

## Server-based PDF Conversion: an Instrument for Efficient Document Management

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### Abstract

The server-based production of PDF documents and documents in other formats requires, on the one hand, centralized conversion with the help of a PDF printer. But it is also important to provide an efficient distribution of the created documents to the respective addressees. Source documents will be sent by the clients to a so-called Render Center. Then the documents, for example, PDF or TIFF files will be transferred back to the author or to the other people or places. It is possible to use for the distribution, among other, a network printer, a FTP server, a TCP/IP protocol, e-mail, some web sites and/or virtual disk drives.

A suitable solution will be described on the example of PDF Render Center. Windows system service forms the kernel of the application; in addition, a virtual PDF printer and an administration program stand for the settings. Also the functions will be explained briefly.

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### INTRODUCTION

Your enterprise develops well and also your document workflow becomes more and more extensive. However do the systems you use for your document management grow? Or do you get more and more paper documents, e-mails and other electronic documents on your computer? Do you have to perform, systematic processing, management and archiving, which require additional time and cause rising costs?

With the help of a server-based conversion solution you will be able to convert documents by means of batch jobs and process the created PDF files. The solution can be also easily integrated into existing document management systems. We will explain the basic functionality on the example of PDF Render Center. The solution is perfect for small and midsize enterprises, in which the use of paper documents should be avoided and several thousands of documents should be

automatically managed. It allows a more efficient processing of a greater number of documents and at the same time reduces or even cancels costs for copying and archiving.

PDF Render Center converts all documents, which are important for your enterprise, as well as data from electronic sources, into PDF documents. Then these documents will be available in back end systems for administration in your databases as well as in document management and content management systems. The contents, which are first unstructured, can be systematically organized, archived, protected and transferred with PDF Render Center. Besides, you can define the enterprise-wide rules and directives to point out an optimal document workflow.

PDF Render Center allows the small and medium-sized enterprises as well as their branches to have a linked archiving of PDF documents. All connected tasks can be comfortably and quickly solved - and this for an affordable price.

