



Managing the Office Document Cycle

Canon imageWARE Document Manager v4
Technical White Paper

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Introduction

Canon has a long history in providing industry leading scan, copy and print devices to a wide range of customers all over the world, ranging from individual users to large corporations.

Our aim is to provide our customers with the best tools to help them work more efficiently when performing their daily document tasks of searching, finding, capturing, managing, storing and distributing information in paper and electronic form. Enabling our customers with an efficient document cycle will give us an opportunity to contribute to the expansion of their business.

Our imageWARE suite of software products has been built to integrate tightly with our imageRUNNER series of multifunctional devices to support an efficient document cycle for personal, departmental and company wide deployment.

This White Paper introduces imageWARE Document Manager, software for creating a highly functional workplace within a productive document distribution and management environment.

The software has been developed focusing on the following three major requirements of our customers' businesses:

1. First, personal productivity of general office users;
2. Second, effective document sharing and information management for departments and workgroups of different sizes;
3. Last, for the business as a whole, the need for managing and archiving the company's total information assets. This includes document capture and automatic processing, archiving, information sharing with partners and information security.

There are two editions of imageWARE Document Manager. Providing scalability and different levels of functionality, there is a version to best fit each specific customer environment:

- imageWARE Document Manager Workgroup
- imageWARE Document Manager Enterprise



imageWARE Document Manager Workgroup is a client server based version with advanced workgroup and personal productivity tools for document management and search. It is suitable for small businesses or workgroups.

imageWARE Document Manager Enterprise edition has been designed to meet the functional and performance requirements of larger customer environments. While providing the most advanced functionality for document management with version control, repository management, advanced search, collaboration and security, it also has the ability to integrate with existing customer systems and can be further tailored to customers' specific business workflow requirements through the use of imageWARE Document Manager Enterprise Software Development Kit. It is suitable for medium size companies and enterprise departments.

In addition, imageWARE Gateway and imageWARE Scan Manager are related software products that can enhance imageWARE Document Manager deployment by automating different document and information capture workflow related tasks.

imageWARE Web Document Server enables efficient and secure document sharing using the company intranet and external information sharing through Internet. As there is no client application required, group portal operation can be achieved with less workload on the system administrator.

1. Promoting the Efficiency of Daily Office Work

To meet the challenge of improving office work productivity, automating paper intensive processes and ensuring the safekeeping and management of companies' document assets, imageWARE Document Manager provides a functionally unique and rich, integrated, robust and scalable software environment at a reasonable price.

The easy to use and intuitive user interface is common to all versions of the software and the software functionality offers benefits from personal productivity to full document process automation with robust document archiving. It provides a solution with a fast return on investment. At the same time users will also get the maximum return from their investment in Canon imageRUNNER multifunction devices.



1.1 Personal Productivity

As part of their daily work people search for information, create different documents (presentations, project documents, letters, diagrams etc) with different software applications. They communicate their work to other colleagues and save information for later use.

Besides working with email and writing documents with word processing software, for many, paper still remains the quickest and simplest way to express and communicate ideas. How to merge paper documents like notes or magazine articles with digital information so that they can be easily found, reused and distributed, remains a challenge to many office workers. The personal scanners are often too slow and their user interface is complex to use.

With this in mind, imageWARE Document Manager has been built to tightly integrate with the Canon imageRUNNER devices. Users can scan their paper documents as easily as if they were making a copy on the copier. The documents are scanned and stored directly to the imageWARE Document Manager system.

Information search and more specifically, the ability to find the necessary information quickly, is one of the big daily challenges. The tools provided by Windows and Windows Explorer are often inefficient for performing searches through documents stored on users'

PCs or the network file servers. The conventional search process is especially time consuming when looking for specific information from the actual content of the files. There is also a lack of visual indicators to prompt about the file content like thumbnails for different file types.

imageWARE Document Manager aims to offer a more efficient search and find experience. Because all of the document content will be indexed, searches are performed almost instantly. Furthermore, a rich choice of different criteria can be used as additional search parameters (file properties, print settings, image properties, annotations, system indexes, user indexes). To help users find the right information quickly, imageWARE Document Manager incorporates an ability to assign different colors to folder icons, incorporates thumbnail technology for a large variety of file types and has a unique function called 'Memo' which allows the user to add different colored memos to any document and later perform searches on the memo content as well as memo color.

When looking for the right document, there is often a need to open the file and browse through its pages. Opening different files in their native applications will, however, take up a lot of PC resource and depending on the PC specification slow down the system performance. To overcome this and provide users with fast access to document content, imageWARE Document Manager includes special quick viewer application technology to display the content of MS Office application files as well as images and PDFs while taking up very little system resource.

To assist users to perform their daily office work beyond scanning and information search, imageWARE Document Manager includes efficient tools for creating combined documents from different source files, creating PDF and encrypted PDF files and adding annotations.

imageWARE Document Manager has been built to integrate well with the office PC environment. It has a direct MS Office application link so that documents stored in Document Manager can be opened directly from MS Office applications and also saved directly to Document Manager folders. Users can see their Windows desktop folders directly from within Document Manager, use their mouse to drag and drop files and also benefit from an automated batch import function for importing large quantities of files , for example email messages.



1.2 Collaboration, Information Sharing and Management

In addition to improving personal office work productivity, organisations' operational efficiency depends on their ability to effectively share information with other departments, subsidiaries, business partners and customers.

As a very common office practice, file sharing is often done through email attachments. This practice, however, can constitute a huge information management burden on the company creating many unnecessary and uncontrolled duplicates of the same information..

imageWARE Document Manager provides a convenient and efficient mechanism where information can be shared by attaching a file shortcut or a URL pointer to its location in the common document repository providing same level of access to the information, but eliminating duplication, maintaining control and saving IT resource.

