

File Magic 5 Series®

The power to share information

PRODUCT OVERVIEW

Revised June 2003



W h i t e P a p e r

Copyrights, Legal Notices, Trademarks and Servicemarks

Copyright © 2003 Westbrook Technologies Incorporated. All rights reserved. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including but not limited to photocopy and recording, or by any information storage or retrieval system, without the prior agreement and written permission of Westbrook Technologies, Incorporated unless such copying is expressly permitted by federal copyright law. Address inquiries to www.westbrooktech.com.

Publication subject to change without notice. File Magic 5 Series, File Magic Office, and CDEExpress are trademarks of Westbrook Technologies, Incorporated. All other products and devices listed in this manual are trademarks or registered trademarks of their respective companies and are hereby acknowledged.

Contents

Introduction.....	1
Stations.....	1
Options.....	2
File Magic Database Structure.....	2
Capturing Documents.....	4
Capture Features.....	5
Optical Character Recognition.....	5
Image Enhance.....	5
Bar Code Recognition.....	6
Full Text.....	6
Document File Format.....	6
Retrieving Documents.....	6
Query Operators.....	7
Query Results.....	7
Advanced Query Features.....	7
Working with Documents.....	8
Viewing Documents.....	8
Editing Documents.....	8
File Magic Security.....	9
File Magic System Architecture.....	9
Communications and Protocols.....	10
Storage Requirements.....	10
File Magic Office.....	11
CDExpress Option.....	11
Summary.....	12

Introduction

File Magic 5 Series is a comprehensive document management software suite from Westbrook Technologies that provides superior document-handling. File Magic operates as a single-user system or multi-user system on a local area network (LAN) for up to 15 concurrent users.

File Magic 5 Series uses Microsoft SQL Server 2000 Desktop Engine (MSDE 2000) as its database back end. The back-end is integrated with File Magic using Open Database Connectivity (ODBC), Microsoft's database communication standard.

File Magic captures a wide variety of documents and associated data and organizes them into a custom-designed structure. File Magic can capture documents from any source, such as scanned, faxed, and electronic files, including black and white, color, and common file types.

File Magic allows end users to efficiently organize and index documents that are then stored on your choice of storage media. File Magic retrieves documents instantly for editing, annotating, and/or integrating into your current business applications. File Magic also enables an organization to share or distribute documents via LAN, e-mail, fax, CD, or printed copy. Additional File Magic options include File Magic Office and CDExpress.

Stations

A File Magic system has three station types:

- **System Administration Station**, where the File Magic administrator defines system users, grants users access to specific databases, and sets up In Baskets. The File Magic system administrator must work closely with the network administrators when defining users and granting them database access to implement the File Magic system as planned.
- **Database Administration Station**, where the File Magic administrator creates and maintains File Magic databases. Creating a database entails defining its objects, specifying user permissions for those objects, and defining mechanisms that control how document information is indexed to a File Magic database and subsequently retrieved. The Database Administration Station also provides access to a variety of database maintenance tools and features.
- **Input & Retrieve Station**, where users perform all of the processing tasks associated with everyday document management. These tasks include capturing (by scanning, faxing or importing), indexing, editing, retrieving, and outputting documents.

File Magic provides the flexibility to install as many or as few of these stations on the same workstation as required. For example, a database administrator may find it helpful to install the Input & Retrieve Station and the Database Administration Station on the same machine to keep track of how changes to a database impact end users.

File Magic systems also include **Script Manager**, a program that monitors scheduled database-related Scripts (i.e., Scripts that send documents to a database Folder) and non-database Scripts (i.e., Scripts that send documents to an In Basket). The Script Manager

application should be installed on its own machine within the network to successfully monitor scheduled Scripts.

Options

In addition to the basic stations, the File Magic suite of products also includes options that expand the capability of a File Magic system.

- **File Magic CDEpress** lets administrators prepare a File Magic database, related document files, and a File Magic Station with viewing capabilities for recording onto a CD or DVD using any recording software.
- Using **File Magic Office**, Input & Retrieve Station users can send files from their Microsoft Office (97, 2000, or XP) Word, Excel and Outlook applications directly to a File Magic In Basket or a File Magic database Folder.

File Magic Database Structure

The File Magic document management system is a powerful database application. While actual document files are not stored in the File Magic database, the database contains user-provided information (i.e., index data) as well as the information necessary to retrieve the document associated with each database record. The process of creating a File Magic database also creates all the necessary tables and indices within the database. There is no need for a database administrator to create any of these tables external to File Magic.