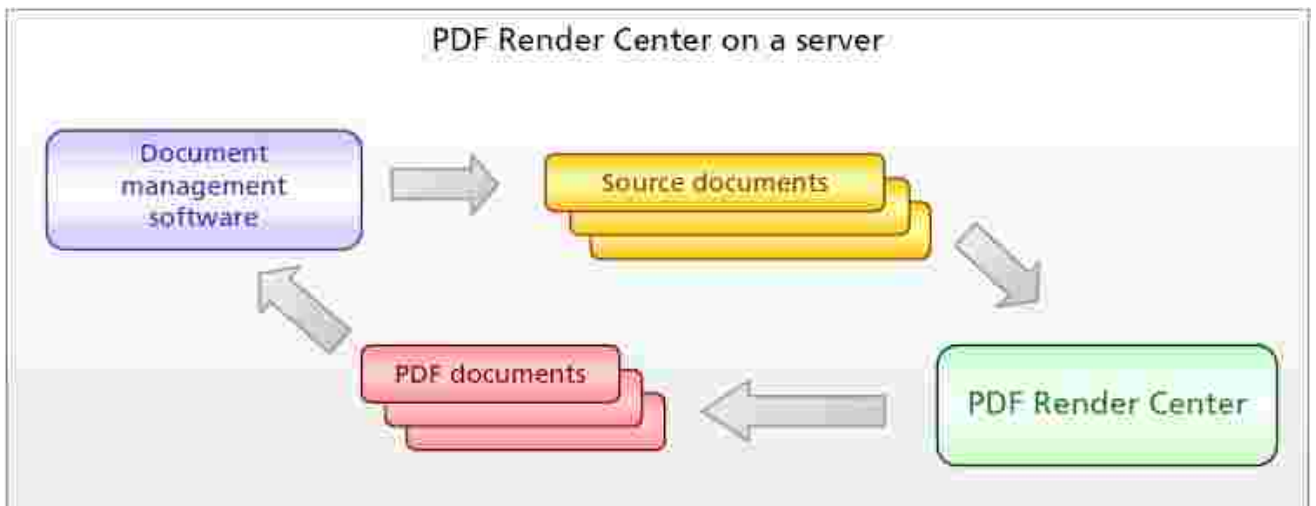
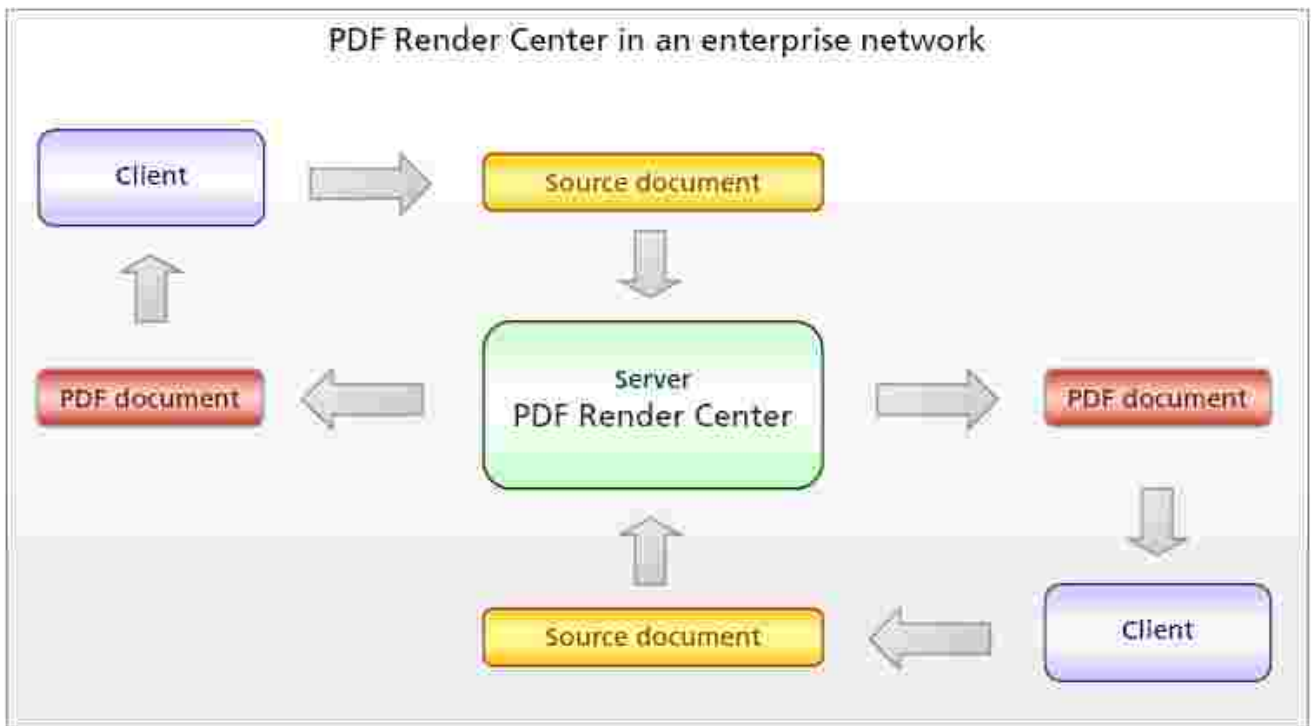
Contents can be integrated from every working place on the network and be available for safe cooperation in team - within your enterprise and even outside. At the same time with PDF Render Center you can make sure, that (legally prescribed) standards are implemented for the digital archiving and observance.

Other advantages are: lower current operating costs, support of the customer relations as well as improved cooperation with your standard software, with tool kits and with the individual software, which is integrated into content management, ERP- and other available systems.