To make sure that all concerned people are automatically informed of new information that is available for them, Document Manager folders can be assigned email notification parameters. Whenever information is added or changed or otherwise manipulated an email message will be automatically generated to the concerned users. For group work and collaborative document creation Document Manager has automatic and manual document version tracking as well as document check-out/check-in support.*

While digital information management has many benefits over traditional paper media, unlike paper, it lacks visible physical properties. As part of common office practice, old paper documents and records are either archived or destroyed, also personal documents that are no longer needed are shredded or destroyed with some regularity. However, the accumulated gigabytes of old files on personal hard drives and on the file server are rarely handled in the same way.

Without implementing proper practices for information sharing and retention, the quantity of unused and forgotten files is growing fast and will create not only a storage

* Email Notification and Version Control functionality is available for the imageWARE Document Manager Enterprise version only.

space problem, but will be an increasing liability for the company. Especially if these documents hold individuals' personal information or other confidential records.

To help organizations automate their information management and prevent uncontrollable growth of unused documents on the network, imageWARE Document Manager implements full document retention control parameters that can be used to set automatic expiry conditions to all documents. In this way, for example, for files that haven't been opened for two years, the system will automatically prompt the user to accept their deletion or transfer to off-line media for archiving.*



1.3 Automating Paper Intensive Processes

There are many solutions in the market for automating parts of paper intensive processes like batch scanning and indexing of various business process documents, e.g. invoices, order documents or forms. imageWARE Document Manager, however, is unique for its seamless integration with Canon imageRUNNER multifunction devices.

For example, fax handling processes can be fully automated using imageWARE Gateway. Faxes received by the imageRUNNER device will be automatically passed on by the Gateway application to imageWARE Document Manager and stored as image files. Using the annotation function, notes can be added and the annotated document can be returned to the sender or forwarded by using the fax driver of the imageRUNNER device. In this way all fax operations can be processed digitally without the need for paper and without leaving one's desk. imageWARE Gateway software also includes a function for automatically sending an email to the members of a specific group whenever a fax is received.

Scanning records, forms and other paper documents, indexing and sorting them for automatic release to the imageWARE Document Management archive is easily achieved by using imageWARE Scan Manager software. Due to the tight integration with imageRUNNER devices and Canon DR series scanners, imageWARE Scan Manager brings a completely new level of process automation. By placing documents of a standard format, such as procurement forms, quotes or sales reports collected during the day into the document feeder of an imageRUNNER, a fully automated process of scanning, index

* Document Retention Controls are available for imageWARE Document Manager Enterprise version only.

extraction, sorting and storing the documents in their respective folders in Document Manager can be launched at literally a push of one button.



1.4 Large Department and Company Wide Deployment

Management of a company's total document assets sets stringent requirements for security and the robustness of the document management system structure. imageWARE Document Manager Enterprise edition adds high-level management and security functions for deployments from fifty to thousands of users.

Company documents and records represent a significant part of any company's knowledge assets. As such, they have to be protected, and properly access controlled and managed. To facilitate effective information management in a secure and controlled environment, imageWARE Document Manager Enterprise uses password management which can be linked to Windows Active Directory to control the use of documents and folders. Furthermore, information held in Document Manager can be encrypted to provide an extra level of document security against unauthorized access to the network.

Security technologies like digital stamping and authorizing documents with digital signatures are fully implemented in imageWARE Document Manager Enterprise version. All document operations are recorded and action log reports as well as statistical reports can be used to provide full administrative control. Windows Cluster Server support enables advanced system management in terms of system robustness.

Active implementations in larger than 1000 user environments and special performance and system reliability testing for heavy use, is evidence to the robustness and scalability of the imageWARE Document Manager Enterprise system.

Key Technologies of imageWARE Document Manager

imageWARE Document Manager v4 is our latest generation document management and office productivity software. Through constant system development and high research investment, imageWARE Document Manager boasts many unique Canon and third party technologies that enhance usability, performance and system security.



Scalability

Document Manager has been designed to adapt well to different customer environments. Depending on the number of documents and users, Document Manager implementations can range from individual to large-scale systems.

Scalability

Document Manager can be easily upgraded from Document Manager Workgroup for workgroup use to Document Manager Enterprise for large numbers of users and advanced functionality. The same client software is used for both Document Manager Workgroup and Document Manager Enterprise editions. In this way, it is convenient to deploy Document Manager Workgroup for a smaller group of users in one department and then later upgrade to Document Manager Enterprise as the number of documents being managed increases or the system is made available to more users and other parts of the organization.

It is also possible to use Document Manager Workgroup as the departmental solution and manage the shared documents across departments in combination with the Document Manager Enterprise server.

Distributed Servers

To guarantee work efficiency for users and maintain constant high level of system performance is very important.

In a system with a small number of clients and documents, all server functions can be performed using one computer. A large-scale system with a large number of users,

however, places a much heavier load on the server. This may cause the server response to be reduced. To increase system performance, the server components (document server, volume server, full text search server and Web server) can be installed on separate computers and the workload is distributed.

To maximize the performance of OCR processing for full text index for a large volume of image documents, the OCR processing workload can also be distributed between multiple computers.

Web Clustering

To guarantee high performance of large scale systems with Web access where the number of users can potentially be very high, the Document Manager Web Document Server workload can also be distributed across multiple Web servers.

Software Development Kit

Document Manager Enterprise edition is provided with an SDK, which enables Document Manager to be customized for implementing systems that cannot be achieved with the standard configuration. This enables systems where documents inside a Document Manager cabinet can be accessed directly from customer's in-house applications, or data from the customer's main system can be stored in a Document Manager cabinet. Both a client SDK and administrator application SDK are provided.



Security Features

Security is an increasing concern of today's businesses. Securing the environment where information is managed, distributed and archived is an important priority.

An important development objective for Document Manager has been to provide a secure document management, distribution and archival environment. To achieve this, Document Manager implements various advanced security functions.

Access Control

Document Manager uses the following storage structure:

- Cabinet
- Folder
- Document

Access and document manipulation control has been implemented on each of these three levels, thus enabling detailed control over actions that users and group members can perform on documents managed with Document Manager.

