



Installation Guide

Canvas Dicom Printer

Version 1.1.302

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Introduction

The Canvas Dicom Printer is a virtual printer utility that allows you to print anything directly to your Picture Archive and Capture System. The output is stored as encapsulated PDF and implements the encapsulated PDF SOP class.

Unlike other Print to PACS systems, Canvas Dicom Printer allows the user to preview and annotate the print document *before* storing the document into the PACS system. This allows the user to edit or export a copy before storing the PDF document in the PACS System.

Please note: this manual attempts to use as little DICOM syntax as possible since DICOM can be very complex.

The Canvas Dicom Printer actually has two modes of operation. It can function as a Dicom printer and also as a DICOM PDF Storage application for ***existing*** PDF files. This mode allows you to submit several PDF files (such as scanned documents) to the patients' records.

This mode is also useful for the initial setup when the printer driver is not yet configured

Features

Requirements

The following are required to run the Canvas Dicom Printer:

1. Windows XP or greater
2. .NET Framework 4.0
3. PDF Creator core system. This manual provides instructions how to install and configure PDF creator.

Installation

Simply run setup.exe to install the application. For most installations, you may accept the default values.

Please run the Canvas Dicom Printer from the start menu. This will be the application mode for the time being, but it will allow you to configure the print driver.

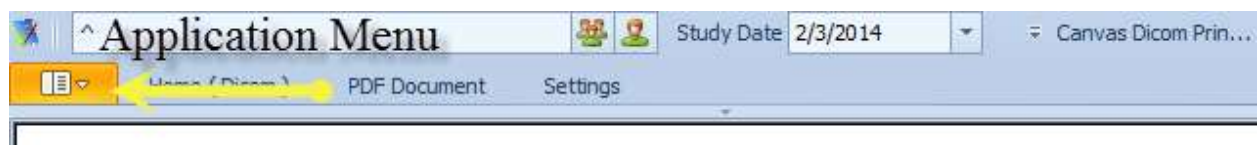
Licensing and Trial versions

Once Canvas Dicom Printer is started for the first time, you may be prompted to enter your license key or you may evaluate the product for 30 days. The 30 day evaluation is fully functional with all DICOM capabilities.

