

DMW(Document Management Workflow) System

Filing of Documents is now the Past. Paper is labor intensive, easy to vanish, damage. It does not integrate into daily IT based business processes. Digital copiers and scanners can be found now in every office. But turning Paper to electronic is just converting your paper mess to digital. Individual companies have unique needs. You need a custom solution to create an easy to access, powerful, structured Archive. This is why we created DMW.



DMW: Your single point of archive

DMW is a general product to satisfy unique document processing needs for individual customers. It consists of the DMW server, which is the central point of the solution. DMW is integrated with an Importer imaging module. The combination offers great flexibility for our customers.

Our solution consists of the DMW client-server architecture (functional DMW modules and workstation licenses) and the custom-made processes, running on DMW software. That is different needs can be solved with one platform. When we designed DMW, we kept in mind to create a powerful, but still economical solution for our customers.

Wide range of existing and professional devices can be seamlessly integrated. The support for industry standard existing, current and new product is a guarantee for our customers to achieve low TCO. DMW runs on virtualized IT environment offer great flexibility while utilizing available resources.

1 DMW System

DMW consists of several functional modules and licensing depends on modules to be used. For the license fee the customer will have the right to use DMW without limit number of concurrent Workstations and without limit number of Documents stored.

1.1 DMW Server

The DMW server is the central point of the Digitalization solution, it orchestrates the overall Digitalization workflow, and it stores all the documents for later Management and Retrieval. DMW Server relies on an Oracle database.

Functions of the DMW server:

- Authenticate client requests (DMW can connect to Microsoft's Active Directory)
- Track and Log all activities and changes
- Manage all the processes through statuses



- Store imported Stock records, created with standalone *Stock out* program in the *Registration Database*
- Allow importing batches via Importer previously registered with BatchReg
- Support the data validation of document meta-data with the help of the Validation Database
- After the import run TiffCheck as a service to:
 - \circ $\;$ Check the image format, and the compression in the images
 - List the image format, compression, image sizes in a Database
 - o Detect full black pages in tiff files
- Allow individual and batch conversion using dedicated TiffCheck Admin GUI to:
 - o Replace compression format (like old-style JPEG to JPEG 2000)
 - Convert Color or Gray images to exact black-and-white
 - o Determine minimum standard paper size for Document re-prints
 - Create or replace PDF Table of Content (TOC) documents of Volumes
 - Rotate individual tiff pages by 90, 180 or 270 degrees
- Store the Database records of the Documents in the *Core Database* and related FS entries
- Support the Client's Search and Retrieval requests
- Manage the statuses of Check and Approve processes
- Manage Volume changes through Annex and Rescan processes
 - Actual content of the Volumes will be presented for the Clients
 - Old version of the Documents are logically deleted
 - Previous versions can still be accessed

1.2 DMW modules

The functionality of the modules cover all requirements connected to document pocessing and management as described below.

1.2.1 StockOut module

Use this off-line module with the following functions when paper documents are stored in separated place from the processing site:

• Data recording

In the module the user can record the Volume ID, the exact storing place and any other information to exactly describe the Volume and the place from where to be delivered.

- Generating delivery note Delivery note will be generated for Volumes recorded containing all entered information.
- Creating electronic data files
 When delivery note is generated then electronic data file is created as well. Save the file on USB key from where you can import the delivery data to the BatchReg Module.

1.2.2 BatchReg module

All digitalization process starts with a registration, where an empty digitalization batch is created. For the Registration, a user should launch the BatchReg module, and create or select the identifier of the



Volume to be digitized. In case when StockOut module is used then the Volume data to be imported from USB key prior to selecion.

The Module is designed to provide a closed system to allocate Volumes (batches) to users who carry out processing as well to produce continuous information about the phases of work with the Volumes from start to end of the workflow.

By this Module always can be tracked the Volumes in processing so you will have all time exact information about the process.

1.2.3 Importer module

Importer is the gateway to the Paper documents. It offers several ways to integrate office devices and Imaging devices.

Electronic files can be imported into registered Volumes manually or batch mode. Scanners from wide range of manufactures are supported.

