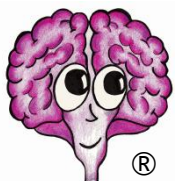


DocuBrain® TechDoc Render Installation Guide



A DocuBrain® Product

<http://docubrain.com/>

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Assumptions

This guide provides instructions on how to setup a TechDoc Render 9 virtual machine using Microsoft's Hyper-V virtualization or VMware's ESXi virtualization. It is assumed that you already have a good working knowledge of Hyper-V and/or VMware management and technologies.

The Hyper-V rendering features may work on other versions of Windows, but it has only been tested with the Hyper-V role on Windows Server 2008 R2 and Windows Server 2012 R2.

The VMware rendering features may work on other versions of Windows with other VMware versions and/or products that are compatible with VMware's VIX API, but it has only been tested with Windows Server 2008 R2, Windows Server 2012 R2, VMware ESXi 3.5, VMware ESXi 4, and VMware ESXi 5.1.

This guide also makes assumptions about where various folders are located on your server. If these assumptions are incorrect, you will need to use the actual folder instead of the folder mentioned in this guide. When a folder assumption is used, the assumed portion of the folder or file name will be shown dark blue, bolded, and underlined to highlight the portion you may need to change to point to the correct location on your server.

The following list contains all the folders assumed throughout this document and their purpose:

- **C:\WINDOWS** – This is the folder where the Windows operating system is installed on your server. Typing SET SYSTEMROOT at a command prompt will display what folder should be used if C:\WINDOWS is not correct.
- **D:\TechDoc** – This is the folder that the TechDoc application is installed in.

Introduction to Rendering

TechDoc optionally supports a process called rendering. Rendering is the automatic conversion of a document to a Portable Document Format (PDF or PDF/A) after it has been released. PDF is a file format that captures all the elements of a printed document as an electronic image that you can view, navigate, print, or forward to someone else without the need to have the original product that the document was created with.

PDF/A is a variation of PDF that is intended for longer term preservation. However, PDF/A documents tend to be larger than normal PDF files and may have visual discrepancies from the original document because of various limitations placed on PDF/A, which make it easier to support than normal PDF.

There are two actions on a Document Manager that submit generations for rendering:

- Release Document
- Resubmit Rendition

When either of these commands is issued, a record is added to the Render Request table for a specific generation of a document. The Render Request table is a "holding place" for generations that need to be rendered to PDF.

If, for technical reasons, the rendering process needs to be stopped, records can still continue to be added to the Render Request table through normal Document Manager activities. The rendering process can then be started up at a later time when the technical issues are resolved and it will then begin processing the records in the table.

For performance and server security reasons, rendering is performed using a virtual machine. Various products are installed and configured on the virtual machine. The virtual machine is started up, readied to render a document, a snapshot is taken of the virtual machine, and then the virtual machine is turned off.

The Render task on the Document Manager periodically "wakes up" and checks the Render Request table for any records. The Render task reads each Render Request that is not stalled, and attempts to create the rendition for the specified generation using the saved snapshot of the virtual machine. If the rendition cannot be created, the Retry Count for the specific Render Request is incremented, or stalled if it's at the maximum number of times to retry rendering as set in the System Properties. Once a Render Request record has been stalled, no further attempts will be made to render the generation unless the request is restarted on the Document Manager.

Overview of the Rendering Process

As stated earlier, rendering is the process of converting a document into a watermarked PDF. Rendering is performed using a virtual machine. Currently, the rendering process supports a rendering virtual machine running under Hyper-V or VMware. The rendering virtual machine does not need to be running on the same server as the Document Manager. However, the Document Manager must have network connectivity to the virtualization host the rendering virtual machine is running on and the rendering virtual machine itself.

