

UNITED STATES PATENT AND TRADEMARK OFFICE



**TRADEMARK IMAGE CAPTURE
AND RETRIEVAL SYSTEM
OPERATOR'S MANUAL**

Trademark Systems Division

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1. INPUTACCEL AND SCANNER INTRODUCTION

This manual is for scanner operators on the Trademark Image Capture and Retrieval System (TICRS). It is intended to help operators attain operational competence and consistency as well as the capability to recover from occasional scanner error conditions such as paper jams. Specific configurations of Action Point's *InputAccel* scanning software and the Kodak scanner are addressed as well as the operation and maintenance of the capture system including Prime Recognition's OCR, the barcode reader and the document printing accessory. In addition, operators will learn about parameter definitions for the enhancement station and communication between the components of the capture system. Operators are taught startup and shutdown procedures for the full capture system.

1.1 Prerequisites

An operator needs a working knowledge of the Microsoft Windows NT environment.

1.2 System Introduction

1.2.1 Background

The Trademark Pre-Exam operation prepares incoming mail for examination and action by the Trademark Examining Attorneys and processing by other related offices within the Trademark business area. The number of incoming Trademark applications and associated correspondence has been increasing at a significant rate. The Trademark Office is committed to the use of computer based technology to assist with the speed of processing and accuracy of data capture in handling applications and correspondence.

1.2.2 Purpose of the System

The goal of the Trademark Image Capture and Retrieval System (TICRS) is to electronically capture all incoming Trademark applications and correspondence as soon as they arrive. These images are stored and remain available for retrieval and printing. In addition, these scanned applications are OCR'd and the resulting PDF files are automatically loaded into the Trademark data entry system (TradeUps). The images are available for review using the TICRS Image Retrieval (TIR) program.

1.2.3 Manual Assumptions

This manual was written under the following assumptions.

- This manual was written for use by system operators.
- All system operators will have a basic understanding of and proficient usage of PC components and the Windows NT operating system.
- Operators can identify the different Trademark application documents (a step which will be performed during the indexing stage subsequent to document preparation and scanning).

1.2.4 System Components

The Trademark Image Capture and Retrieval System is a client/server architecture built using Action Point's *InputAccel* software version 2.2.2. The system consists of the hardware and software components illustrated in Tables 1 and 2.

Table 1 - TICRS Hardware

Hardware
Five (5) Kodak 3590C High Speed Scanners.
Two (2) Fujitsu fi-4750C Scanners.
Barcode Gun(s).
Two (2) HP-200 LX Pro Servers: One Primary Domain Controller and one Backup Domain Controller.
Workstations (PCs and Monitors).
Two (2) HP 5-Si printer(s).

Table 2 - TICRS Software

Software
Microsoft Windows NT Server 4.0 with Service pack 6.
Microsoft Windows NT Workstation 4.0 with Service pack 6.
Action Point's <i>InputAccel</i> 2.2.2 Server.
Action Point's <i>InputAccel</i> 2.2.2 Clients.

Client/server refers to a relationship between two (or more) software modules in which one module (the client) requests resources and services that the other module (the server) provides. Both modules may be a single machine or may exist on separate machines that communicate through a network.

1.2.5 Software Descriptions

1.2.5.1 Microsoft's Windows NT

Microsoft Windows NT 4.0 is used in TICRS to provide the basic operating system and network capabilities.

1.2.5.2 Action Point's InputAccel

The *InputAccel* (IA) software consists of the *InputAccel* Server and client modules. All client modules run on Windows NT 4.0.

The *InputAccel* Server is a management module that communicates with clients to distribute workloads. It also stores images as they are processed and runs under Windows NT Server as a service.

The *InputAccel* Clients allow for each function in the process, such as scanning or indexing, to be executed by a specific "module" on the client workstation. Each module performs its function in a specific order as outlined in the Process Control File (PCF). The most recent version of the PCF is documented in the System Administration Guide.

A module can be run either unattended or attended. An **attended** module is one that needs a user to operate it while an **unattended** module has no operator but requires occasional attention from the system administrator/supervisor. Section 2 of this document provides a detailed description of the different *InputAccel* modules.

1.3.5.3 Prime Recognition's OCR

Prime Recognition's OCR is a third party module integrated with the *InputAccel* system to perform Optical Character Recognition (OCR), which involves translating an image into Portable Document Format (PDF) file format. Images are like graphics; the text on them cannot be altered. The OCR process interprets the graphical images created during the scanning operation and translates the words into text, which can be altered. The PDF generated by TICRS is transferred to the Trademark Data Entry Update System (TradeUps) for tagging by the Legal Instrument Examiners (LIEs).

2. TICRS WORKFLOW

The following workflow diagram shows the sequence of modules. Each module performs a specific function on the image of the Trademark application. This sequence is referred to as a **pipeline**, since the images flow from one module to the other in one direction as they would in a pipeline or an assembly line. The *InputAccel* server is in direct communication with all the modules and directs the images from one module to the next. A brief description of each module and its function follows the diagram in figure 1.

T.I.C.R.S. System Flow

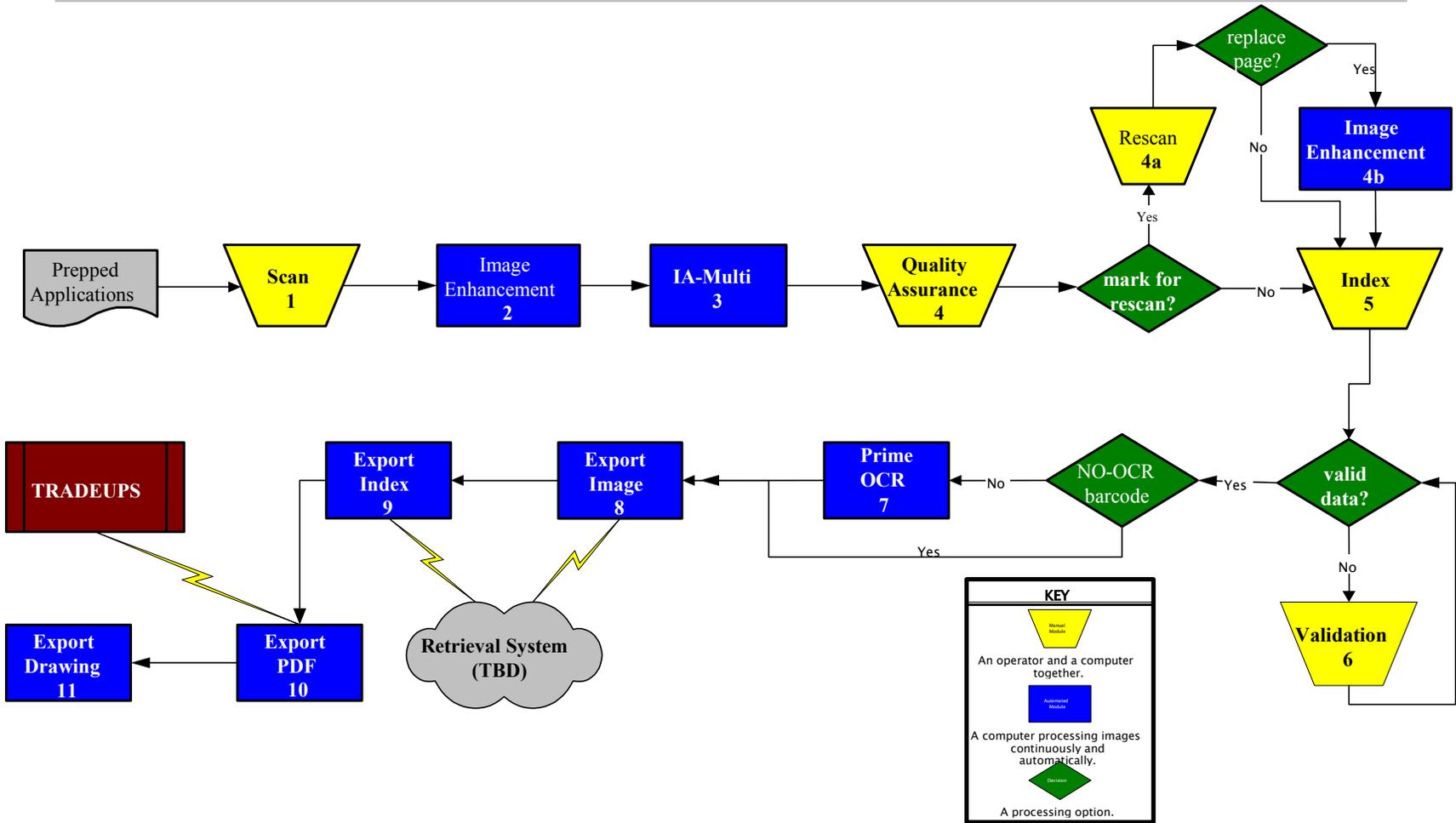


Figure 1 - TICRS Workflow

Table 3 - Module name, interface and functional description

Figure 1 Numbering	Module Name	Interface	Function Description
1.	Scan	Attended	This module drives a scanner and captures the image.
2.	Image Enhancement	Unattended	Cleans up images via border and noise removal, deskewing, and reads barcodes on the images.
3.	IA-Multi	Unattended	<p><u>Application Tree Separation</u> -Recognizes the barcode labels on the first page of an application and creates a separation between applications within a batch.</p> <p><u>Document Tree Separation</u> - Recognizes barcodes on separator sheets and creates a separation between documents within an application.</p> <p><u>Page Deletion</u> - Allows automatic deletion of pages that are not part of the application and have been marked as document separator sheets.</p>
4.	Quality Assurance	Attended	Displays images in a graphical tree format for viewing by Quality Assurance operators for further corrections: image rotation, image deletion, and images tagging for rescan and manipulation of the tree as needed.
4a.	Rescan	Attended	Allows an operator to add or replace pages that were previously marked for rescan in the QA module.
4b.	Rescan Enhance	Unattended	Cleans up images created in the rescan process. Performs the same functions as Image Enhancement.
5.	Index	Attended	Allows the operator to verify and validate indexing values such as serial number, mailroom date, and document type.
6.	Validation	Neither	Formerly separate, now incorporated into the operation of the system as a whole, this step is shown independently for conceptual purposes.
7.	Prime OCR	Unattended	Processes image data into PDF files.
8.	Export Image	Unattended	Exports images of all pages out of InputAccel for input to a retrieval system.
9.	Export PDF	Unattended	Exports the PDF files out of InputAccel to TradeUps.
10.	Export Index	Unattended	Exports indexes out of InputAccel for input to a retrieval system.

Figure 1 Number- ing	Module Name	Interface	Function Description
11.	Export Drawing	Unattended	Exports drawing page images out of <i>InputAccel</i> for printing and distribution.
Not shown in Fig. 1	IA-Delete	Unattended	Can delete batches that have finished all processing.
Not shown in Fig. 1	Supervisor	Administration	Allows monitoring of batches by administrators.

2.1 System Users

TICRS data is critical to the following classes of users.

2.1.1 Trademark Public Search Library

The Trademark Public Search Library (TMSL) receives digital images of unclassified drawings for searches by members of the public who wish to keep abreast of the latest developments in the Trademark field.

1.1.2 Contractor Images

One set of unclassified drawing digital images is provided to a USPTO contractor which offers a value-added database and search facility for sale to institutional and public customers.

1.1.3 Trademark Attorneys

Trademark attorneys are the primary customers of the imaging process. They work from the data fields tagged by the LIEs as well as from the images and paper of the filed applications. Attorneys make the final decision on the correct classification of applications and drawings. Ultimately, the attorneys review the contents of all applications and determine whether an application for a Trademark is granted in the first instance or not.

