing software-stimulated neurons. Each neuron weighs evidence provided by the image as well as information provided by other neurons within the network to compute the probability of specific possible characters.

AnyFax

The AnyFax portion of the neural system is specially designed to work with low resolution fax images. It uses an image enhancement process that disconnects joined characters and reduces the jagged character edges created during the faxing process.

Fax transmissions also commonly suffer from static or "noise" during transmission, creating missing or split lines. Since fax signals are represented by a series of CCITT codes, AnyFax technology was developed to determine the missing CCITT codes and reconstruct them.

The Language Analyst

The Language Analyst uses contextual and word usage rules to evaluate characters during the recognition process. It examines each page, referring to dictionaries with over 100,000 words in up to eleven languages, and makes corrections as needed.

Trigram Analysis

Trigram analysis looks at letter sequences in sets of three and determines the likelihood that those three letters would appear together in the language that is designated for text recognition. For example, in English text, OmniPage will generally expect the letter “u” to follow the letter “q” and knows that “qui” is a more likely letter combination than “qul”.

3D OCR

3D OCR is a revolutionary new technology that is available to OmniPage users. It is designed to provide precision accuracy for the most problematic documents, such as multi-generational photocopies and pages with very small type. *3D* OCR does this by recognizing grey areas of images as well as bi-level, black-and-white parts.

Examination of a character’s grey data, in addition to its black character image, provides a complete picture of the character’s shades, shapes and contours, and thereby maximizes recognition accuracy. For example, imagine typing on a typewriter with ribbon that is running out of ink. Some of the letters will be illegible; the letter “n” might look like the letter “r.” The missing section might appear very lightly inked. *3D* OCR would evaluate the grayscale information from the lightly inked area and correctly recognize the letter as an “n.”

Or, imagine applying too much ink to a rubber stamp. When you press the stamp onto a piece of paper, the words may be completely blurred. *3D* OCR would evaluate the grayscale information and decide that when compared to the darkness of most of the character, the extra blurred areas are probably a smudge.

Appendix A:
Scanner and Printer Specific Features

Bell & Howell Scanners

SCANNER MODELS SUPPORTED INCLUDE:

- **Copiscan 4000 series**
- **Copiscan 3338A, 6338, etc. (all models) with RSC-11 or 21**
- **Copiscan 8000 series**
- **(500 FB - see Ricoh Aficio IS-01)**
- **(1000 FB - see Ricoh IS-420)**
- **(1500 FB - see Ricoh IS-430)**

SCANNER SETUP

The OCR Shop Scanner Setup window provides controls for the scan area, resolution, and other settings. Many of the controls are available for all scanners, while others are model-specific. OCR Shop automatically enables the controls which are applicable to your scanner.

To operate OCR Shop with your Bell & Howell scanner, a remote SCSI controller is required.

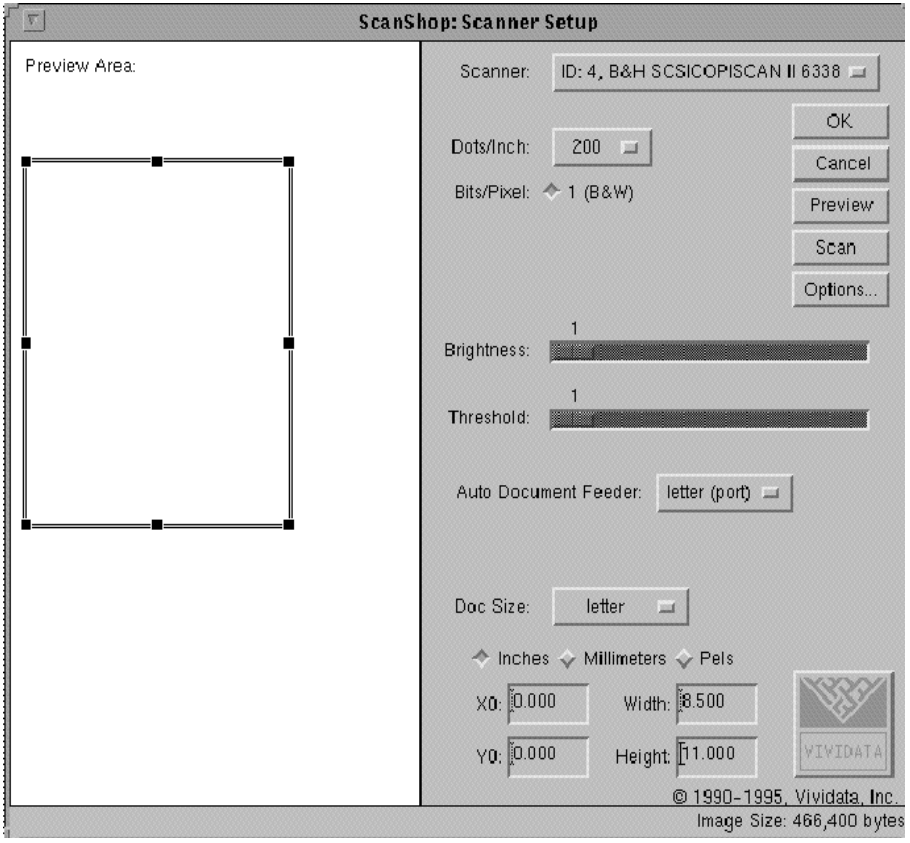

Figure 0-1 Bell & Howell Scanner

Scanner Selection

The Scanner menu shows the scanners that are available. If you don't have any scanners available, then this fact will be indicated. The last item on this list is always "show all devices".

Dots Per Inch

The following choices of dpi are typically available: 200, 240, 300, and "other...".

Bits Per Pixel

Bell & Howell scanners scan at 1 bit/pixel for black and white. Current scanner/controller models do not support gray scale or color scanning.

Brightness

The brightness slider bar varies the brightness of the image, ranging from darkest on the left to lightest on the right.

Threshold

The threshold slider bar allows you to select the level, below which all pixels are set to black, and above which all pixels are set to white. Moving the slider bar setting to the right increases this threshold level.

Auto Document Feeder

If you try to scan with the ADF selected but have no paper inserted in the ADF, an error message will appear at the bottom of your image display window. The Preview function is disabled when the scanner is in ADF mode.

Certain pre-defined document sizes are supported by the ADF when it is installed:

- letter (port and land)
- legal (port)
- 11” x 17”
- A5 (port and land)
- A4 (port and land)
- A3 (port)
- B5 (port and land)
- B4 (port)

“port” is short for portrait mode, which orients the paper with the narrower side on top. Portrait is the default setting.

“land” is short for landscape mode, which orients the paper with the wider side on top.

Document Size

In selecting the size of the area to be scanned, the following standard document sizes are typically offered:

- letter
- letter (land)
- legal
- 11” x 17”
- B5
- B5 (land)
- B4
- A5
- A5 (land)
- A4
- A4 (land)
- A3

All document sizes are in portrait mode (narrower side on top), unless indicated by a “land” designation.

X0, Y0, Width, Height

The document size may also be set manually, either by dragging a rectangle in the preview area or by entering the settings directly into the X0, Y0, Width, and Height text fields. The setting units may be specified as Inches, Millimeters, or Pixels (“Pels”).

SCANNER SETUP OPTIONS

This window provides access to scanner-specific settings.

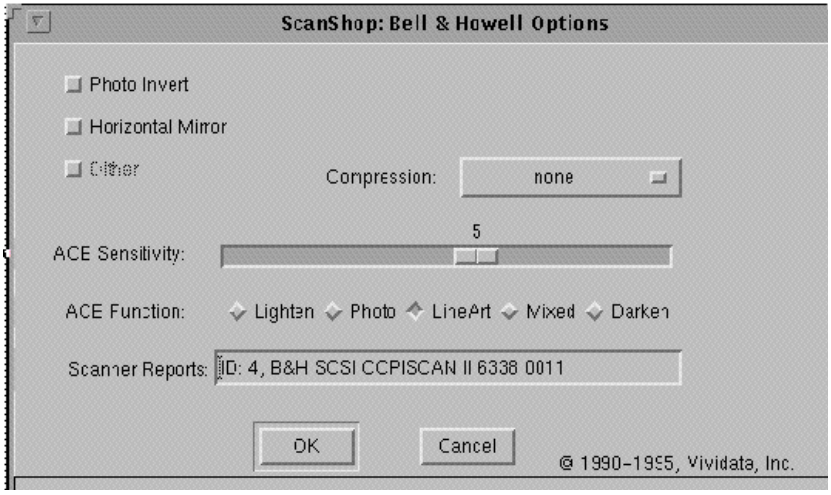

Figure 0-2 Bell & Howell Settings

Photo Invert

Selecting this control will let you scan the “negative” of your images.

Horizontal Mirror

This option allows you to do a scan which mirrors the image over a vertical axis down the center of the image, thus reversing the image left-to-right. Note that in portrait mode, this axis cuts through the narrower sides, while in landscape mode, it cuts through the wider sides.

Dithering

Selecting Dithering can help make a black-and-white scan represent gray images. It does this by varying the size of clusters of black pixels. When viewed at arm’s length, the dots blur, and the resulting image appears to have gray tones.

Compression

When built-in compression hardware is present, this control allows you to select the type of compression that will be recorded in the image's Settings file, for use when scanning directly to a file. Note that images scanned to a displayed window will not be compressed.

ACE Sensitivity & ACE Function

These controls allow selection of Advanced Contrast Enhancement functions to improve image contrast. Available choices are: lighten, photo, line art, mixed, and darken.

Scanner Reports

This is a small text display area that shows information about the scanner you are using. Information here will include ROM version information and other information that particular scanner models report about themselves.

Canon Scanners

SCANNER MODELS SUPPORTED INCLUDE:

- **CJ-10 with IPU-SS (scan and print)**
- **CLC-10 with IPU-SS (scan and print)**

SCANNER SETUP

The OCR Shop Scanner Setup window provides controls for the scan area, resolution, and other settings. Many of the controls are available for all scanners, while others are model-specific. OCR Shop automatically enables the controls which are applicable to your scanner.

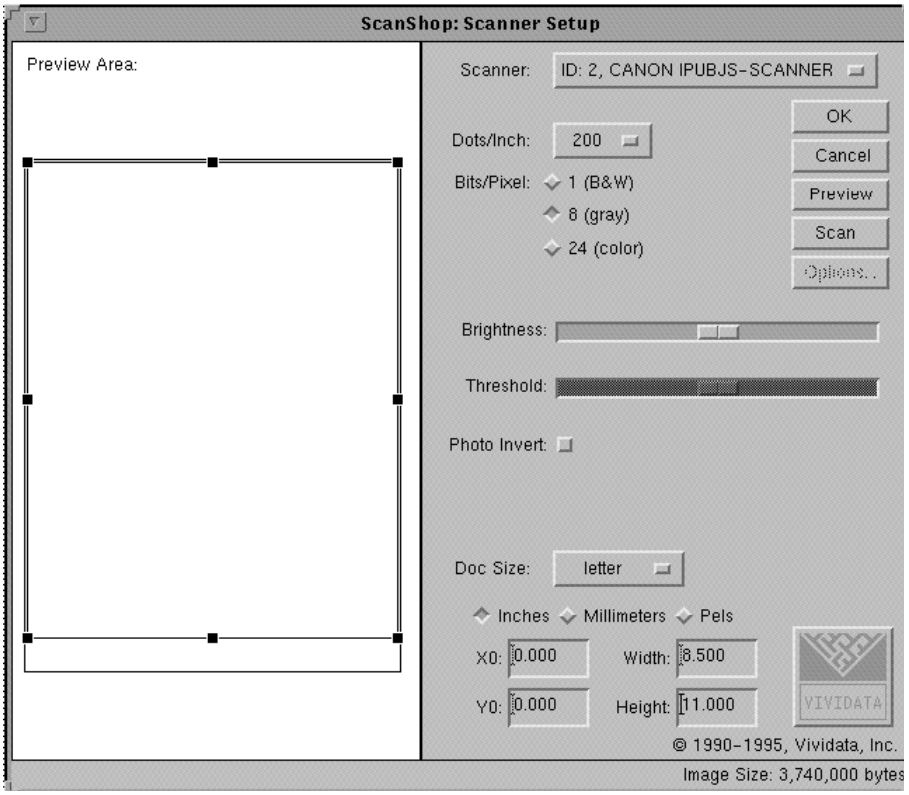

Figure 0-3 Canon Scanners

Scanner Selection

The Scanner menu shows the scanners that are available. If you don't have any scanners available, then this fact will be indicated. The last item on this list is always "show all devices".

Dots Per Inch

The following choices of dpi are typically available: 50, 72, 75, 80, 90, 100, 120, 144, 150, 160, 180, 200, 240, 300, 320, 360, 400, and "other...". (One bit/pixel has only 400 dpi available.)

Bits Per Pixel

Three levels of bits per pixel are offered: 1 bit/pixel for black and white, 8bits/pixel for gray scale, and 24 bits/pixel for color.

Brightness

The brightness slider bar varies the brightness of the image, ranging from darkest on the left to lightest on the right.