Action Logs

Document Manager retains full logs of operations performed on documents in each of the cabinets. When a user logs in to the cabinet, or when a document in the cabinet is opened, updated, copied, or moved, the log data is recorded. The log information can be exported in text or CSV format for further processing. As an example, an analysis of all operations performed on a specific document or a list of all operations performed by a specific user during a specific period, can be easily created.*

Volumes

While the logical document repository structure displayed in the Client window is displayed as Cabinets and Folders, the actual document files and image data is stored in `volumes`. Volumes are comprised of one or more files called 'volume blocks'. This provides a higher level of security than systems in which the actual document files and image data are directly stored in Windows folders.

Network Security

When the Server and Client belong to the same Active Directory domain, the communication between the Server and Client can be encrypted to ensure network security.†

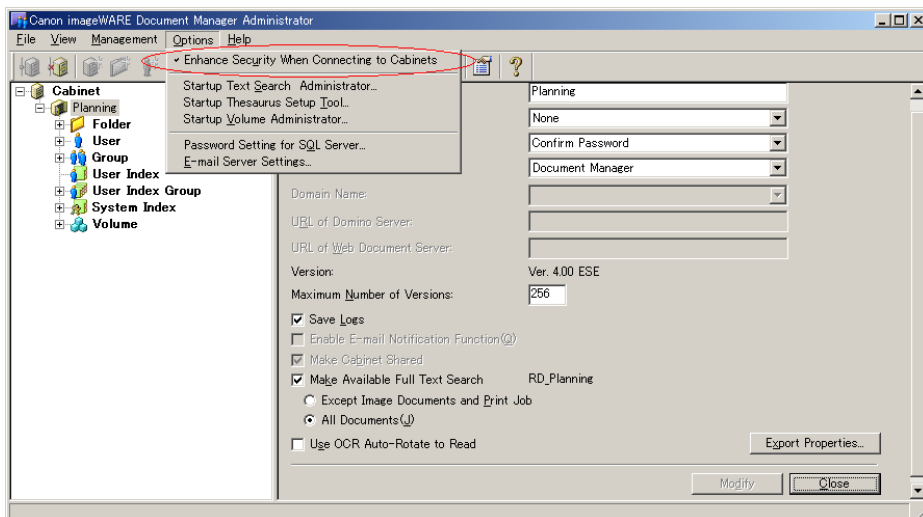


Figure 1. Network security configuration

* Activity Logs and reporting is available with imageWARE Document Manager Enterprise edition.

† Encrypted communication between Client and Server is available with imageWARE Document Manager Enterprise edition.

Digital Stamp and Digital Signature for PDF Documents

In addition to network security and access control, Document Manager includes protection also against document alteration. PDF files created with Document Manager can be digitally stamped or signed. Digitally stamped PDF files can be later verified using their digital signature determining whether a document has been altered. This enables to determine document authenticity and protect the integrity of the document's original content.*

Digital stamping provides also a convenient method for an electronic document approval process.

PDF Document Security

To guarantee secure document distribution through email or public networks outside of the Document Manager system Document Manager allows for exported files to be converted to password-protected PDF documents. A password will be required to open a password-protected PDF document. In addition to password protection PDF security settings can also be specified.



Canon imageRUNNER Multifunction Device Integration

Printing and scanning is an inseparable part of the daily office routine. Poor integration of these important support functions can easily result in employee frustration and have an adverse impact on office work productivity.

An important technological advantage available to Canon is the ability to build seamless integration between the imageRUNNER multifunction devices and the imageWARE software making printing, and especially ad-hoc scanning, very easily accessible to all.

This integration has enabled us to implement fully automatic fax transfer from the multifunction device directly to the document management system as well as the fast driverless direct printing functionality.

* Digital Signature function is available on imageWARE Document Manager Enterprise edition. Digital Stamp without Signature is available on imageWARE Document Manager Workgroup edition.

Batch Import

Document Manager provides several different methods for batch import of documents. Documents from a specified Windows folder can be batch-imported to any other folder in Document Manager. Images scanned and sent to a Document Manager Client computer using the Send function of an imageRUNNER device can also be batch-imported into Document Manager.

Document Manager scheduler can be used to automatically import documents at a regular interval. This is done by creating a "hot folder", a Windows folder from which documents are automatically imported at a regular interval to a specific Document Manager folder.

Output Area

Output Area is a function designed to provide the user with an easy way to use the imageRUNNER device from Document Manager. Users will be able to store scan-and-print settings to device icons. Clicking a scan icon will perform scanning on an imageRUNNER device, while dragging and dropping a Document Manager document onto a printer icon prints the document on a specific printer. Device Palette is especially useful for boosting work efficiency when frequently scanning or printing using the same device settings.

imageRunner Mail Box Integration

Canon imageRUNNER devices equipped with the Mail Box function can store scanned documents in the device Mail Box. With Document Manager, users will not have to navigate through the device Remote User Interface, but can open, print and import documents in imageRUNNER Mail Boxes directly from within the main window of their imageWARE Document Manager.

Frequently printed documents, especially when large in size, can be left in the imageRUNNER Mail Box and re-printed using Document Manager. This method enables much faster print processing than re-printing the same documents from their native Windows applications.

imageWARE Document Manager Gateway

imageWARE Document Manager Gateway is a module of the Document Manager software that enables direct data transfer from the imageRUNNER device to Document Manager folders.

Gateway is a server based application that uses FTP and Salutation protocols for data transfer from imageRUNNER. Gateway includes functionality for image conversion, document orientation adjustment, email notification, an indexing system and log output.

With imageWARE Document Manager Gateway, received faxes can be automatically sorted according to the fax number or sub address, automatically indexed, orientation corrected, and converted to a text searchable PDF. Received faxes are then automatically distributed to a Document Manager folder while sending a notification email to the responsible operator. This makes Gateway a good solution for automating fax management workflows.



Ease of Use

Office technology that is difficult to use and requires extensive user training is unlikely to add to operational efficiency and deliver the expected productivity improvements. Through the development of Document Manager, there has been a strong focus on usability. One of the most noted comments about Document Manager that we hear back from our customers is about its ease of use.