3. PROCESS DESCRIPTION

3.1 Pre-Exam Process Descriptions

The Trademark Application Pre-Exam process is divided between the mailroom, fee processing, document preparation, scanning, text editing, Legal Instrument Examiners (LIEs), and assembly. The flows through the subsystems are described below.

3.1.1 Pre-Exam Process Flow

A visual representation of the TICRS data and paper flows throughout the Pre-Exam Unit shows that there are two inflows (electronic and postal) and three electronic outflows (TIFF image files, IDX index text files, and PDF files) into an enterprise-wide retrieval system. This training focuses on the current state of the Pre-Exam business processes.

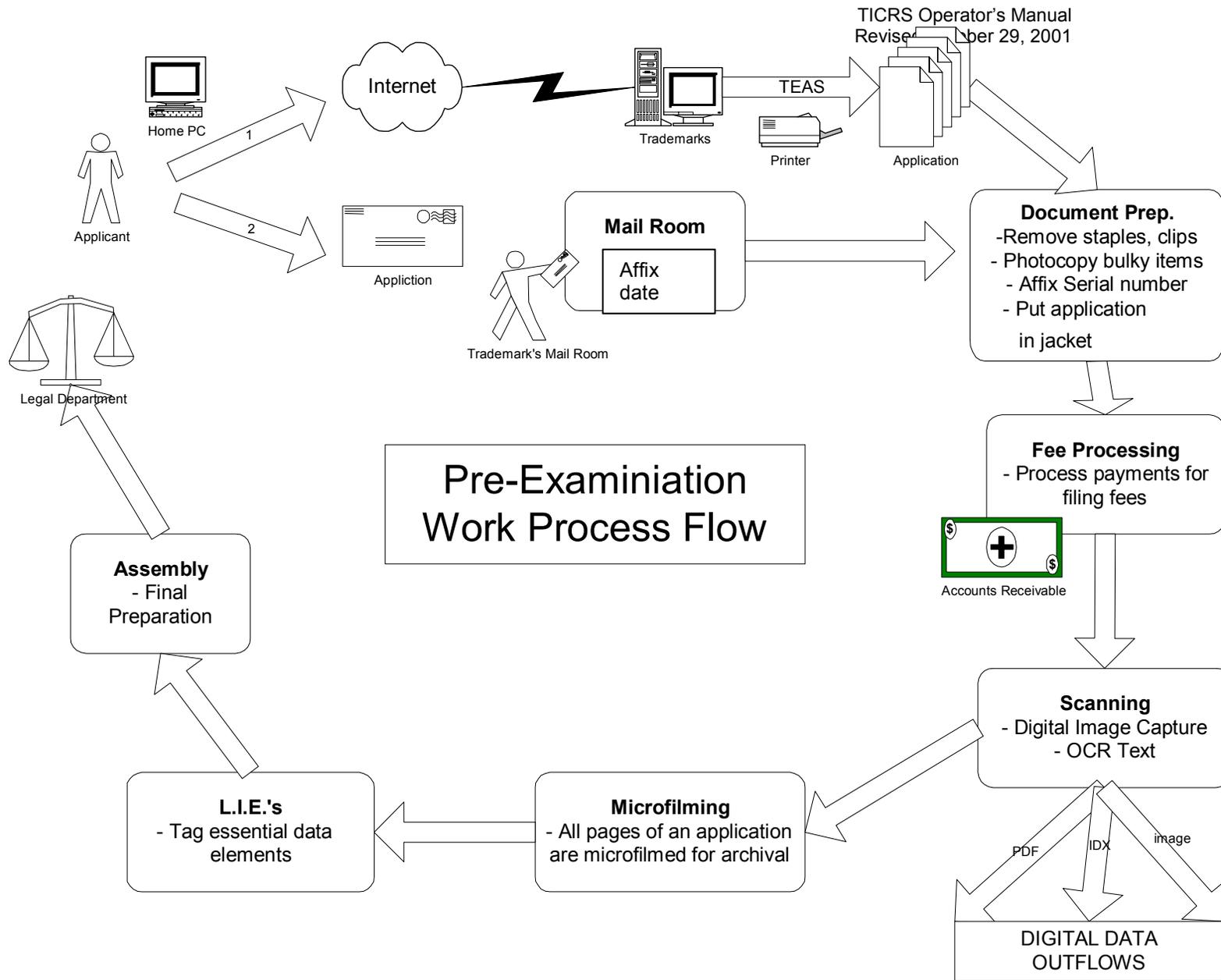


Figure 2 - Pre-Exam Process Flow Diagram

3.1.2 Mailroom

The mailroom processes incoming manually-filed applications and correspondence sent via the U.S. Postal Service or another similar carrier. When applications are received, a mailroom date barcode label is applied to the front of every drawing page and the back of every application and specimen page. Only the Fee Sheets are not dated. The mailroom then paper-clips all the pages in an application, puts them into case jacket folders, puts these in a bin, and forwards them to Document Preparation. The following figure depicts this flow.

Pre-Examination Mailroom Processing

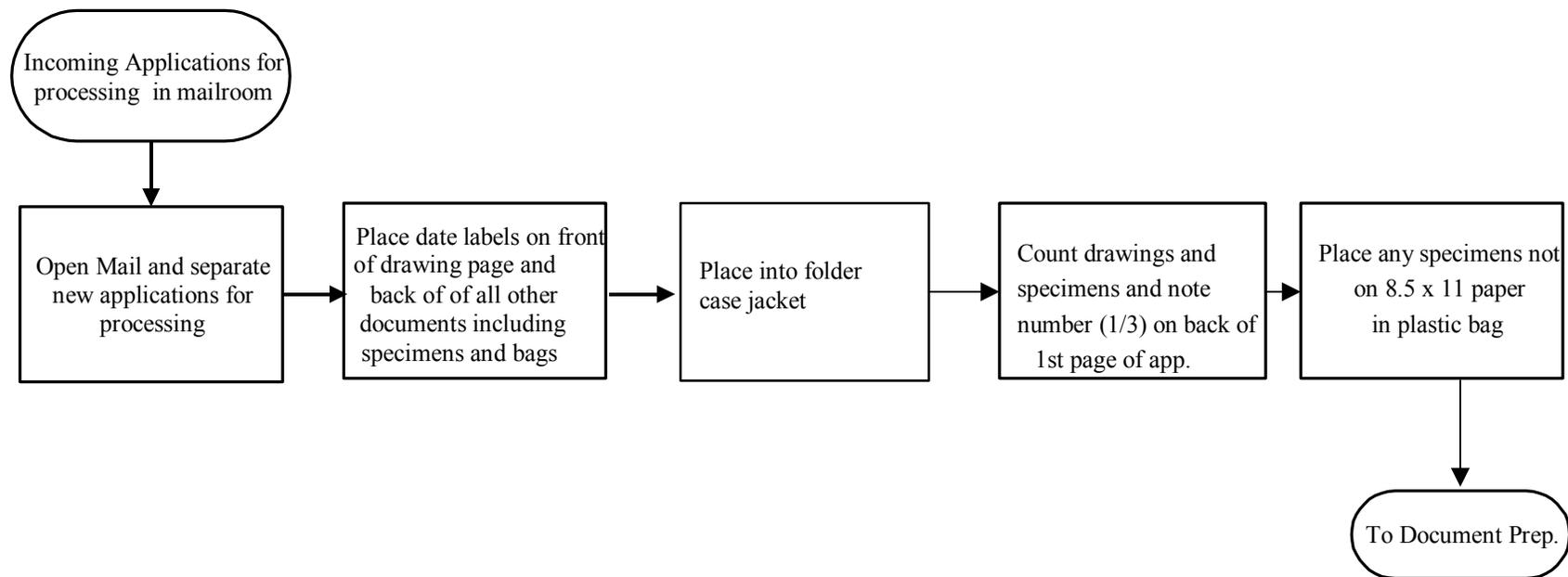


Figure 3 - TICRS Mailroom Processing Flow

3.1.3 Document Preparation

Good document preparation is a necessary precedent for the effective use of the image capture system. The mechanical drive of the scanner is preserved from jamming and interrupted operation by good document preparation. Furthermore, good document preparation allows proper indexing of incoming applications and correspondence.

Each application in its own folder is received in Document Preparation from the Mail Room. The Doc Prep staff removes all staples and other paper bindings from each application. To assist an efficient scanning operation, barcode labels containing the application serial number are placed on the first page of each application. This barcode information persists throughout the process to aid in identifying separate applications. Doc Prep also photocopies specimens if needed. Once prepping is complete, the applications are forwarded to Fee Processing.

Pre-Examination Document Preparation Flow

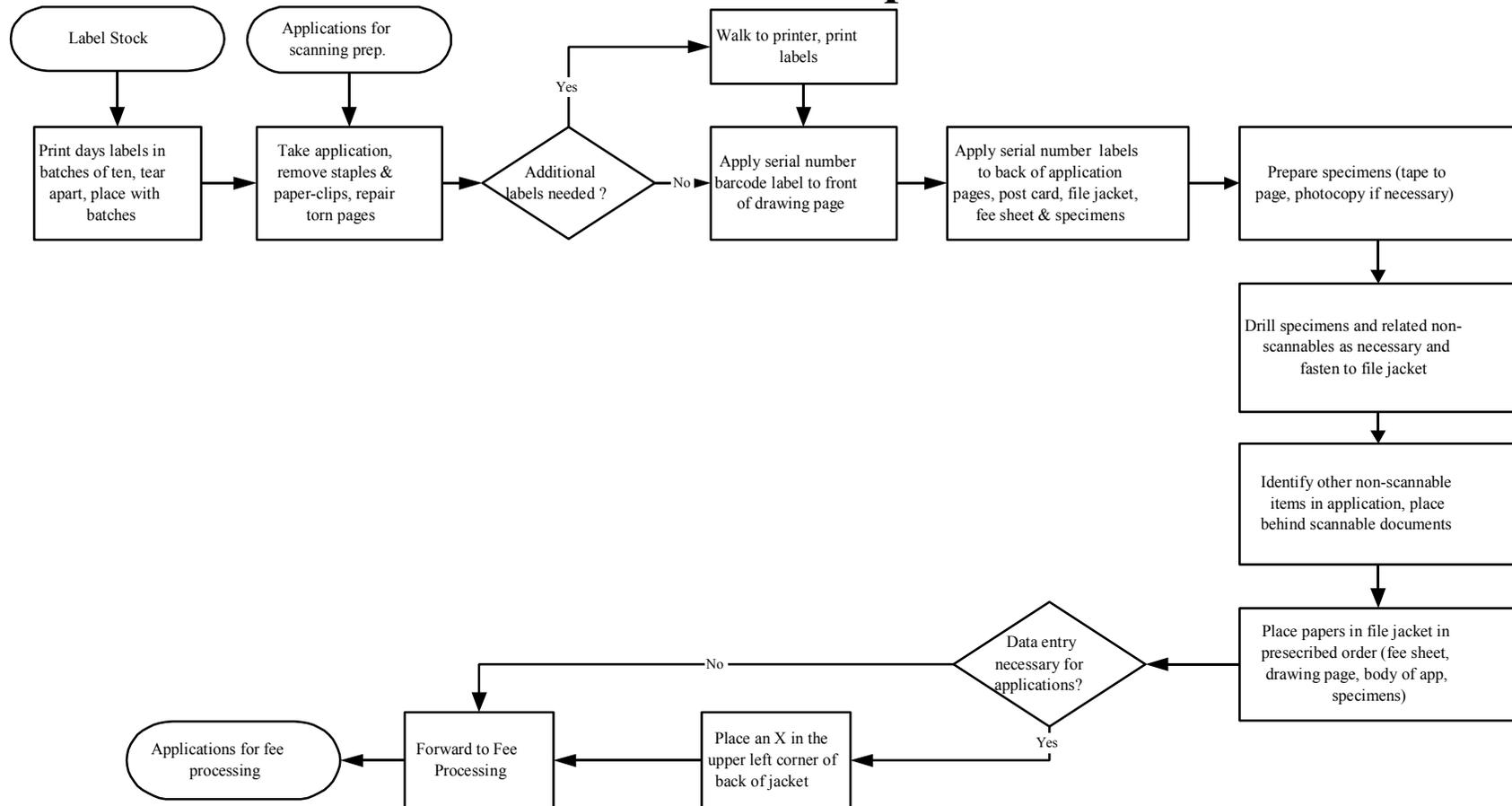


Figure 4 - TICRS Document Preparation Flow

3.1.4 Fee Processing

Fee processing receives all applications subsequent to Document Preparation. Fee collects and deposits all checks and credit card payments received for Trademark applications. Once payment from the customer has been cleared, Fee releases the application for imaging.