1.2.4 eDocManager module

This module contains submodules so if your processes do not need all provided functions then you can select from submodules according to your real needs. Of course any time later you can decide to buy further submodules to extend your processes managed by DMW.

After the electronic document import provided by the "Importer module", the DMW will have all the document images in the proper Volumes (batches) to be managed by the following functions.

1.2.4.1 Admin submodule

Use the functions to:

- Define user rights (e.g access to view documents; edit/delete; etc)
- Register users
- Create user groups having the same rights in the system

The submodule setup will be according to the document access right policy of the customer.

1.2.4.2 Validation&Check submodule

Use the functions to:

- Record defined data of documents (e.g name, description, date(s), other relevant information)
- Check recorded document data and images
 - In case when the result of check is Ok then document to be passed to Approval
 - In case of data mistakes realised then corrections to be made in the submodule and after that can be passed to Approval
 - In case of image problems (e.g low quality, missing parts, etc) then rescan is necessary by the scanning device and after that new import to be done by "Importer module" to start Validation&Check process.



After checking the document is ready to approve.

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Screen of Validation&Check submodule

1.2.4.3 Approval submodule

Use the functions to:

- Approve document data and images
 - In case when the result of check is Ok then document will be approved
 - In case of data mistakes realised then corrections to be made in the submodule and after that will be approved
 - In case of image problems (e.g low quality, missing parts, etc) then rescan is necessary by the scanning device and after that new import to be done by "Importer module" to start validation&check

Following the approval the document is ready to release (export) to the customer's electronic document system unless it has positions (coordinates) to be collected.

If the document has positions (coordinates) to be collected then after the approval to be passed to "Position Validation&Check" submodule.

1.2.4.4 Position Validation&Check submodule

In case of technical drawings the recording of the objects' exact positions (coordinates) can be important.

Use the functions to:

• Record the objects' exact positions (coordinates) from the image of the technical drawing



- Check recorded document position data and images
 - In case when the result of check is Ok then document to be passed to Position Approval
 - In case of data mistakes realised then corrections to be made in the submodule and after that can be passed to Position Approval
 - In case of image problems (e.g low quality, missing parts, etc) then rescan is necessary by the scanning device and after that new import to be done by "Importer module" to start position validation&check

1.2.4.5 Position Approval submodule

Use the functions to:

- Approve document position data and images
 - In case when the result of check is Ok then document will be approved
 - In case of position data mistakes realised then corrections to be made in the submodule and after that will be approved
 - In case of image problems (e.g low quality, missing parts, etc) then rescan is necessary by the scanning device and after that new import to be done by "Importer module" to start position validation&check

Following the approval the document is ready to release (export) to the customer's electronic document system.

1.2.4.6 DocSearch submodule

There are many options available to find a document. The rich filtering options let you specify either the characteristics of the data in the document (eg . account number), or reducing results according to data entry (type ahead), or free text (full text search) searching within the whole content.

1.2.4.7 Release (export) submodule

Use the fuctions to:

 Allow integration, loader generation to other systems
 DMW was built on Standards, virtually any kind of integration is possible (like DB Link, WebServices, XML, etc.

With respect to that customers have different electronic document system therefore this submodule needs customization during DMW implementation.

2 DMW license support

The software solution and the system elements are maintained within the frames of support contract. It has several items listed. The system licenses and the solution has each own support fee items.

This item is an annual support fee for the licenses. Having the Maintenance support paid, the customer is eligible to have access to all new version the vendor creates. It comes with the boxed product, that is it might include bug fixes, new features, support for new hardware and operating systems, etc.



The manufacturer support typically two major versions, that is the actual and the previous version. It means, that in case an issue – like a change request to use a new operating system – the Manufacturer request the Customer to upgrade to the latest version.

License support is paid annually and the first year payment is due at DMW software installation.