Here is a step-by-step overview of this process:

- The Render Task on the Document Manager is controlled through the Admin menu's Background Tasks screen. It must be running for any rendering to take place.
- The Render Task continuously checks for requests to render documents. This occurs when a user releases a document or a user resubmits a rendition.
- The Render Task asks the virtualization host to turn on the virtual machine from its saved snapshot.
- The Render Task sends a copy of the Document's generation file to the Render Agent running on the virtual machine.
- The Render Agent uses the document's native application or viewer to print or save the file to a PDF file. A watermark is applied to the PDF file in the process.
- The Render Agent returns the PDF file to the Render Task or it returns an error in the event that the file could not be rendered. The render alert will be sent to the individuals on the system alert group in the latter case.
- The Render Task asks the virtualization host to stop the virtual machine without saving any changes. This accomplishes several things.
 - The most important is that it stops viruses dead in their tracks by losing any changes on the virtual machine that a virus might have made. Should a virus make it through a server's defenses, this prevents a file from passing the virus on to the next file that is rendered.
 - The second thing is that this prevents long running resource issues. Various third party applications that are used in the rendering process have had resource issues in the past, which prevented them from freeing all the resources they allocate during the rendering process. Eventually, this could affect the rendering process. However, using the virtual machine from a saved snapshot ensures that the process always starts fresh with no buildup of resources.

Supported Render File Types

The rendering process can only create watermarked PDF or PDF/A files for file types that are specifically supported. The following is a list of applications and the file types that they support for rendering:

- * iGrafx 2016 and below:
FLO, IGT, IGX

- * Microsoft Excel 2016 and below:
XLS, XLSB, XLSM, XLSX

- * Microsoft Outlook 2016 and below:
MSG

- * Microsoft PowerPoint 2016 and below:
PPSX, PPT, PPTM, PPTX

- * Microsoft Project 2016 and below:
MPP, MPT

- * Microsoft Publisher 2016 and below:
PUB

- * Microsoft Visio 2016 and below:
VDX, VSD, VSDM, VSDX

- * Microsoft Word 2016 and below:
DOC, DOCM, DOCX, HTM, HTML, RTF, SHTML

Images:

BMP, DIB, GIF, J2C, J2K, JP2, JPC, JPE, JPEG, JPG,
PCX, PNG, RLE, SVG, TIF, TIFF

Others:

PDF, TEXT, TXT

- * Each of the file extensions listed under an asterisked product are only supported if that specific product has been installed, configured, and activated on the rendering virtual machine.

Disabling the Render Task on the DM

If the Document Manager is already installed and configured to use render, you should always disable the Render Background Task on the DM to prevent the DM from trying to use the Render VM while you are working on it. There are several reasons for doing so. First, a document may be improperly rendered if you have not finished installing or making changes to the Render VM. Second, the DM may try to shut down the Render VM losing anything you are working on. Third, if the DM tries to render a document before you are ready, it may fail and send an alert to the user that their document could not be rendered, needlessly generating a support call to the help desk. Finally, you don't want to save a "clean" state of your Render VM later while it is in the middle of rendering someone's document!

It is always safe to disable the Render Task, even during production hours when users are working. If the Render Task is busy rendering a document, it will complete that request before honoring your request to stop. Users can still continue to work on the DM and generate render requests. The render requests will simply wait in the render request queue until you restart the Render Task after you have finished working on the Render VM.

- Open a browser and log in to the Document Manager with a username and password that has TechDoc Admin privileges.
- Click on the [Admin](#) menu, click on [Background Tasks](#) under [Miscellaneous](#), and click on the task icon for the [Render](#) task.
- If the state of the Render task is not [Disabled](#), click [Disable](#) on the side menu. If the Render task was busy processing a request, you must wait for that request to complete before continuing with the steps below. If this is the case, periodically refresh the browser until it shows that the Render task is now disabled.
- You can now log out of the Document Manager and close the browser.

Creating the Render Virtual Machine

A preinstalled Render VM is no longer provided. As virtualization has become more prevalent, software vendors have added licensing restrictions that no longer permit the distribution of a preinstalled VM. While this creates a little more work for you up front, it does permit the Render VM to be more tailored to your environment.

The first step is to create the Render VM and install a Windows 7, 8, 8.1, or 10 operating system on it. Note that Render is currently designed for a 32-bit operating system. This limitation is due to working with third party software products to produce the PDF files.

- Create a virtual machine on your Hyper-V or VMware server to be used for rendering. The following are guidelines for the minimum resources needed for the Render VM.
 - 1 Virtual processor (preferably 2 for better performance)
 - 2GB RAM
 - One 24GB disk drive (preferably fixed instead of expanding for better performance)
 - One DVD if necessary for software installation
 - One network adapter
- Install a 32-bit edition of Windows 7, Windows 8, or Windows 8.1, Windows 10 on the Render VM. Only 32-bit is currently supported. The following subsections can be used as guidance for installing the various supported operating systems.