Following is an overview of the Document Manager technologies and functions. Together with the clarity of the user interface design, they contribute to providing the users a friendly and efficient environment for their daily document handling tasks.

User Interface

Document Manager user interface is in many ways very similar to Windows Explorer and is therefore very intuitive to use with minimal training. In addition to Document Manager folders, the Windows folders list is displayed. Users will not have to change between different applications and are able to perform Document Manager and Windows Explorer functions easily and effectively from the same application.

For enhanced usability, Document Manager user interface includes a simple but very effective function that allows the user to set different colors to their document folders. This provides a very quick and visual way to distinguish between folders by colour coding them by their content. For example, folders that contain documents requiring review can be set to red. Folders containing product information can be colored blue or folders can be set to have different colors according to their users.

Users can display their document views in three different ways:

- as thumbnails,
- as a list,
- as a list with thumbnails.

Thumbnails display the content of the first page of the document and provide a quick way to confirm whether this is the document the user is looking for or not.

Document Manipulation

Document Manager includes many document manipulation functions that would normally require the user to switch between different software applications. Document Manager provides a PDF conversion function with digital signature and password protection support. It includes a special Image Driver that enables documents created by different applications to be converted, exported or imported as image documents. Image documents can be annotated and faxed directly from within Document Manager.

Document Manager provides also an original PDF viewer that enables PDF documents to be quickly opened and checked. Digital stamps and digital stamps with digital signature can also be added directly through the viewer.

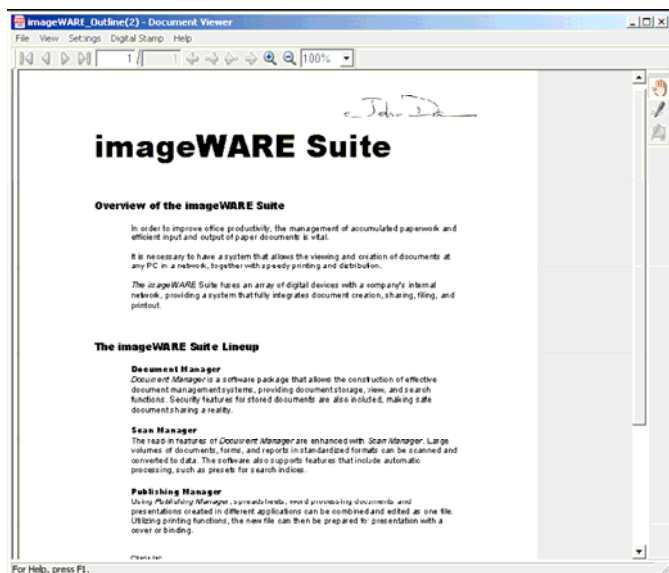


Figure 2. PDF file digital stamp

Extracting text from image documents has been made very simple. Using simple drag and drop, image files can be processed and text extraction is performed.

Binder

As part of daily office work, there is often a requirement to create different documents such as reports by combining multiple source documents of different file types (such as Microsoft Word, Excel, PowerPoint or PDF). Document Manager has a special Binder function that enables these multiple documents to be bundled together and rearranged to create a single combined document. The Binder preserves the original source document format to allow full editing capabilities.

Microsoft Office Integration

Document Manager is fully integrated with Microsoft Office applications. Microsoft Word, Excel, and PowerPoint documents can be stored in Document Manager through menu buttons directly from within the application. Equally, MS Office files stored within Document Manager can be opened directly from within the respective application without having to start up Document Manager.

Document Manager Enterprise adds also full version control so that changes made to the documents will be automatically saved as a new version. Users will have an easy way to see the full version history as well as revert back to some of the older versions if they need to.



Document Management Functions

Effective document management in the office means finding information quickly, keeping it secure and managing its volume.

Information Search

An important technology in Document Manager to achieve this is a comprehensive document indexing system. Documents can be searched by their Windows default metadata parameters like name, date of creation, modification, access, size, type, etc, but also by commonly set system index parameters or user created indexes, print settings, folder color, memo content and full text. The Enterprise edition adds advanced search functions for synonym, proximity and concept search. With concept search, a natural language sentence can be entered as search criteria and analyzed. Documents containing passages with similar meaning will be returned including ranking information.

Frequently used search conditions can be saved in the tool bar, enabling searches to be easily performed by simply clicking the saved search buttons.

All document index information in Document Manager is managed either by MSDE database (Workgroup edition) or MS SQL database (Enterprise edition). Due to efficient database management, the document search performance is very high.

To provide maximum effectiveness for manipulating document index settings, Document Manager allows the user to edit the index information of multiple documents all at once, as well as one at a time through the Property Window. For folders containing multiple documents, document indexes can be changed while viewing the document thumbnail. This adds an extra level of efficiency to the indexing process.