Threshold

The threshold slider bar allows you to select the level, below which all pixels are set to black, and above which all pixels are set to white. Moving the slider bar setting to the right increases this threshold level.

Photo Invert

Selecting this control will let you scan the “negative” of your images.

Document Size

In selecting the size of the area to be scanned, the following standard document sizes are typically offered:

- letter
- A5
- A5 (land)
- A4
- B5

All document sizes are in portrait mode (narrower side on top), unless indicated by a “land” designation.

X0, Y0, Width, Height

The document size may also be set manually, either by dragging a rectangle in the preview area or by entering the settings directly into the X0, Y0, Width, and Height text fields. The setting units may be specified as Inches, Millimeters, or Pixels (“Pels”).

Note: No SCANNER SETUP OPTIONS are available with the CJ-10.

CJ-10 PRINT CONTROLS

The OCR Shop Print Controls window provides controls for the position, orientation, geometry, and general treatment of the image from OCR Shop's main window. OCR Shop must have an image loaded before you will be able to bring up the Print Controls window.

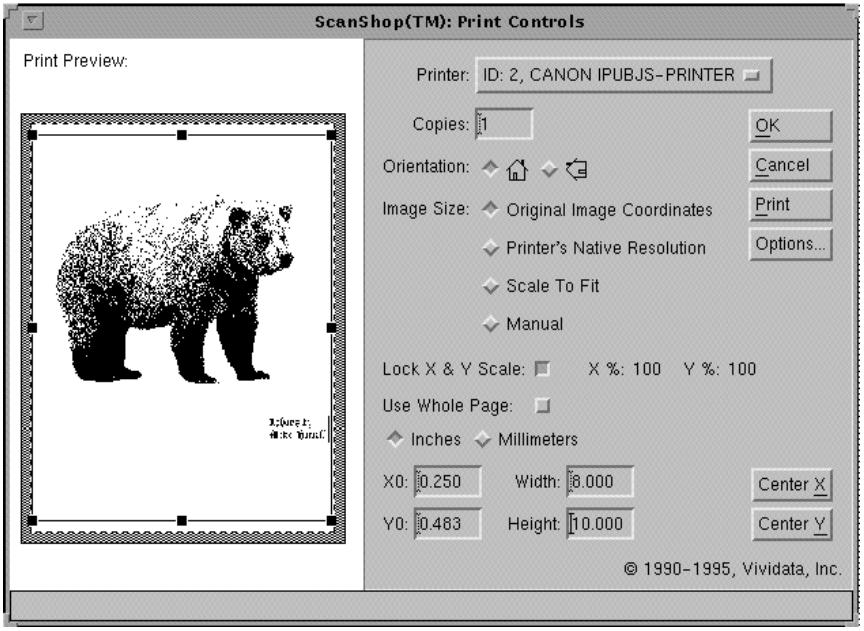

Figure 0-4 Canon Print Controls

Printer Selection

The Printer menu shows the printers that are available. If you don't have any printers available, then this fact will be indicated. The last item on this list is always "show all devices".

Copies

The Copies control allows you to specify the number of copies that will be printed when you click on the Print button.

Orientation

The Orientation control allows you to specify whether your image will be printed with portrait (default) or landscape orientation. The icons used to represent these two orientations are the house standing up (portrait) and the house turned 90 degrees counter-clockwise (landscape).

Image Size

The Image Size control is one of the most powerful controls in the OCR Shop printing software.

- Original Image Coordinates

  Select this to scale your image according to the information about its size from when it was read from an image file or scanned. Not all image files save DPI (dots per inch) dimensional information. In such cases, a default of 72 DPI is assumed (unless overridden by the “pdpi=n” command line parameter).

- Printer’s Native Resolution

  Select this option if you want to guarantee that every pixel in the original source image will be printed as one pixel in the output. This action will occur regardless of any differences in the source image’s and printer’s DPI, so the size of the printed image may not be the same as that of the scanned original.

- Scale To Fit

  This is useful when you want the image to fit exactly within the full printable area of the selected printer. One result of this process is that images with different sizes will be printed with different magnification or reduction ratios to make them fit.

- Manual

  This will be the selection indicated if you manually drag the resize handles of the image icon on the left side of the Print Controls window, or if you enter values in the numeric fields. The units for entered values can be selected as Inches or Millimeters.

Lock X & Y Scale

This check box control (on by default) will keep your manual scaling applied equally to the height and width of your image when it is selected. If you uncheck it, then your manual scalings will not necessarily be symmetric. In other words, your printed image may look squashed or stretched.

Use Whole Page

This control (off by default) will allow you to position part or all of your image upon the non-printing border area of the printer's page. Normally, these areas are protected, and no part of the image may be placed within them.

However, sometimes you may want to print a full page image that was scanned at the same DPI as the printer (for example, with Printer's Native Resolution selected for Image Size). Turning on the Use Whole Page option allows you to position the image over the non-printing border area. Note that clipping will occur.

Almost all printers have some non-printable border area, and OCR Shop takes this area into account for each printer supported.

X0, Y0, Width, Height

The print size may also be set manually, either by dragging a rectangle in the print preview area or by entering the settings directly into the X0, Y0, Width, and Height text fields. The setting units may be specified as Inches or Millimeters.

Center X and Center Y

These controls will position the image so that it is centered on the page, either horizontally or vertically, when it is printed. Their effect is just like clicking on the center of the image selection box and dragging it until it has been centered in the appropriate direction.

PRINT CONTROLS OPTIONS

This window provides access to printer-specific settings.

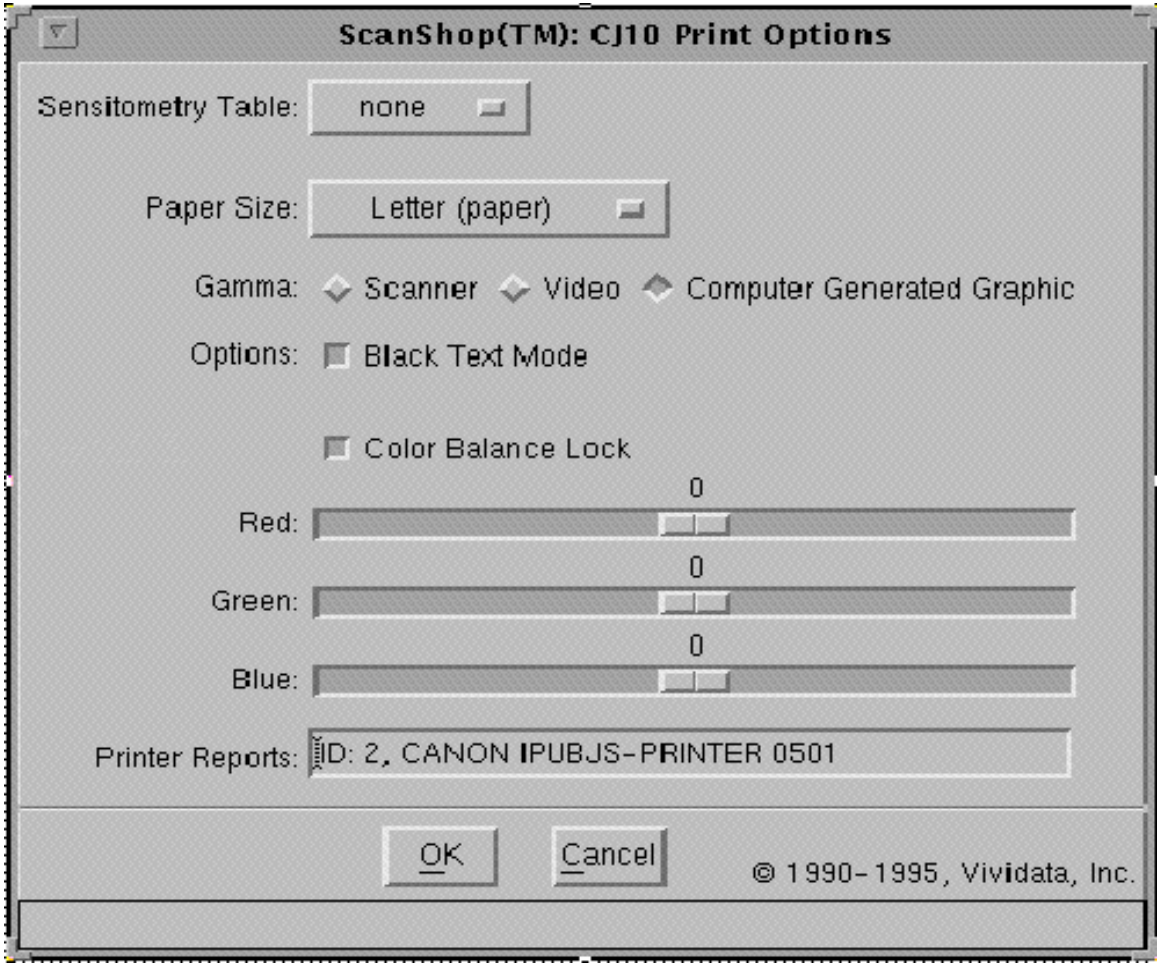

Figure 0-5 Canon Print Options

Sensitometry Table

This menu lets you select a “treatment” of your image as it goes to the output medium such as CIO Paper, etc. Your printer’s configuration may be

automatically sensed, so that the treatment choices available in this menu will depend on the printer selected and its output media.

Paper Size

Different paper sizes or sources may be selected through this menu. The following standard sizes are typically offered:

- letter (paper)
- letter (transparency)
- A4 (paper)
- A4 (transparency)

Gamma

The Gamma control activates image altering functions within the printer that are provided to compensate for characteristics of certain image sources. The following source selections are available: scanner, video, and computer-generated graphic.

Black Text Mode

Enabling this control enhances the printing of text and line art when it is being printed simultaneously with color images. Characters and lines will appear closer to black.

Brightness or Color Balance Lock (RGB)

These are general brightness controls for affecting the saturation or tone of an image. Experiment with these controls and with the Gamma and Sensitometry controls to attain the best results.

Printer Reports

This is a small text display area that shows information about the printer you are using. Information here will include ROM version information and other information that particular printer models report about themselves.

Epson Scanners

SCANNER MODELS SUPPORTED INCLUDE:

- **Action scanner II, ES-300C, ES-300GS, ES-600C, ES-800C, ES-1000C, ES-1200C, ES-8000**
- **GT-1000, GT-300, GT-4000, GT-5000, GT-5500, GT-6000, GT-6400, GT-6500, GT-8000, GT-8500, GT-9000, GT-9500, GT-12000**
- **Expression 636, Expression 836XL, Expression 800C**

SCANNER SETUP

The OCR Shop Scanner Setup window provides controls for the scan area, resolution, and other settings. Many of the controls are available for all scanners, while others are model-specific. OCR Shop automatically enables the controls which are applicable to your scanner.

Scanner Selection

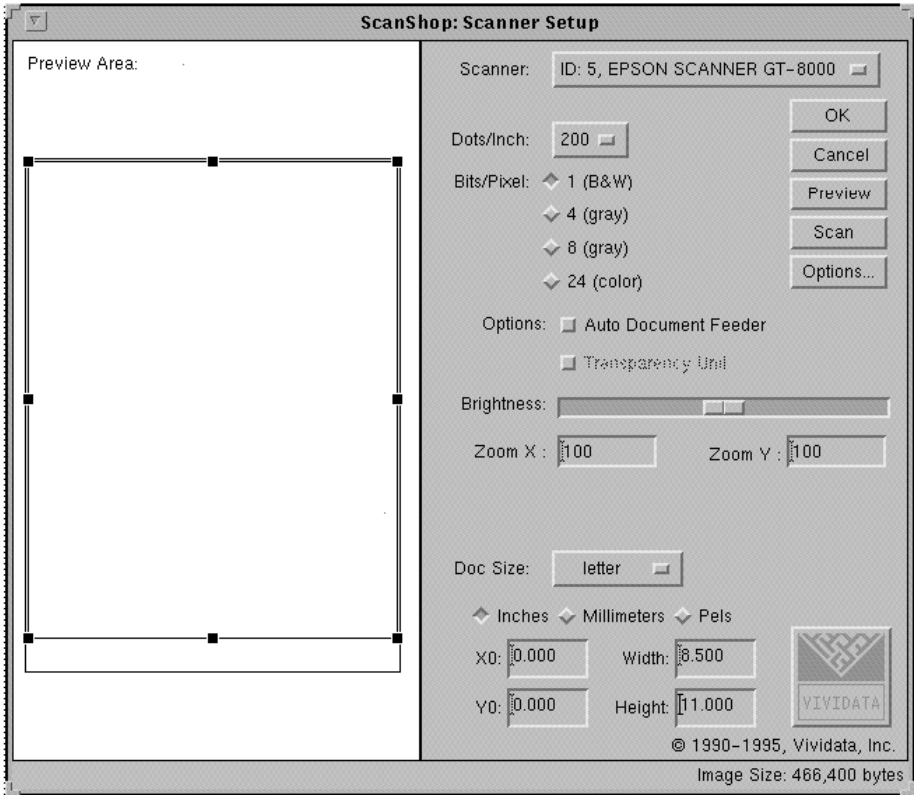

Figure 0-6 Epson Scanners

The Scanner menu shows the scanners that are available. If you don't have any scanners available, then this fact will be indicated. The last item on this list is always "show all devices".