Guidance for installing Windows 7

Here is a typical install session for Windows 7. Installation requirements for customers vary widely so the following is provided to give general guidance for the installation process:

- On Windows Setup Screen
 - Language to install: [English \(United States\)](#).
 - Time and currency format: [English \(United States\)](#).
 - Keyboard or input method: [US](#).
 - Click [Next](#).
 - Click [Install now](#).
 - Accept the license terms if you agree and click [Next](#).
 - Choose [Custom: \(advanced\)](#).
 - Choose or create a partition to install Windows to and click [Next](#).
 - Wait for Windows to copy and install itself.
 - Enter the user name and computer name, and click [Next](#).
 - For user name, enter [RenderUser](#) (without any spaces). You may use a user name other than [RenderUser](#). If you do, remember to use that user name throughout this document in place of [RenderUser](#).
 - Enter your password information and click [Next](#).

- For [Type a password \(recommended\)](#), enter a password and remember it.
- For [Retype your password](#), enter the same password again.
- For [Type a password hint](#), enter something (it is required).
- Enter a valid product key and click [Next](#).
- When asked about security and performing updates, click [Ask me later](#). Automatic updates interfere with the rendering process. We'll show you in another step how to configure this part correctly.
- Review your time and date settings and make any necessary adjustments.
- Select your computer's current location. If you aren't sure, we highly recommend [Public network](#) for better security.
- Install the latest Hyper-V Integration Services or VMware Tools if desired/necessary
- Go to the Desktop, right click on the time on the task bar, and click [Adjust date/time](#).
 - Uncheck [Notify me when the clock changes](#) and click [OK](#).
- Adjust the properties on the Network Adapter so that they are correct for your networking environment.
- Enabling auto logon makes setting up and configuring Render easier. However, some consider this to be less secure and opt not to do it. If you wish to enable auto logon, perform the following steps:
 - Click on the Windows start button.
 - Type [netplwiz](#) in the text box and press [Enter](#).
 - Select [RenderUser](#) in the list of users for this computer (it will already be selected if it is the only one in the list).
 - Uncheck [Users must enter a user name and password to use this computer](#).
 - Click the [Apply](#) button.
 - Enter and confirm the password for [RenderUser](#) and click [OK](#).
 - Click [OK](#) to close the [User Accounts](#) dialog.
 - Reboot to see that [RenderUser](#) is automatically logged in.

Guidance for installing Windows 8 or 8.1

Here is a typical install session for Windows 8 or 8.1. Installation requirements for customers vary widely so the following is provided to give general guidance for the installation process:

- On Windows Setup Screen
 - Language to install: [English \(United States\)](#).
 - Time and currency format: [English \(United States\)](#).

- Keyboard or input method: [US](#).
- Click [Next](#).
- Click [Install now](#).
- Enter a valid product key and click [Next](#).
- Accept the license terms if you agree and click [Next](#).
- Choose [Custom: Install Windows only \(advanced\)](#).
- Choose or create a partition to install Windows to and click [Next](#).
- Wait for Windows to copy and install itself.
- Choose a color, enter the PC's Name, and click [Next](#).
- On settings, use express settings or customize.
- On [Sign in to your Microsoft account](#) screen, click [Create a new account](#).
- On [Create a Microsoft account](#), click [Sign in without Microsoft account](#).
- On [Your Account](#):
 - For User name, enter [RenderUser](#) (without any spaces). You may use a user name other than [RenderUser](#). If you do, remember to use that user name throughout this document in place of [RenderUser](#).
 - For Password, enter a password and remember it.
 - For Reenter password, enter the same password again.
 - For Password hint, enter something (it is required).
 - Click [Finish](#).
- Install the latest Hyper-V Integration Services or VMware Tools if desired/necessary
- Go to the Desktop, right click on the time on the task bar, and click [Adjust date/time](#).
 - Click [Change time zone...](#) and adjust the time zone to the correct one if necessary.
 - Uncheck [Notify me when the clock changes](#) and click [OK](#).
- Adjust the properties on the Network Adapter so that they are correct for your networking environment.
- Enabling auto logon makes setting up and configuring Render easier. However, some consider this to be less secure and opt not to do it. If you wish to enable auto logon, perform the following steps:
 - Go to the desktop and right click on the Windows start button.
 - Click on [Run](#) in the menu.
 - Type [netplwiz](#) and press [Enter](#).
 - Select [RenderUser](#) in the list of users for this computer (it will already be selected if it is the only one in the list).
 - Uncheck [Users must enter a user name and password to use this computer](#).
 - Click the [Apply](#) button.
 - Enter and confirm the password for [RenderUser](#) and click [OK](#).
 - Click [OK](#) to close the [User Accounts](#) dialog.