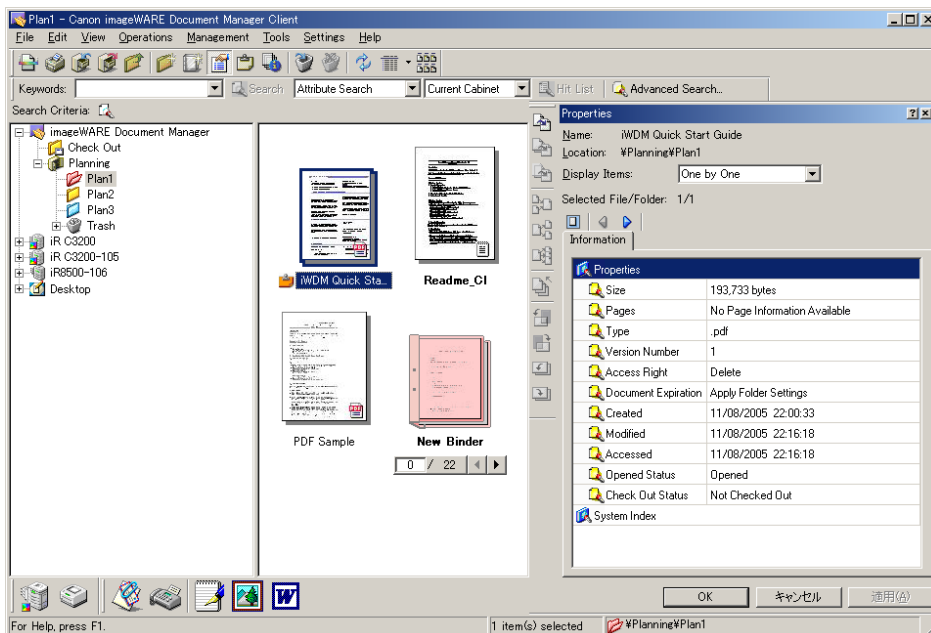


Figure 3. The Property Window

Document Retention Period

A big challenge of electronic document management is managing the growth of the organization's electronic document volume. A part of Document Manager Enterprise edition's core technology is the ability to set expiration parameters to each of the Document Manager folders by date or period. When the expiration criteria are fulfilled, the documents will either be moved to a designated folder for off line storage or deleted from the system. This is an automated method that helps to keep the document repository relevant and prevents accumulation of unnecessary information. E-mail notification is

also enabled in conjunction with this function to notify users on the expiry of their documents.



Sharing and Collaboration

Information sharing between colleagues internally, with branch offices and business partners is a daily business process. imageWARE Document Manager provides a controlled, efficient and secure environment for document sharing and collaboration.

The way that Document Manager promotes information sharing is by utilizing the following three mechanisms:

- Email notification with shortcut links
- Memos
- Digital Signature

Email Notification*

E-mail notification is a function that enables an e-mail to be automatically sent to a user or a group of users when an operation (such as a document being created or edited) has been performed. This promotes a simple and effective document distribution mechanism where, for example, whenever a new pricelist is added to a folder called “Pricelists” in Document Manager, all sales people will be automatically notified through email that a new pricelist has been added or changed. The email message will contain either a shortcut or a URL link to the updated document. Double-clicking the attached shortcut will start the Document Manager Client, ask the user to provide login credentials and open the relevant document.

No unnecessary duplicates of the same file will be stored, the network traffic is minimised and e-mail inboxes will not be crowded with large attachments.

Memos

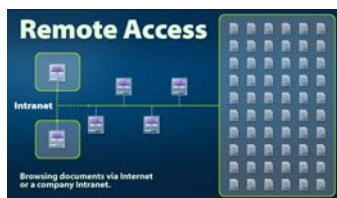
“Memo” is a unique feature that provides a very effective way to add extra information or comments to any document without damaging the integrity of its original content. Using the memo function in conjunction with the e-mail notification function described above,

* E-mail Notification and Digital Signature are available on imageWARE Document Manager Enterprise edition.

it is possible to easily refer colleagues or partners to actions that they should perform on the document, and also allow them to add their own comments by editing the attached memo. Color can also be added to emphasize the memo content.

Digital Signature*

The users can insert digital signatures to a PDF document for authentication. The types of certificates that work with Document Manager are those issued by Microsoft Windows 2000 Server and Windows Server 2003, and those issued by VeriSign. The digital signatures can be applied to important documents, which require approval during the process. The receiver of the documents can verify the digital signature to ensure its originality.



Web Customization

Document Manager provides a convenient Web access interface for remote users. People working from outside of the company network or without the Document Manager Client software, can access the document repository through the Internet or the company's intranet.

When access to Document Manager is provided to external parties like customers or business partners, imageWARE Web Document Server log-in, log-out and main window can be easily configured to reflect the company's own corporate identity in the form of their logo image, splash screen and custom text message. Further personalization can be provided by creation of different folders, enabling different splash screens, title text and text style to be displayed for each of the accessing users.



Easy Implementation and Administration

Document Manager has been built as IT friendly software with consideration to the requirements of the IT managers. This reduces their workload and provides them with management tools for efficient implementation and administration of the software.

Network Installation

To provide easy installation of the Client application to multiple PCs, the Document Manager Client software can be saved on the server computer and then installed directly from each client PC.

Template Folder Creation

Manual creation of folder structures, access rights and user groups is a time consuming process. To assist with this task, a template including the folder structure, user and user groups and other parameters can be created for each Document Manager cabinet. This makes creating new cabinets with the same structure easy without having to perform any complex operations.

Single Sign-On

Document Manager Enterprise edition can use Windows Domain Controller or a Lotus Domino Server as its user authentication server. It is not necessary to perform user authentication when connecting to Document Manager if one of these authentication methods is used. When the user structure in the customer's company changes due to new users being added or employees being transferred, changes made in the Windows Domain Controller or the Lotus Domino Server will be automatically reflected in Document Manager. In this way all Document Manager users and groups can be centrally managed using either of the above industry standard authentication methods.

Scheduling

Various Document Manager functions can be automatically executed using the built-in scheduler. For Document Manager Enterprise edition, the functions that can be scheduled to execute automatically are:

- Batch imports.
- Registering documents stored in the imageRUNNER multifunction device Mail Box to Document Manager.
- Deleting action logs.
- Deleting or moving expired documents.
- Synchronizing users and groups with the authentication server.
- Performing various e-mail notification processes.
- Generating full text search index.
- Backing up cabinets.

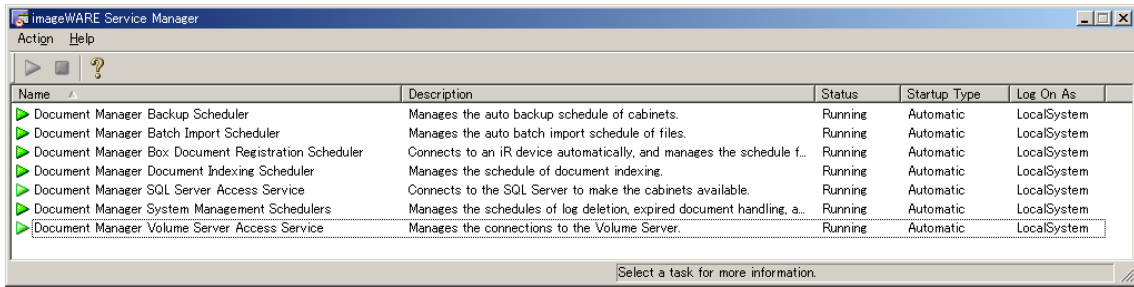


Figure 4. imageWARE Document Manager Service Manager



Reliability

Document Manager has been built to perform as a reliable and stable environment to ensure high performance at all times.