The structure of your File Magic databases is integral to how your end users actually control and use your documents. Each database uses database objects that both organize the information and determine how document information is entered into, and subsequently retrieved from, the database. The internal objects that organize the database are Folders, which form a hierarchy of Subfolders as a means of logically and visually organizing the documents in a database; Document Types, which define the properties of a single type of document; and Query Sets, which form a hierarchy of Subsets that organize the Queries available to search a database.

Each Document Type defines a set of index fields that determines how documents of this type are entered and retrieved. Internally, each Document Type is a table in the database. Index fields form the basis for how users can retrieve documents from the database.

File Magic also enables users to index a document based not just on specific index fields but also on the actual textual content of the document. Users can perform Full Text indexing on text documents during capture and on image documents after performing OCR on them.

Creating a File Magic database involves:

- assigning a database name and specifying a location for the it
- specifying a file Archive Location in which to physically store the document files for the database.

The database administrator then creates the database structures and objects that control database access, content, and organization. Specific structures include:

- **Folders**

Folders are an organizational tool; they are assigned names by users or the administrator, can contain Subfolders and/or documents, and display in a Document Explorer window, similar to the Windows Explorer. Database administrators can assign user permissions to Folders so that only certain designated users can access, modify, create, or delete the documents and Subfolders contained in them.

- **Document Types**

Document Types define documents that are similar in form or layout, or documents that should be indexed in a similar fashion. All documents of the same Document Type use a common set of index fields. Documents of different types can be stored in the same Folder or Subfolder. Database administrators can assign user permissions to Document Type files so that only certain designated users can access, modify, add, or delete the document files of a specific type. Database administrators can also define a model Document Type and use it as a template when creating new Document Types.

- **Index Fields**

Index fields are defined for a Document Type and are used to index or describe each individual document of that type. The index data identifies the document in the database and enables users to retrieve documents by constructing search statements using this data. The database administrator can assign user permissions for each index field of a Document Type so that only certain designated users can view a field and the data it contains, enter data into a field when indexing a document and modify index data in a field for a document already indexed to the database. The administrator can define as many index fields as needed for a Document Type, some of which can be specified as Quick Find fields for faster searching and retrieval of document records. Index fields can also be specified as Unique or Required.

- **Query Sets and Queries**

A Query is a search statement that users create, and optionally save, to search a database to retrieve any matching File Magic records. Queries can be static, with the search criteria pre-defined, or variable, where users enter the search criteria at run time. When users execute a Query, File Magic searches the open database for any records that match the search criteria. Any records returned also include pointers to the actual documents at their storage locations. Queries can be generic or quite specific.

Administrators and end users can save Queries in a Query Set hierarchy, which is displayed in the Query Explorer, to enable themselves and other users to quickly access and run Queries. The database administrator can assign user permissions to a Query Set so that only certain designated users or groups of users can access, modify, add to, or delete the Queries and Subsets stored in the Query Set.

- **Pick Lists**

A Pick List eases data entry by providing a finite list of acceptable value choices from which users can select for a given index field. The Pick List values standardize the information that can be entered during indexing so that data is consistent in the database. Pick Lists offer the double benefit of increasing the speed with which data can be entered while ensuring uniform data to enhance searching and reporting.

- **Formats**

A Format for character, numeric, and date type index fields determines how a value displays for that index field in the database record. In addition, Formats force users to enter index data in a specific format. File Magic provides a list of pre-defined formats for numeric and date fields that can be added to, modified, or deleted.

- **User Database Permissions**

Only users granted access to a database by the system administrator can access that database. Database users are also assigned security permissions for the various database structures and objects, which means they have different functional access to those items. Add, Modify, Delete and View permissions are at the Folder, Document Type file and Query Set levels. Set, Modify and View permissions are at the Document Type field level. Only a File Magic database administrator can specify user structure and object database permissions.