Dots Per Inch

The following choices of dpi are typically available: 50, 60, 72, 75, 80, 90, 100, 120, 133, 144, 150, 160, 175, 180, 200, 216, 240, 300, 320, 360, 400, 480, 600, and 800.

Bits Per Pixel

Four levels of bits per pixel are offered: 1 bit/pixel for black and white, 4bits/pixel for gray scale, 8bits/pixel for gray scale, and 24 bits/pixel for color.

Auto Document Feeder

If the ADF is installed, its checkbox will appear "solid." When available, clicking on this checkbox alternately enables and disables use of the ADF for scans.

If you try to scan with the ADF selected but have no paper inserted in the ADF, an error message will appear at the bottom of your image display window. The Preview function is also disabled when the scanner is in ADF mode.

Transparency Unit

Clicking on this checkbox, if it is available, selects scanning using the transparency unit. This will allow you to scan from a transparency.

Brightness

The brightness slider bar varies the brightness of the image, ranging from darkest on the left to lightest on the right.

Zoom X, Zoom Y

Entering percentage values in these controls lets you change the magnification of the scanned image, while preserving the DPI value. For example, choosing a value of 200% along a particular direction will cause twice as many pixels to be used to represent the same length, so that at a constant DPI, that image will be twice as long in that direction.

The zoom can be set from 50% to 200% in 1% increments.

Document Size

In selecting the size of the area to be scanned, the following standard document sizes are typically offered:

- letter
- A5
- A5 (land)

- A4
- B5

All document sizes are in portrait mode (narrower side on top), unless indicated by a “land” designation.

X0, Y0, Width, Height

The document size may also be set manually, either by dragging a rectangle in the preview area or by entering the settings directly into the X0, Y0, Width, and Height text fields. The setting units may be specified as Inches, Millimeters, or Pixels (“Pels”).

SCANNER SETUP OPTIONS

This window provides access to scanner-specific settings.

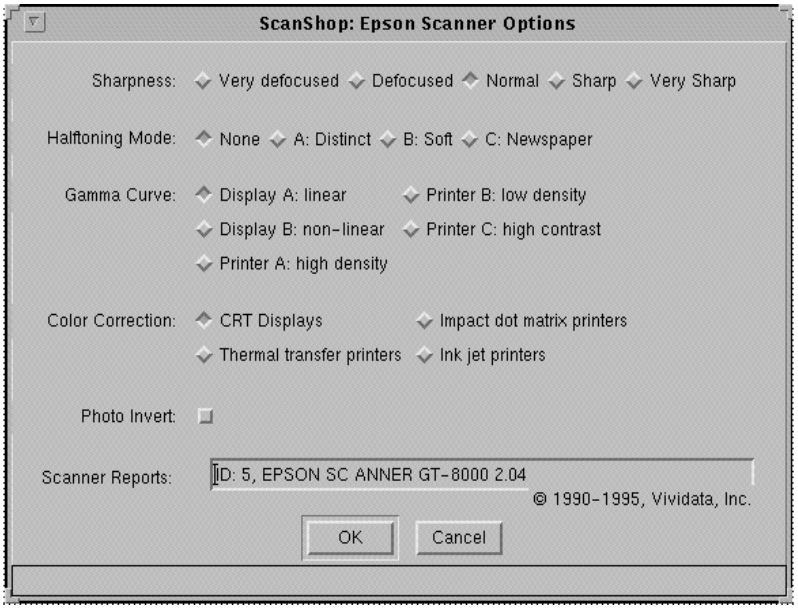

Figure 0-7 Epson Scanner Options

Sharpness

Five levels of sharpness are available on Epson scanners. Select the desired degree of sharpness by clicking on the corresponding control.

Halftoning Mode

When scanning in 1 bit/pixel-color and 2 bit/pixel-color data format, continuous tone images cannot be properly expressed. Halftoning processes the data to simulate continuous tones. Halftoning is a variation of dithering in which patterns of dots are used to give the impression of gray. Most dithering methods use a fixed pattern of dots. The Epson halftoning mode uses a proprietary method which produces better results.

- Mode A: Distinct

  This is the standard mode which creates a hard, distinct tone.

- Mode B: Soft

  This mode converts the image into a softer tone. It is suited for images that contain large areas of similar tones.

- Mode C: Newspaper

  This mode represents the image in a way similar to the screening method commonly used for newspaper photographs. The gradations of tone are represented by clusters of different numbers of dots.

Gamma Curve

Gamma Curve adjusts the light intensity scale between the original image and output image so that when the image is reproduced on some devices, the tones in the reproduced image may be closer to those of the original image.

- Display A: Linear

  The output data is proportional to the original image. This setting is suitable for most types of computer displays which can display images in the 1 bit/pixel-color format or up to 8 or 16 colors. This mode is also suitable for images without continuous tones, such as line art.

- Display B: Non-Linear

  This setting is suitable for analog-input CRT displays which can display images with multiple levels of tones of more than 1 bit/pixel-color.

- Printer A: High Density

  This setting is suitable for high density printers, such as 24 dot matrix printers and page printers. With this function applied, the image is converted into a light image as it is scanned to compensate for the higher (darker) density of such printers. The same image will look faint when viewed on a CRT display.

- Printer B: Low Density

  This setting is suitable for low density printers, such as 8 dot (9 pin) printers, page printers, and ink jet printers. As it is scanned, the image is converted into a slightly lighter image to compensate for the lower density of such printers. This setting is lighter than Printer Output A. The image will look slightly faint when viewed on a CRT display.

- Printer C: High Contrast

  This setting is suitable for the high contrast printing of images that contain both photos and text. This setting gives higher contrast and more definition to the darker areas, like characters and lines, than either Printer Output A or B, while parts with graphic images are given gamma correction for printing. Both the darker and lighter parts of the images are accentuated by this method.

Color Correction

Color Correction processes the color data of the image so that the data is better suited to the characteristics of the color output device. With the color correction function, reproduction of the colors of the image data comes closer to the colors in the original images.

- CRT Displays

  This setting adjusts colors for the characteristics of color CRT displays.

- Thermal transfer printers

  This setting compensates for the characteristics of thermal transfer printers.

- Impact dot matrix printers

  This setting compensates for the characteristics of color impact dot matrix printers.

- Ink jet printers

This setting compensates for the characteristics of ink jet printers.

Photo Invert

Selecting this control will let you scan the “negative” of your images.

Scanner Reports

This is a small text display area that shows information about the scanner you are using. Information here will include ROM version information and other information that particular scanner models report about themselves.

Fujitsu Scanners

SCANNER MODELS SUPPORTED INCLUDE:

- **ScanPartner 10**
- **ScanPartner 10C**
- **ScanPartner M3096G+/m**
- **ScanPartner M3096Gx**
- **ScanPartner M3097G (Rev 2 firmware adss grayscale support)**
- **ScanPartner M3099G Duplex scanner**

SCANNER SETUP

The OCR Shop Scanner Setup window provides controls for the scan area, resolution, and other settings. Many of the controls are available for all scanners, while others are model-specific. OCR Shop automatically enables the controls which are applicable to your scanner.

For operation with OCR Shop, your Fujitsu scanner will need to have the memory option installed.

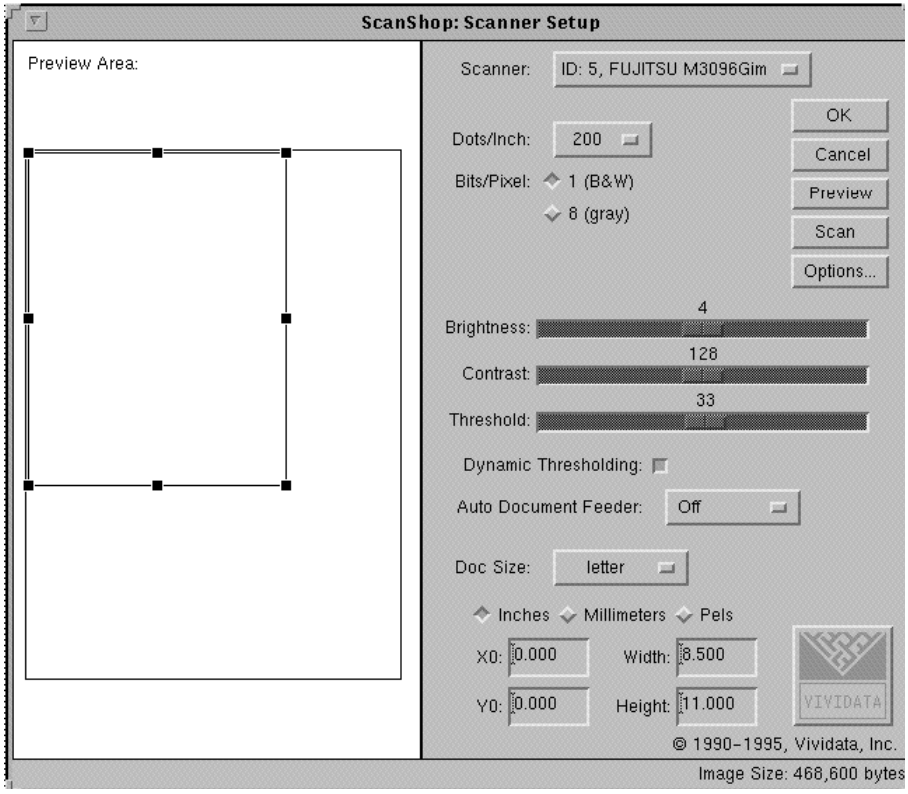

Figure 0-8 Fujitsu Scanners

Scanner Selection

The Scanner menu shows the scanners that are available. If you don't have any scanners available, then this fact will be indicated. The last item on this list is always "show all devices".

Dots Per Inch

The following choices of dpi are normally available: 200, 240, 300, and 400. Additional selections are available if the optional Image Processing Circuit (IPC)

Board is installed. For more information, please see the “Image Processing Circuit Board” section below.

Bits Per Pixel

Three levels of bits per pixel are offered: 1 bit/pixel for black and white and 8bits/pixel for gray scale.

Brightness

The brightness slider bar varies the brightness of the image, ranging from darkest on the left to lightest on the right.

Contrast

The contrast slider bar allows you to vary the image contrast. Sliding the bar to the right increases the contrast.

Threshold

The Fujitsu scanner supports two kinds of threshold controls: regular (or static) threshold and dynamic threshold. Static threshold corresponds to the most generally used kind of thresholding, where at an established level, all lighter pixels become white and all darker pixels become black. The slider bar allows you to select 64 threshold levels.

The Dynamic Thresholding feature is available only when the optional Image Processing Circuit board is installed. If the board is not installed, the Dynamic Thresholding checkbox is disabled. (Please see the “Image Processing Circuit Board” section below.)

Dynamic Thresholding uses a variable threshold level. It is especially useful in the scanning of signatures which consist of variable line weights. Dynamic Thresholding automatically adjusts the threshold to extract lightly stroked handwritten characters. It does this by analyzing the reflected light from the page. If there is a small variation in the signal, indicating a faint line, the scanner reduces the threshold setting to a point where it can distinguish between the faint line and the background.

Auto Document Feeder

If you try to scan with the ADF selected but have no paper inserted in the ADF, an error message will appear at the bottom of your image display window. The Preview function is disabled when the scanner is in ADF mode.

Certain pre-defined document sizes are supported by the ADF when it is installed:

- letter (port and land)
- legal (port)
- 11” x 17”
- A5 (port and land)
- A4 (port and land)
- A3 (port)
- B5 (port and land)
- B4 (port)

“port” is short for portrait mode, which orients the paper with the narrower side on top. Portrait is the default setting.

“land” is short for landscape mode, which orients the paper with the wider side on top.

Document Size

In selecting the size of the area to be scanned, the following standard document sizes are typically offered:

- letter
- letter (land)
- legal
- 11” x 17”
- B5
- B5 (land)
- B4
- A5

- A5 (land)
- A4
- A4 (land)
- A3

All document sizes are in portrait mode (narrower side on top), unless indicated by a “land” designation.

X0, Y0, Width, Height

The document size may also be set manually, either by dragging a rectangle in the preview area or by entering the settings directly into the X0, Y0, Width, and Height text fields. The setting units may be specified as Inches, Millimeters, or Pixels (“Pels”).

SCANNER SETUP OPTIONS

This window provides access to scanner-specific settings.