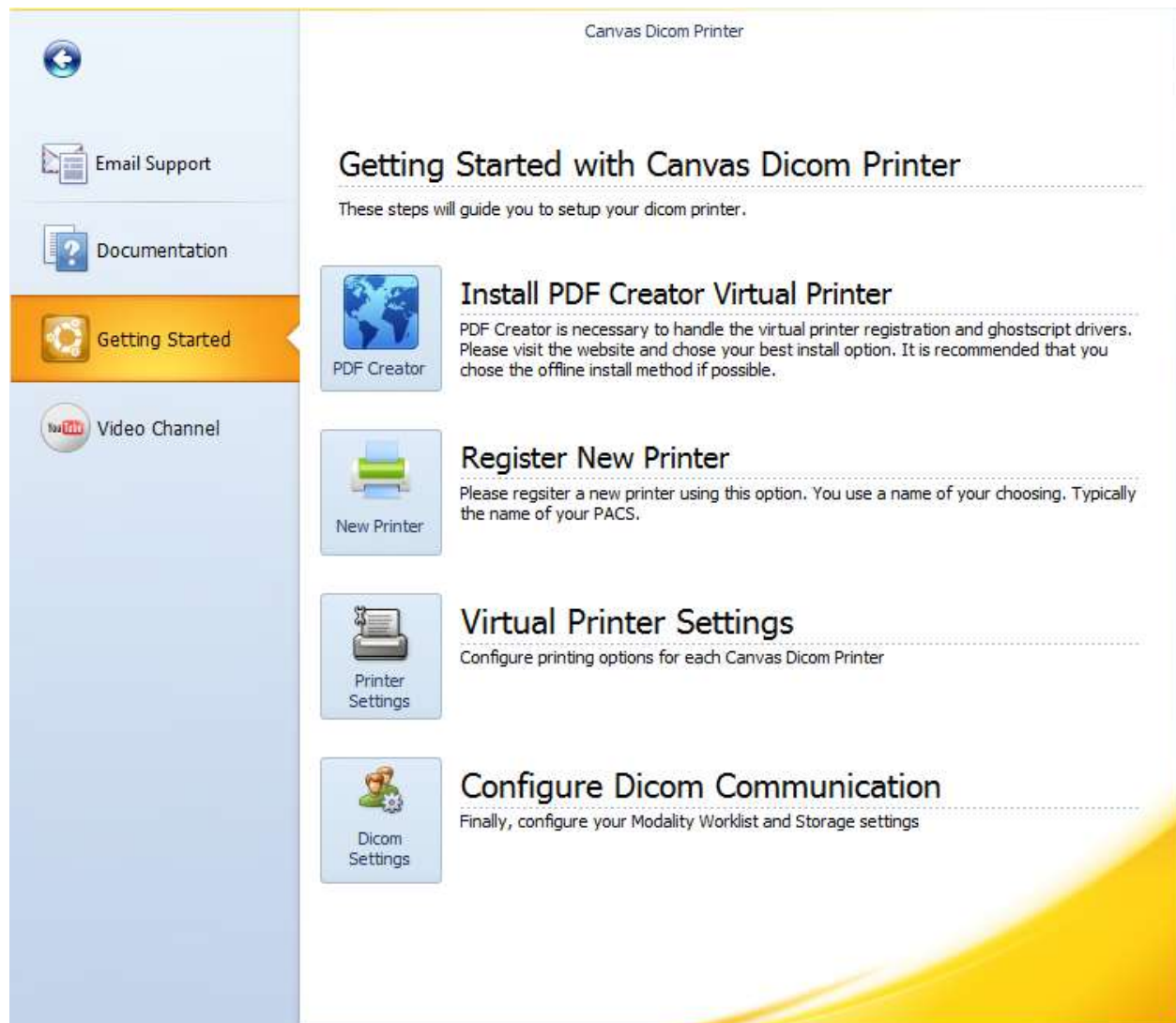
Configuration

After the licensing component is complete you will need to configure the application, please see the following sections to accomplish this task.

There is an in application list that will guide you through the setup of the application. Please select the application button in the upper left corner of the toolbar. Then select getting started tab.



Application Menu



Getting Started in application menu

Overview of Tasks

Install PDF Creator Virtual Printer

The PDF Creator core system is not included in the installation package. This reduces the size of the installation package but also gives the user the best options for your download requirements. Some users' Anti-Virus software will prevent automated installations and so the user must install the package manually. Additionally, windows user account control settings can also affect this download and/or installation. Therefore it is easier to troubleshoot by separating this installation.

By clicking the links, you will be directed to the pdf engine download and you may chose whichever installation package is right for you. If you have questions, please contact help@remedisoftware.com.

Register New Printer

This allows you to name your printer. You do not have to use the name "*Canvas Dicom Printer*", you may choose to name your printer after your PACS or EHR systems name, such as "GE" or "EPIC". Please choose something that is easily recognized by you or your users.



New Printer Dialog

Please note: you may install multiple printers, but multi-channel DICOM submission is not supported in this version. Please contact help@remedisoftware.com if you require this functionality.



Virtual Printer Settings

Configuring virtual printers and print drivers can be a complex task and usually requires delving into the windows printer system. This section will allow you to customize the base elements needed to run the Canvas Dicom Printer system. Please see the following image and table for a description of each element.

Printer Properties

Virtual Printer: **Canvas**

Please Note: If you are unable to access the virtual printer properties, you will to configure the printer settings from within PDF Creator. Please see the documentation for assistance

Autosave Directory:  

Autosave Filename:

Autosave Format: ☐ PDF ☐ PDF/A-1b ☐ PDF/X


Autosave Start Standard Program: 0

Standard Subject: Standard Title:

Use Autosave: ☐ No ☐ Yes

Use Autosave Directory: ☐ No ☐ Yes





Run Program After Saving: ☐ No ☐ Yes

Run Program After Saving Program Parameters: 

Run Program After Saving Programname:

Run Program After Saving Wait Until Ready: 0

Run Program After Saving Windowstyle: 0

 **Default**  **Save**  **Cancel**  **Ok**

Empty Printer Properties

Please Note: You may select the **Default** button to load the default virtual printer properties. In most situations, you will not need to change any parameters.