3.1.5 Text Editing

Manual data entry (keypunch) is performed on certain applications as directed by Pre-Exam management. Primarily part of error recovery, text editing cleans up in cases where the PDF has proved unsatisfactory. Data may be manually entered if an application failed to make it through CrossPRD. It may also be carried out instead of rescanning applications. Foreign applications or bulky applications can also be candidates for text editing.

3.1.6 LIEs

Legal Instrument Examiners (LIEs) take paper and imaged data from the rest of the Pre-Exam Unit and route and classify it for additional processing. They classify drawings into their proper hierarchies, tag data elements for Trade-Ups, and otherwise prepare applications for further determinations by Trademark staff attorneys.

3.1.7 Trademark Public Search Library

The Trademark Public Search Library (TMSL) receives digital images of unclassified drawings for searches by members of the public who wish to keep abreast of the latest developments in the Trademark field.

3.1.8 Contractor Images

One set of unclassified drawing digital images is provided to a USPTO contractor which offers a value-added database and search facility for sale to institutional and public customers.

3.1.9 Trademark Attorneys

Trademark attorneys are the primary customers of the imaging process. They work from the data fields tagged by the LIEs as well as from the images and paper of the filed applications. Attorneys make the final decision on the correct classification of applications and drawings. Ultimately, the attorneys review the contents of all applications and determine whether an application for a Trademark is granted in the first instance or not.

4. SYSTEM OPERATION PROCEDURES

Action Point's *InputAccel*, together with Prime Recognition's OCR, performs the majority of the image processing that completes the document conversion process. The *InputAccel* modules are outlined in Section 2 of this document above.

4.1 Start-Up Procedures

Before the *InputAccel* modules can be accessed, you must first access, or login to, the workstation's operating system. You will be logging into a Windows NT domain known as "TICRS".

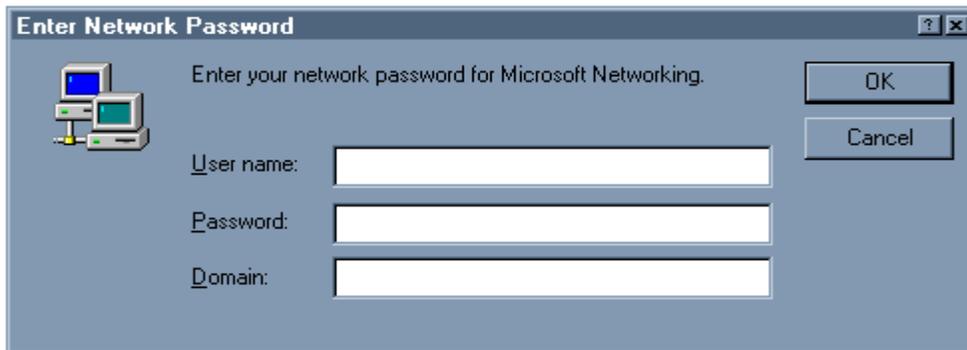


Figure 5 - Login dialog box

4.1.2 Windows NT Login Process

Table 4 - Windows NT login steps

Step	Action
1.	Turn on the workstation (PC and Monitor). The machine will boot up.
2.	Press Ctrl+Alt+Del if directed. This will allow you access to the Windows login screen.
3.	Enter your user name in the User Name field and password in the Password field. If the Domain field does not come up filled with the characters "TICRS", enter them (without quotation marks.)
4.	Press the Enter key to accept the information and connect to the Windows NT server. You will now be able to access the desktop where the modules reside.

5. SCANNING

Applications are fed into the high speed bulk scanners and the imaging system software creates a TIFF image for every page of an application. This results in a digital record of all pages of the application as filed. The output takes the form of Portable Document Format (PDF) and Optical Character Recognition (OCR) files to TradeUps. The scanning software interprets the values of both the mailroom and application number barcodes and uses this information in the logical splitting of one application from the next, as well as to populate the indexing fields. The following figure depicts this flow.

T.I.C.R.S. - SCANNING PROCESS

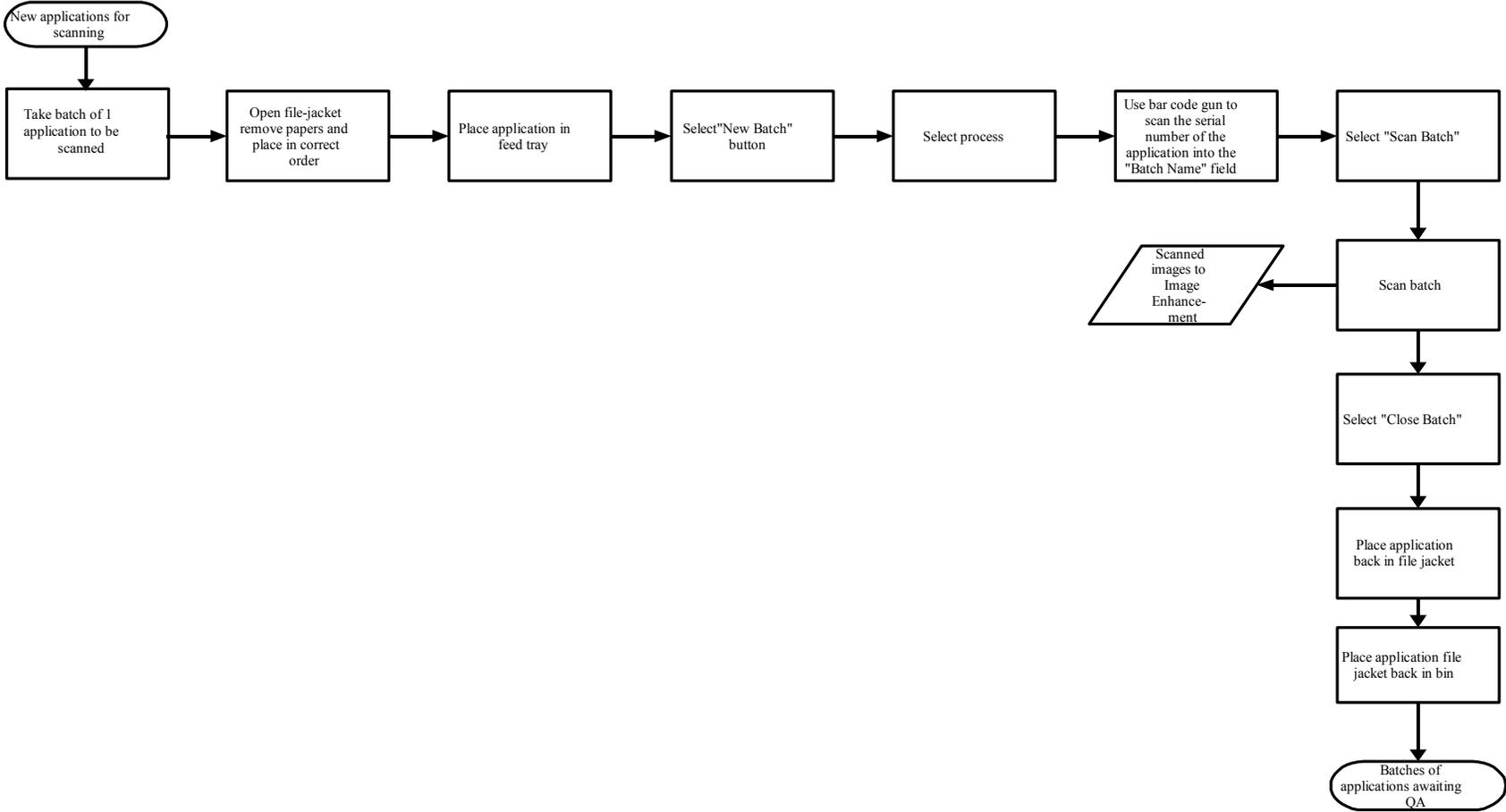


Figure 6 - Scanning Process Flow

5.1 Introduction to Scanning Workstation Operation

Scan operators feed the documents into a Kodak 3590C scanner which creates electronic images. Action Point's IAScan module is used at the Scan Workstation to drive the scanner. Documents are placed in the scanner's hopper in portrait orientation (lengthwise), printed side up, top of pages heading towards the scanner. The scanner pulls the documents in and scans them while printing information on the back of each page using the endorsement feature.

5.2 Kodak Scanner

The Kodak Digital Science™ Color Scanner 3590C scans at up to 85 pages per minute (ppm) (uniform letter size or A4, landscape). Its feeder and paper path are designed to eliminate presorting, jams and rescans. It supports the addition of more pages to a stack during scanning for continuous feeding.

5.2.1 Training

The scanner comes with an interactive CD, complete with video clips that help guide operators through scanner procedures.

5.2.2 Kodak Color Scanner 3590C Specifications

Recommended daily volume:

from 1,000 to 10,000 pages (up to 20,000 images duplex)

Source document input:

Minimum: 6.4 x 6.4 cm (2.5 x 2.5 in.)

Maximum: 66.0 x 30.5 cm (26 x 12 in.)

Thickness: 0.038 to 0.760 mm (0.0015 to 0.0300 in.)

Weights: 50 to 200 g/m² (13 to 110 lbs.)

Feeder capacity: 150 pages standard (250-page upgrade optional)

Output tray capacity: 250 pages (350-page optional upgrade)

Throat width: 30.5 cm (12 in.)

Multi-feed detection: length and thickness

Imaging:

Color: 150 dpi CCD developed and manufactured by Kodak

Black-and-white: 600 dpi CCD developed and manufactured by Kodak

Output:

Color: 100, 150 dpi JPEG or uncompressed, and with the ISIS or TWAIN driver, 150 dpi color and 200 dpi bitonal simultaneously.

Black-and-white: 200 or 300 dpi, TIFF, CCITT Group 3-1D, 3-2D, 4 or uncompressed

Dimensions:

Height: 31.75 cm (12.5 in.)

Width: 53.5 cm (21 in.)

Depth: 70.0 cm (27.5 in.)

Weight: 29 kg (64 lbs.)

Environmental factors:

Operating voltage range: 100 to 127 V AC, or 200 to 240 V AC, 50/60 Hz, single phase

Operating temperature: 15 to 35 °C (59 to 95 °F)

Operating humidity: 15 to 76% (dry bulb)

Altitude: up to 2,400 m (8,000 ft.)

Manufacturer:

EASTMAN KODAK COMPANY

Document Imaging

Rochester, NY 14650

1-800-243-8811

5.2.3 Scanner Maintenance

It is absolutely essential that you conduct, log, and track daily maintenance and cleaning on the scanner. Routine cleaning should be performed on each scanner at the beginning of each shift. Additionally, there is a requirement to periodically replace some of the scanner's consumable parts. This regular maintenance will greatly extend the life of the scanner and maintain the quality of the image captured and speed.