Capturing Documents

File Magic supports several document capture techniques: scanning, importing, faxing in, importing data and documents, and the File Magic Office option. File Magic recognizes a variety of file types when capturing documents:

- black and white images, including PCX, TIFF, and BMP
- color images, including JPEG, GIF, PCX, TIFF, and BMP
- text-based documents, including more than 225 file formats such as Word, Excel, HTML, and PDF

Black and white data is typically input via a scanner or fax, or imported from other formats such as TIFF or PCX, and compressed using a Group 4 (i.e., G4) compression technique. Color images are created via scanning or importing from several different color formats and are compressed using a JPEG technique. Text-based documents are stored in appropriate formats, such as Word, Excel, HTML, or PDF, and are compressed using PKZIP.

File Magic users can capture documents directly into a File Magic database Folder as a specific Document Type or into a File Magic In Basket. In Baskets store captured documents before they are indexed and stored in a database. An In Basket lets users view, edit, index and share documents with other users and network devices by forwarding them to another In Basket or by printing, faxing, e-mailing, and exporting them. In Baskets are either public or restricted.

In Baskets are especially useful in high-volume applications where different personnel are dedicated to specific tasks, such as document preparation, scanning, quality assurance, and indexing. Restricted In Baskets work particularly well for departmental-based workgroups or task-based teams.

File Magic lets users save frequently used capture settings as a Script so that users can quickly recall and use them to scan, fax in, or import documents. Scripts save time and reduce the need for user intervention. Users can schedule Scripts to run automatically.

Users can capture multiple pages into one File Magic document, or capture multiple pages into separate documents. When scanning documents, users can separate documents using a page count, a blank page, or a bar code. A barcode separator can contain the name of a Script, thereby specifying all the settings to use in addition to document break information.

File Magic supports a wide variety of ISIS-compliant scanners. File Magic also works with most standard fax software. Any fax software that creates a supported black and white image file can be used for the Fax In process.

File Magic users can also import delimited ASCII files that contain record information directly into a File Magic Folder as a specified Document Type. File Magic captures each line in the ASCII file as a separate database record; multiple documents can be merged during the import process. Importing ASCII files is useful when converting from an existing imaging system, restoring an index, or automatically indexing documents.

Capture Features

File Magic provides several capture features to improve document quality, aid in data capture, and improve efficiency:

Optical Character Recognition

The File Magic Optical Character Recognition (OCR) feature enables users to perform zone or full-page OCR on a document, either during the capture process or at a later time.

Zone-based OCR involves the creation of an index Template for Black & White documents of a specific Document Type. Using a Point & Shoot technique, users highlight certain zones on the document and associate these zones with specific index fields. When the index Template and the OCR option are used together, File Magic automatically reads the data from the defined zones into the associated index fields.

Full page OCR converts an image document into a text document that can then be Full Text Indexed. File Magic merges the results of the full-page OCR process into the document in a specific file format.

Image Enhance

The File Magic Image Enhance feature provides a full complement of image enhancement features that improve the appearance and readability of documents. The Image Enhance option can be applied to a document before and/or after performing OCR, and can be used both on documents being captured and on document images already stored in an In Basket

or in a database Archive. In both instances, these enhancement options yield a cleaned up, visually improved document image.

Bar Code Recognition

The Bar Code Recognition (BCR) feature enables File Magic to automatically read and index bar code data on captured image documents. Users define the input data as a bar code, and then specify the bar code type. File Magic also supports the use of bar codes as document separators during the scanning operation.

Full Text

A Full Text index is a database that stores the locations of all of the words (except such noise words as *but* and *if*) in Full Text indexed documents. File Magic can Full Text index any text-based document that can be viewed in File Magic.

When a database administrator creates a Full Text Document Type, File Magic creates the Full Text index. File Magic then uses this index to perform fast searches using a Full Text Query. A Full Text Query statement can consist of a single term (word or phrase) or multiple terms. Users can also combine Full Text Queries and index field Queries to search for specific terms or phrases, as well as specific index field values, in documents of a Full Text Document Type.

- Stemming searches find other grammatical forms of the words in a Full Text Query statement.
- Phonic searches find words that sound similar to words in a Full Text Query statement.
- Fuzzy searches sift through scanning, OCR, and typographical errors. Fuzzy searches adjust from one to nine degrees, depending on the degree of misspellings.
- Numeric-range searches find integers between two values.
- Regular-expression searches find a pattern of text.

Document File Format

File Magic stores all documents in Westbrook Technologies' proprietary MAG file format, which was created a decade ago to enable secure transfer of information across networks and the Internet. File Magic uses three different compression techniques to attain optimal compression, resulting in small, portable, and secure multi-page document files. Each document, regardless of the number of sections or pages it contains or the number of sources, is stored as a single file.