Printer Properties

Virtual Printer: **Canvas**

Please Note: If you are unable to access the virtual printer properties, you will to configure the printer settings from within PDF Creator. Please see the documentation for assistance

Autosave Directory: **C:\Users\James Pope\AppData\Local\Temp**

Autosave Filename: **<DocumentPath><Title>**

Autosave Format: ☐ PDF ☐ PDF/A-1b ☒ PDF/X

Autosave Start Standard Program: **0**

Standard Subject: **Document** Standard Title: **Canvas Dicom Printer**

Use Autosave: ☒ No ☐ Yes Use Autosave Directory: ☒ No ☐ Yes Run Program After Saving: ☒ No ☐ Yes

Run Program After Saving Program Parameters: **"<OutputFilename>" /printer**

Run Program After Saving Programname: **C:\Code\Oscar\Remedi.Canvas.DesktopImaging\Canvas Dicom Printer\bin\Debug\Canvas Dicom Printer.EXE**

Run Program After Saving Wait Until Ready: **1**

Run Program After Saving Windowstyle: **0**

Default **Save** **Cancel** **Ok**

Default Canvas Dicom Printer Settings

Please note that the configuration of the virtual printer requires COM access by the system. Depending upon your operating system, this method might not be accessible. If you are unable to use this method, please see the appendix for instructions configuring the virtual printer driver manually.

Element	Description
Autosave Directory	Directory to save print jobs
Autosave FileName	Default Filename for saving
Autosave Format	The type of PDF document to create. Please see your PACS system documentation for supported formats
Autosave Start Standard Program	0 – please do not change
Standard Subject	The “Subject” of the PDF document
Standard Title	The “Title” of the PDF document
Use Autosave	Yes to use autosave
Use Autosave Directory	Yes to save the print job in the specified directory
Run Program After Saving	Yes to run the program
Run Program After Saving Program Parameters	Program parameters – please do not change
Run Program After Saving Program Name	The name of the program to run, e.g. Canvas Dicom Printer
Run Program After Saving Wait Until Ready	1 to run the program, 0 to disable
Run Program After Saving Wait Until Windowstlye	0 – Run Normal Window. Please do not change

Virtual Printer Table of values and descriptions

Configure Dicom Communication

The final step is the configuration of the Dicom work list and Dicom storage servers. This step requires knowledge of your PACS system and may require you to ask your PACS administrator or EHR vendor for these parameters.

The screenshot shows a 'Settings' window with a 'Dicom Settings' tab. It contains two main sections: 'Modality Worklist' and 'Storage'. Each section has four input fields: 'Host IP Address', 'Port', 'Modality Application Entity Title', and 'Server Application Entity Title'. The 'Modality Worklist' section has an 'Echo Test' button. The 'Storage' section also has an 'Echo Test' button. At the bottom of the window are 'Cancel' and 'Save' buttons.

Section	Host IP Address	Port	Modality Application Entity Title	Server Application Entity Title
Modality Worklist	192.168.168.38	104	HEI	Remedi
Storage	192.168.168.38	105	HEI	Remedi

Modality Work list

The modality work list is a Dicom Server Service that publishes patient orders based upon a particular modality (or instrument) and any parameters made within a "request". Your results vary greatly upon the support of your PACS system; however, most systems support the **patient level** and that is all that is required for the Canvas Dicom Printer to operate.

Please see the following table for a description of each parameter:

Field	Description
Host IP Address	This is the host IP address of the Worklist server.
Port	This is the port number that the request will be sent.
Server Application Entity Title	The name of the worklist server.
Modality Application Entity Title	The name of the modality.
Echo Test	Initiates a connection to the server and validates the settings.

Storage Server

The storage server is simpler than the work list server as it typically only receives dicom files. The settings are similar and may be the same for the IP address and AETs, but please note that the ports MUST BE DIFFERENT.

Please see the following table for a description of each parameter:

Field	Description
Host IP Address	This is the host IP address of the Worklist server.
Port	This is the port number that the request will be sent.
Server Application Entity Title	The name of the worklist server.
Modality Application Entity Title	The name of the modality.
Echo Test	Initiates a connection to the server and validates the settings.

Validation

Once complete you may validate your setup by simply printing any document that you wish from any application. If you do not have a dicom PACS server, you may simply select “close” from within the application or you may export the document as a PDF file.

If you require a simple PACS server to evaluate Dicom communication, Remedi software has a simple standalone PACS server. You may download this and try it for 30 days. It implements Modality work lists and storage, yet it does not require a “server” to function”.

You may find product information and a download link at:

http://download.cnet.com/Canvas-Desktop-Dicom-Server/3000-2064_4-76086861.html

Online videos and documentation

Please see our online videos on the Remedi YouTube channel for additional assistance.