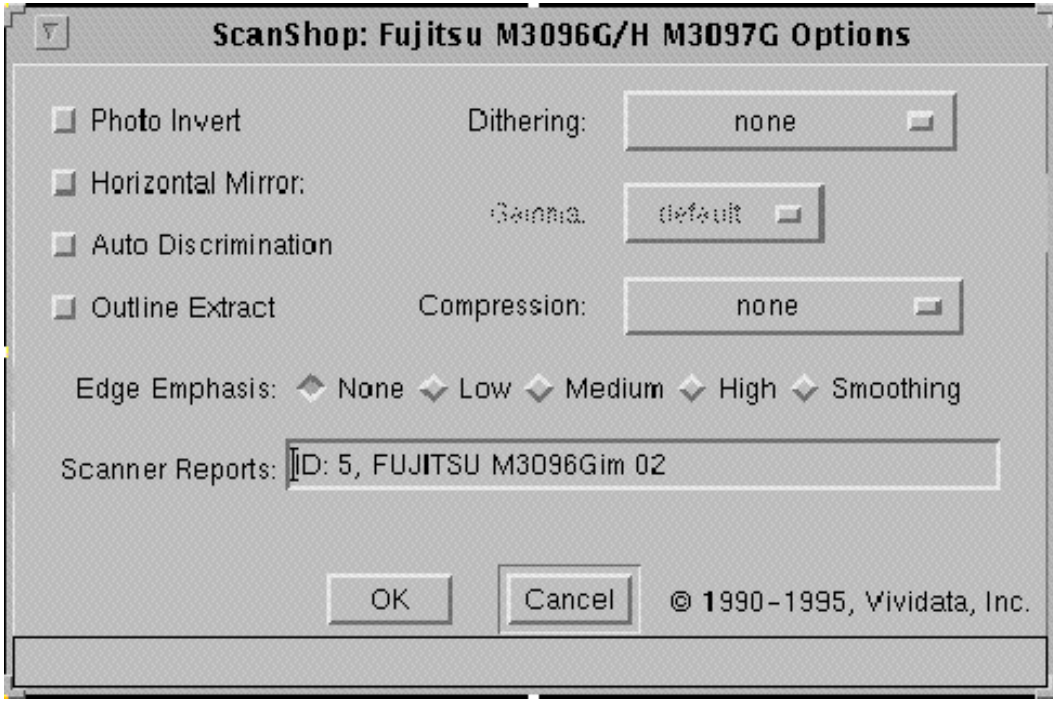

Figure 0-9 Fujitsu Scanner Options

Dithering

Dithering can help make a black-and-white scan represent gray images. It does this by varying the size of clusters of black pixels. When viewed at arm's length, the dots blur, and the resulting image appears to have gray tones.

The list of available dither patterns depends on the particular scanner selected. For this scanner, the following are available:

- None
- Photographs 1
- Photographs 2
- Characters/Photos 1

- Characters/Photos 2

Gamma

Through the Gamma control, you can adjust the light intensity scale between the original image and output image so that when the image is reproduced on some devices, the tones in the reproduced image may be closer to those in the original image.

Compression

When built-in compression hardware is present, this control allows you to select the type of compression that will be recorded in the image's Settings file, for use when scanning directly to a file. Note that images scanned to a displayed window will not be compressed.

Image Processing Circuit Board

The optional Image Processing Circuit Board offers a number of image processing features for the Fujitsu M3096G/H and M3097G scanners. The board is shipped separately from the scanner and should be installed by a Fujitsu-authorized and trained service technician.

The IPC board offers the following image enhancement options:

- Photo Invert
- Horizontal Mirror
- Automatic Discrimination
- Outline Extraction
- Edge Emphasis
- Dynamic Thresholding (see "Threshold" above)

If the board is not installed, these options will be disabled.

Photo Invert

Selecting this control will let you scan the "negative" of your images.

Horizontal Mirror

This option allows you to do a scan which mirrors the image over a vertical axis down the center of the image, thus reversing the image left-to-right. Note that in portrait mode, this axis cuts through the narrower sides, while in landscape mode, it cuts through the wider sides.

Automatic Discrimination

The automatic discrimination feature is useful when scanning documents containing both photos and text. This feature allows the scanner to switch between text and photo mode in one pass. Line mode scanning is binary and photo mode is dithered halftone. The end result is that line art and photos are both processed for their best appearance. The automatic discrimination feature analyzes the reflected light from the page to determine if it is black and white (very high or low signal) or gray scale (varying signal). When high signal fluctuations are detected, the scanner switches to line mode for black and white. When fluctuations are gradual, the scanner switches to halftone mode for scanning a photograph.

Outline Extraction

The Outline feature saves the outline of a black and white image. The scanner looks for the boundaries between black and white and connects them to form outlines of the objects in the image.

Edge Emphasis

The edge emphasis feature enhances the edges of the image to make them appear sharp and crisp. It can also be set to “smoothing” to help eliminate spot noise and voids.

Scanner Reports

This is a small text display area that shows information about the scanner you are using. Information here will include ROM version information and other information that particular scanner models report about themselves.

Hewlett-Packard Scanners

SCANNER MODELS SUPPORTED INCLUDE:

- **ScanJet IIC**
- **ScanJet IICX**
- **ScanJet 3C**
- **ScanJet 4C**
- **ScanJet 2P**
- **ScanJet 3P**
- **ScanJet 4P**
- **ScanJet 5P (without “green button” support)**
- **ScanJet 6100C**
- **ScanJet 6200C**
- **ScanJet 6250C**

SCANNER SETUP

The OCR Shop Scanner Setup window provides controls for the scan area, resolution, and other settings. Many of the controls are available for all scanners, while others are model-specific. OCR Shop automatically enables the controls which are applicable to your scanner.

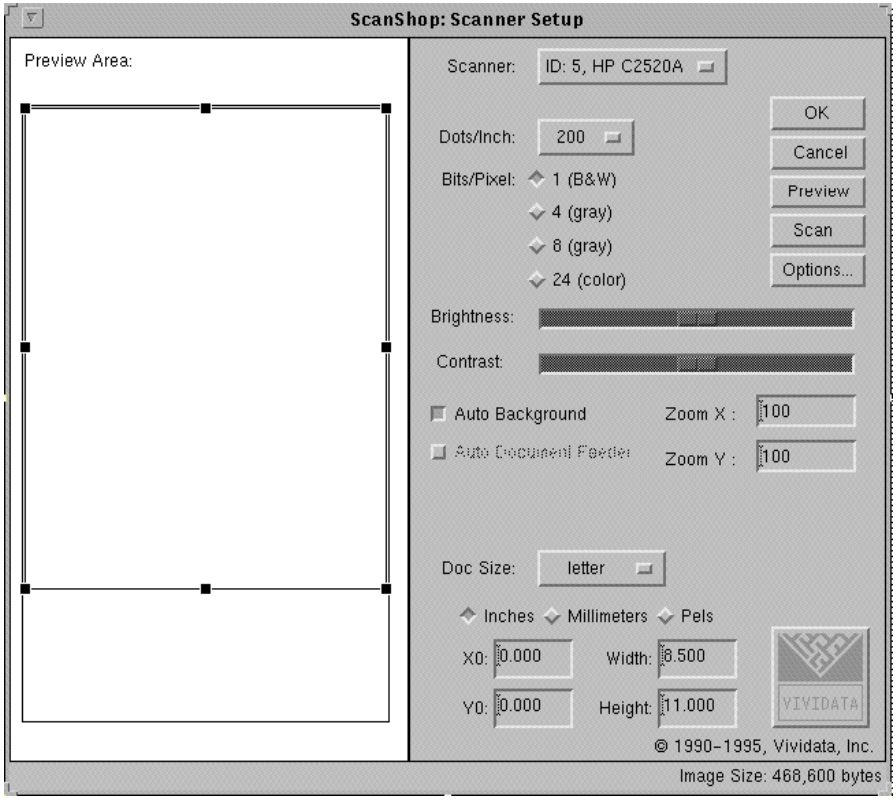

Figure 0-10 Hewlett-Packard Scanners

Scanner Selection

The Scanner menu shows the scanners that are available. If you don't have any scanners available, then this fact will be indicated. The last item on this list is always "show all devices".

Dots Per Inch

The following choices of dpi are typically available: 50, 60, 72, 75, 80, 90, 100, 120, 144, 150, 160, 180, 200, 240, 300, 320, 360, 400, 480, 600, 800, and "other...".

Bits Per Pixel

Four levels of bits per pixel are offered: 1 bit/pixel for black and white, 4or 8 bits/pixel for gray scale, and 24 bits/pixel for color.

Brightness

The brightness slider bar varies the brightness of the image, ranging from darkest on the left to lightest on the right.

Contrast

The contrast slider bar allows you to vary the image contrast. Sliding it to the right increases the contrast.

Auto Background

Auto Background is an image enhancement feature only available on Hewlett-Packard scanners. This function adjusts the variations in the background to even out the foreground.

Auto Document Feeder

If the ADF is installed, its checkbox will appear “solid.” When available, clicking on this checkbox alternately enables and disables use of the ADF for scans.

If you try to scan with the ADF selected but have no paper inserted in the ADF, an error message will appear at the bottom of your image display window. The Preview function is disabled when the scanner is in ADF mode.

Zoom X, Zoom Y

Entering percentage values in these controls lets you change the magnification of the scanned image, while preserving the DPI value. For example, choosing a value of 200% along a particular direction will cause twice as many pixels to be used to represent the same length, so that at a constant DPI, that image will be twice as long in that direction.

Document Size

In selecting the size of the area to be scanned, the following standard document sizes are typically offered:

- letter

- legal
- B5
- A5
- A5 (land)
- A4

All document sizes are in portrait mode (narrower side on top), unless indicated by a “land” designation.

X0, Y0, Width, Height

The document size may also be set manually, either by dragging a rectangle in the preview area or by entering the settings directly into the X0, Y0, Width, and Height text fields. The setting units may be specified as Inches, Millimeters, or Pixels (“Pels”).

SCANNER SETUP OPTIONS

This window provides access to scanner-specific settings.

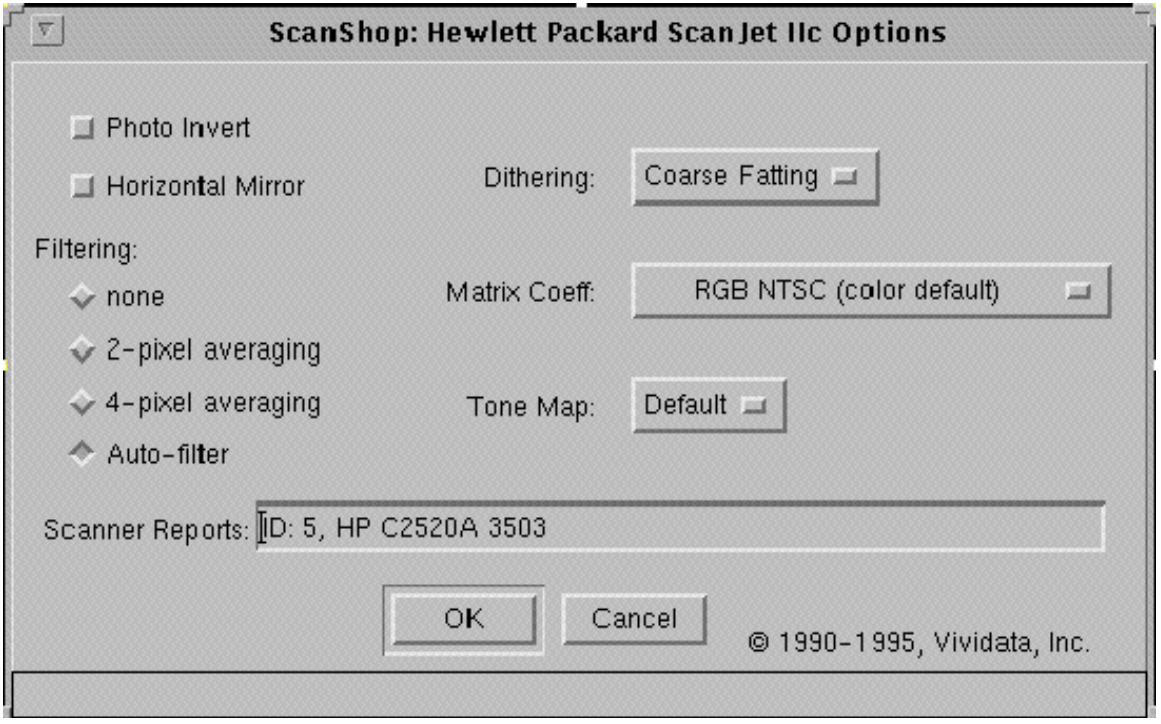

Figure 0-11 Hewlett-Packard Scanner Options

Photo Invert

Selecting this control will let you scan the “negative” of your images.

Horizontal Mirror

This option allows you to do a scan which mirrors the image over a vertical axis down the center of the image, thus reversing the image left-to-right. Note that in portrait mode, this axis cuts through the narrower sides, while in landscape mode, it cuts through the wider sides.

Filtering

Image filtering has the effect of smoothing the image, as local clusters of pixels are averaged.

Dithering

Dithering can help make a black-and-white scan represent gray images. It does this by varying the size of clusters of black pixels. When viewed at arm's length, the dots blur, and the resulting image appears to have gray tones.

The list of available dither patterns depends on the particular scanner selected. For this scanner, the following are available:

- none
- Coarse Fatting
- Fine Fatting
- Bayer Dither
- Vertical Line

The larger the pattern area, the more gray levels that can be represented, but with a grainier result. Dither patterns can also be downloaded to achieve special effects.