- Reboot to see that RenderUser is automatically logged in.
- Rendering has no need for the Start screen therefore it is easier to work on Render issues by giving preference to the desktop instead of the Start screen.
 - Go to the desktop, right click on the Taskbar, and select Properties.
 - Click on the Navigation tab.
 - Check When I sign in or close all apps on a screen, go to the desktop instead of Start and click OK.
- Live tiles on the start screen can cause a lot of unintended network traffic and will slow the rendering process with the additional CPU and I/O needed to update them.
 - Go to the desktop and right click on the Windows start button.
 - Type gpedit.msc and press Enter.
 - Navigate to User Configuration\Administrative Templates\Start Menu and Task Bar\Notifications in the left panel.
 - In the right pane, double click on Turn off tile notification, check the Enabled button, and click OK.
- To prevent the App Store from installing something or doing something that might disrupt rendering, it is best to disable it.
 - Go to the desktop and right click on the Windows start button.
 - Type gpedit.msc and press Enter.
 - Navigate to Computer Configuration\Administrative Templates\Windows Components\Store in the left panel.
 - In the right pane, double click on Turn off Automatic Download of updates on Win8 machines, check the Enabled button, and click OK.
 - In the right pane, double click on Turn off Automatic Download and install of updates, check the Enabled button, and click OK.
 - In the right pane, double click on Turn off the offer to update to the latest version of Windows, check the Enabled button, and click OK.
 - In the right pane, double click on Turn off the Store application, check the Enabled button, and click OK.

Guidance for installing Windows 10

Here is a typical install session for Windows 10. Installation requirements for customers vary widely so the following is provided to give general guidance for the installation process:

- On Windows Setup Screen
 - Language to install: English (United States).
 - Time and currency format: English (United States).

- Keyboard or input method: [US](#).
- Click [Next](#).
- Click [Install now](#).
- Enter a valid product key and click [Next](#).
- Accept the license terms if you agree and click [Next](#).
- Choose [Custom: Install Windows only \(advanced\)](#).
- Choose or create a partition to install Windows to and click [Next](#).
- Wait for Windows to copy and install itself.
- On "Get going fast", it is highly recommended that you click on [Customize settings](#) to reduce the data sent to Microsoft.
- Turn off all "Personalization" and "Location" settings, and click [Next](#).
- Turn off all "Connectivity and error reporting settings" and click [Next](#).
- Turn off all "Browser, protection, and update settings" and click [Next](#).
- On "Who owns this PC?", click [My organization](#) to join a domain or click [I own it](#) to create a local account. It is recommended that you click [I own it](#) unless the render VM really has to be in a domain. Render does not require any domain functionality.
- Once you click on [I own it](#), click [Skip this step](#).
- On [Create an account for this PC](#):
 - For User name, enter [RenderUser](#) (without any spaces). You may use a user name other than [RenderUser](#). If you do, remember to use that user name throughout this document in place of [RenderUser](#).
 - For Password, enter a password and remember it.
 - For Reenter password, enter the same password again.
 - For Password hint, enter something (it is required).
 - Click [Finish](#).
- When asked if you want to allow your PC to be discoverable by other PCs and devices on the network, click [No](#).
- Install the latest Hyper-V Integration Services or VMware Tools if desired/necessary
- Go to the Desktop, right click on the time on the task bar, and click [Adjust date/time](#).
 - Adjust the time zone to the correct one if necessary.
 - Close the settings.
- Adjust the properties on the Network Adapter so that they are correct for your networking environment.
- Enabling auto logon makes setting up and configuring Render easier. However, some consider this to be less secure and opt not to do it. If you wish to enable auto logon, perform the following steps:
 - Go to the desktop and right click on the Windows start button.
 - Click on [Run](#) in the menu.