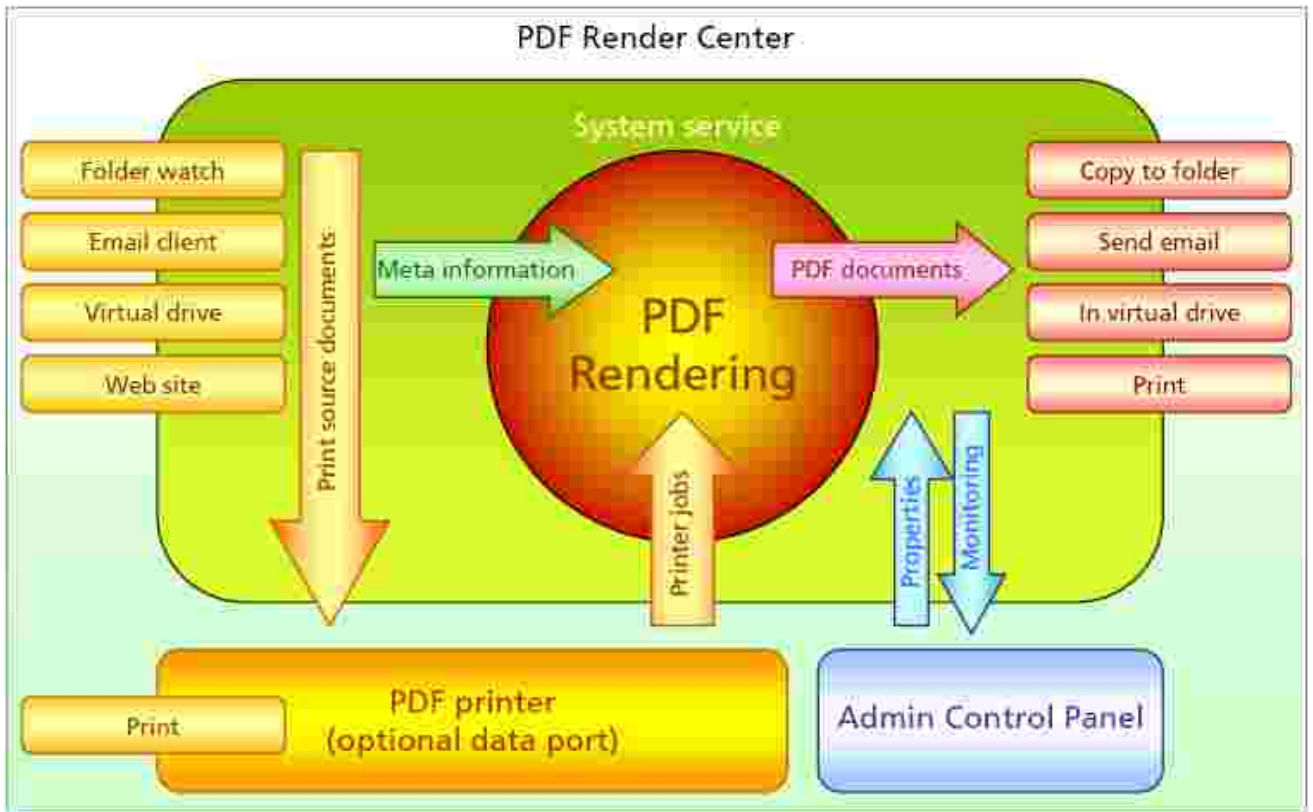
## FUNCTIONALITY

Usually PDF Render Center is installed on a network server and is set to perform the following tasks:

- Creation and conversion of PDF documents as well as of documents in other formats in an enterprise-wide or department-wide network. Besides, a production and distribution can be provided according to the suitable user tasks from any working place.
- Processing of great document volumes in a fully automatic mode with high productivity



The kernel of PDF Render Center is a system service, which manages streams of parallel processing of documents. The service efficiently uses the possibilities of the multiprocessing systems. Besides the system service, PDF Render Center installs one or more virtual printers (RC printer), which can also be used locally or as a network-shared printer. With the printer the user obtains a universal representation template (printer job) for every document for further conversion in PDF. The administration of the RC service occurs over a special application (PDF RC Administrator). With its help a system administrator controls the work of Render Center and monitors the output.