Matrix Coefficient

Selection of matrix coefficients lets you slightly alter the colors of scanned images, so that the colors of the image on the final output device correspond more closely to those of the original scanned image.

Tone Map

Setting of the tone map is an image enhancement feature of the Hewlett-Packard scanners.

Scanner Reports

This is a small text display area that shows information about the scanner you are using. Information here will include ROM version information and other information that particular scanner models report about themselves.

Microtek Scanners

SCANNER MODELS SUPPORTED INCLUDE:

- **ScanMaker 600ZS**
- **ScanMaker II**
- **ScanMaker IIXe**
- **ScanMaker IIHR**
- **ScanMaker III**
- **ScanMaker E3**
- **ScanMaker E6**
- **AGFA Arcus II**
- **AGFA DuoScan**

SCANNER SETUP

The OCR Shop Scanner Setup window provides controls for the scan area, resolution, and other settings. Many of the controls are available for all scanners, while others are model-specific. OCR Shop automatically enables the controls which are applicable to your scanner.

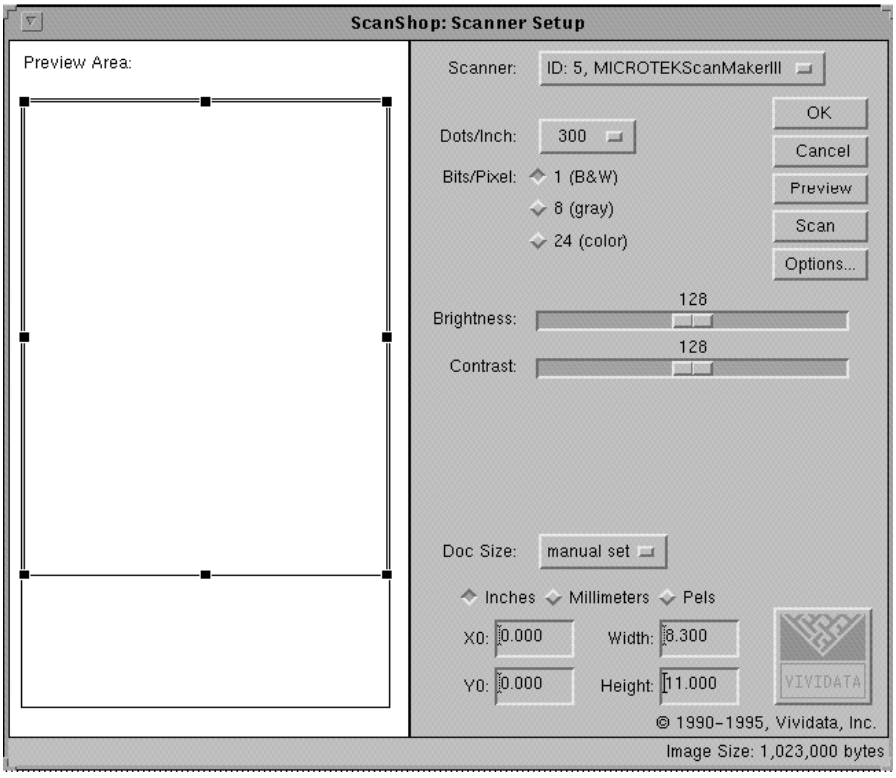

Figure 0-12 Microtek Scanners

Scanner Selection

The Scanner menu shows the scanners that are available. If you don't have any scanners available, then this fact will be indicated. The last item on this list is always "show all devices".

Dots Per Inch

The following choices of dpi are typically available: 60, 90, 120, 150, 180, 240, 300, 450, 600, 900, 1200, and "other...".

Bits Per Pixel

Three levels of bits per pixel are offered: 1 bit/pixel for black and white, 8 bits/pixel for gray scale, and 24 bits/pixel for color.

Brightness

The brightness slider bar varies the brightness of the image, ranging from darkest on the left to lightest on the right.

Contrast

The contrast slider bar allows you to vary the image contrast. Sliding it to the right increases the contrast.

Document Size

In selecting the size of the area to be scanned, the following standard document sizes are typically offered:

- B5
- A5
- A5 (land)
- A4

All document sizes are in portrait mode (narrower side on top), unless indicated by a “land” designation.

X0, Y0, Width, Height

The document size may also be set manually, either by dragging a rectangle in the preview area or by entering the settings directly into the X0, Y0, Width, and Height text fields. The setting units may be specified as Inches, Millimeters, or Pixels (“Pels”).

SCANNER SETUP OPTIONS

This window provides access to scanner-specific settings.

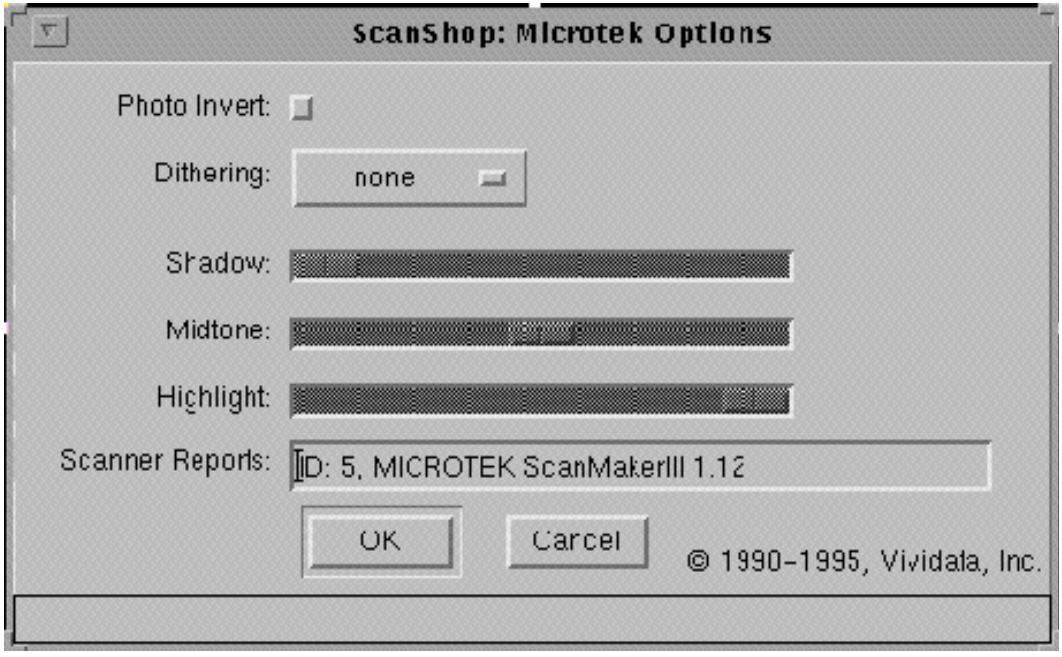

Figure 0-13 Microtek Scanners Options

Photo Invert

Selecting this control will let you scan the “negative” of your images.

Dithering

Dithering can help make a black-and-white scan represent gray images. It does this by varying the size of clusters of black pixels. When viewed at arm’s length, the dots blur, and the resulting image appears to have gray tones.

The list of available dither patterns depends on the particular scanner selected. For this scanner, the following are available:

- none
- 8x8 53 grays

- 8x8 65 grays
- 8x8 33 grays
- 6x6 29 grays
- 5x5 26 grays
- 4x4 17 grays
- 3x3 10 grays
- 2x2 5 grays

The larger the pattern area, the more gray levels that can be represented, but with a grainier result. Dither patterns can also be downloaded to achieve special effects.

Shadow, Midtone, and Highlight

These sliders can be used to enhance the dynamic range of the images you scan. If you have an image with lots of midtones that you would like to differentiate, these controls can help. They allow you to specify the resolution of gray tones at particular intensity levels, which in turn affects the overall brightness of the image.

Shadow adjusts the level of the darkest dark for scanning. Below this value, all pixels will be black.

Accordingly, Highlight allows you to bring down the top end of the range into the midtones.

Midtone lets you set the intensity level corresponding to medium gray.

Scanner Reports

This is a small text display area that shows information about the scanner you are using. Information here will include ROM version information and other information that particular scanner models report about themselves.

Panasonic Scanners

SCANNER MODELS SUPPORTED INCLUDE:

- **KVSS-50**
- **KVSS-55**

SCANNER SETUP

The OCR Shop Scanner Setup window provides controls for the scan area, resolution, and other settings. Many of the controls are available for all scanners, while others are model-specific. OCR Shop automatically enables the controls which are applicable to your scanner.

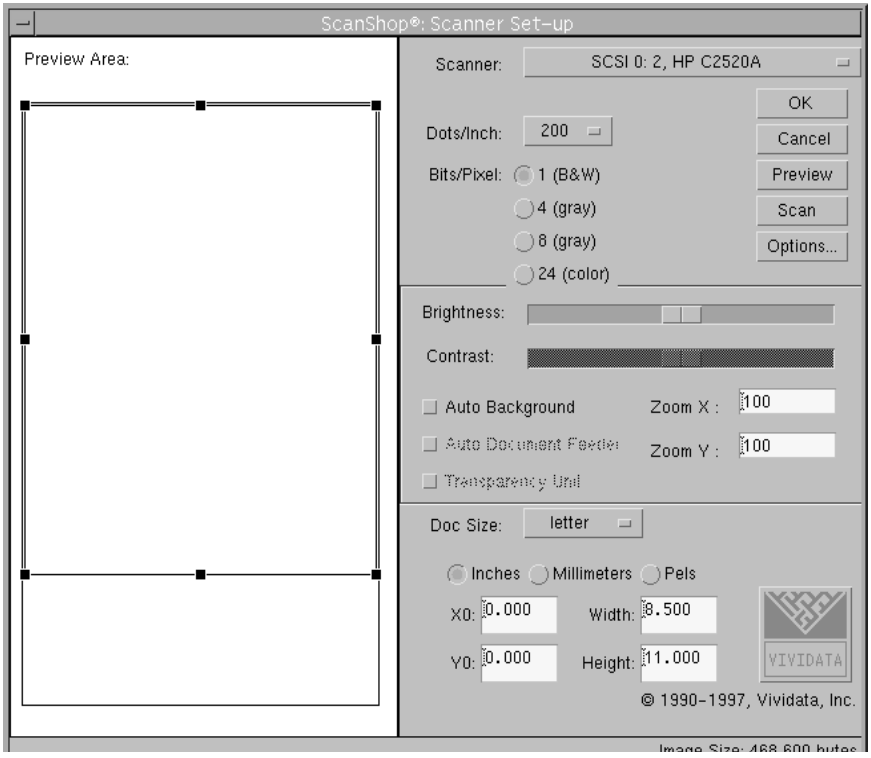

Figure 0-14 Panasonic Scanners

Scanner Selection

The Scanner menu shows the scanners that are available. If you don't have any scanners available, then this fact will be indicated. The last item on this list is always "show all devices".

Dots Per Inch

The following choices of dpi are normally available: 200, 240, 300, and 400.

Bits Per Pixel

Three levels of bits per pixel are offered: 1 bit/pixel for black and white and 8 bits/pixel for gray scale.

Brightness

The brightness slider bar varies the brightness of the image, ranging from darkest on the left to lightest on the right.

Threshold

The threshold slider bar allows you to select the level, below which all pixels are set to black, and above which all pixels are set to white. Moving the slider bar setting to the right increases this threshold level.

Auto Document Feeder

If you try to scan with the ADF selected but have no paper inserted in the ADF, an error message will appear at the bottom of your image display window. The Preview function is disabled when the scanner is in ADF mode.

Certain pre-defined document sizes are supported by the ADF when it is installed:

- letter (port and land)
- legal (port)
- 11" x 17"
- A5 (port and land)
- A4 (port and land)
- A3 (port)

- B5 (port and land)
- B4 (port)

“port” is short for portrait mode, which orients the paper with the narrower side on top. Portrait is the default setting.

“land” is short for landscape mode, which orients the paper with the wider side on top.

Document Size

In selecting the size of the area to be scanned, the following standard document sizes are typically offered:

- letter
- letter (land)
- legal
- 11” x 17”
- B5
- B5 (land)
- B4
- A5
- A5 (land)
- A4
- A4 (land)
- A3

All document sizes are in portrait mode (narrower side on top), unless indicated by a “land” designation.

X0, Y0, Width, Height

The document size may also be set manually, either by dragging a rectangle in the preview area or by entering the settings directly into the X0, Y0, Width, and Height text fields. The setting units may be specified as Inches, Millimeters, or Pixels (“Pels”).

SCANNER SETUP OPTIONS

This window provides access to scanner-specific settings.