Automatic Back-Up

Document Manager includes advanced options for performing manual or fully automated backup and restore operations. Document Manager cabinets can be restored even if the server computer has stopped operating due to a hardware failure. Document Manager Enterprise edition also supports commercial backup tools such as VERITAS Backup Exec and BrightStor ARCserve Backup.

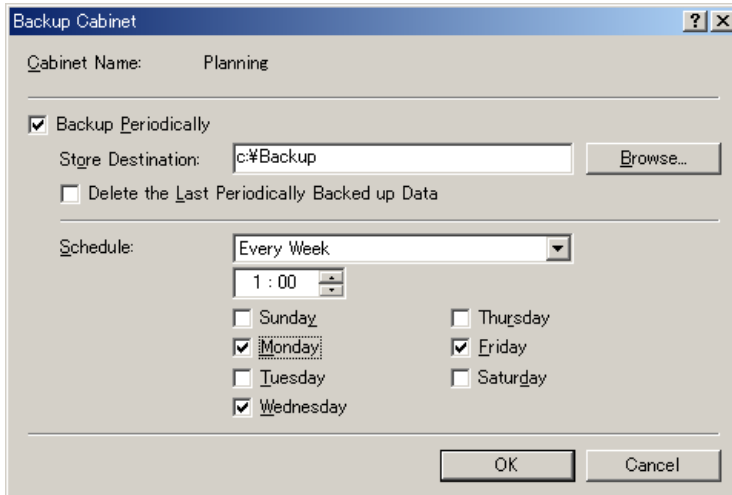


Figure 5. Backup setup

Clustering

To guarantee high performance and reliable operation, Document Manager Enterprise provides a failover clustering function. This enables multiple document servers to be

grouped together and used as one virtual computer. Should one of the computers fail, another computer in the group will take over its function and the server downtime will be minimized.

System Requirements

The following environment is required for implementing imageWARE Document Manager.

Document Manager Client (for Enterprise and Workgroup Edition)

OS	Windows 98 Second Edition Windows Me Windows 2000 Professional / Server / Advanced Server (Service Pack 3 or 4) Windows XP Home / Professional (Service Pack 1 or 2) Windows Server 2003 Standard / Enterprise / Web Edition
CPU	Pentium II 450MHz above ; Pentium 4 2.0GHz recommended
Memory	At least 64 MB of memory (at least 128 MB of memory recommended when using color images) 256 MB recommended
HDD	At least 440MB
Database engine	MSDE 2000 (When using personal cabinets)

Document Manager Enterprise Server (for Enterprise Edition)

OS	Windows NT 4.0 Server / Server Enterprise Edition (Service Pack 6a) Windows 2000 Professional / Server / Advanced Server (Service Pack 3 or 4) Windows XP Home / Professional (Service Pack 1 or 2) Windows Server 2003 Standard / Enterprise / Web Edition
CPU	Pentium II 450MHz above (Pentium 4 2.0GHz recommended)
Memory	At least 256 MB of memory (512 MB recommended)
HDD	At least 360MB
Database engine	SQL Server 7.0 / Server 2000

Document Manager Workgroup Server (for Workgroup Edition)

OS	Windows 98 Second Edition Windows Me Windows 2000 Professional / Server / Advanced Server (Service Pack 3 or 4) Windows XP Home / Professional (Service Pack 1 or 2) Windows Server 2003 Standard / Enterprise / Web Edition
CPU	Pentium II 450MHz above (Pentium 4 2.0GHz recommended)
Memory	At least 128 MB of memory (256 MB recommended)
HDD	At least 470MB
Database engine	MSDE 2000

Clients PC for Web

OS	Windows 98 Second Edition Windows ME Windows 2000 Windows XP Windows Server 2003
Web Browsers	Microsoft Internet Explorer 5.5 (Service Pack 2 or later) Microsoft Internet Explorer 6.0 (Service Pack 1 or later)
Display Resolution	800 x 600 pixels or higher (1,024 x 768 pixels or higher recommended)

Computer for Web Document Server

- Supported OS to operate as single server
 - Windows 2000 Server/Windows 2000 Advanced Server (Service Pack 3 or 4)
 - Windows Server 2003
- Supported OS to operate in Web Clustering
 - Windows Server 2003 Enterprise
- Supported Web Server
 - Microsoft Internet Information Services (IIS) 5.0/6.0

Case Study

1 Construction Company

1.1 Customer Profile

Total Number of Employees: 300

Number of Branch Locations: 50

Field of Business: Inspection of railway electrical equipment

1.2 Details of Installed System

imageRUNNER devices: 35

imageWARE Document Manager Client for MEAP* : 35

imageWARE Document Manager Enterprise edition: 1

imageWARE Web Document Server: 1

imageWARE Publishing Manager Standard: 20

1.3 Customer Requirements

The customer was planning to install a digitization system for construction related documents such as contracts for infrastructure maintenance. They wanted to be able to efficiently store frequently handled documents such as quotes, subcontractor fee applications, material procurement applications, and construction-related conference materials and to be able to view these documents from branch office locations.

The employees handling the documentation at the branch offices are people with low computer skills, so an important requirement was for these employees to be able to perform the digitalisation tasks as simply as possible.