Retrieving Documents

Input & Retrieve Station users can retrieve documents from a File Magic database by using the Document Explorer, by executing a Query, or by running a Document Type Browse.

The Document Explorer, a two-paned window, displays the architecture of the database. Patterned on the Windows Explorer, the left pane displays the Folder hierarchy of the

database and the right pane displays the contents of the open Folder, which can include Subfolders, documents, or both. File Magic displays documents using the icon associated with the Document Type and the Label associated with a specific index field.

A Query is a set of search criteria that, when executed, searches the database for documents that match the criteria. Each Query is associated with a specific database Folder or Folder tree and at least one Document Type. File Magic supports two types of Queries: static and variable. A static Query always searches for the specific values defined in the Query, while a variable Query lets the user enter the search criteria values at run time. Typically a variable Query has a user prompt defined for certain index fields, such as "Enter the name of an employee."

Users can save individual Queries in a Query Set hierarchy that displays in the Query Explorer, a window similar to the Document Explorer. A Query Set can contain Subsets, Queries, or both.

A Document Type Browse is a generic Query that enables a user to search for all documents of a specific type, either in a specific Folder or in the entire database. Users run a Browse from the Query Explorer; a Browse emulates the Query by Example (QBE) interface that is familiar to many users.

Query Operators

Defining a Query involves specifying a starting Folder and a Document Type and selecting at least one index field. The user must then define the operator or condition that must be met (or not met) with respect to the specified field.

Queries can also define multiple search conditions using the AND/OR Boolean logic operands. The OR operand means that either or both of the conditions specified in the Query must be satisfied. The AND operand means that both of the search conditions specified must be satisfied.

Query Results

File Magic displays information about the documents retrieved by a Query in the Query Results window. Users can quickly change the Layout and rerun the Query, or users can select documents and open them in the Document Viewer. Users can also print the contents of the Query Results window (i.e., a list of the documents retrieved by a Query).

Advanced Query Features

File Magic provides several advanced features to enable users to construct complex Queries. A Query Preference turns on the advanced features, which include parentheses for grouping clauses of complex Queries, additional Boolean operands and additional Full Text index continuation operators.

Working with Documents

All Input & Retrieve Station users can view documents in the Document Viewer. Input & Retrieve Station users with the proper permissions can edit and annotate documents as well.

Viewing Documents

The File Magic Document Viewer provides complete functionality for accessing and viewing all types of documents. The Viewer provides several visual options:

- Document only, with or without thumbnails of the pages of the document
- Index data only
- Both the document and the index data in panes that can be split horizontally or vertically. Page thumbnails can also be included in a third pane.

Any File Magic user (with the proper permissions) can open documents in the Viewer from an In Basket, from within the Document Explorer, or from the Query Results window. Users can load one document at a time or load multiple documents into the Viewer. Using the toolbar buttons, users can quickly page through a single document or move through multiple documents loaded in the Viewer. Double-clicking a page thumbnail in the Viewer displays the corresponding page.

Documents can be rotated and flipped or displayed full size or full width. Users can zoom in or out, or zoom into a section of a document, adjust the contrast, and use a scale to gray option. Users can open multiple Viewers by "pinning" a document in an open Viewer, and users can copy a document into multiple Viewers. The Viewer also has a textual Find function for text-based documents.

Database administrators can define a Related Query as part of a Document Type definition. A Related Query will retrieve one or more documents associated with the currently opened document. Users can access these related documents by executing a simple menu command. Administrators can also insert links to related documents on a template for a specific Document Type. When a user opens a document of this type in the Viewer, these links display as either a solid or outline rectangle on the document. Visual links only appear on Black & White documents.

Editing Documents

Input & Retrieve Station users can perform a variety of operations on documents in the Viewer. Users (with the proper permissions) can cut, copy, paste, delete, or enhance pages within a document. Users can also insert, replace, burst or reorder pages, remove blank pages, and rotate an entire document.

With the proper permissions, Input & Retrieve Station users can add a variety of annotations to documents. The Viewer toolbar contains buttons for all the annotation tools, and users can set a variety of preferences for File Magic annotations.

File Magic Security

File Magic security capabilities provide a powerful yet flexible blend of user access management and control for any File Magic installation. This security is provided by assigning File Magic users a password and personalized database access privileges, and by varying their functional permissions. In essence, the security of your File Magic system can be separated into two general levels: the system level and the database level.