- Type [netplwiz](#) and press [Enter](#).
 - Select [RenderUser](#) in the list of users for this computer (it will already be selected if it is the only one in the list).
 - Uncheck [Users must enter a user name and password to use this computer](#).
 - Click the [Apply](#) button.
 - Enter and confirm the password for [RenderUser](#) and click [OK](#).
 - Click [OK](#) to close the [User Accounts](#) dialog.
 - Reboot to see that [RenderUser](#) is automatically logged in.
- Live tiles on the start screen can cause a lot of unintended network traffic and will slow the rendering process with the additional CPU and I/O needed to update them.
- Go to the desktop and right click on the Windows start button.
 - Type [gpedit.msc](#) and press [Enter](#).
 - Navigate to [User Configuration\Administrative Templates\Start Menu and Task Bar\Notifications](#) in the left panel.
 - In the right pane, double click on [Turn off tile notification](#), check the [Enabled](#) button, and click [OK](#).
- To prevent the App Store from installing something or doing something that might disrupt rendering, it is best to disable it.
- Go to the desktop and right click on the Windows start button.
 - Type [gpedit.msc](#) and press [Enter](#).
 - Navigate to [Computer Configuration\Administrative Templates\Windows Components\Store](#) in the left panel.
 - In the right pane, double click on [Turn off Automatic Download of updates on Win8 machines](#), check the [Enabled](#) button, and click [OK](#).
 - In the right pane, double click on [Turn off Automatic Download and install of updates](#), check the [Enabled](#) button, and click [OK](#).
 - In the right pane, double click on [Turn off the offer to update to the latest version of Windows](#), check the [Enabled](#) button, and click [OK](#).
 - In the right pane, double click on [Turn off the Store application](#), check the [Enabled](#) button, and click [OK](#).

Installing Microsoft Office 2016 on the Render VM

If you wish to render Microsoft Office files, you must install Microsoft Office 2016, Microsoft Office Professional 2016, or Microsoft Office Professional Plus 2016. Only the 32-bit version is supported for rendering. The 2013 32-bit version may be used instead but we recommend installing the Professional Plus 2016 32-bit version in order to support all the latest file formats and features.

- You should be logged into the Render VM as the user [RenderUser](#). If not, please log out and log back in as [RenderUser](#).
- Install the product.
 - Optionally, the following components can be disabled as they are not necessary for the rendering process:
 - Microsoft Access
 - Microsoft InfoPath
 - Microsoft Lync
 - Microsoft OneNote
 - Microsoft SkyDrive Pro
 - Office Shared Features > Business Connectivity Services
 - Office Shared Features > Microsoft Office Download Control
 - Office Shared Features > Proofing Tools
 - Office Tools > Compare, Diagnostics, and Inventory Management
 - Office Tools > Microsoft SharePoint Foundation Support
 - Office Tools > Office Telemetry
 - Office Tools > Optical Character Recognition (OCR)
- Run Word and activate Office via an email address or product key. If activation is not successful, Office file rendering will fail.
- Run Outlook and configure it as follow:
 - On the Welcome screen, click [Next](#).
 - On the [Add an Email Account](#), select [No](#) for the question [Do you want to set up Outlook to connect to an email account?](#), and click [Next](#).
 - On the [Don't Add an Email Account](#) screen, select [Use Outlook without an email account](#), and click [Finish](#).
- Run Excel and then exit the product.
- Run PowerPoint and then exit the product.
- Run Publisher and then exit the product.

Installing Microsoft Project 2016 on the Render VM

If you wish to render Microsoft Project files, you must install Microsoft Project Standard 2016 or Microsoft Project Professional 2016. Only the 32-bit version is supported for rendering. The 2013 32-bit version may be used instead but we recommend installing the Professional 2016 32-bit version in order to support all the latest file formats and features.

- You should be logged into the Render VM as the user [RenderUser](#). If not, please log out and log back in as [RenderUser](#).

- Install the product.
 - Optionally, the following components can be disabled as they are not necessary for the rendering process:
 - Office Shared Features > Microsoft Office Download Control
 - Office Shared Features > Proofing Tools
 - Office Tools > Microsoft SharePoint Foundation Support
 - Office Tools > Office Telemetry
 - Office Tools > Optical Character Recognition (OCR)
- Run Project and activate it via an email address or product key. If activation is not successful, Project file rendering will fail.

Installing Microsoft Visio 2016 on the Render VM

If you wish to render Microsoft Visio files, you must install Microsoft Visio Standard 2016 or Microsoft Visio Professional 2016. Only the 32-bit version is supported for rendering. The 2013 32-bit version may be used instead but we recommend installing the Professional 2016 32-bit version in order to support all the latest file formats and features.