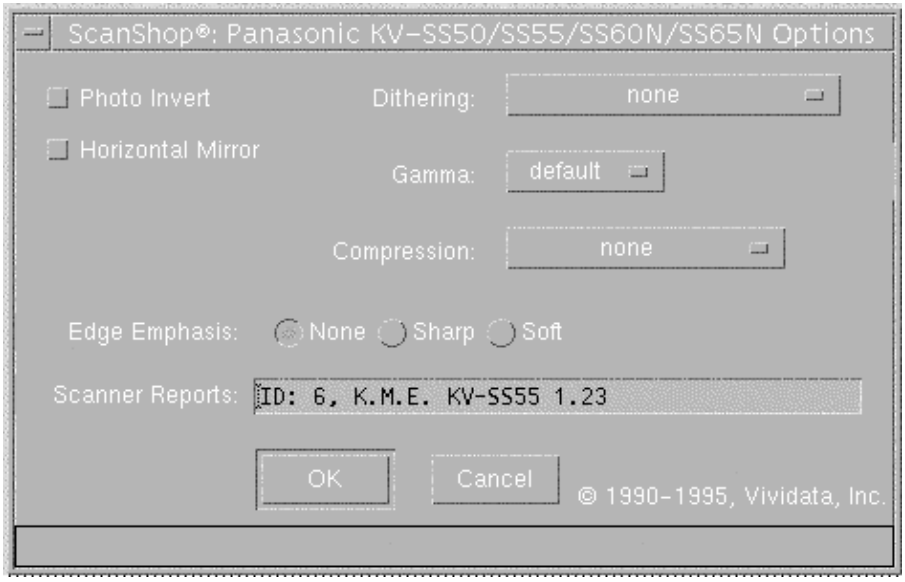

Figure 0-15 Panasonic Scanner Options

Dithering

Dithering can help make a black-and-white scan represent gray images. It does this by varying the size of clusters of black pixels. When viewed at arm's length, the dots blur, and the resulting image appears to have gray tones.

The list of available dither patterns depends on the particular scanner selected. For this scanner, the following are available:

- None
- Photographs 1
- Photographs 2
- Characters/Photos 1
- Characters/Photos 2

Gamma

Through the Gamma control, you can adjust the light intensity scale between the original image and output image so that when the image is reproduced on some devices, the tones in the reproduced image may be closer to those in the original image.

Compression

When built-in compression hardware is present, this control allows you to select the type of compression that will be recorded in the image's Settings file, for use when scanning directly to a file. Note that images scanned to a displayed window will not be compressed.

Photo Invert

Selecting this control will let you scan the "negative" of your images.

Horizontal Mirror

This option allows you to do a scan which mirrors the image over a vertical axis down the center of the image, thus reversing the image left-to-right. Note that in portrait mode, this axis cuts through the narrower sides, while in landscape mode, it cuts through the wider sides.

Edge Emphasis

The edge emphasis feature enhances the edges of the image to make them appear sharp and crisp. It can also be set to "smoothing" to help eliminate spot noise and voids.

Scanner Reports

This is a small text display area that shows information about the scanner you are using. Information here will include ROM version information and other information that particular scanner models report about themselves.

Ricoh Scanners

SCANNER MODELS SUPPORTED INCLUDE:

- **Aficio IS-01**
- **FS-2**
- **IS-50**
- **IS-60**
- **IS-410**
- **IS-420**
- **IS-430**
- **Digital Equipment Corp. MD-410**
- **IBM 2456**
- **Bell & Howell 500 FB, 1000 FB, and 1500 FB**

SCANNER SETUP

The OCR Shop Scanner Setup window provides controls for the scan area, resolution, and other settings. Many of the controls are available for all scanners, while others are model-specific. OCR Shop automatically enables the controls which are applicable to your scanner.

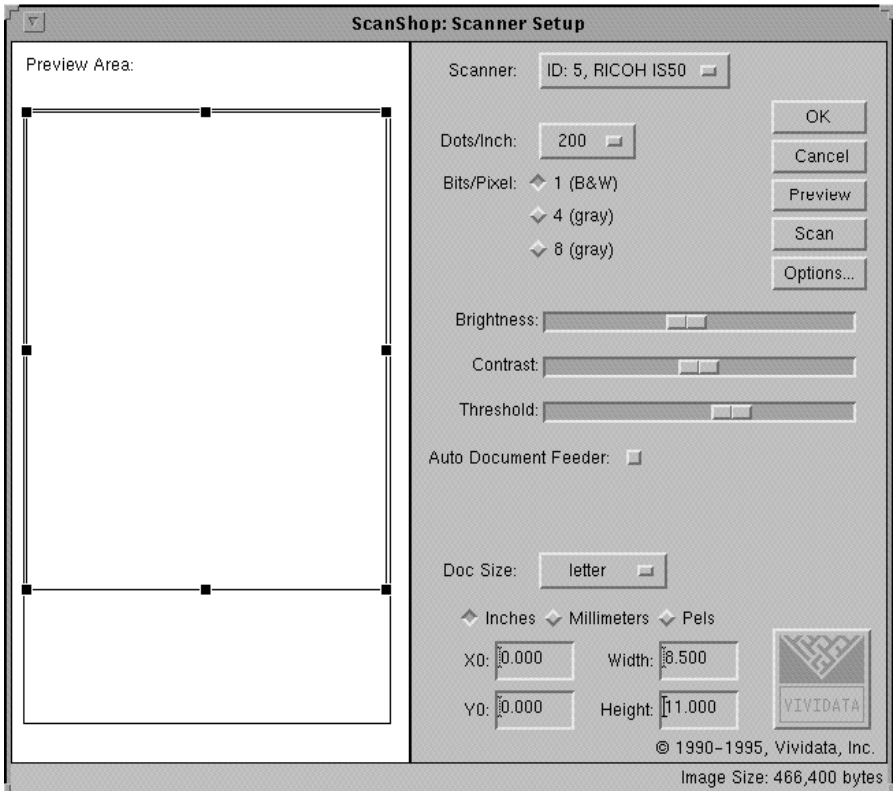

Figure 0-16 Ricoh Scanners

Scanner Selection

The Scanner menu shows the scanners that are available. If you have no scanners available, then this fact will be indicated. The last item on this list is always “show all devices”.

Dots Per Inch

The following choices of dpi are typically available: 50, 60, 72, 75, 80, 90, 100, 120, 144, 150, 160, 180, 200, 240, 300, 320, 360, 400, 480, 600, 800, 1200, and “other...”.

Bits Per Pixel

Three levels of bits per pixel are offered: 1 bit/pixel for black and white, and 4 or 8bits/pixel for gray scale.

Brightness

The brightness slider bar varies the brightness of the image, ranging from darkest on the left to lightest on the right.

Contrast

The contrast slider bar allows you to vary the image contrast. Sliding it to the right increases the contrast.

Threshold

The threshold slider bar allows you to select the level, below which all pixels are set to black, and above which all pixels are set to white. Moving the slider bar setting to the right increases this threshold level.

Auto Document Feeder

The Automatic Document Feeder (ADF) is an option on IS50 and IS60 scanners (part number DF-60) and comes standard on the model IS410. The ADF checkbox is located under the Threshold slider bar. If your scanner has an ADF, it will be selectable.

If you try to scan with the ADF selected but do not have paper inserted in the ADF, an error message will appear at the bottom of your image display window. The Preview function is disabled when the scanner is in ADF mode.

Document Size

All three Ricoh scanners allow manual input of document size, but the pre-defined document sizes are different for the IS50/IS60 and the IS410. The abbreviated menu button for the IS50 and IS60 displays are as follows:

- letter
- legal
- A5
- A5 (land)

- A4
- B5

The abbreviated menu button for the IS410 displays:

- letter
- letter (land)
- legal
- 11” x 17”
- A5
- A5 (land)
- A4
- A4 (land)
- A3
- B5
- B5 (land)
- B4

All document sizes are in portrait mode (narrower side on top), unless indicated by a “land” designation.

X0, Y0, Width, Height

The document size may also be set manually, either by dragging a rectangle in the preview area or by entering the settings directly into the X0, Y0, Width, and Height text fields. The setting units may be specified as Inches, Millimeters, or Pixels (“Pels”).

SCANNER SETUP OPTIONS

This window provides access to scanner-specific settings.

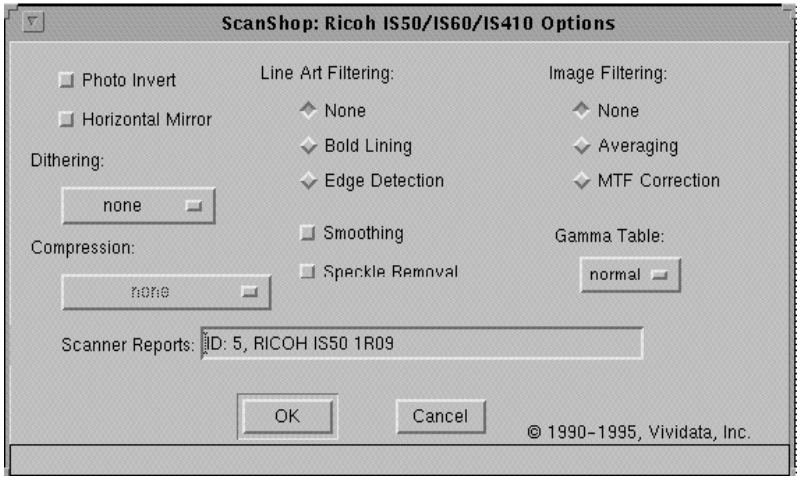

Figure 0-17 Ricoh Scanner Options

Photo Invert

Selecting this control will let you scan the “negative” of your images.

Horizontal Mirror

This option allows you to do a scan which mirrors the image over a vertical axis down the center of the image, thus reversing the image left-to-right. Note that in portrait mode, this axis cuts through the narrower sides, while in landscape mode, it cuts through the wider sides.

Dithering

Dithering can help make a black-and-white scan represent gray images. It does this by varying the size of clusters of black pixels. When viewed at arm’s length, the dots blur, and the resulting image appears to have gray tones.

The larger the pattern area, the more gray levels that can be represented, but with a grainier result. Dither patterns can also be downloaded to achieve special effects.

Compression

When built-in compression hardware is present, this control allows you to select the type of compression that will be recorded in the image's Settings file, for use when scanning directly to a file. Note that images scanned to a displayed window will not be compressed.

Line Art Filtering

All of the line art filtering options work only with 1 bit/pixel images (line art, black and white images).

- None

  No filtering will be done.

- Bold Lining

  This removes single black dots, extracts edges, thickens edges.

- Edge Detection

  This looks for the boundaries between black and white and connects them to form outlines of the objects in the image.

Smoothing

Smoothing softens the transition between black and white by creating the illusion of gray.

Speckle Removal

Speckle removal eliminates extraneous dots in the image.

Image Filtering

- None

  This will disable filtering of images.

- Averaging

  Choosing this option averages 2x2 neighborhoods of pixels together to achieve a "smoothing" effect.

- MTF

This is a filter for boosting fine lines, and thus is effective when black and white line art is scanned.

Ricoh Gamma Tables

You can download a desired gamma table or you can choose one of the following:

- Normal

  This option gives output closest to the original document.

- Smooth

  This creates an overall loose, soft feeling.

- Sharp

  This option emphasizes the border line between black and white.

- Linear

  With this option, scanned pixel values are passed through the gamma unit unchanged.

Scanner Reports

This is a small text display area that shows information about the scanner you are using. Information here will include ROM version information and other information that particular scanner models report about themselves.

Sharp Scanners

SCANNER MODELS SUPPORTED INCLUDE:

- **JX-320s (SCSI)**
- **JX-330 (SCSI)**
- **JX-600 (GPIB and SCSI)**
- **JX-610 (SCSI)**

SCANNER SETUP

The OCR Shop Scanner Setup window provides controls for the scan area, resolution, and other settings. Many of the controls are available for all scanners, while others are model-specific. OCR Shop automatically enables the controls which are applicable to your scanner.

For GPIB operation, OCR Shop requires that a National Instruments GPIB adapter be installed with its GPIB drivers.

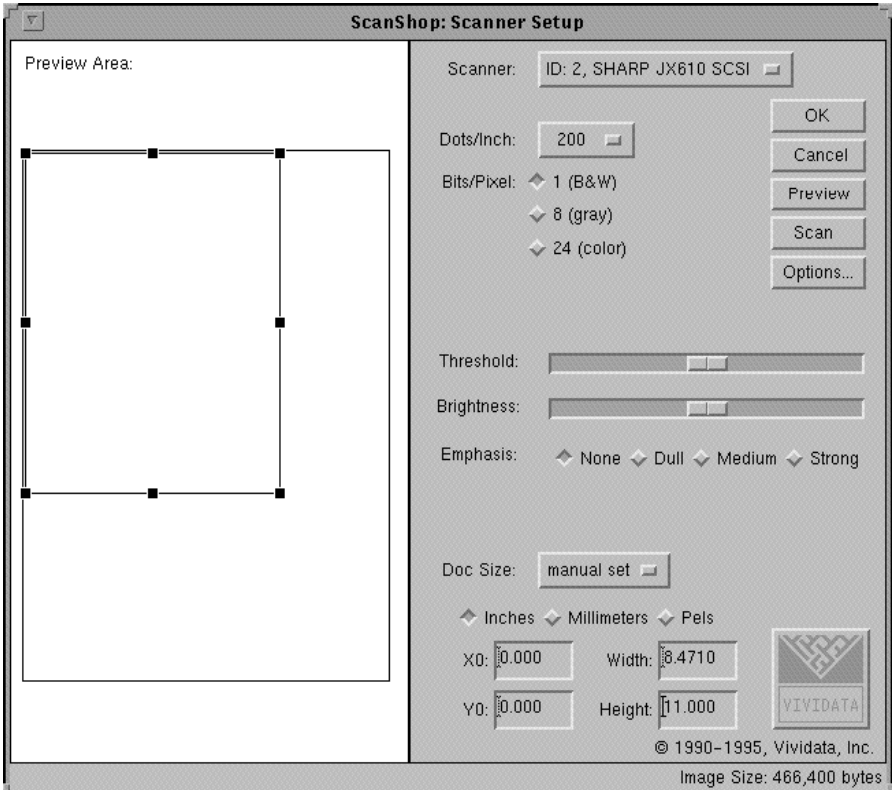

Figure 0-18 Sharp Scanners

Scanner Selection

The Scanner menu shows the scanners that are available. If you don't have any scanners available, then this fact will be indicated. The last item on this list is always "show all devices".