5.3 Barcode Gun

The barcode gun provides an easy way to enter data into the computer without using the keyboard. The application serial number is translated into a barcode and placed on the Trademark application. The barcode gun uses a red light to read the black and white lines of the barcode and then translates the lines back to numbers. The numbers are then placed into the batch name field in the Scan software.

To use the barcode gun, simply aim the gun at the barcode and squeeze the trigger. The barcode gun will emit a red horizontal line. Make sure the line goes across the entire barcode. The barcode gun will beep when the barcode has been successfully read. If the bar code misreads and the batch name field displays the incorrect batch number, manually edit it with your keyboard.

5.4 Workstation Startup and Logon Procedure

Table 5 - Scan Workstation start up and login process

Step	Action
1.	Turn on the scanner. Make sure the cable attaching the barcode gun to the computer is secure.
2.	Turn on the PC and the monitor. NOTE: Kodak 3590C stations must start the scanner first, then the workstation.
3.	Login to the network. Enter your user name in the User Name field and your password in the Password field of the Windows login screen. Domain should be TICRS . Press the Enter key to accept the information.
4.	Launch the Scan module by double-clicking the SCAN icon located on the desktop. You will see a message that the Scan module is logging into the server, and the Server Name field is pre-filled. Make sure that this Server Name is the same one that your Supervisor assigned to you. If not, please correct it.
5.	<p>Login to <i>InputAccel</i>. Enter your scan user name in the User Name field and your password in the Password field of the <i>InputAccel</i> login dialogue box and press the Enter key to accept the information.</p> <p>This dialogue box allows access to the module. After completing the login process, your workstation will show the Scan module's screen.</p>

5.5 Scanning Software

The figure below is a picture of the screen of the Scan module. The major components of the screen have been labeled and described.

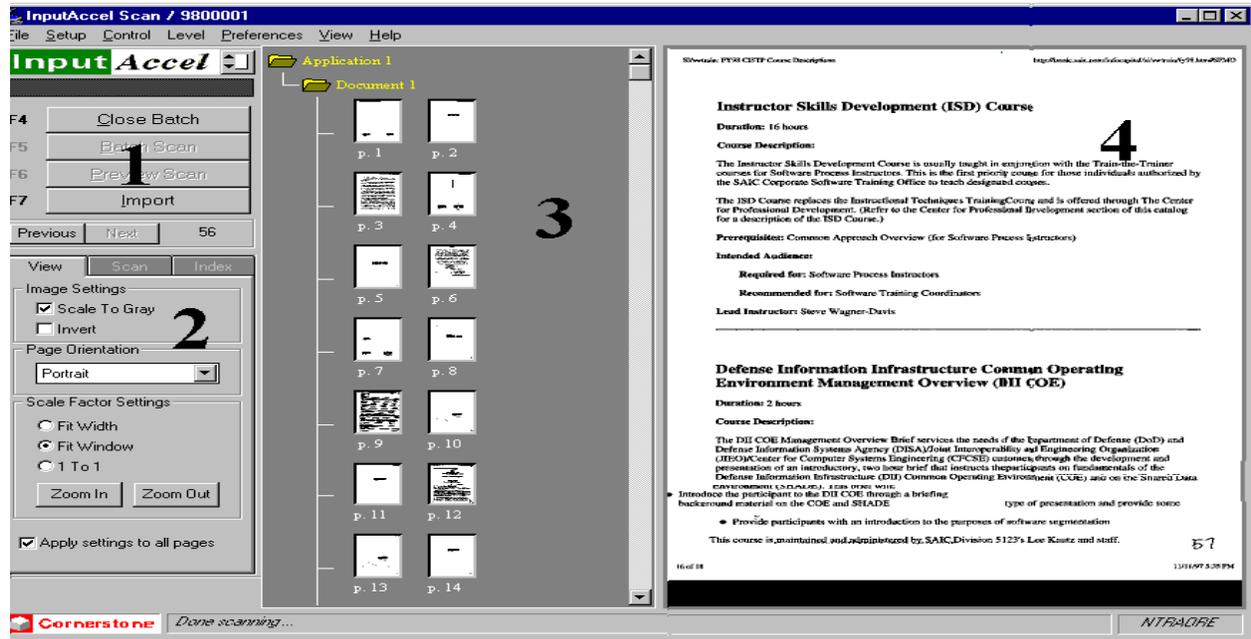


Figure 7 - Scan Screen

Table 6 - Scan Workstation components

Item	Description
1.	Control buttons and Hot Keys.
2.	VIEW, SCAN, and INDEX tabs. Each tab contains settings for viewing, scanning, and indexing the images. Operators should not have to alter the settings.
3.	Batch window. As the batch is scanned, thumbnails of the images being created are displayed in the batch window in the tree format.
4.	Image window. This window shows a single image in more detail than the corresponding thumbnail image. To show an image in the image window, click the thumbnail image in the Batch window.

5.6 Hot Keys

The following keys or combinations of keys can be used in place of the mouse.

Table 7 - Hot keys

Key	Description
F2	“New Batch” - Opens the New Batch dialogue box that allows a new batch to be created.
F5	“Scan Batch” - Begins the scanning process.
F3	“Preview Scan” - Used in Rescan only.
F4	“Close Batch” - Closes the batch, releases it to the pipeline, and stops the scanner.

5.7 Steps to Operate the Scan Station

Table 8 - Scan Station operation steps

Step	Action
1.	Place the application(s) in the hopper, printed side up, with text facing you.
2.	Click New Batch or press F2 to open the new batch dialogue box.
3.	Using the barcode gun, aim the gun at the application serial number barcode and squeeze the trigger. Make sure the red line produced by the barcode goes across the barcode label. This will read the serial number and load it to the Batch Name field. Double check the New Batch line in the Scan module to ensure that the barcode read correctly. If not, then manually correct it with your keyboard.
4.	Choose the process to be used from the drop down list of processes on the new batch dialogue box.
5.	Click OK to save the information.
6.	Click Scan Pages or press F5 to begin scanning. Monitor the scanner while the batch is being scanned and make sure that the paper is moving through the scanner and that no jams have occurred. Monitor the images in the Image View window to make sure that they are clean and do not have lines, streaks, etc. going through them.
7.	Click Finish Scanning and then Close Batch when all the pages have been through the scanner. This stops the scanner.
8.	Click YES to complete the batch and prepare the scanner and software for a new batch.
9.	Remove the scanned application(s) from the stacker.
10.	Repeat with the next application(s).

In the Batch window on the Scan screen, a scanned batch will look like the one below. All the pages of a batch will be together, they will not be divided into applications and documents.

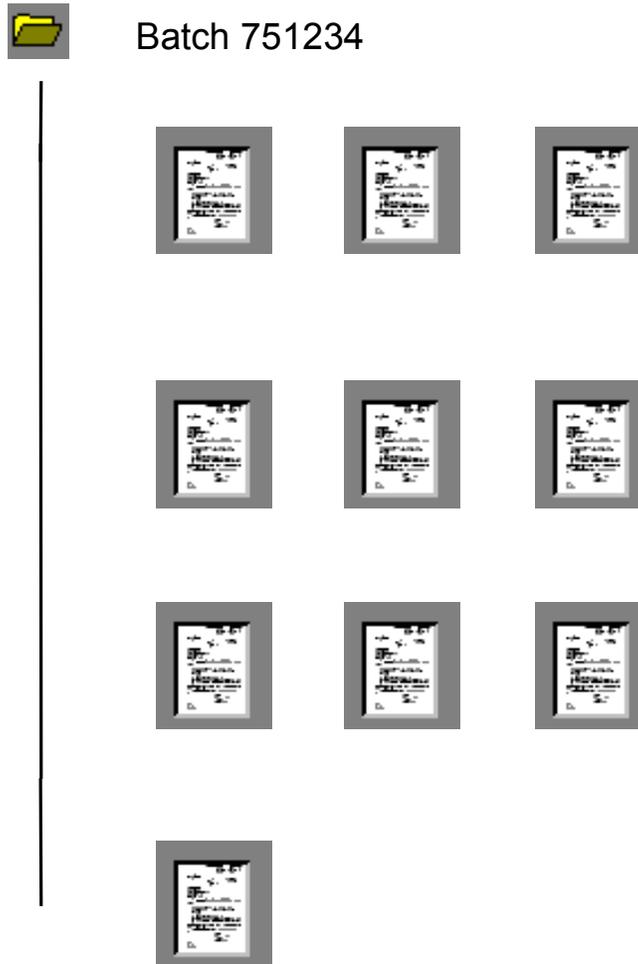


Figure 8 - Scanned batch

Once you push **Close Batch** in IAScan, the batch is released to Image Enhancement where each image in the batch is enhanced if needed.

5.8 Error Recovery

Error recovery is done on both the scanner hardware and in the workstation software, IASCAN. The errors typically fall into one of two categories: Paper Jams or Initial Checks.

5.8.1.1 Paper Jams

When the Kodak 3590C scanner has a paper jam, the scanner and the software will stop and display an error message.

Clear the scanner.

At the workstation perform the following:

Table 9 - Paper jam recovery for the workstation

Step	Action
1.	Click CANCEL to pause the application.
2.	Close the batch.
3.	Have a supervisor delete that batch.
4.	Scan that batch again.

Special note: If multiple jams occur before a workstation is shut down for any reason, then power down the workstation after 3 or more jams. This is done to clear the workstation's memory. The workstation creates and leaves open files each time the scanner jams. If too many files are left open, the scanner can begin to behave erratically to the point of locking up. Rebooting the machine unloads all of these files.

5.8.1.2 Initial Checks

Some of the most common problems an operator is likely to encounter are listed below.

If the POWER light doesn't go on:

- Is the power cable plugged in?
- Is the power switch on?
- Is the SCSI terminator connected?

If none of these steps corrects the problem, be sure to contact a supervisor.

If black stripes appear in the image window in Scan:

- Is the clear position of the lamp obstructed by the heater? If yes, then attach the heater correctly.
- Is the lamp surface dirty? If yes, then clean the lamp's surface.
- Is the lamp burned out? If yes, then replace the lamp.

If none of these steps corrects the problem, then contact a supervisor.

6. IMAGE ENHANCEMENT

6.1 Description

The purpose of this module is to clean up images that are created in the scan process. This module removes the black borders from images, corrects the angle of skew for a page, and recognizes the barcoded data that was applied during document preparation.

Scanners can create black borders when they scan an image. The Image Enhancement module border filter deletes these to improve readability of the image and reduce its file storage size.

Occasionally, paper documents do not go through the scanner straight. This causes the text on the image to be skewed and hard to read. The Image Enhancement module's deskew filter corrects the text angle to make it more readable and increase the accuracy level of OCR (Optical Character Recognition).

The Image Enhancement barcode recognition filter is used to identify the various barcode labels on the Trademark application. Any images with barcodes are recognized by Image Enhancement then sent to the IAMulti utility, where divisions between applications will take place automatically.

Image Enhancement is an unattended module that runs automatically. Although the system administrator will start up the module and monitor its processing, the operator must be prepared to do so. The following figure is a picture of the Image Enhancement module screen.

Table 10 - How to start the IE module

Step	Action
1.	Double- click Image Enhancement .
2.	Pick the server (no authentication required).
3.	Click Wait for Task .