PDF Render Center allows a wide range of actions with documents in different formats:

- PDF and PDF/A creation from various printable formats: for example, MS Office formats, formatted and plain text, HTML files and Web sites, images (TIFF, JPEG, PNG, GIF, BMP)
- Import of MS Office meta information, such as links, table of contents (TOC), form fields and control elements, comments, from Word, Excel, PowerPoint documents in PDF documents
- Conversion of PDF in PDF/A-1a and 1b
- Export of PDF documents in ASCII text or images (TIFF, JPEG, PNG), including multipage TIFFs, as well as CMYK

Basically PDF Render Center can convert all data formats into PDF. The only condition is that on the server, where PDF Render Center is installed, also the software should be present, which can print this format on the RC printer. So, for example, for the conversion of the MS Office formats there should be an MS Office installed on the server. The installed software should also support the "Print to" shell function, i.e. the shell compatible printing mode in Windows.

Without format-specific software the ASCII text, RTF text and raster images (TIFF, JPEG, PNG, GIF, BMP) can be converted.

#### Client and End User Software

In a local network PDF Render Center offers different variants of its usage by the client users. It also concerns how the source and destination documents will proceed and where they will be stored. All these alternatives require no additional software on the working places. The conversion offers the following possibilities:

- Network printer: on the RC server a virtual printer will be shared, which can be installed at every network client as a network printer. It allows the end user to print his documents from his working place over any application. The printer jobs will be converted by the PDF Render Center on the server into PDF or PDF/A.
- Folder monitoring: the source documents will be collected in one folder on the server. The end user gets access to this folder from his system administrator (FTP or other access) and places his documents there. PDF Render Center checks the folder regularly and processes the files located in this folder.
- Virtual drive: on the client computer an additional disk drive with suitable software will be provided, into which the source documents can be copied. The documents will be automatically sent to the PDF Render Center for processing.
- Standard email client: the source documents will be sent from every client computer as the email attachments to the address set by the system administrator. As an email client the standard client will be used.
- Standard Web browser: the end user opens a Web page in a local network using his Web browser. The address will be set by the system administrator. The source document will be uploaded to this Web page on the server and will be converted into PDF or PDF/A there.

#### PDF Render Center Data Interface (incoming data flow)

As PDF Render Center offers several possibilities of communication with the end user, the transfer of the source documents from the working place to the server can also be performed in different ways:

- Network printer/shared printer: not a source document will be sent, but a printing job. It will be performed by the standard printing system of Windows (Print Spooler). The system administrator should grant access to the shared network printer from other network computers.
- FTP folder/shared folder: the source documents (files) will be copied directly from the end user to the server. The system administrator creates a shared folder and defines access method and access rights for the end users.
- TCP/IP connection: here a virtual drive can be used. For that the system administrator should set a port on the server over which the access to the server from the network becomes possible. PDF Render Center opens and serves the port itself.
- Emails: the source documents can be sent by email as an attachment to a certain address. There is a special service in PDF Render Center, which receives and processes all emails, sent to a special address, defined by the system administrator (POP3 and IMAP4 protocols).
- Pseudo Web site: PDF Render Center also supports the HTTP protocol restrictedly. For that a port on the server is necessary. It should be set by the system administrator. The standard browser, for example Internet Explorer can

communicate over the opened port. The Web browser loads a special page with a form, which allows the upload of a source document on the server.

At the automatic creation of source documents some of these methods can be also used by the applications, with which these documents are created.