Dots Per Inch

The following choices of dpi are typically available: 50, 60, 72, 75, 80, 90, 100, 120, 144, 150, 160, 180, 200, 240, 300, 320, 360, 400, 480, 600, 800, 1200, and "other...".

Bits Per Pixel

Three levels of bits per pixel are offered: 1 bit/pixel for black and white, 8bits/pixel for gray scale, and 24 bits/pixel for color.

Transparency Illumination Unit

The Sharp JX-600 and JX-610 scanners ship with a transparency illumination unit. Use of this unit is supported in OCR Shop automatically when it is installed and connected each time when you start OCR Shop.

Threshold

The threshold slider bar allows you to select the level, below which all pixels are set to black, and above which all pixels are set to white. Moving the slider bar setting to the right increases this threshold level.

Brightness

The brightness slider bar varies the brightness of the image, ranging from darkest on the left to lightest on the right.

Emphasis

The edge emphasis feature enhances the edges of the image to make them appear sharp and crisp. Four degrees of emphasis are available: None, Dull, Medium, and Strong.

Document Size

In selecting the size of the area to be scanned, the following standard document sizes are typically offered for the JX-600 and JX-610 (the JX-320S and document sizes are a subset of this list):

- letter
- letter (land)
- legal
- 11” x 17”
- B5
- B5 (land)

- B4
- A5
- A5 (land)
- A4
- A4 (land)
- A3

All document sizes are in portrait mode (narrower side on top), unless indicated by a “land” designation.

X0, Y0, Width, Height

The document size may also be set manually, either by dragging a rectangle in the preview area or by entering the settings directly into the X0, Y0, Width, and Height text fields. The setting units may be specified as Inches, Millimeters, or Pixels (“Pels”).

SCANNER SETUP OPTIONS

This window provides access to scanner-specific settings.

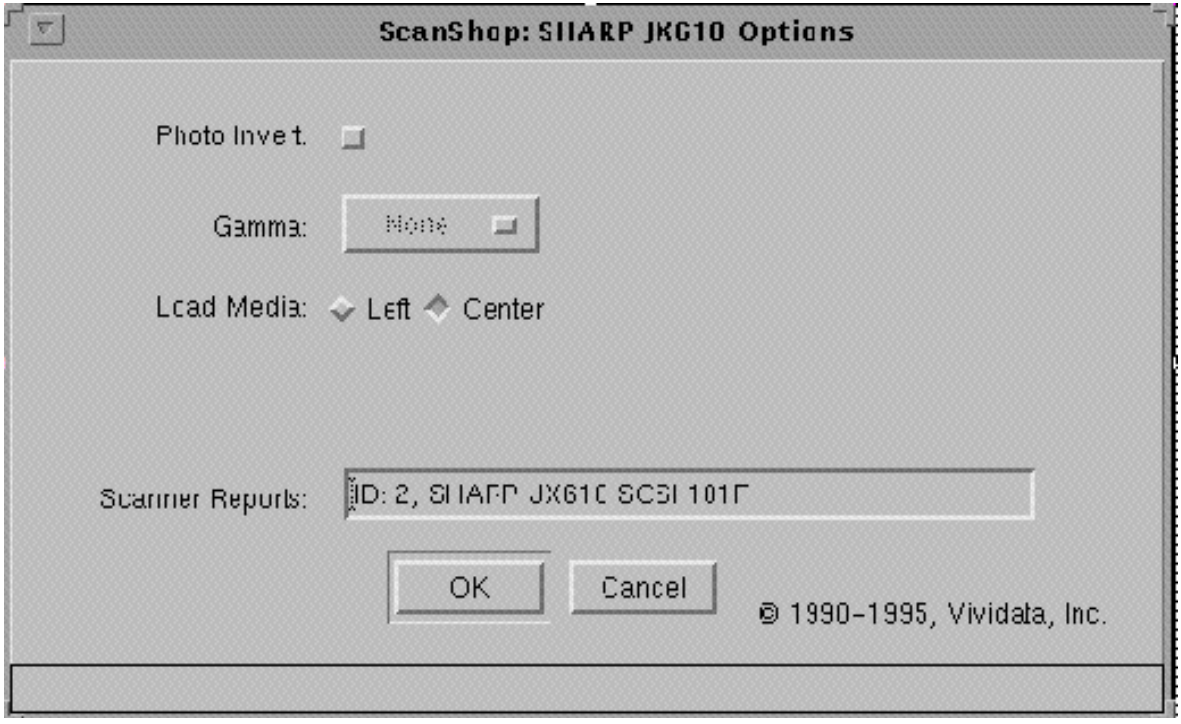

Figure 0-19 Sharp Scanner Options

Photo Invert

Selecting this control will let you scan the “negative” of your images.

Gamma

Through the Gamma control, you can adjust the light intensity scale between the original image and output image so that when the image is reproduced on some devices, the tones in the reproduced image may be closer to those in the original image.

Load Media

Load Media (JX-600 and JX-610) is used to help you position the platen of the scanner when the overhead transparency unit is installed. Select “Left” to slide the platen clear of the transparency unit for loading of your image media. Select “Center” to re-position the platen in the normal position for scanning.

Scanner Reports

This is a small text display area that shows information about the scanner you are using. Information here will include ROM version information and other information that particular scanner models report about themselves.

UMAX Scanners

SCANNER MODELS SUPPORTED INCLUDE:

- **PowerLook 2000**
- **Mirage D-16L**
- **MD 1600**
- **Vista S-12**
- **Super Vista S-12**

SCANNER SETUP

The ScanShop Scanner Setup window provides controls for the scan area, resolution, and other settings. Many of the controls are available for all scanners, while others are model-specific. ScanShop automatically enables the controls which are applicable to your scanner.

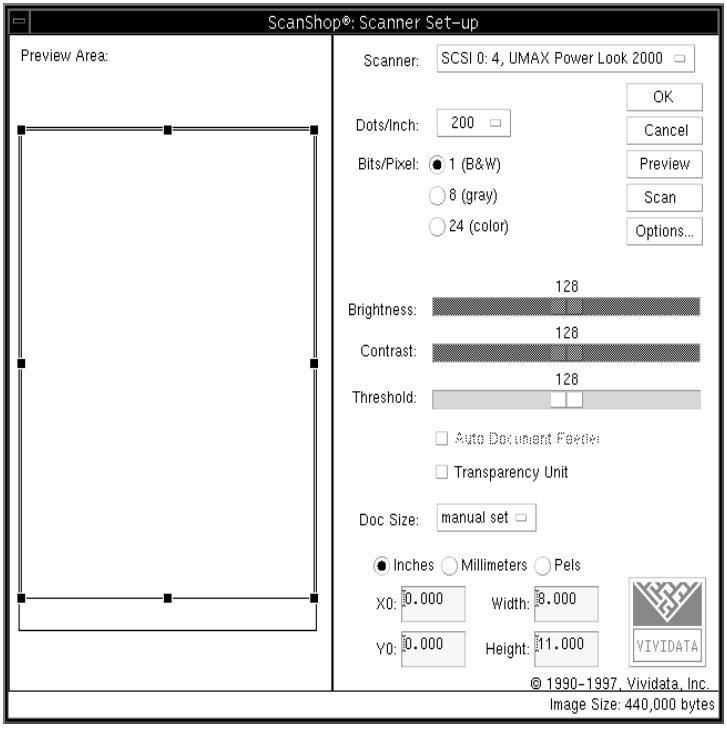

Figure 0-20 UMAX Scanners

Scanner Selection

The Scanner menu shows the scanners that are available. If you don't have any scanners available, then this fact will be indicated. The last item on this list is always “show all devices”.

Dots Per Inch

Choices of dpi from 50 to 800 are available from the pull-down menu. You can select “other” to specify a higher dpi.

Bits Per Pixel

Three levels of bits per pixel are offered: 1 bit/pixel for black and white, 8bits/pixel for gray scale, and 24 bits/pixel for color.

Brightness

The brightness slider bar varies the brightness of the image, ranging from darkest on the left to lightest on the right.

Contrast

The contrast slider bar allows you to vary the image contrast. Sliding the bar to the right increases the contrast.

Threshold

The threshold slider bar allows you to select the level, below which all pixels are set to black, and above which all pixels are set to white. Moving the slider bar setting to the right increases this threshold level.

Transparency Unit

If you have a transparency unit on your scanner, you can toggle the transparency unit option to turn it on or off.

Document Size

In selecting the size of the area to be scanned, the following standard document sizes are typically offered:

letter

letter (land)

legal

11" x 17"

B5

B5 (land)

B4

A5

A5 (land)

A4

A4 (land)

A3

All document sizes are in portrait mode (narrower side on top), unless indicated by a “land” designation.

X0, Y0, Width, Height

The document size may also be set manually, either by dragging a rectangle in the preview area or by entering the settings directly into the X0, Y0, Width, and Height text fields. The setting units may be specified as Inches, Millimeters, or Pixels (“Pels”).

SCANNER SETUP OPTIONS

This window provides access to scanner-specific settings.

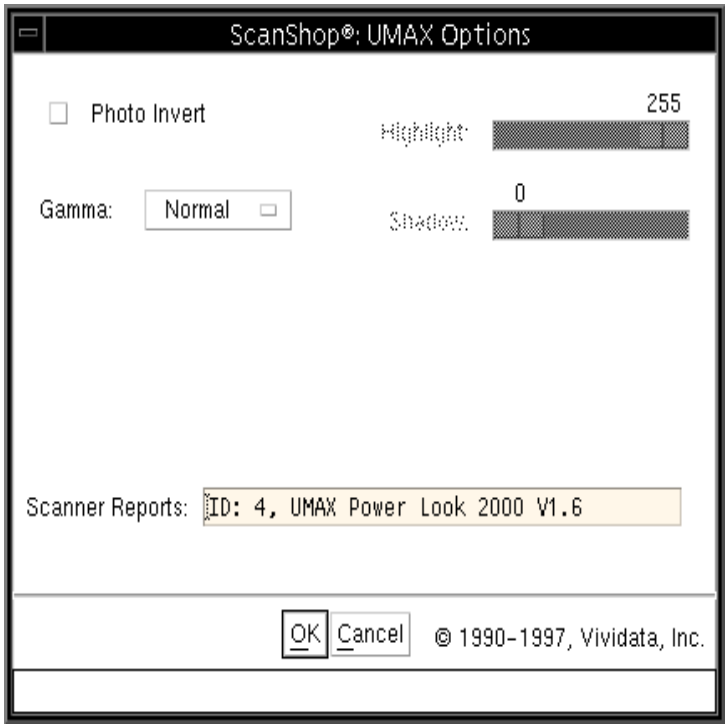

Figure 0-21 UMAX Scanner Options

Photo Invert

Selecting this control will let you scan the “negative” of your images.

Gamma

Through the Gamma control, you can adjust the light intensity scale between the original image and output image so that when the image is reproduced on some devices, the tones in the reproduced image may be closer to those in the original image.

Scanner Reports

This is a small text display area that shows information about the scanner you are using. Information here will include ROM version information and other information that particular scanner models report about themselves.

Appendix B: Troubleshooting

Overview

This chapter offers some troubleshooting hints as well as brief pointers to maximize operation efficiency.

Getting Help

Read this section of the manual

This section of the manual contains useful information on common problems and troubleshooting. If you do not find an answer please go to our website's support section.

Submitting a Question to the Support Department

At the Vividata Website http://www.vividata.com you will see a link "*Contact Support*". Go to this page to fill out information and submit a support request.

Identifying the Problem

There are several status files and options you can set in OCR Shop XTR to help you identify the cause of your problem.

Step 1: Verify Licensing is Working

Run vvlmstatus to check if the license manager daemon is running:

```
$VV_HOME/bin/vvlmstatus
```

This command will display a list of the license keys you have installed and number of licenses available for each key. It also displays the license manager process id and process name, if it is running.

If you have never run Vividata software before, the license manager will not be running. This is normal. The license manager is started automatically the first time you run OCR Shop XTR.

Try running OCR Shop XTR to start the license manager, then run vvlmstatus again. If the license manager is still not running or shows errors, verify that a license key is installed on your system. The file `$VV_HOME/config/license.dat` contains your license key(s). It should be an ASCII text file with 644 permissions. If it is not there, then your license key has not been installed. Install the license key via the distributed shell script, or contact Vividata if you can not find your key or have questions.