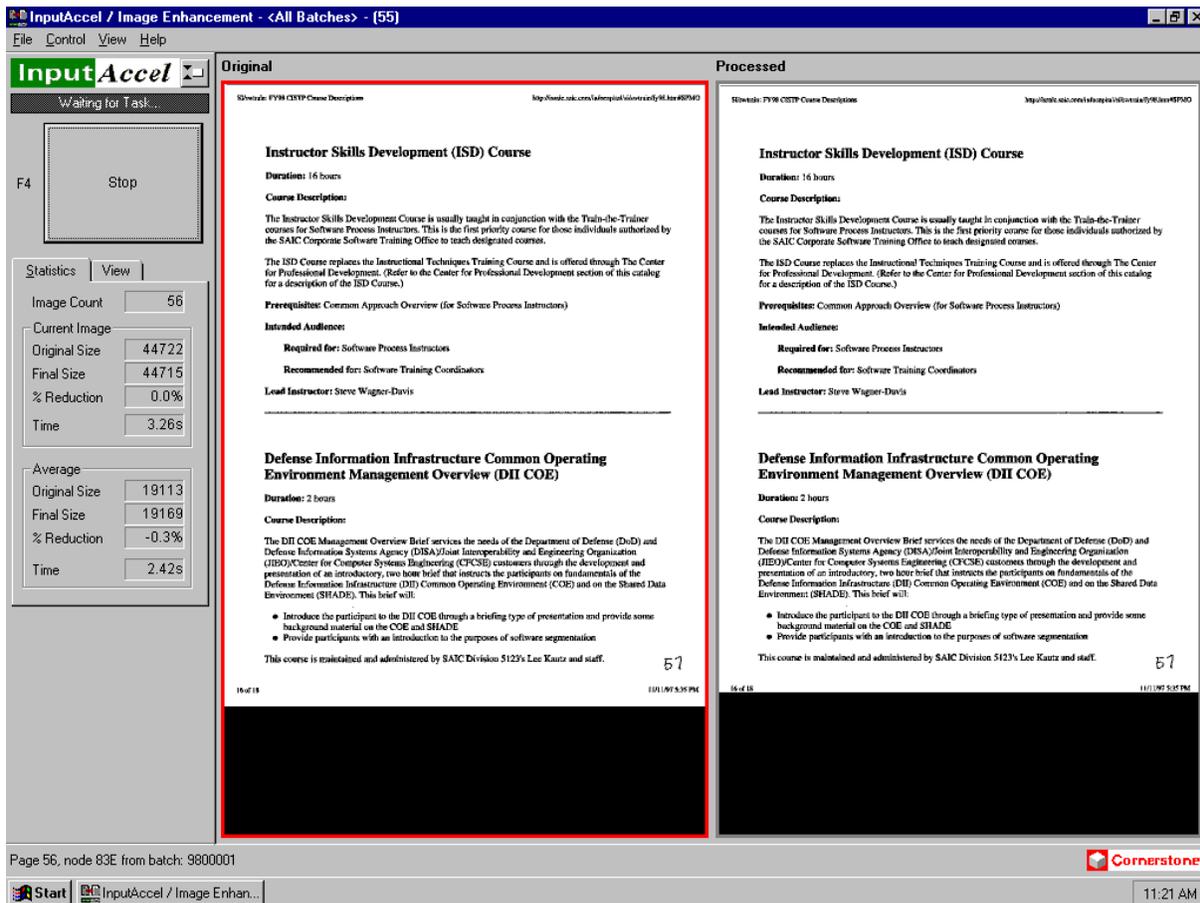


Figure 9 - Image Enhancement module screen

7. IAMULTI UTILITY

7.1 Description

IAMulti is an unattended module that performs several different functions. These unattended processes are triggered by information received from the Image Enhancement module.

7.2 Application Split Function

IAMulti receives images that contain barcodes from Image Enhancement. Whenever the serial number barcode is read by IAMulti, it splits the batch at the Trademark application level, creating a tree structure with distinct Trademark application branches. The following figure presents the tree structure after the split process. (Note: Only the numbers for batch and application appear after a split).

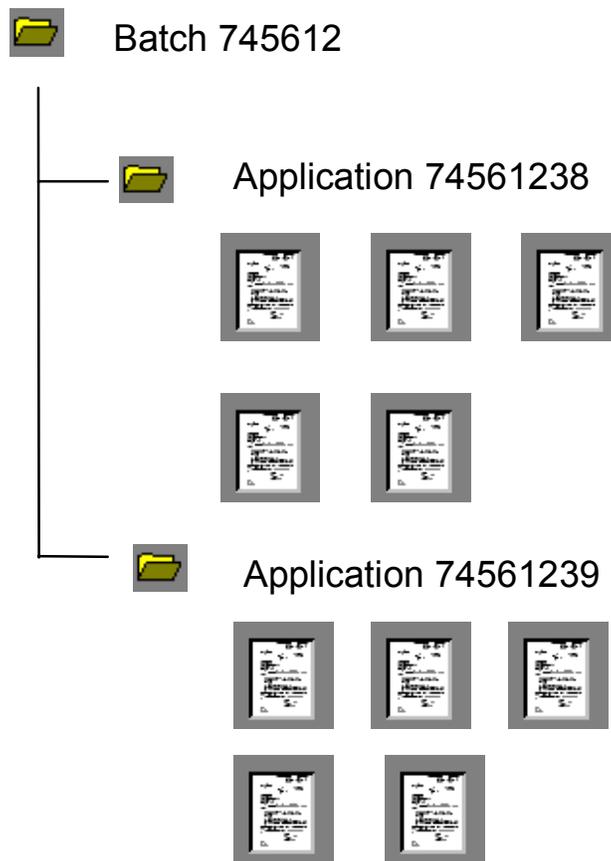


Figure 10 - Tree structure after application split

8.2 Document Split Function

Image Enhancement recognizes the document separator barcodes and sends the images to a second version of the IAMulti Utility. Whenever IAMulti reads a document separator barcode, it splits the Trademark application at the document level, creating a tree structure with distinct Trademark applications containing distinct documents. The following figure for an illustration of the tree structure after document split.

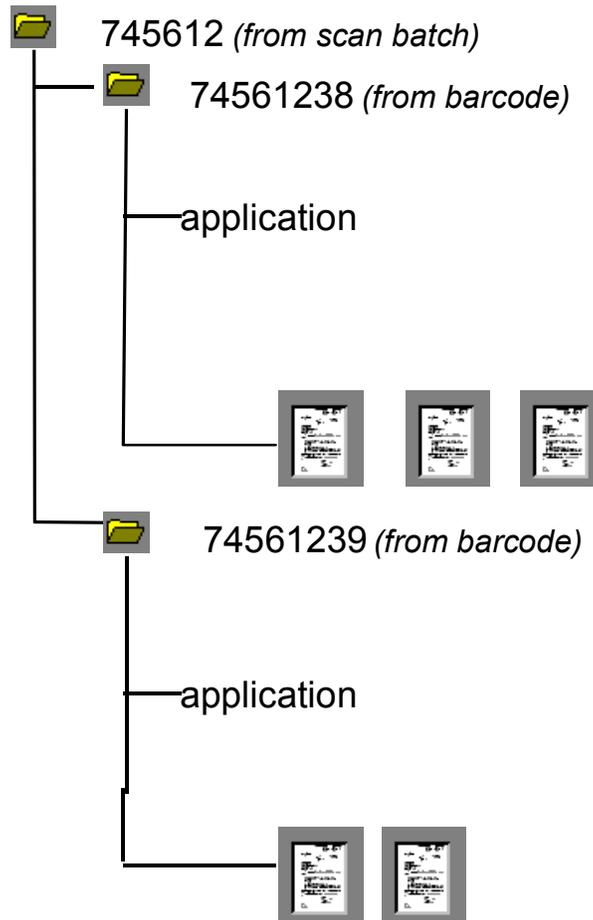


Figure 11 - Tree structure after application split

Although the system administrator will start up the module and monitor its processing, the operator must be prepared to do so. The IA Multi module is started by going to Start, Programs, Windows NT Explorer. Then click the + in front of the C: drive, and also in front of *Iaclient*. Highlight the directory named **binw**. You will see a list of all the modules under the contents of **binw**. *Iamulti* can be started by Double -clicking its icon. The *InputAccel* login dialog box comes up. Login and then go to File, Start. When the batches arrive at the QA workstation, the distinct branches created by the split utilities will be visible.

8. QUALITY ASSURANCE (QA)

8.1 Introduction

The Quality Assurance (QA) module is an attended module that displays the images so that they can be reviewed by Quality Assurance operators for quality, legibility and identity. To identify the drawing page, examine the thumbnails of the application and, when a drawing page appears, click **Drawing** to mark that thumbnail.

The best rule for QA is that if something is not on the original page but on the image, mark it for rescan. Conversely, if something is on the original page but not on the image, also mark the image for rescan.

You judge the quality of the image by checking for conditions such as :

- too light,
- too dark,
- skewed,
- noise,
- missing pages,
- bent corners,
- readability, or
- any other defect that is not a result of a poor quality paper original.

Images that require rotation can be rotated using buttons or hot keys. Images with defects are marked, but marking images does not automatically correct the flaw. Any image that is marked at the QA station is routed to the Rescan module where it will be rescanned. Images that are not needed are marked for deletion and deleted within the module.

The QA module screen includes the Batch Window, which displays the images in a graphical tree structure showing the relationship of pages within documents and documents within an application and applications within a batch. The images are shown as **thumbnails**, which are small representations of images. This view enables it to be determined where a given image falls within the Trademark application. Images may be manipulated in QA to split off applications that were mistakenly processed as part of another application, or to identify specimens.

The screen also has an Image Window, where a single image is shown in detail. This view allows the image to be viewed in greater detail, using the **Zoom In** and **Zoom Out** buttons, so that information such as serial number can be determined.

To see an image in the Image Window, click the thumbnail in the Batch Window.

The QA screen provides a view of the images as thumbnails in the tree format as well as a view of the image in a larger, more detailed format. You can click a particular thumbnail in the tree and the detailed image will appear in a separate window. If even more detail is necessary, you can use the zoom feature to enlarge a specific part of the image. The screen also provides a set of buttons that are used to navigate and checkboxes that are used to mark the defective images if necessary. Steps for reviewing images are in the following sections.

In some cases documents may have been scanned in the wrong order, or document separator sheets may not have worked. In these situations images may have to be moved or document “branches” may have to be manually created on the tree. Steps for moving images and creating branches are also included in the following sections.

Table 11 - QA Software Components

Item	Description
1.	Control buttons and Hot Keys.
2.	Image Quality Box: This box contains check boxes, which are used to mark the image for rescan. The most important of these is the Drawing box, which must be checked to identify the .TIF that is the page showing the drawing of the Trademark application item.
3.	Rotation Buttons: These buttons can be used to rotate images that have been scanned in the wrong orientation.
4.	Batch window: This window contains thumbnails of the images displayed in the tree format.
5.	Image window: This window shows a single image in more detail than the corresponding thumbnail image. To show an image in the image window, click the thumbnail image in the Batch window.

An IMAGE QUALITY box contains a variety of check-boxes, which are used to mark the image for rescan and to identify image quality errors. The most important of these is the Drawing box, which must be checked to identify the .TIF that is the page showing the drawing of the Trademark application item. A description of the check boxes appears below.