- You should be logged into the Render VM as the user [RenderUser](#). If not, please log out and log back in as [RenderUser](#).
- Install the product.
 - During the install, the following components can be disabled as they are not necessary for the rendering process:
 - Office Shared Features > Microsoft Office Download Control
 - Office Shared Features > Proofing Tools
 - Office Tools > Microsoft SharePoint Foundation Support
 - Office Tools > Office Telemetry
 - Office Tools > Optical Character Recognition (OCR)
- Run Visio and activate it via an email address or product key. If activation is not successful, Visio file rendering will fail.

Installing iGrafx Origins FlowCharter on the Render VM

If you wish to render iGrafx FlowCharter files, you must install iGrafx Origins FlowCharter. Only the 32-bit version is supported for rendering. The 2013 or 2015 version may be used instead but we recommend installing the Origins version in order to support all the latest file formats and features.

- You should be logged into the Render VM as the user [RenderUser](#). If not, please log out and log back in as [RenderUser](#).
- During the install, it is recommended that you choose the [Custom](#) install and click the [Activate Now...](#) button, and complete activation.
- When the [Select Features](#) dialog is shown, click on the disk icon beside [Optional Diagrams](#) and select [Entire feature will be installed on local hard drive](#). Everything else on the dialog can be left as it is.
- Run FlowCharter and make sure that it is activated. If activation is not successful, FlowCharter file rendering will fail.

Check for and then Disabling Windows Updates

- Now that all the products have been installed, you should run Windows Update to ensure that Windows and all supported products and components on the Render VM are up-to-date.
- Remember that it may be necessary to reboot and/or rerun Windows Update multiple times before everything has been applied.
- Automatic updates should be disabled to prevent interfering with the rendering process. Updates wouldn't be retained anyway since the Render VM is always restarted from the saved state; losing any changes made to the VM during the session. You should periodically apply updates as described in the section [Periodic Maintenance of the Render VM](#) below. To disable the Windows Update service:
 - Right click on the Start button and then click on [Computer Management](#).
 - Expand [Services and Applications](#) if necessary in the left panel.
 - Click on [Services](#) in the left panel.
 - Double click on the [Windows Update](#) service in the center panel.
 - Click on [Stop](#) to stop the service if it is running.
 - Change the [Startup type](#) to [Disabled](#) if necessary.
 - Click [OK](#).
 - Close [Computer Management](#).

Installing Render 9 on the Render VM

The last thing to install on the Render VM is the Render software. If you skipped installing one of the products (such as Microsoft Project) and you decide to install it

later, it is important that you reinstall the Render software and create a new snapshot after installing the product. The Render installer is not able to properly prepare for using some software products until after the products have been installed.

- You should be logged into the Render VM as the user [RenderUser](#). If not, please log out and log back in as [RenderUser](#).
- Use the CD/DVD or copy [Render9Setup.exe](#) to the Render VM.
- Run [Render9Setup.exe](#).
- If the [User Access Control](#) dialog comes up, click [Yes](#) to allow the setup to run.
- On the [Welcome](#) screen, click [Next](#).
- On the [License Agreement](#) screen, read the license agreement. If you do not accept the terms of the agreement, click [Cancel](#) and terminate installation of the Render VM. If you do accept the terms of the agreement, check the box, click [Next](#), and continue with installation of the Render VM.
- On the [Choose Components](#) screen, all components will be checked by default. The one component that you may or may not want to uncheck on this screen is [Output as PDF/A](#). When this component is checked, the rendering process will attempt to produce PDF/A files as output whenever possible. If unchecked, the rendering process will attempt to produce normal PDF files instead.

PDF/A files are an ISO-standardized version of PDF that are specifically designed for the digital preservation of electronic documents. PDF/A does so by limiting PDF features that are not suitable for long-term archival. PDF/A files are normally larger and may have visual discrepancies due to the limitations of the PDF/A format. Organizations like NARA prefer to accept PDF/A over regular PDF documents so you will need to weigh the pros and cons and decide for yourself whether you want PDF/A or not.