A link to this channel is provided below:

<http://www.youtube.com/channel/UC-SW5Bb75Xfw-c5SiaAToGQ/videos>

Installation checklist

1. Run Setup
 - a. Please note that you may need to be an Administrator.
2. Run the Canvas Dicom Printer Application
 - a. Accept licensing terms as required (trial or license)
3. Install the PDF Creator core subsystem
4. Configure Virtual Printer
 - a. Create new printer
 - b. Setup Printer Parameters
5. Setup Dicom Communication
 - a. Setup modality work list
 - b. Setup storage
 - c. Verify
6. Print a sample document

Appendix A

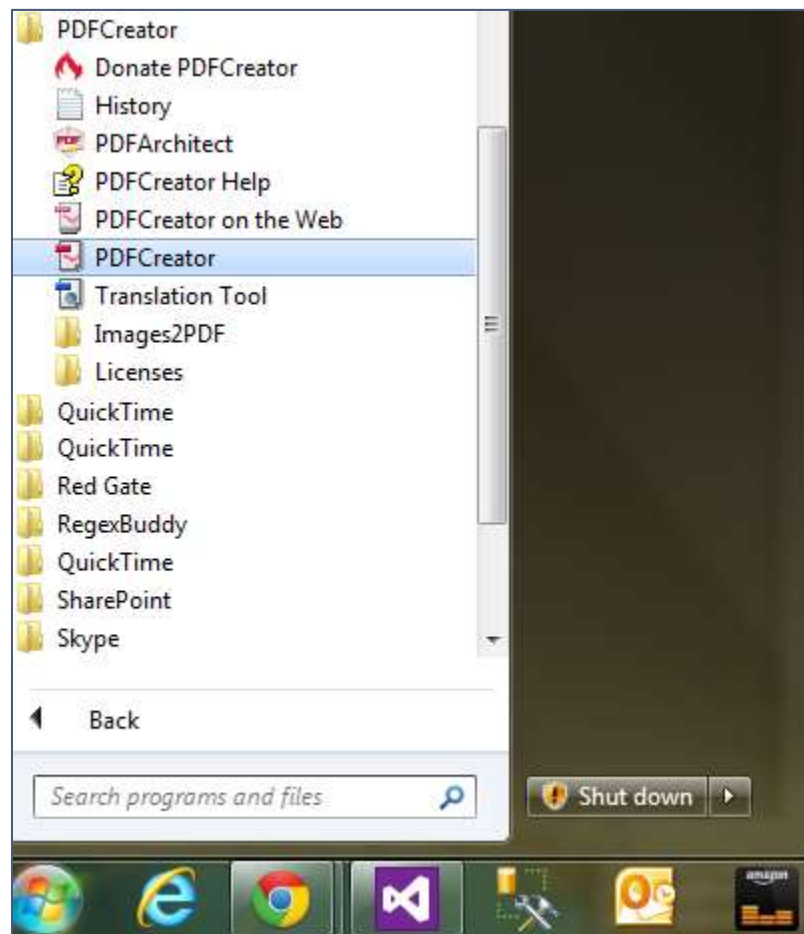
Configuring PDF Creator Options Manually

If you are unable to use the built methods to configure the virtual printer options, please follow these instructions for manual configuration. These instructions are based upon a windows 7 installation. Please adjust the steps accordingly for your operating system version.