Table 12 - Check boxes in the Quality Assurance module

Check Box	Description
Drawing	Check this box to identify the .TIF that is the page showing the drawing of the Trademark application item
Too Light	Self explanatory
Too Dark	Self explanatory
Noise	Too many dark spots
Skewed	Image is crooked
Bent corner	Self explanatory
Wrong image	Incorrect page
Double feed	Two or more pages scanned simultaneously

8.3 Workstation Start up and Logon Procedures

Table 13 - Workstation start up and logon process

Step	Action
1.	Turn on the workstation (CPU and monitor.)
2.	Login to the network. Enter your user name in the User Name field and your password in the Password field of the Windows login screen. Domain should be TICRS . Press the Enter key to accept the information.
3.	Launch the QA module by double-clicking the QA icon located on the desktop. You will see a message that the QA module is logging into the server, and the Server Name field is pre-filled. Make sure that this Server Name is the same one that your Supervisor assigned to you. If not, please correct it.
4.	Login to <i>InputAccel</i> . Enter your scan user name in the User Name field and your password in the Password field of the <i>InputAccel</i> login dialogue box and press the Enter key to accept the information. This dialogue box allows access to the module. After completing the login process, your workstation will show the QA module's screen.

8.5 Hot Keys

Table 14 - Quality Assurance module hot keys

Key	Description
F2	“Wait for Tasks” - This puts the QA module in a “Wait” mode. The server will automatically send available batches (tasks) to the QA module when it is in this mode.
F3	“Accept Tasks” - Closes the batch, saves the information, and releases the batch to the next module. This should be used when the batch is completed.
F4	“Cancel Task” - Closes the batch without saving the information and places it back into the pool of available batches. Does not release the batch to the next module.
F6	“Pause/Continue” - Pauses or continues the processing.
F12	“Exit” - This exits the module.
Right mouse button	In the Image Window, a single click (and drag) on the right mouse button can draw a box. That box then becomes enlarged, so greater detail is available. A Double -click the button will pull up a menu that allows image manipulation. In the Batch Window, a Double -click the right mouse button pulls up a menu that allows the batch to be canceled or accepted.

8.6 Steps to Review Images for Defects

Table 15 - Image Review Steps

Step	Action
1.	Once you are at the QA screen, click Open Batch or press F5 to select the name of the batch.
2.	The server will send the selected batch of images to the workstation for you to review. Review each image and determine whether it needs to go to rescan. To see an enlarged version of a thumbnail, click the thumbnail. It will appear in the Image Window, larger and in more detail.
3.	Mark each image that needs to go to rescan using the check boxes.
4.	Click Accept Task or press F3 to complete the batch.
5.	Click Yes .
6.	Repeat.

8.7 Steps to Delete an Image

Table 16 - Steps to delete an image

Step	Action
1.	Open a batch once you are at the QA screen.
2.	To see an enlarged version of a thumbnail, click the thumbnail. It will appear in the Image Window, larger and in more detail. Click and drag across the image that needs to be deleted. This will select the image, giving it a black background.
3.	Press the Delete key on the keyboard. A message box will appear. Click Yes or press ENTER to confirm.

8.8 Steps to Rotate an Image

Occasionally, images may be scanned upside down. The QA screen contains Image Rotation buttons that allow the image to be rotated until it is right side up.

Table 17 - Steps to rotate an image

Step	Action
1.	To select, click the image.
2.	Click one of the three Rotation buttons to rotate the image as desired.

8.9 Steps to Move an Image

Occasionally, images may be scanned in the wrong order and need to be moved.

Table 18 - Steps to move an image

Step	Action
1.	Click (to select) and drag the image or images that need to be moved to the new location.
2.	Release the mouse button to place the images in the new location.
3.	A message box appears. Click Yes or press ENTER to confirm.

8.10 Steps to Add or Delete a Branch to the Scanned Batch

Occasionally, document separator barcodes or application barcodes may not be read in Image Enhancement, which means the automatic separation did not take place. Application and specimen branches can be added in the QA module.

Table 19 - Steps to add or delete a branch to the scanned batch

Step	Action
1.	Place the flashing cursor in front of the image or images that need to be in a separate branch.
2.	Click Edit on the toolbar. A pull-down menu box appears with the selections Rotate and Insert . Highlight Insert .
3.	Two options appear. Click Application to add an application branch, or Specimen to add a specimen branch.
4.	To delete a branch, click and drag across the application or specimen branch. It will now be highlighted.
5.	Press the delete key on the keyboard. The application or specimen branch and all images in that branch will be deleted.

Any images that were marked as having a need to be rescanned. All other images go to Indexing.

8.11 Steps to Zoom/Unzoom an Image

An operator may need to see a magnified portion of an image to determine its quality. The single image display window can zoom and unzoom.

Table 20 - Steps to zoom/unzoom an image

Step	Action
1.	Click and drag on an image in the single image viewer with the Right Mouse Button. This creates a rectangle.
2.	Release the right mouse button. The viewer now enlarges the selected portion to fill the window. This is how to ZOOM on an image.
3.	To restore the image to a full-page display, click the page with the right mouse button. A menu will pop up.
4.	Select Fit To Window from the list. This UNZOOMS the display.

9. RESCAN

9.1 Introduction

The Rescan module is an attended, batch level module that lets operators “fix” pages in a batch. You can correct scanning mistakes that were caught and marked by the QA operator with a large X through the image. The program allows you to scan pages over again and either insert or append missing pages. Rescanning is only done on marked batches and can only be done once after the batch has been through QA. Any batch marked for rescan will not continue its process flow until an operator has viewed all marked pages and either replaced, appended or otherwise approved that image.

A Rescan workstation is composed of a PC with an attached flatbed scanner. The PC receives and accepts batches from the *InputAccel* server and the flatbed is used to create the images of paper documents.

9.2 Workstation Startup and Logon Procedure

Table 21 - Workstation startup and logon procedure

Step	Action
1.	Turn on the scanner.
2.	Turn on the workstation.
3.	Enter your user name in the user name field and your password in the password field.
4.	Press the Enter key to accept the information. This will allow you to access to the Windows desktop and view of the program icons

9.3 Fujitsu fi-4750C Scanner

The Fujitsu fi-4750C scanner is available as a backup either to the Kodak 4590 for scan work or to the Scan Partner 600 flatbed for rescan work.



Figure 13 – Fujitsu fi-4750 Scanner

9.3.1 Scanner Maintenance

You need to make sure that the glass on the flat bed is kept clean. There are no user accessible moving parts and, with the low to moderate usage that they typically receive, the scanners should last a very long time.

9.4 Rescan Software

The figure below is a picture of the screen of the Rescan module. The major components of the screen are labeled and described.

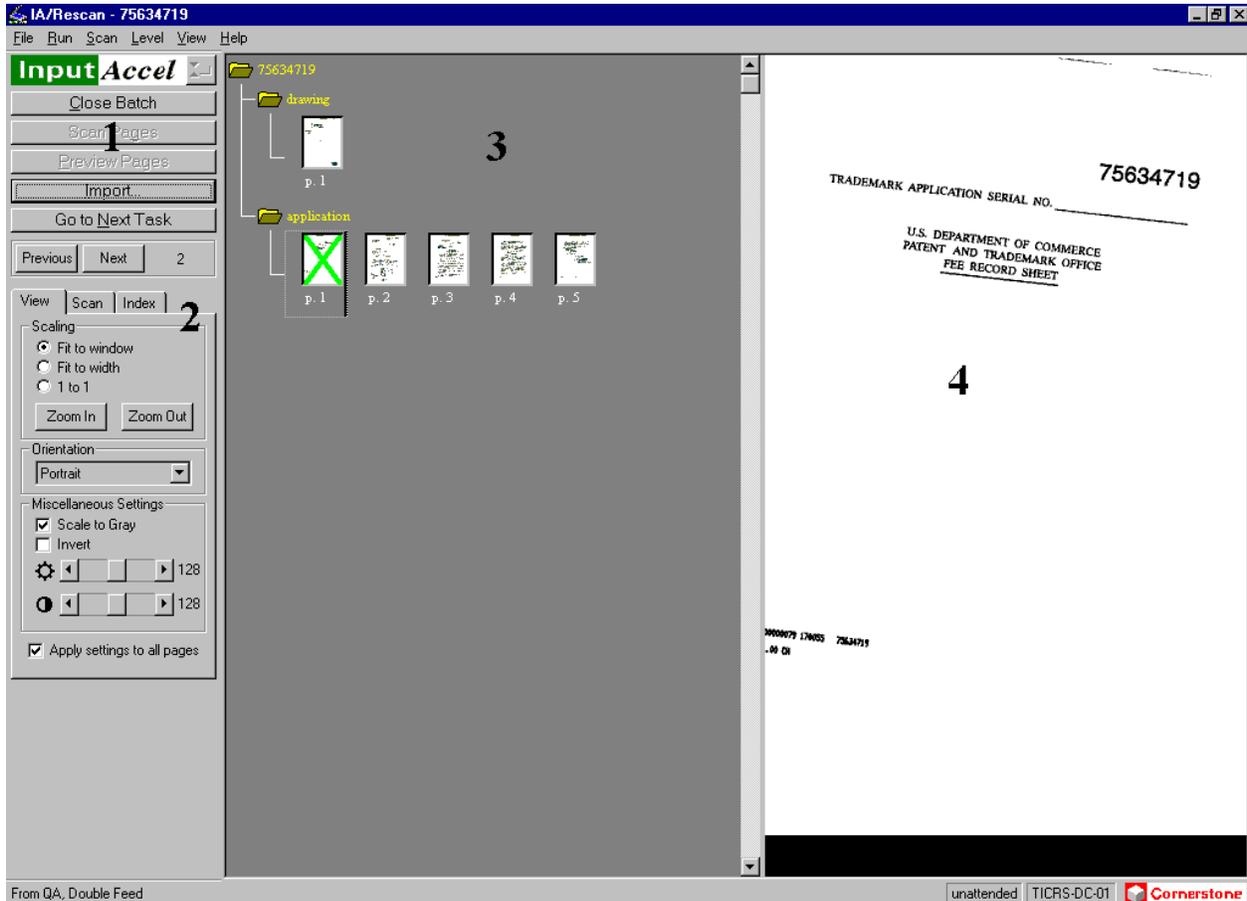


Figure 14 - Rescan screen

Table 22 - Rescan module software components

Number	Description
1.	Control buttons and Hot Keys.
2.	VIEW, SCAN, and INDEX tabs. Each tab contains settings for viewing, scanning, and indexing the images. Operators should not have to alter the settings.
3.	Batch window. This window contains thumbnails of the images displayed in the tree format. Images needing to be rescanned will be marked with a colored X. A blue X indicates that the image will be replaced as in the case where an image is, for example, too dark. A green X indicates that an image will be appended after the marked image as in the case where a doublefeed.
4.	Image window. This window shows a single image in more detail than the corresponding thumbnail image. To show an image in the image window, click the thumbnail image in the Batch window. As

Number	Description
	a page is rescanned, the new image appears in this window.

9.5 Hot keys

The following keys or combination of keys can be used in place of the mouse.