- After you have checked or unchecked the PDF/A component as desired, click [Install](#).
- During the install process, you will be prompted by Windows to confirm if you want to install the [NFM Printer Driver](#). Make sure you click [Install](#) to allow this driver to be installed or rendering may fail for some file types.
- After the Render setup is complete, click [Finish](#).
- If [Render9Setup.exe](#) was copied onto the Render VM, it can now be deleted off the VM's disk.

Create the Render VM Saved State

TechDoc rendering relies on a saved state (also known as a checkpoint or snapshot) of the Render VM. TechDoc does this for increased performance, reliability, and security. Every time TechDoc renders a document, it tells the VM Host to start the Render VM from its saved state. Then TechDoc sends the document for rendering to the Render VM. After the render completes, fails, or times out, TechDoc tells the VM Host to stop the Render VM without saving changes.

Starting from a saved state is much faster than booting. Also, stopping without saving changes prevents any resources from any product from building up in memory (or on disk) and destroys any potential virus that may have been carried in with a file before the next file is rendered.

- Make sure that all Windows Updates have been applied.
- Reboot the Render VM.
- If you did not enable auto logon, log in as [RenderUser](#).
- View the desktop and make sure that a [Render Agent](#) window was automatically started upon logon. Rendering will not work if the Render software is not running in that window. The last two lines in the [Render Agent](#) window should read as follows if the Render software is running:

```
*I* Render Agent initialized!  
Type EXIT to shutdown the Render Agent...
```

If you see this, it means the Render VM is in its [Render Ready State](#).

- If the machine is still busy, wait a minute or two for all final boot activities to complete and for the Render VM's CPU to become idle. Doing so will speed up each render request that is processed later.
- If you are hosting the Render VM on Hyper-V:
 - While the Render VM is booted up and in its [Render Ready State](#), open the Hyper-V Manager, right click on the Render VM under the [Virtual Machines](#) panel, and click [Save](#).
 - After the save completes, right click on the Render VM under the [Virtual Machines](#) panel, and click [Snapshot](#).
 - After the snapshot completes, click on the Render VM under the [Virtual Machines](#) panel, then click on the new snapshot that you just created in the Snapshots panel, and rename the snapshot to [SavedState](#) (without any spaces).

- If you are hosting the Render VM on VMware:
 - While the Render VM is booted up and in its [Render Ready State](#), take a snapshot of the running virtual machine. Make sure to enter [SavedState](#) (without any spaces) for the name of the snapshot, leave the description blank, check the [Snapshot the virtual machine's memory](#) check box, and click [OK](#).
 - After the snapshot is finished, shutdown the render virtual machine.

Configuring Render on the DM

The Document Manager must be configured to use rendering before render requests can be successfully sent to the Render VM. If the Document Manager is already configured, you can skip to the next section.

A command line utility called [ConfigTechDoc.exe](#) is provided with TechDoc. In order to run it, you must log into a Windows session on the server running the Document Manager.

- Log into Windows on the server running the Document Manager using a Windows account having administrator privileges.
- Open a CMD prompt or use Run on the Start menu to run [ConfigTechDoc.exe](#).
- Once the [ConfigTechDoc](#) windows opens, click on the [Render Settings](#) button.
- When the [Render Setting](#) dialog opens:
 - Check the [Render Enable](#) option, if necessary, to enable rendering.
 - Select the Hyper-V or VMware radio button depending on which technology is being used to host the Render VM.
 - Enter the Server Address: This is the IP address or host name of the computer running Hyper-V or VMware where the Render VM will be hosted. The DM must be able to make a connection to this address in order to control the VM.
 - Enter the Username: This is the username of the account that TechDoc should use when connecting to Hyper-V or VMware server to control the Render VM. For security purposes, this field is always blank when the dialog opens and must be reentered any time changes are made.
 - Enter the Password: This is the password of the account that TechDoc should use when connecting to the Hyper-V or VMware server to control the Render virtual machine. For security purposes, this field is always blank when the dialog opens and must be reentered any time changes are made.