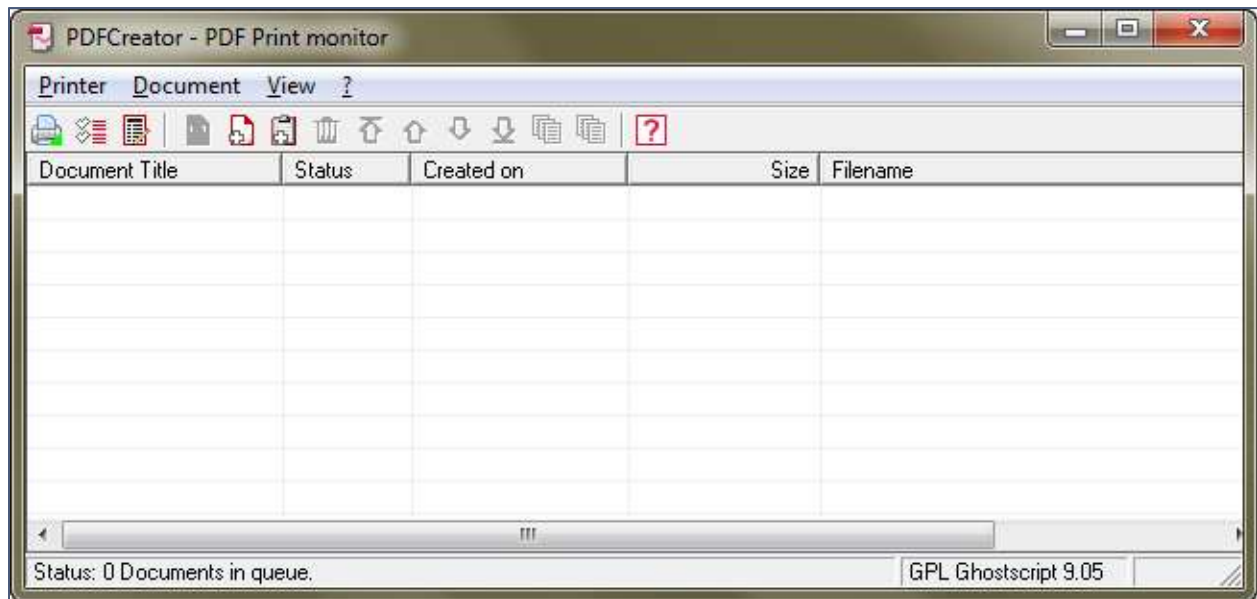
Start PDF Creator

1. Start PDF Creator

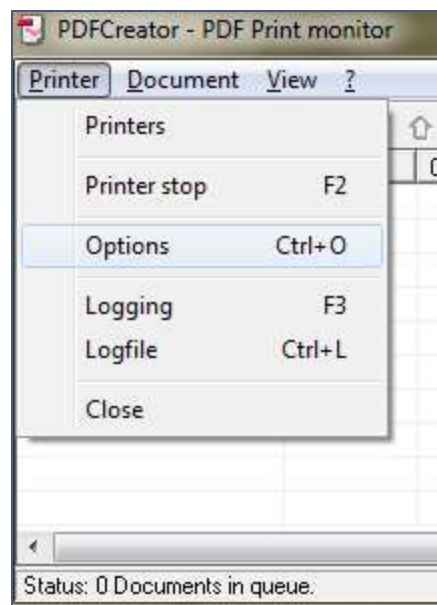
From the start menu launch PDF creator



- This will launch the PDFCreator – PDF Print Monitor, this is the main interface to the virtual printer control. Here you can see how many documents might be in the queue and the version of ghostscript that is used.