Table 23 - Rescan software hot keys

Key	Description
F2	Wait for Task allows the server to route unprocessed batches to rescan.
F3	Open Batch enables the operator to choose a batch from a list of available batches.
F4	Close Batch To close the current batch.
F5	Scan Pages scans pages through the ADF.
	Preview Pages scans one page at a time on the flatbed's glass surface.
F8	Moves the cursor to the next image to be rescanned.
<Ctrl> + N	Moves the cursor to the next image.
Tab	Moves the cursor between commands
F12	Exit the module

9.6 Steps to Operate the Rescan Station

Table 24 - Steps to operate the rescan station

Step	Action
1.	Turn on the workstation (CPU and monitor).
2.	Login to the network. Enter your user name in the User Name field and your password in the Password field of the Windows login screen. Domain should be TICRS . Press the Enter key to accept the information.
3.	Launch the Rescan module by double-clicking the RESCAN icon located on the desktop. You will see a message that the Rescan module is logging into the server, and the Server Name field is pre-filled. Make sure that this Server Name is the same one that your Supervisor assigned to you. If not, please correct it.
4.	Login to Input <i>Accel</i> . Enter your scan user name in the User Name field and your password in the Password field of the Input <i>Accel</i> login dialogue box and press the Enter key to accept the information. This dialogue box allows access to the module. After completing the login process, your workstation will show the Rescan module's screen.
5.	Click Open Batch or press F5 to select the name of the batch to be reviewed.
6.	The server will send the applications with defected images to your workstation. The focus will be set to the first image that was marked for rescan.
7.	Pull the page out and confirm that it is the original of the marked image.
8.	Load page(s) into the Automatic Document Feeder of the scanner face up, tail in.
9.	Click Batch Scan or press F5 to rescan the page(s) through the automatic document feeder; or click Preview Scan to use the flatbed rather than the ADF. Click after an image if it is marked as a double-feed and add the pages to the batch.
10.	Click Next Rescan Pages to go to the next image to be replaced, or press F8 .
11.	Repeat the process until the message "No pages to rescan in this batch" is displayed on your screen..
12.	To decline rescanning an image that is displayed with an X, click Rescan Next Page to move on. The system will ask for a confirmation.
13.	Click OK to close the current batch.
14.	Restart the process from step 3 of this table.

10. RESCAN ENHANCEMENT

10.1 Description

Rescan Image Enhancement uses the same module as the Image Enhancement task explained above and performs the same functions (except the barcode recognition, which is unnecessary). Pages that have been modified by the Rescan module will be routed through the Image Enhancement module for possible correction of any skew and border removal.

The Rescan Enhancement module is an unattended module that runs automatically. Although the system administrator will start up the module and monitor its processing, you must be prepared to do so. Steps to start this module are the same as the steps to start the Image Enhancement module. Please refer to the "Image Enhancement" section of this manual for details.

11. INDEXING

11.1 Introduction

The Index module is an attended module used to record information associated with the image files. The index data is saved in a file with the images on the server. This module allows you to validate the existing index information while entering additional information.

As explained above, the Image Enhancement module reads the barcodes that are on the application and the document separator sheets and saves the values. These values are sent to the Index module, where they are presented in **Serial Number** and **Mail Room Date** fields. The Trademark application serial number and mail room date are present for the entire application. The document type is present for each document. You review the complete Trademark application, moving to each document, entering or verifying the indexing information.

Note that the No OCR barcode is read and displayed if present. See Section 11.6 NO OCR Feature for its usage and capabilities.

11.2 Workstation Startup and Logon Procedures

Table 25 - Workstation startup and logon procedures

Step	Action
1.	Turn on the workstation (CPU and monitor).
2.	Login to the network. Enter your user name in the User Name field and your password in the Password field of the Windows login screen. Domain should be TICRS . Press the Enter key to accept the information.
3.	Launch the Index module by double-clicking the INDEX icon located on the desktop. You will see a message that the Index module is logging into the server, and the Server Name field is pre-filled. Make sure that this Server Name is the same one that your Supervisor assigned to you. If not, please correct it.
4.	Login to <i>InputAccel</i> . Enter your scan user name in the User Name field and your password in the Password field of the <i>InputAccel</i> login dialogue box and press the Enter key to accept the information. This dialogue box allows access to the module. After completing the login process, your workstation will show the Index module's screen.

11.3 Indexing Software

The purpose of the Indexing module is to enable you to verify and apply information to the images that have been created, so that they can be stored and retrieved in the future.

The Index module screen includes the Batch Window, which displays the images in a graphical tree structure, showing the relationship of pages within documents and documents within an application and applications within a batch. The images are shown as **thumbnails** which are small representations of images. This view enables it to be determined where a given image falls within the Trademark application.

The screen also has an Image Window, where a single image is shown in detail. This view allows the image to be viewed in greater detail, so that information such as serial number can be determined.

To see an image in the Image Window, click the thumbnail in the Batch Window.

The figure below is a picture of the screen of the Indexing module. The major components of the screen are labeled and described.

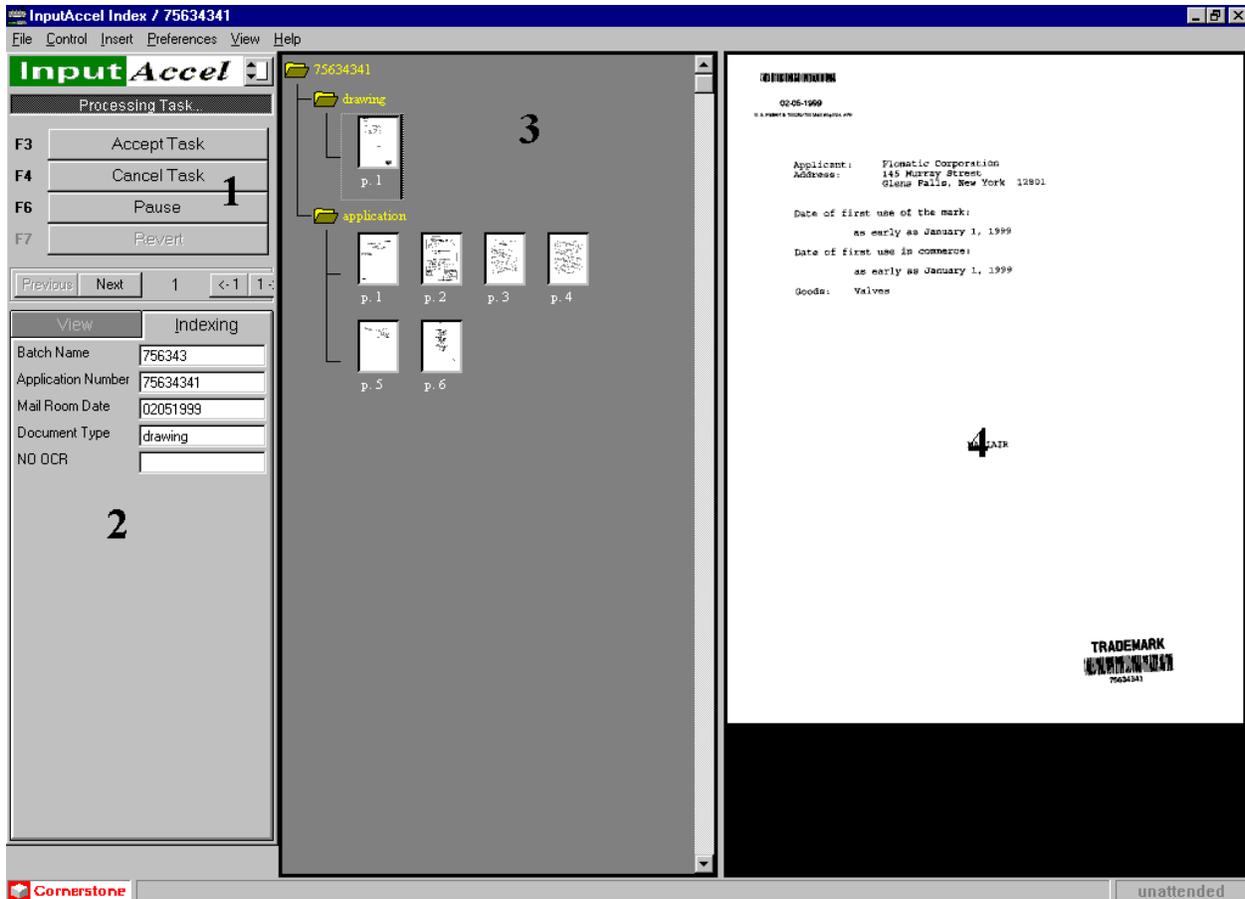


Figure 15 - Indexing screen

Table 26 - Indexing software components

Item	Description
1.	Control buttons and Hot Keys.
2.	Indexing fields. This section contains the indexing fields, which is information to identify the different documents and applications.
3.	Batch window. This window contains thumbnails of the images, displayed in the tree format.
4.	Image window. This window shows a single image in more detail than the corresponding thumbnail image. To show an image in the image window, click the thumbnail in the Batch window.

11.4 Hot Keys

The following keys or combination of keys can be used in place of the mouse.

Table 27 - Indexing Software Hot Keys

Key	Description
F2	Wait for Tasks - This puts the Indexing module in a "Wait" mode. The server will automatically send available batches (tasks) to the Indexing module when it is in this mode.
F3	Accept Tasks - Closes the batch, saves the information, and releases the batch to the next module. This should be used when the batch is completed.
F4	Cancel Task - Closes the batch without saving the information and places it back into the pool of available batches. Does not release the batch to the next module.
F6	Pause/Continue - Pauses or continues the processing.
F12	Exit - This exits the module.
Right mouse button	In the Image Window, a single click (and drag) on the right mouse button can draw a box. That box then becomes enlarged, so greater detail is available. A Double -click the button will pull up a menu that allows image manipulation. In the Batch Window, a Double -click the right mouse button pulls up a menu that allows the batch to be canceled or accepted.

11.5 Steps to Operate Indexing Station

Table 28 - Steps to operate indexing station

Step	Indexing
1.	Once you are at the Indexing screen, click Open Batch or press F5 to select the name of the batch. The server will send the selected batch of images to the workstation for you to review.
2.	Validate the indexing fields of each image. <ol style="list-style-type: none"> 1. Confirm that the Batch Name field contains the 6 digit number of the batch the image belongs to. 2. Confirm that the Application Number field contains the 8 digit serial number that is on the serial number barcode label on the first page of the application. 3. Confirm that the Mail Room Date field contains the 8 digit date that is on the mail room date barcode label on the first page of the application. 4. Confirm the Document Type in the Document Type field matches the type of document pictured in the image. 5. NO OCR field – will be filled with NO OCR if a document is marked with a NO OCR bar code. Indexers cannot edit this field. 6. Correct any of the fields that are incorrect. 7. “Split out” any pages that are specimens and identify them as such from the picklist in the Document Type field.
3.	Press the Ctrl and n keys simultaneously to move to the next image.
4.	Repeat with all the images in the batch.
5.	Click Accept Task or press F3 to complete the batch and send it to the next module in the process.