- Enter the Render VM IP Address: This is the IP address or host name that was given to the Render virtual machine itself when it was created. The DM must be able to make a connection to this address in order to send documents to be rendered on the Render VM.
- Enter the Render VM Name: This is the name that was given to the virtual machine when it was created on the Hyper-V or VMware server. TechDoc will tell the Hyper-V or VMware server to start and stop the Render VM using this name.
- Click **OK** to save the changes.
- Click **Exit** to close **ConfigTechDoc**.
- If the Render VM is hosted on VMware, it is necessary to install the latest version of the VMware's VIX API on the DM before it will be able to communicate with the VMware server. A copy of the VMware VIX installer was placed in the **D:\TechDoc\kits** folder on the server when the DM was installed. Install VMware's VIX API if necessary.
- You can now test for connectivity to the Hyper-V or VMware server where the Render VM is hosted. Let's say that you answered **rendervm** a couple steps back for the Render VM Name. From a CMD prompt, you can type the following command:


```
tdvmctr1 status rendervm
```

Change **rendervm** to be whatever name you used above. If everything is good so far, the command should output a success message.
- You may now log out of the Windows session on the server where the DM is installed.

Enabling the Render Task on the DM

If the Render Background Task on the Document Manager has been disabled, the task must be re-enabled and started before the DM will attempt to process any pending render requests.

- Open a browser and log in to Document Manager Account with a username and password that has TechDoc Admin privileges.
- Click on the **Admin** menu, click on **Background Tasks** under **Miscellaneous**, and click on the task icon for the **Render** task.
- If the state of the Render task is **Disabled**, click **Enable** on the side menu.
- If the state of the Render task is **Stopped**, click **Start** on the side menu.

- If the state of the Render task is [Sleeping](#), you can click [Wake](#) on the side menu if you would like to force the Render task to immediately start processing any pending render requests.
- You can now log out of the Document Manager and close the browser.

Final Testing

- The setup and configuration for TechDoc rendering is now complete. However, it is very important to perform testing to verify full network connectivity and operation of all rendering components on the Render VM.
- If you log in to the DM as a TechDoc Admin, you can go to the [Admin](#) screen and click on [Email Render Information](#) under [Render](#). This will email you information about the Render VM and the products installed on it. This is a quick way to verify that the Hyper-V/VMware communications are good, the Render VM is responding, and what products (Office, FlowCharter, etc.) that the Render VM can see and communicate with.
- Log into the DM, then create and release a few documents to see that everything is working properly. If you already have some test documents in the DM, you can simple explore to a generation of a document that is released and click [Resubmit Rendition](#) on the side menu to cause a new render request to be submitted to the Render VM.

It is highly recommended that you test each file extension that you wish to have rendered on your DM. It is the only way to know that all applications were successfully installed and activated on the Render VM.

Periodic Maintenance of the Render VM

For the best security and product compatibility, you should periodically perform Windows Updates and apply any product patches as needed. Also, this section can be used to apply updates to the Render software itself.

Do not jump to a new major version of a product without checking with DocuBrain support for compatibility. For example, changes had to be made in the Render software when going from Microsoft Office 2010 to Microsoft Office 2013 (and for every version of Office prior to that). The following are guidelines on how to perform maintenance on your Render VM.

- Follow the directions under [Disabling the Render Task on the DM](#) to stop any new render requests from being processed on the DM while you are performing maintenance on the Render VM.
- Apply the [SavedState](#) snapshot to the Render VM.
- Delete the [SavedState](#) snapshot after it has been applied.
- Start the Render VM.
- You should be logged into the Render VM as the user [RenderUser](#). If not, please log out and log back in as [RenderUser](#).
- You should see that the [Render Agent](#) window is running on the desktop. Click inside that window, press [Enter](#), type [EXIT](#), and press [Enter](#) again. The [Render Agent](#) window should close.
- If necessary, enable the Windows Update service, run Windows Update, apply any product patches, update virus software, etc. This may require multiple reboots before all updates can be applied.
- If necessary, disable the Windows Update service. Automatic updates interfere with the rendering process. Updates wouldn't be retained anyway since the Render VM is always restarted from the saved state; losing any changes made to the VM during the session.
- If you wish to update the Render software, follow the directions under [Installing Render 9 on the Render VM](#) to reapply the updated Render software to the Render VM. As noted above, make sure that the products currently installed on the Render VM (Microsoft Office, iGrafx, etc.) are compatible with the Render software that is being installed.
- After you have completed the maintenance, follow the directions under [Create the Render VM Saved State/Snapshot](#) to recreate the [SavedState](#) snapshot.
- Follow the directions under [Enabling the Render Task on the DM](#) to re-enable rendering on the DM.
- Follow the directions under [Final Testing](#) to make sure that your new [SavedState](#) snapshot of the Render VM is working.