If something still seems wrong with the license manager, set an environment variable called `VV_DEBUG` to 1000 and then run OCR Shop XTR. A large amount of debug information will print to the console, including any error messages regarding licensing.

If the license manager seems to be in a bad state, stop it by running the command `$VV_HOME/bin/vvlmstop`. Then verify that the license manager process is no longer running using the `ps` command. The license manager will start again the next time you run OCR Shop XTR.

You may also need to restart the license manager. For details, see "License Manager Commands" on page 177.

Step 2: Check Log Files

Vividata software generates various log files that can be useful for determining the cause of many problems.

vividata.log

When your system reboots, a file called vividata.log is created in the /tmp directory. This file contains information from the license manager used with our products. This log is useful in determining if licensing is starting at boot time correctly.

How to Get a License

Installing the Keys

To enter your license keys, use the Installer. Please see “Installing the License Keys” on page 6. Then, try restarting OCR Shop XTR.

You must have a valid license before you can use PShop. If you haven’t yet received a license key from us, you need to get one. You can get one by contacting Vividata Support or Vividata Sales through our website http://www.vividata.com, or by telephone or fax (see contact information at the front of this manual). If you are certain that you have a valid license, verify that your licensing is set up correctly (See Appendix C, “License Manager Commands”, for license manager information.)

Installing the Keys

PShop license keys are normally distributed within a shell script installer, named “vvkey.sh” or something similar. To install a key, run the script on the command-line as root, “sh vvkey.sh”, and the license key will be placed in `$VV_HOME/config/vvlicense.dat`.

Patches

It is suggested that the operating system be maintained by installing the most current patches available from the platform vendor, as certain (possibly known) bugs can affect the operation of OCR Shop XTR. Check Vividata’s release notes and the support areas of our website for mention of any specific known problems which can be fixed with certain patches.

Appendix C: License Manager Commands

Overview

Publicly distributed versions of Vividata products use a proprietary license manager. This section will describe the usage of the license manager as it pertains to Vividata products, including determining the lmhostid necessary for license keys to be issued, diagnosing the license keys and license server, and additional configuration information.

License Manager Utilities

You will find the various license manager utilities discussed below in the $VV_HOME/bin directory after you have installed a Vividata product containing the license manager. This set of utilities currently includes lmutil and six links to this file: lmdiag, lmdown, lmhostid, lmremove, lmreread, and lmstat. The license daemons, found in the same directory, are lmgrd and vv_d2.

The License Daemon

A license daemon runs in the background in order for the license manager to operate properly. The daemon is started automatically by the Vividata software and the process is named either "vvlicense" or has the same name as the software binary, depending on the system. The user never starts the license manager or daemon by hand. If for some reason the license daemon needs to be stopped, the "vvlmstop" utility (described below) should be used to stop the program gracefully.

License File Format

The license file is plain text and contains a long encrypted string that encodes the license(s). Usually a short text string is concatentated to the right of the license string, along with the serial number(s). More than one license for the same

product may be stored in one license key. License keys for more than one Vividata product may be included on separate lines in the same license file.

Obtaining your lmhostid

If you have a Vividata product installed on your system, you can simply run "vvlmhostid" to determine the lmhostid on your system. If you need the lmhostid prior to installing the software, or if the "vvlmhostid" utility does not return a valid lmhostid, please see the following table to determine your lmhostid manually.

Table 1: lmhostid derivations

Platform	Source	User command	Example
OSF/1 Digital Unix	ethernet address	netstat -i	080020005532
HP-UX	32-bit hostid	uname -i and convert to hex or prepend with #	778DA450 or #2005771344
Linux	ethernet address	/sbin/ifconfig eth0 and remove colons from HWaddr	00400516E525
AIX	32-bit hostid	uname -m then remove last 2 digits, and use remaining last 8 digits	02765131
IRIX	32-bit hostid	/etc/sysinfo -s and convert to hex, or prepend with #	69064C3C or #1762020412
SunOS and Solaris	32-bit hostif	hostid	170a3472

Table 1: lmhostid derivations

Platform	Source	User command	Example
Windows NT	ethernet address	Programs: Administrative Tools (common): Windows NT Diagnostics: Network: Transports:Address	Programs: Administrative Tools (common): Windows NT Diagnostics

Command Reference

vvlmstat

NAME

vvlmstat – Displays the current status of the license manager.

SYNOPSIS

```
vvlmstatus
```

DESCRIPTION

vvlmstatus checks the current state of the license manager and reports how many keys are available for each product for which you have a license key.

vvlmstop

NAME

vvlmstop – Shuts down the license daemon

SYNOPSIS

```
vvlmstop
```

DESCRIPTION

vvlmstop shuts down the license manager process if it is running.

vvlmhostid

NAME

vvlmhostid – Prints the lmhostid of the system

SYNOPSIS

```
vvlmhostid
```

DESCRIPTION

vvlmhostid prints the machine id (lmhostid) of the system, usually used for generating license keys.

vvlmreread

NAME

vvlmreread – Forces the license daemon to reread the license file

SYNOPSIS

```
vvlmreread
```

DESCRIPTION

vvlmreread causes the vendor daemon to reread the license file and update itself on any new feature licensing information.

Key Read program

NAME

<product>KeyRead – Utility that decodes the features from a license key; the name varies with the product.

SYNOPSIS

```
<product>KeyRead -k [key string]
```

DESCRIPTION

The key read program permits you to view what options and licenses are encoded within the license key string. Pass the key string listed in your license file to the key read program to verify the features, number of licenses, and product enabled by that key string.

Appendix D: Glossary

Glossary term	Term definition
ADF	Automatic document feeder
ASCII	An acronym for American Standard Code for Information Interchange. A code in which the numbers from 0 to 127 stand for text characters. ASCII code is used for representing text inside a computer and for transmitting text between computers or between a computer and a peripheral device.
auto segmentation	The process in which the OCR Shop XTR determines where on a page different elements are such as where pictures are and where columns of text are.
binary image	A image that is represented using only one bit per pixel. Such images are also called black and white, monochrome, bi-level, or 1-bit.
bit-mapped image	A collection of bits (dots) in memory that represent the scanned image. The display on the screen is a visible bit-mapped image.
Code Page	"Code Page" is a Microsoft® term. A code page is a particular mapping of a set of unsigned bytes to a set of visible characters (and space characters). Different code pages are used to represent in memory the characters in different languages. See http://www.microsoft.com/globaldev/reference/WinCP.asp for more details.

Glossary term	Term definition
compound document	A compound document is a set of one or more pages that consists of a mixture of text and images, for example pdf or html.
conversion filter	A program that translates one file format into another. For example, the ‘mpage’ conversion filter can translate an ASCII file into a PostScript file.
device driver	A program that manages the transfer of information between the computer and a peripheral device such as a scanner.
digital image	A digital image is the way a picture or visual image of some object is represented in computer memory. A digital image consists of a number of pixels and a description of how the pixels are arranged to form the image. In addition, information about how each pixel stores the color of the original image is included.
dithering	A method of representing an image using fewer colors than the image actually has.
document	A document is a set of pages that are related usually because the sense of the text on one page flows into the next as in a book. For OCR Shop XTR, it is best to arrange for documents to be sets of pages that have the same font or set of fonts continuing from one page to the next. This best takes advantage of the internal font learning system that is built into the OCR Shop XTR recognition system.
dpi	An abbreviation for dots per inch. This is the number of dots per linear inch that a printer can print or a scanner can produce. See also resolution.
driver	See device driver

Glossary term	Term definition
frame	A frame is a way to represent the maximum extent of some page element in the horizontal and vertical direction (X and Y coordinates respectively). A frame can be thought of as a rectangle that is lined up with the X and Y axes. Frames are represented by four numbers, which can be top, left, bottom, right or top, left, height, width. Also see UOR.
language pack	A language pack is a data file supplied with the OCR Shop XTR that includes information about how the characters of a given language are put together to write words and sentences in the language. Language packs contain information about the common words used in a language, rules for punctuation and the conventions used when writing things such as numbers, money amounts and dates.
language set	A language set is that set of supported languages that can be recognized with a given shape pack loaded. Each of the supported languages in a language set may or may not have an available language pack associated with it. Languages without an available language pack can still be recognized but accuracy for these languages will not be as high as for languages for which a pack exists
lexical constraints	A lexical constraint is a set of restrictions on how the characters on a given page or region within a page can be recognized. Constraints can include the set of languages allowed, and/or a character set that recognition is restricted to. A lexical constraint can be a weaker preference or a stronger absolute. A custom word list can be used as an additional lexical constraint on the recognition.

Glossary term	Term definition
lexicon	A lexicon is a list of words used in a given language and perhaps in a special setting. Language packs supplied with OCR Shop XTR contain built in general purpose lexicons. Users may specify a custom lexicon with the user_lexicon parameter.
monospaced font	Any font in which all characters have the same width. For example, in Courier New (a monospaced font), the letter “M” is the same width as the letter “l”. Thus, “MMMMM” is the same width as “lllll”.
orient	To orient a page is to rotate the page in memory so that it is better positioned for display to the user and/or recognition by the OCR Engine. A page is oriented for recognition when the text flows left to right (from low X to high X coordinates) and from top to bottom (lowY to high Y coordinates).
page	A page is the unit that makes up a document. Within OCR Shop XTR, a page is usually the representation of one side of a single piece of paper if that was input from a scanner. In addition it may be a single image, input from a file, fax machine, digital camera or other digital image input device. For purposes of licensing, a page size equivalent to a US letter size or ISO A4 is used.
peripheral	At or outside the boundaries of the computer itself, either physically (as a peripheral device) or logically (as a peripheral card).

Glossary term	Term definition
pixel	Pixel is short for picture element. A point (dot) on the graphics screen. It is the smallest definable unit of a digital image. Each pixel represents a single point in the image. The number of pixels per unit distance (dot-per-inch or DPI for instance) within a digital image is referred to as the resolution of the image. A pixel can be binary, gray, or color, or can be an index into a palette. Binary pixels require only one binary digit or bit of computer memory to store; gray, color and indexed pixels use more bits with 4, 8, and 24 being common values for the number of bits used.
point	A typographic unit of measurement equal to 1/72 inch, measured vertically. Points are used to describe font size.
proportional font	Any font in which characters differ in width. For example, in the proportional font used here, the letter “M” is wider than the letter “l”. Thus, “MMMMM” is wider than “lllll.”
rdiff file	In OCR Shop XTR a file which contains descriptions of the image and text regions of a document image.
recognize	In the context of the OCR Shop XTR, when an image is recognized, it is processed using the OCR Engine that is part of the OCR Shop XTR. During this process the pixels making up a digital image are processed by the OCR engine to determine which pixels are parts of visible text characters within the image. The identities of those characters are also determined and stored in memory using the code page representation of the given character. The result of recognition is used to create output based on the user settings.

Glossary term	Term definition
region	A region is an area of a page that usually contain either all text or all picture. Regions can be determined by the OCR Shop XTR during auto-segmentation or specified by a user in an rdiff input file.Regions on a page can overlap. Regions can be simple rectangles in shape or they can be more complex (see UOR).
resolution	The fineness with which a scanner, printer, or other device produces information. It is expressed in dots per inch (dpi). A higher dpi produces a sharper image.
shape pack	A shape pack is a data file supplied with the OCR Shop XTR that describes the shapes of the characters that can be recognized by the OCR engine when that shape pack is loaded. Each shape pack corresponds to a particular code page that will be used for output when that shape pack is loaded. For each shape pack there is an implied language set that represents the supported languages that can be recognized with that shape pack loaded.
skew	Skew is the amount of tilt in an input image.Skew is generally used to describe the tilt in images including text. In such images the tilt is more apparent and affects recognition and layout analysis.
swap file	An area of the hard disk that is used for temporary data storage when RAM is low or used up. This is also known as virtual memory. A swap file lets you run more programs than you could with actual memory, but it is slower than using regular memory.
text file	A file containing information in text form; its contents are interpreted as characters encoded using the ASCII (or comparable) format.
TIFF	An abbreviation for tagged image file format. This is a standard graphic file format for grayscale and high-resolution bit-mapped images.

Glossary term	Term definition
TrueType™ fonts	One of the major types of scalable fonts. These can be printed or displayed on the screen at any size.
Unicode	UNICODE is a standard for representing visible characters using a stream of bytes in computer memory or on some other digital storage medium. Unlike code pages where each code page can only be used to describe a subset of the known written languages, Unicode is a single standard way to represent all of the world's common written languages. Whereas the code page representation uses a single byte to represent each character, Unicode uses a 16-bit word for each character. The OCR engine that is part of OCR Shop XTR does recognition internally based on a single selected code page. During output however, the text data can be converted to Unicode for use with other applications that expect text data in Unicode format.
UOR (Union of Rectangles)	A UOR or Union Of Rectangles is the data used to represent the position and shape of a region in a region descriptor. A UOR is a list of rectangles contained in an rdiff file. The area described by the UOR is the sum or OR-ing of all the areas described by each rectangle in the list.
zone	See Region.

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