The File Magic system administrator creates system-wide user accounts and defines which users have access to which databases. In addition, the system administrator creates In Baskets, both public and restricted, and specifies which users can access those In Baskets.

The File Magic database administrator sets user permissions at the Folder, Query Set and Document Type file and field level to specify which Queries, documents and index fields each database user can access, and what each user can do with those Folders, Queries, documents and index fields once they've accessed them. Database object permissions for Folders, Document Type files and Query Sets are of four types – Add, Modify, Delete, and View. Permissions for Document Type index fields are of three types – Set, Modify, and View.

File Magic System Architecture

File Magic is a 32-bit file server application designed for Windows 2000 Server and Advanced Server LANs. A multi-user installation supports up to 15 concurrent users.

The recommended system architecture for a File Magic multi-user installation involves two servers: a database server, running MSDE 2000, and the application server, on which the File Magic program files reside. The application server also contains the site license files, the File Magic In Baskets and possibly the document files. The application server can be used to store document files, but many organizations store document files on separate devices, such as a mass storage solution like RAID or an optical jukebox.

While two servers provides optimal performance for a multi-user installation, File Magic can be set up with just one server so that both the database management system (MSDE 2000) and the File Magic software are installed to the application server.

Figure 1 illustrates a multi-user File Magic installation with an application server, a database server, several client workstations, and a separate storage device for document files.

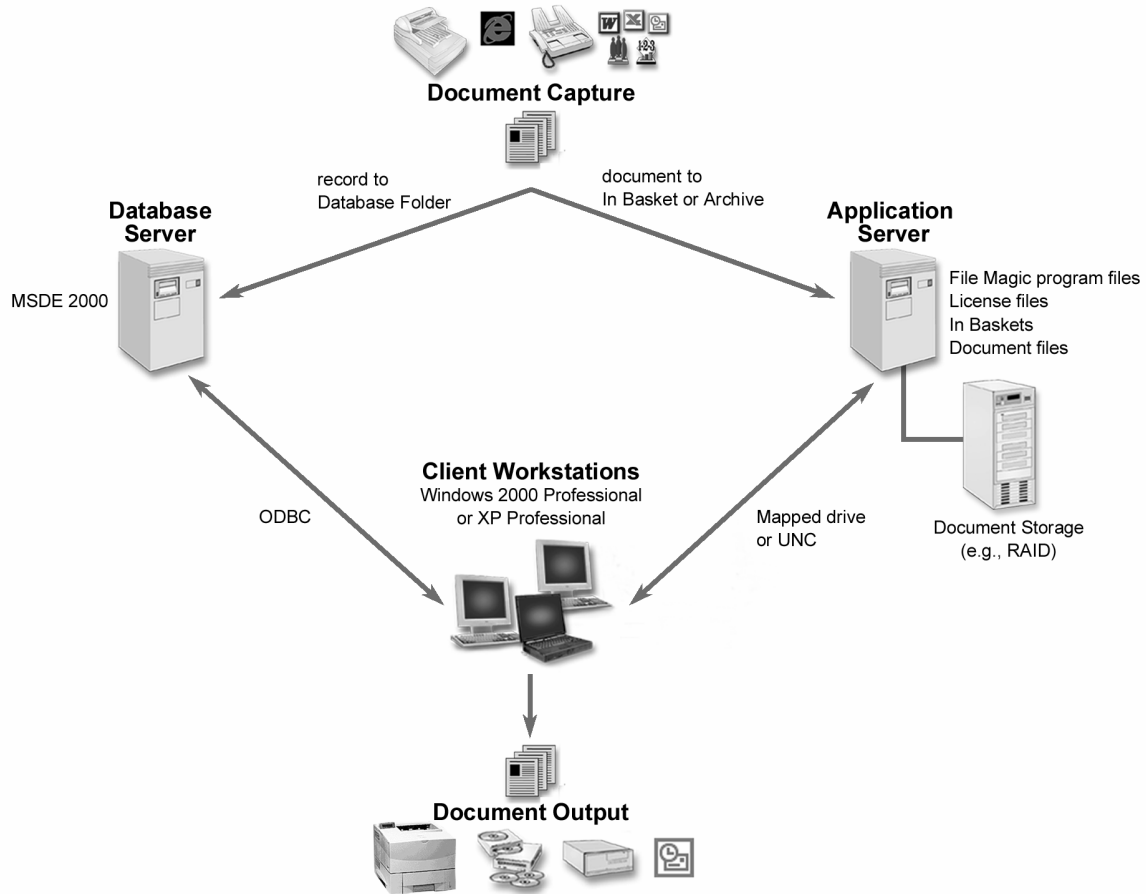


Figure 1: Multi-user File Magic Installation

Communications and Protocols

The client workstations communicate with the database server using ODBC over TCP/IP and communicate with the application server using either a mapped drive or UNC.