3 Recommended Hardware

3.1 Document scanner

The specified Fujitsu fi-6770 scanner provides all functionality a documentation store might require. It comes with a CCD based duplex optics scans both sides of the documents same time while the paper sheets are feed form an Automatic Document Feeder (ADF) controlled by an ultra-sonic sensor to avoid double-feeds. Scanning speed is up to 60 sheets (120 images) -A4@300dpi, color resolution. A separate CCD camera is used for the Flat Bed (FB) scans. Scanning speed is close to one second, allows the Operator to focus on the preparation and document handling, the scanner will not block his/her productivity.

The scanner accepts documents form A5 up to A3, ADF even supports long documents. The scanner requires enough space and its weight is heavy. Consider additional space form document preparation and docketing, boxing when design the workplace.

3.2 Large Format scanner

Engineering drawings can't be put into a Document Scanner because of their extra sizes. For this we recommend the WideTek 48" scanner. Its superior cameras provide crystal-sharp image while its feeder can handle delicate, old documents. The scanner has its own LCD display, where an operator can start the scanning. Scanner settings and destinations can be organized into directly accessible profiles. Images are stored on a remote folder, typically shared directly on the Elmporter server, monitored by the Elmporter module.

The scanner configuration contains floor stand, basked and foot-pedal, also a software is provided to setup scanner profiles.

3.3 Server hardware

We recommend HP Proliant rack-mount servers, like the DL380 Gen9 server. The precise model to be determined after the specification is agreed. Minimum 4 Intel server cores required. Recommended CPU 8-16 cores, based on the Server load. Minimum memory is 16GM, 32-64GB is recommended. Internal RAID is required for the Operating system. Operating system is virtualized (bare-metal VMware recommended, ESXi). Operating system required is Microsoft Windows Server 2012, ordered with the Server.

Network interface to be determined – based on the network Switch and the Storage. Recommended FC interface.

The server contains redundant power supply (PSU), hot-plug fans, and equipped with iLO for Infrastructure management



3.4 Storage

To store the documents and provide failsafe operation a dedicated, fully redundant device is recommended. Key characteristics: RAID level 6, dual controller, battery backup module for the controllers, redundant power supply, FC interface directly to server. The exact model is to be determined after completing the functional specification.

3.5 Uninterruptible Power Supply

For the Server, Storage and networking it is a must to provide battery-backed power allows safe shutdown in case of power loss. It is recommended to use two UPS, to provide fail safe, shared operation. Devices equipped with redundant or dual PSU usually can operate with both UPS, load balanced.

For the DMW configuration it is estimated that the APC SMART UPS 2000VA rack-mount model is required as minimum. Recommended is two APC Smart UPS3000VA rack-mount, each equipped with one external battery module and equipped with remote management interface can interconnect the two UPS and communicate with the server.

3.6 Client workstations

A powerful PC, Intel i7 processor or later, minimum 8GB RAM shipped with operating system (Windows 10) GB or faster NIC (depends on switch and infrastructure cabling), equipped with two high-resolution 24 inch wide graphical monitors.

3.7 Support for the hardware components

It must be emphasized that all hardware component requires support coverage. For scanner devices, regular maintenance and spare parts, regularly replaced consumables are also required.

3.8 Other, not listed components

The fully functional system required additional elements not listed in the configuration We mention these items here as a reminder:

- Backup server
 - Dedicated server takes care on periodic full and incremental data backup and data archival
 - It contains fast, internal storage to allow the backup run quickly, and freeing-up the server backed up, then it moves the data to the external backup storage.
- Backup storage
 - Separate storage location (device) with sufficient storage space to store all periodic full, incremental backups and data archives. Typically, it is providing significantly larger storage space, than the primary server storage, but its performance is less. Network is usually GB interface or iSCSI. Redundancy in the storage elements is a must. (RAID configuration)
 - Data read speed determines the restore speed.
- Enclosure rack to protect and store the IT devices safely.
 - Also, a protected room with air conditioning and filtered ventilation. No human activity in the computer room.



- Network switch and cabling to interconnect the Servers to the Clients and other stations.
- Remote management tools depend on the technologies used.
- Licenses, to set-up and operate the configuration
 - Operating systems
 - $\circ \quad \text{Virtualization}$
 - o Database
 - Monitoring software