1.4 Implemented Solution

imageWARE Document Manager Enterprise was installed at the main office. Folders were created by document type. The scanning process was decided as a push-scan process using imageWARE Document Manager Client for MEAP on imageRUNNER machines. The scanned documents were stored directly to their respective folders as

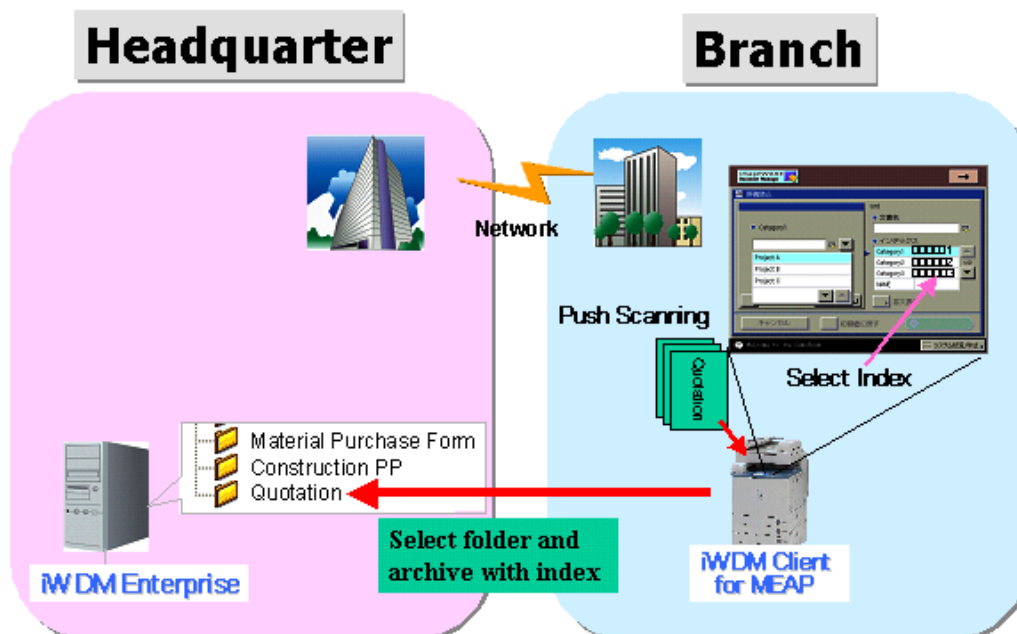
* imageWARE Document Manager Client for MEAP will be available for the US market soon.

image files. Index information is added at the main office. Construction number is used as a key identifier for each document. The construction numbers are also used for later retrieval both at the main office and branch offices.

The searching and viewing of documents at branch offices will be performed using imageWARE Web Document Server for Enterprise. The Web module was chosen to reduce the workload for system setup and management.

All documents corresponding to a specific construction number can be printed out as a booklet using imageWARE Publishing Manager. This enables the documents to be easily used as easy-to-follow and compact meeting materials.

1.5 System Configuration Diagram



1.6 Benefits Achieved After Implementation

Costs were reduced by sending digital documents from the branch offices and using the company intranet rather than sending paper documents via fax or post.

As documents can be submitted from branch offices without a computer, the job can be easily performed by branch employees without having to learn special computer skills.

Space was saved by no longer requiring physical storage cabinets at the main office and document search efficiency was increased by instant access using the construction number from the main office as well as all the branch offices.

2 Electric Appliance Manufacturer

2.1 Customer Profile

Fields of Business: general electric appliance manufacturer.

2.2 Customer Requests

100 to 300 standard-format paper documents, such as order forms, were being stored daily. The customer was considering digitizing documents to save cabinet space and the amount of paper being used. However, they wanted to be able to perform the user transition smoothly by simplifying the document digitization and folder storage process as much as possible.

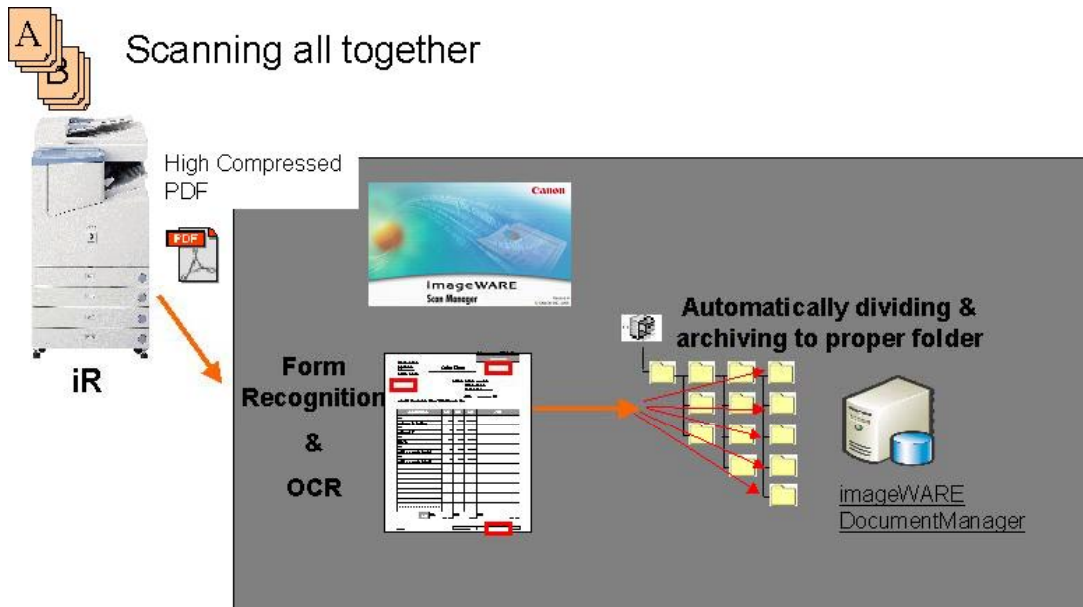
2.3 Implemented Solution

imageWARE Document Manager Enterprise was installed. Folders for different document types were created for each branch office. Documents were decided to be push scanned using imageRUNNER multifunction devices. The scanned documents are being stored in their respective folders as image files. At the point of scanning, the documents undergo automatic forms recognition by using imageWARE Scan Manager. The scanned documents are automatically sorted according to the recognised document form type and stored with automatically captured index information such as date and document name.