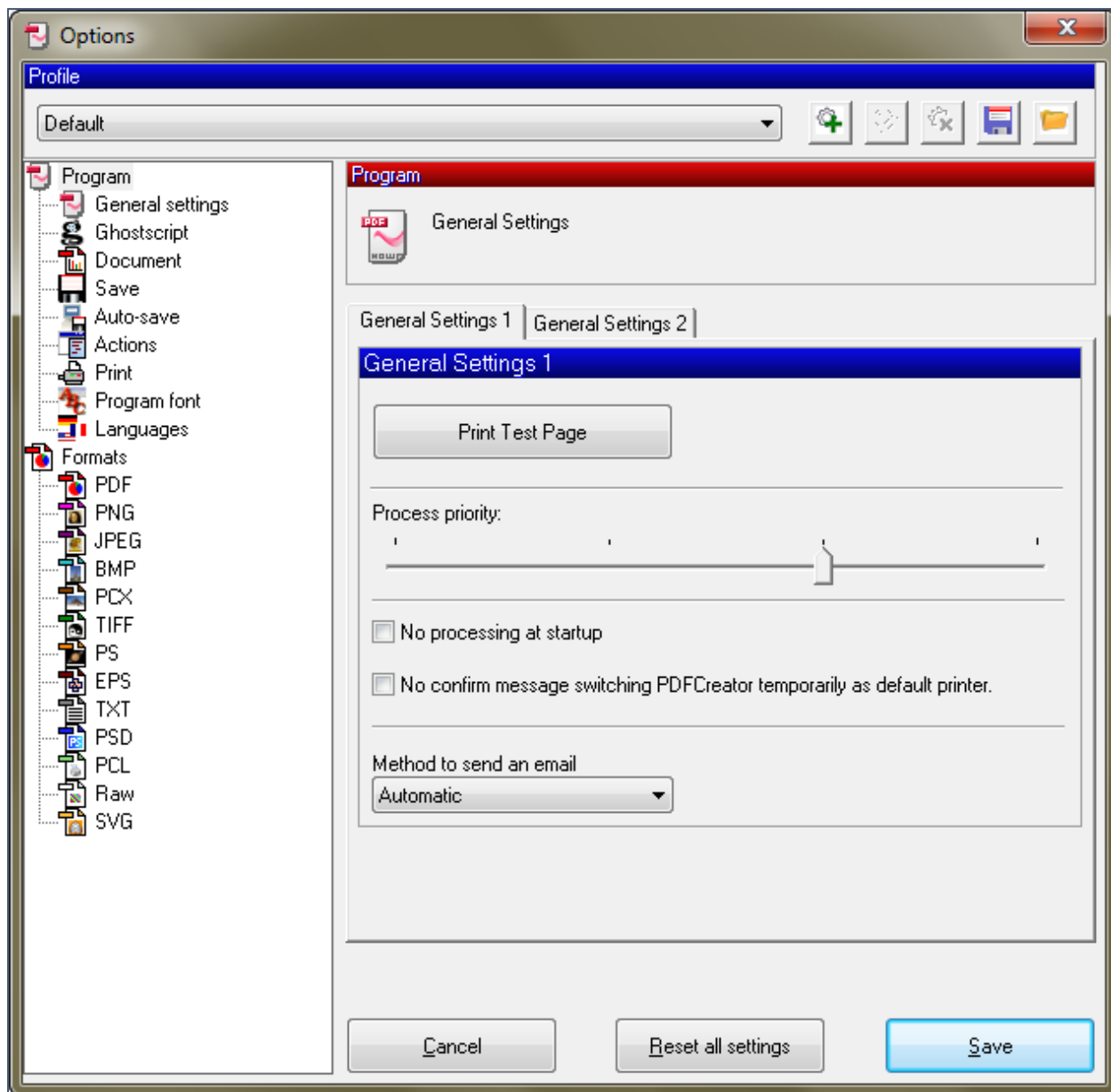



- Please Chose Printers->Options to launch the printer options



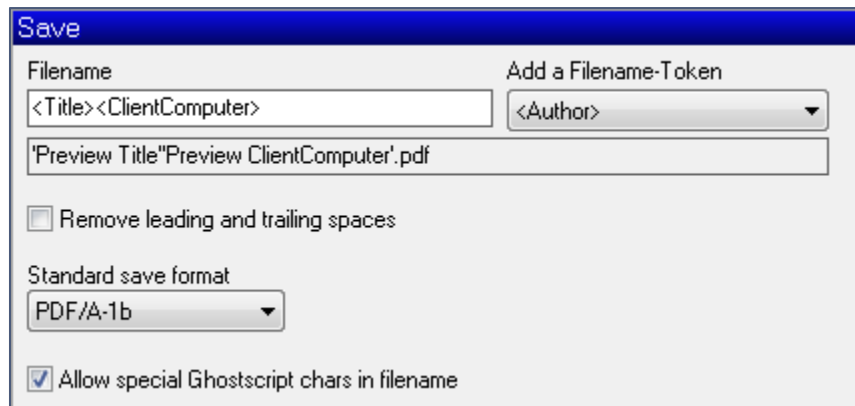
Setting Printing Profile Parameters

- Now the printer options window will be displayed. This is a very complex interface with many features, so please follow the instructions closely.



- Chose the profile name from the drop down combo box in the first section. If you created a new printer in the Canvas Dicom Utility, then this profile name should be present. If not you may create a new profile by clicking the  icon.
Please note: If there are no virtual printers listed, please add new virtual printer as described above

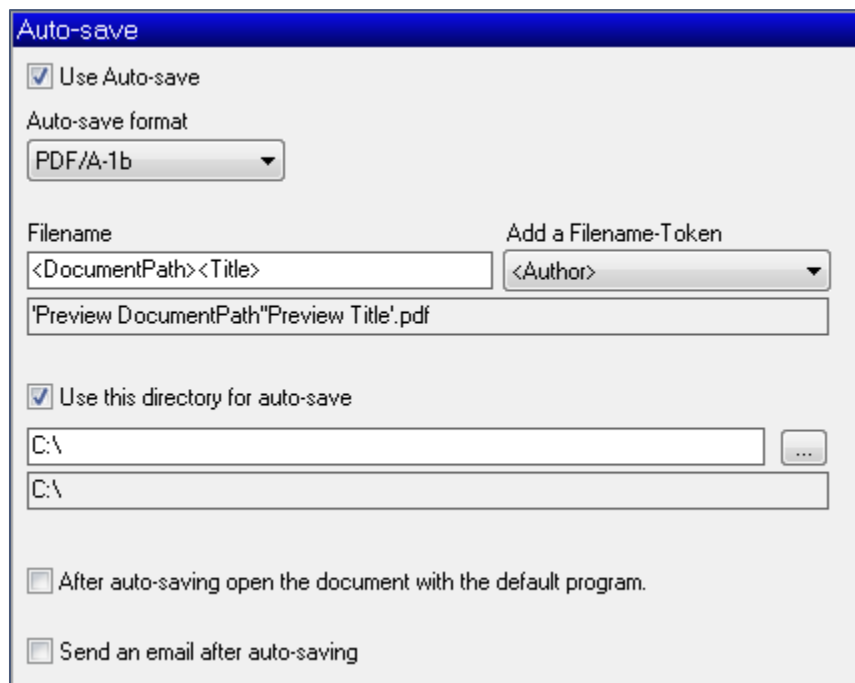
6. Next, click on the “Save” item in the navigation tree. This will allow you to specify the save options. Please see the screen image below and update the values accordingly. These items are the same items in the previous section, so they should be easy to understand.