Storage devices can use multiple servers and/or cluster technology in addition to optical (e.g., CD, jukebox, and DVD) and magnetic (e.g., RAID) storage.

Westbrook Technologies' Consulting Services Department can help you assess your traffic and server requirements when you are planning your File Magic system architecture.

Storage Requirements

The storage requirements for a File Magic installation involve two areas of consideration: the size of the database and the size and volume of documents to be stored (archived).

Each database record represents a single document stored in the system. A File Magic document can contain thousands of sections (typically pages) and consequently, can be very

large. The document itself is not stored in the database. Instead, each database record contains a pointer to the external file.

The database growth rate and total size is dependent upon the complexity of database record information. The actual overhead per File Magic record is about 54 Bytes. Add to this the actual amount of data being stored to arrive at the total amount of space per record that is being used. On average, File Magic databases grow at a rate of 100 - 1000 Bytes per record.

The Archive is common shared storage consisting of RAID, Optical, CD, and/or a standard network volume. Each database can store documents in a variety of locations based on security needs, accessibility requirement, and document lifecycle. Because File Magic documents can be very large, the Archive Location can fill rapidly. Typical documents are between 2-5 pages, with each page occupying 30-50 KB of space.

To make a rough estimate of the storage space required for your installation, calculate the number of documents to be stored and multiply that number by 50 KB for each 8.5" x 11" document. Or you can scan 100 typical documents, view the total space required, and then divide by 100 to estimate the size per document. The annual growth equals the number of documents added per day x the size of each document x the number of working days per year. When estimating storage needs, it's important to include a buffer and increase the volume over the years, as your business will undoubtedly increase as time goes by.

File Magic Office

File Magic 5 Series offers an option for Microsoft Office integration. Using the File Magic Office option, Input & Retrieve Station users can send documents from Microsoft Office (97, 2000, or XP) Word, Excel, and Outlook applications directly into a File Magic database Folder as a specified Document Type or into a public or restricted In Basket. With Outlook 2000 and XP, users can send e-mail messages and attachments from the Outlook Inbox (or any Outlook folder), as well as Notes and Posts, directly to File Magic.

File Magic can use the value of a Property field in a Word, Excel, or Outlook document (e.g., Title, Subject, Author, etc.) as the value for an index field. If the Document Type selected has an index field with the same name as one of the document Property fields, File Magic will automatically insert the value in the Property field into the File Magic index field.

CDExpress Option

The File Magic CDExpress option lets database administrators prepare a File Magic database, related document files, and a File Magic Station with viewing capabilities for recording onto a CD or DVD. Administrators can also prepare to record the documents found from running a Query. CDExpress copies the necessary program and document files into a specified folder so that administrators can record this data using any CD or DVD recording software.

The purpose of CDExpress is to create a File Magic CD or DVD that can be delivered to users who do not have access to a File Magic Input & Retrieve Station. Because CDExpress includes a File Magic Station with viewing capabilities, users can access the documents by installing the File Magic Station software right from the CD or DVD.

Summary

File Magic is a feature-rich document management system that lets users capture and retrieve paper-based, electronic, and faxed documents. File Magic uses ODBC architecture and Microsoft's SQL Server 2000 Desktop Engine (MSDE 2000) as the back-end database engine to provide an exceptional document-handling solution.

File Magic supports up to 15 concurrent users, allowing them to capture a wide variety of documents by scanning, importing, and faxing. Once documents are captured, users can retrieve documents for editing and annotating. In addition, users can share or distribute documents via LAN, e-mail, fax, CD, or printed copy.

Additional options such as File Magic Office and CDEExpress expand the capability of File Magic.

For additional information about File Magic or other Westbrook Technologies products, go to www.westbrooktech.com/about/want_to_know_more.htm.