2.4 Benefits Achieved After Implementation

Increased work efficiency by reducing hole-punching and filing tasks. Increased efficiency and speed of document searches.

2.5 System Configuration Diagram



3 Real Estate and Construction Company

3.1 Customer Profile

Total Number of Employees: 1200

Number of Branch Locations: 45

Fields of Business: Construction, Property sales, Real Estate Agency Business

3.2 Departments where imageWARE Document Manager was Implemented

Construction department

Design department

Order Management Section

After-Sales Service Section

3.3 Details of Installed System:

PC: 10

Canon DR-6080 scanner: 10

Router: 10

PC server (WIN 2000 server): 2

imageWARE Document Manager Enterprise: 2

imageWARE Web Document Server for Enterprise: 1

3.4 Customer Requirements

- Save paper by digitizing contracts and diagrams for constructed properties.
- Find and access digitized documents to manage repair work after construction.
- Reduce costs related to information sharing (labour costs, transportation costs, etc.)
- Be able to efficiently and quickly search for digitized property diagrams.
- Be able to register and search for digitized diagrams and contracts from any of the 10 main company branches.
- Dramatically reduce document shipping costs and costs due to the unnecessary copying of documents.

3.5 Business Issues that the Customer Faced

After-Sales Service section, Construction department, Design department

As each property the company is managing requires approximately 30 documents to be stored in a binder and filed away in a cabinet according to its year of construction at the main office, there were an extremely large number of cabinets, which took up an enormous amount of space. This also caused slow responses to customer queries regarding properties that were received at the various branch locations.

After-Sales Service Section

In order to check the materials needed to repair each property, employees spent time and money travelling to the main office to view the original property diagrams and specifications.

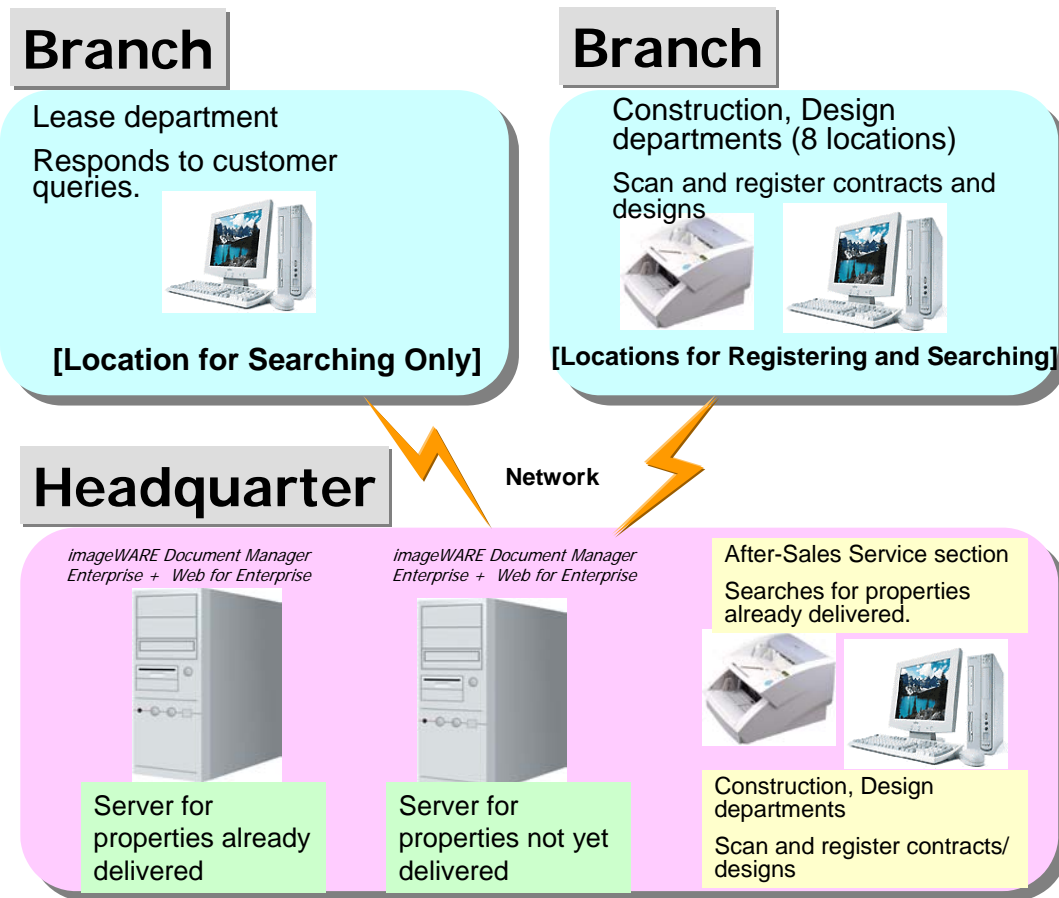
Loan department, After-Sales Service section

Customer inquiries regarding the 10,000 constructed properties make it necessary to search for the required documents in order to check specification, repair, loan and contract information. A large amount of time is spent managing and filing the cabinets in the main office, and also actually searching for the documents.

Order Management section

Orders are sent to the construction material manufacturers after the original property diagrams arrive at the main office, but this section is currently being forced to gather documents and send them twice a week to save costs, rather than sending the orders immediately after receiving the documents.

3.6 System Configuration Diagram



3.7 Benefits Achieved After Implementing the imageWARE Document Manager System

Reduced labor and shipping costs due to personnel reallocation.

Increased overall operational efficiency and speed of searching documents.

Order Management section, Construction department, Design department

- Reduced the costs of copying documents.
- Reduced postal fee costs.
- Reduced the envelope and personnel costs for shipping documents.
- Reduced the workload on the manufacturers (with pay-on-delivery).
- Made orders able to be sent immediately rather than only twice a week.
- Improved service to the manufacturers.

Loan department, Construction department, Design department

- Enabled search of documents from branch offices.
- Improved the response speed to user queries.

After-Sales Service section

- Reduced cabinet/storage equipment costs.
- Reduced shipping/labor costs

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