T.I.C.R.S - QA, Rescan, and Indexing

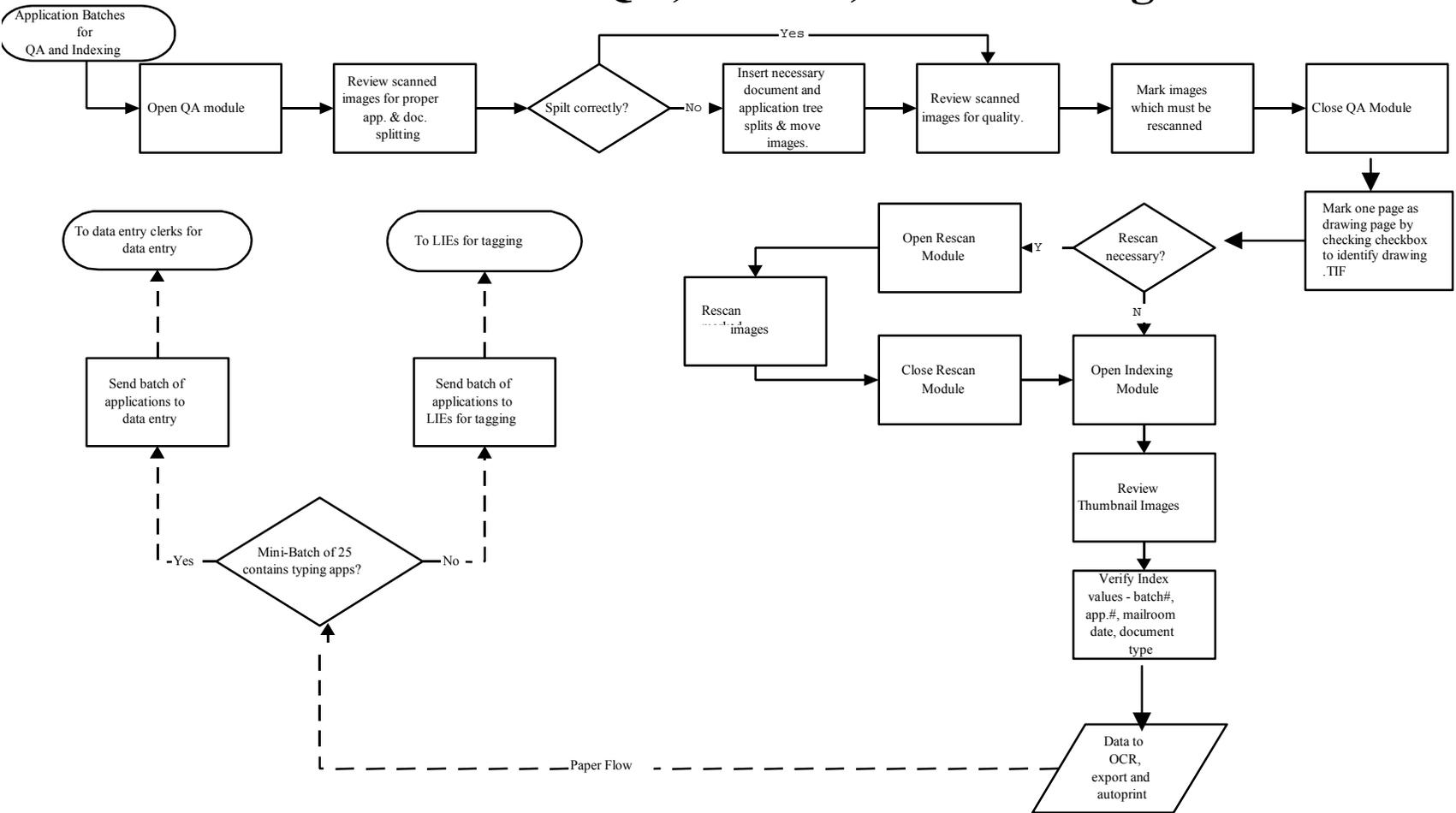


Figure 16 - QA, Rescan and Indexing Process Flow

11.6 NO OCR Feature

11.6.1 Overview

The NO OCR feature has been implemented to handle Trademark Electronic Application System (TEAS) applications. TEAS applications do not go through the OCR process.

11.6.2 Description

A TEAS application is submitted over the internet and is programmatically downloaded to TradeUpS when it arrives at PTO. Because the images need to be loaded into the Oracle database for retrieval, a copy of the TEAS application is also printed out for scanning into the TICRS system. Since these applications arrive electronically, OCR is not necessary.

TEAS applications are generally grouped together in a batch. However, it is possible that TEAS applications may be interspersed with standard applications in a given batch. The TEAS applications are identified by a third "NO OCR" barcode printed on the first page of the application. The "NO OCR" barcode indicates to InputAccel that the application should not be OCRd. If an application is identified as NO OCR, that information will be displayed in a fifth field in the Indexing module. Besides the special NO OCR treatment, all other standard processing is performed on TEAS applications.

11.6.3 Changes

A new "NO OCR" index field has been added to the Index module. The words "NO OCR" are displayed in the field when it is a TEAS application. The field remains blank for all other applications. This field may not be edited.

Following is a screen capture of a TEAS application that illustrates the view of the Drawing Page as modified by the NO-OCR feature.

11.7 Duplex Scanning

11.7.1 Overview

Duplex scanning has been implemented to capture both sides of applications.

11.7.2 Description

Standard forms and other applications may have data on both sides of the page that needs to be captured. Useless data such as blank pages and backsides with just a mailroom date are automatically deleted by the Image Enhancement module.

11.7.3 Changes

The front and back of each page are displayed as thumbnails in the Batch Window of the Scan module.

Any backside page with pertinent data is displayed and available for processing in the QA, Indexing and Rescan modules.

Following is a screen capture to illustrate duplex scanning as it affects the Scan module.

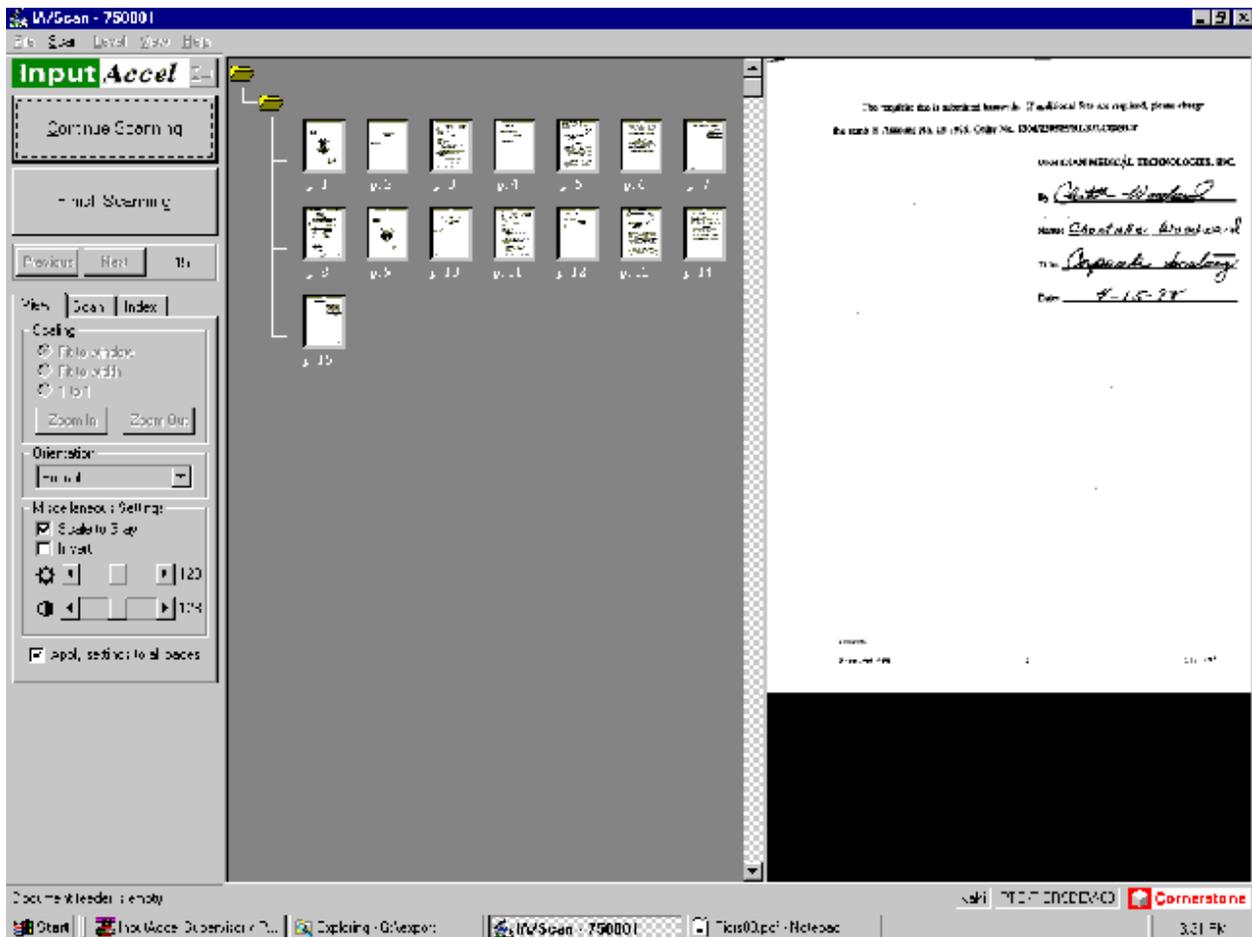


Figure 18 - Scan Module, Duplex Scanning

12. PRIME OCR (OPTICAL CHARACTER RECOGNITION)

12.1 Introduction

An **image** is a scanned copy of a document. Images are not editable and therefore cannot be modified from their original version. Once scanned, these images are stored in **TIF** format and remain available only for retrieval and printing.

A **text** file is an editable version of the scanned page. Prime Recognition's Optical Character Recognition (OCR) package can be used to convert the scanned images into text. Instead of text files, Prime OCR creates PDF (Portable Document Format) files. Once exported, these PDF image/text files have the look and feel of the original page and now the ability to electronically search for contents. At the end of the TICRS process, these files are transferred to another Trademark system.

Prime OCR reads the data on the image and, through the use of algorithms, increases the accuracy of the recognition. Each image is converted into one PDF file. Prime OCR is an unattended module.

13. THE EXPORT MODULES

13.1 Introduction

After the images have gone through OCR, all manual and automatic processing of the images is complete. At this point, the cleaned up images, the indexing information, and the PDF files are ready to exit the system for use in other systems. Each component exits the system through specific export modules, which are described below. The system administrator will start up the modules and monitor their processing. The export modules are unattended and run automatically in order as follows.

13.2 Export Image (1)

This module moves the images out of the Input*Accel* capture system to a predetermined storage location. Each page scanned is saved as an **image** in a **TIF** file. TIF is an acronym for Tagged Image File Format.

13.3 Export Index (2)

Index Export begins processing after both Image and PDF Exports have finished. It outputs a file for each application that contains the application serial number, the mail room date, the document type, and the storage path for each image in that application. All data are in ASCII format and the files have an **.IDX** extension.

13.4 Export PDF (3)

The Export PDF module moves PDF files created by the Adobe OCR module out of the Input*Accel* capture system to a predetermined drive on the server. These are output as one PDF file per application with a ***.PDF** extension.

13.5 Export Drawing (4)

Export Drawing is run through IA's Export Image module. This process exports images from documents labeled "drawings." These drawings are later printed for the Search Library.

13.6 2nd Export Drawing (5)

The second instance of Export Drawing is also run through IA's Export Image module. This process exports images from documents labeled "drawings." These drawings are sent to a contractor for image cropping.

14. DELETE BATCH

Delete Batch is the last module in the capture system. This module deletes batches from the server after all processing has been finished. It is an unattended module.

15. GLOSSARY OF TERMS

Table 29 - Glossary of Terms

Terms	Definitions
ADF	Automatic Document Feeder
ASCII	American Standard Code for Information Interchange
Bitonal, bitonally	Black and White
Client	Workstation Drawing Resources from a Central Source (Server)
DHCP	Dynamic Host Configuration Protocol
DLL	Dynamic Link Library
DPI	Dots per Inch Resolution
Dongle	Hardware Security Key
ETC	Emerging Technologies Center (Testing & Development Laboratory)
GUI	Graphical User Interface
IA	Input <i>Accel</i>
IDX	Index File Extension
IMG	Image
LIE	Legal Instrument Examiner
NIC	Network Interface Card
NIS	Network Information Service
NTFS	Windows NT File System
OCR	Optical Character Recognition
OS	Operating system
PCF	Process Control File
PDF	Portable Document Format file
QA	Quality Assurance
SCSI	Small Computer System Interface
Server	Central Resource Distributing Services to Client Workstations
STB	South Tower Building
TCP/IP	Transmission Control Protocol/ Internet Protocol
TEAS	Trademark Electronic Application System
Throughput	Imaging Speed
Thumbnails	Tree Display
TICRS	Trademark Image Capture and Retrieval System
TIFF	Tagged Image File Format
TLT	Trademark Law Treaty
TradeUps	Trademark Data Entry Update System
TRAM	Trademark Recording And Monitoring
TXT	Text
XSearch 1.1	Trademark Image Search System