The 'Save' dialog box contains the following elements:

- Filename:** A text field containing the template '<Title><ClientComputer>'.
- Add a Filename-Token:** A dropdown menu currently showing '<Author>'.
- Preview:** A text field showing the resulting filename: 'Preview Title"Preview ClientComputer'.pdf'.
- Remove leading and trailing spaces:** An unchecked checkbox.
- Standard save format:** A dropdown menu set to 'PDF/A-1b'.
- Allow special Ghostscript chars in filename:** A checked checkbox.

7. Next Click on the “Auto-Save” item in the navigation tree and update the settings according to the image below.

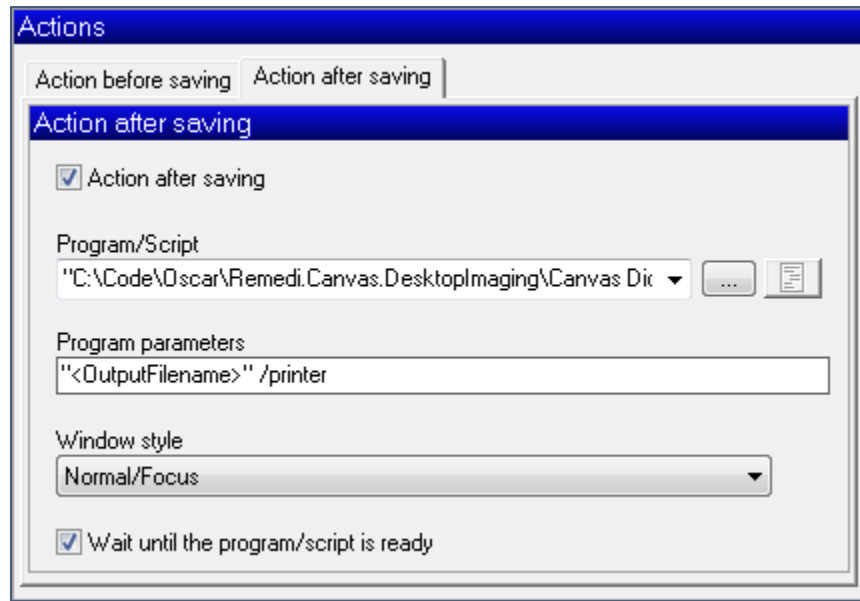


The 'Auto-save' dialog box contains the following elements:

- Use Auto-save:** A checked checkbox.
- Auto-save format:** A dropdown menu set to 'PDF/A-1b'.
- Filename:** A text field containing the template '<DocumentPath><Title>'.
- Add a Filename-Token:** A dropdown menu currently showing '<Author>'.
- Preview:** A text field showing the resulting filename: 'Preview DocumentPath"Preview Title'.pdf'.
- Use this directory for auto-save:** A checked checkbox.
- Directory:** Two text fields, both containing 'C:\', with a browse button (three dots) to the right of the first field.
- After auto-saving open the document with the default program:** An unchecked checkbox.
- Send an email after auto-saving:** An unchecked checkbox.

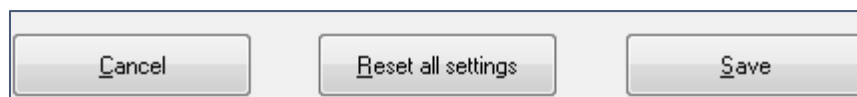
- a. It is recommended that you do not use your root drive for auto-saving of files, but rather a temporary directory such as "C:\Tmp" or you can manually point to the local AppData path.