### Delivery of PDF Documents (outgoing data flow)

The created documents (as a rule PDF files) will be automatically sent to the author of the source documents and to the other possible recipients. At the same time several distribution kinds can be used to archive and/or print the documents. With PDF Render Center the system administrator has at his disposal the following possibilities to distribute created documents:

- Copy in a folder: the created file will be placed in a folder, set by a system administrator in a network or in a shared folder on the client computer.
- Email with an attachment: email with the destination file as an attachment will be created and sent to one or several addresses, which are set by an administrator. One of the addresses can be the own address of the author of the source document.
- TCP/IP connection: this method can be used only if the source document was also sent over the TCP/IP to the server.
- HTTP protocol: this method can be used only if the source documents were uploaded over a pseudo Web site. The user can download the ready documents from the same site.
- FTP protocol: the ready file will be placed into a FTP folder set by the administrator and can be downloaded there.
- Print: the ready document will be printed on a printer. Usually it is an alternative to the standard distribution (paperless).
- User-defined distribution: besides, in PDF Render Center it is planned to implement an easy integration with another software. So it is possible to introduce specific methods of post processing of documents in the enterprise for the specific workflow.

At the further usage of the destination documents some of these methods can be also used by the applications, which process these documents (for example by archiving).

### ADMINISTRATION OF PDF RENDER CENTER

PDF Render Center offers to a system administrator varied possibilities for the control of the program functions. The default settings are easy to understand and require no excessive actions. Of course the settings can be changed and adjusted according to the special requirements.

Three most important modules of PDF Render Center are:

- 1) Kernel module: a system service is executed by the system account and requires no registration of other users. The system service completely takes over the conversion of documents and the distribution of the source documents as well as the converted documents.
- 2) One or several virtual printer(s) (RC printers), which can be set locally or as network printer(s).
- 3) PDF RC Administrator – the application for the administration of the system service, the change of settings and the control of the log file(s). Only the user, who is logged on to the PDF Render Center server, can launch the program. It can also be performed over a Remote Desktop session.

PDF RC Administrator allows the system administrator to perform a wide range of actions with the RC system service - from stopping the service with a click up to individual settings for every user of PDF Render Center on the network. The user interface is programmed in the MS Office 2007 style, so it is carefully considered and structured.

PDF RC Administrator consists of four parts:

- 1) Service and data ports
- 2) Accounts
- 3) Network clients
- 4) Activity Monitor

Service and data ports

Here the system administrator changes the settings of the service or stops and launches them again.

Moreover, in this module the data ports can be defined, which are permitted according to the acquired license. The data port is an internal mini-service within PDF Render Center, which guarantees the distribution of the source documents for the conversion. For example, the document folder is monitored for new files or new emails and they are collected together with an accompanying attachment in a special mail account.

The system administrator can define several data ports with different settings to control, for example, several mail accounts at the same time. These accounts can be used by different departments of the enterprise for the document transfer.

To the data ports in PDF Render Center also belong the virtual printers, which are installed together with the solution. However, as opposed to other data ports, the system administrator cannot add or delete the virtual printers by himself.

Every data port can be closed by the system administrator - in this case the port delivers no data.

## Accounts

For every network user in PDF Render Center group positions as well as individual properties can be set. These properties include:

- Actions with the source documents (for example, conversion in PDF, PDF/A or images)
- PDF-document properties (among the rest, embedding of fonts, image compression, color space, encoding)
- Distribution of ready documents to the network users (for example, copying into a folder, sending by email)

The system administrator can link an account with one or several data port(s), assign an account to one or several users and use for that the username and/or the computer name.

## Network clients

In addition, the system administrator can work on the list of the network users of PDF Render Center as well as their individual data, as for example the used document folder and the email addresses. If the list service "Active Directory" can be used on the server, it is possible to transfer the user data from the Active Directory.

## Activity Monitor

The monitor allows to control the document transfer over the PDF Render Center. Detailed information is provided for every document: among the rest, the time, the username, the computer name, the data port, the account used for processing, the distribution type of the ready document, the status.