8. Next Click on the "Actions" item in the navigation tree and update the settings according to the image below except for the program execution path. This will need to point to the installation path of the Canvas Dicom Printer. This will normally be
C:\Program Files (x86)\Remedi Software\Canvas Dicom Printer



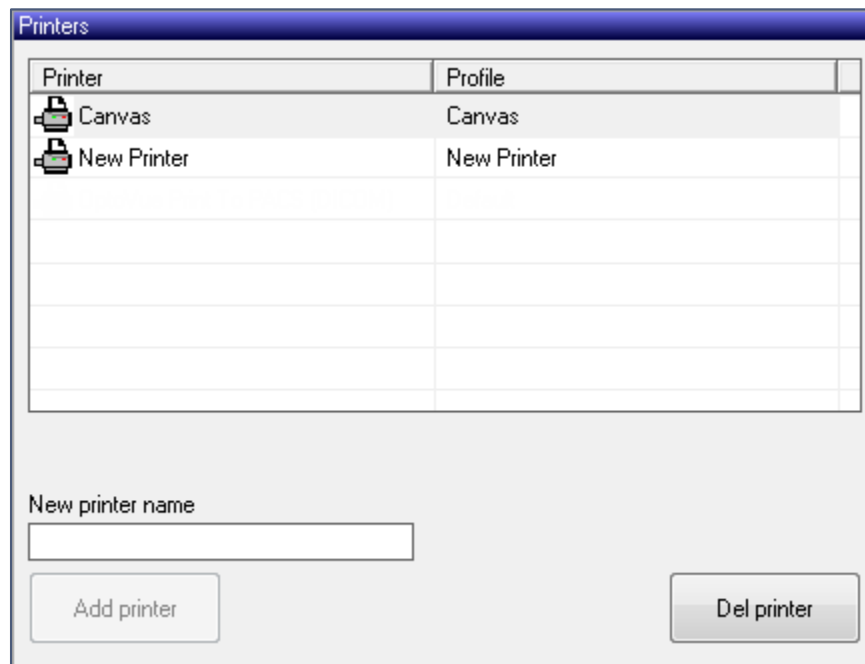
Please do not change any settings on the "Actions before saving" tab. We only want to process data **after** the printing operation is complete.

9. Please make sure to press **Save** to save all the changes.

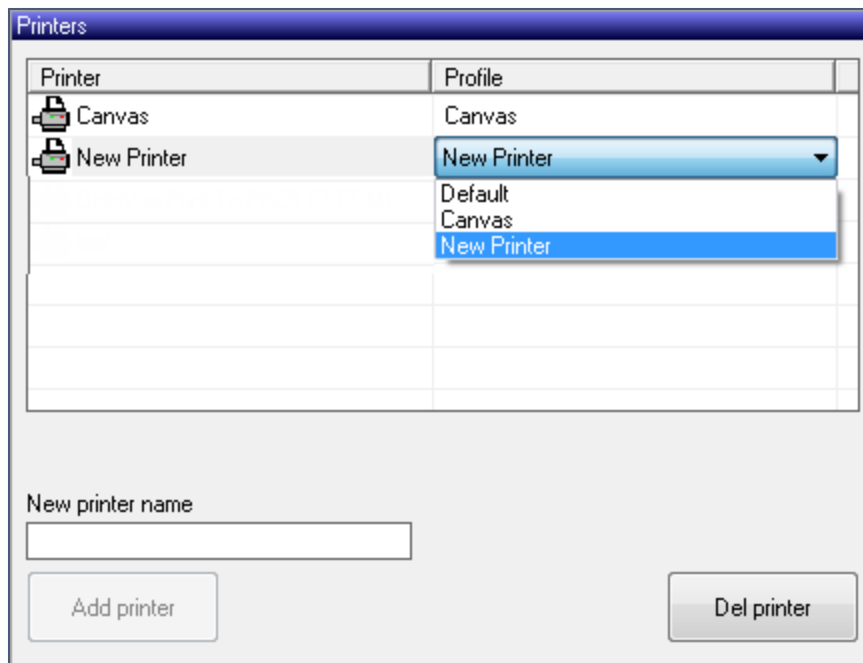


Binding the new profile to the virtual printer

10. Now you will need to bind your new profile settings to a virtual printer name.
First, please verify that your virtual printer is installed. If you were unable to add a new virtual printer from within Canvas Dicom Printer, please add a new printer now.
Chose Printer->Printers and the following screen will be shown:



11. Type a new printer name and select **Add Printer**. Your new printer will now be shown.
12. Select your new printer and click in the profile cell. This will show a drop down menu for all the available profiles. Select the appropriate profile as show:



13. When finished, please make sure to press **Save**.
14. You have now completed the manual installation and configuration of your virtual printer driver. We will continue to improve upon the methods within the application to ease this installation.
15. Please note that if you are performing network or repeated installations, you do not have to repeat the configuration process, you may export your printer profile to a file and import it on your additional installations.

That completes the manual configuration of the virtual printer. Please contact help@remedisoftware.com for further assistance.