

FDA Medication Guides (PSO*7*588) Automatic Printing Java Component

Installation Guide



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Revision History

Date	Version	Description	Author
04/13/2020	1.0.1.0	<p>PSO*7*588: Update document to include a reference to the VA Technical Reference Model (TRM) for third party pre-requisite software.</p> <p>Updated Windows Server, Java Runtime Environment and Adobe Reader DC third party software pre-requisite section 2.3.</p> <p>Updated the JAVA installation section (section 4) to include instructions for modifying the net.properties file included in the JAVA distribution. Added additional screenshots where applicable.</p> <p>Figure labels added to the JAVA installation section (section 4) and alt text provided for each figure.</p> <p>Formatted the title page and modified section (section 4)</p> <p>Updated TOC and Footers</p>	Liberty M. Bergmann, Lead J. Smith, TW
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01/2017	1.0.1.0	Removed FTP file location for Adobe download and added instructions for standard download from the Adobe website. Added Windows Server 2012 support.	Anitha Alluri Enterprise Application Maintenance
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12/2014	1.0.1.0	Support the new secure CMOP Server using HTTPS functionality released with patches PSS*1.0*177, PSN*4*364 and PSO*7.0*428. Added information in the Troubleshooting section, added a section with instructions to Add Printer and made some formatting changes.	Pavani Mukthipudi Enterprise Application Maintenance
03/2012	1.0	Original Version	Bob Feldman

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1. Introduction

This Installation Guide provides a description of the installation and deployment procedures for the Department of Veterans Affairs (VA) Food and Drug Administration (FDA) Medication Guides Increment 3 project. This section focuses on the project's Java FDA Med Guides Printer Tool. The FDA Med Guides Printer Tool is a Java-based program that automatically prints a copy of an FDA medication guide document when one exists for a requested prescription. The program retrieves copies from original med guides found in a local repository on the host server. If a requested med guide is not found locally, then an attempt is made to download the med guide from the [Consolidated Mail Outpatient Pharmacy \(CMOP\) Portal](#) on the VA's network.

Important:	To successfully deploy this software, it is critical that proper access permissions are set correctly. The host server, the assigned user account, and the deployed software must all have access to either local or remote printers, and have the ability to download med guide files from the CMOP Portal.
	

Important:	Sites that are currently running the FDA Med Guides Automatic Printing software can go directly to section 6. Upgrading to a new version of Automatic Printing.
	

Note:	A Domain Service account for FDA Med Guides Automatic Printing application must be created in Active Directory. Refer to section 2.4. Domain Service Account.
	It is strongly recommended that a Domain Service account with the highest privileges be used to install all third party and FDA Med Guide Automatic Printing software.

The intended audience for this document is the Information Resources Management Service (IRMS) staff responsible for installing and configuring software on VA Windows servers.

The installation procedure, including installing the third-party products listed in the pre-installation procedures, should take about an hour or less to complete.

After installation is complete, the host server should be rebooted. Any logged-on users should be advised to log off.

2. Pre-installation Considerations

The FDA Med Guides Printer Tool depends on third-party components to process and print Portable Document Format (PDF) documents. These components are Windows Server, Java Runtime Environment (JRE) and Adobe Reader DC. These components must be properly installed and configured prior to installing and running the FDA Med Guides Printer Tool.

Refer to the VA Technical Reference Model (TRM) <http://trm.oit.va.gov/TRMHomePage.aspx> for the approved versions of Windows Server, Java Runtime Environment (JRE) and Adobe Reader DC.

2.1. Deployment scenarios

There are a number of scenarios in which the FDA Med Guides Printer Tool can be deployed successfully. The recommended scenario is to deploy the FDA Med Guides Printer Tool, Java JRE and Adobe Reader DC on a server near the target service area. However, identifying and selecting the best scenario for a particular site is left to the discretion of individual local system administrators who are tasked with installing this package.

2.2. Destination printers

Any printer used to print med guides must be defined as a local printer on the Windows server hosting the software. That is, the printer spooler must be hosted on the same server where the FDA Med Guides Printer Tool software is running.

2.3. Third-party software Pre-requisites

Windows Server, Java Runtime Environment (JRE) and Adobe Reader DC are required to run the FDA Medication Guide Automatic Printing software. The required third-party software is not distributed as part of this package. Download and install a VA TRM compliant version of these applications from the vendors website or the following SCCM Approved Software location:

[\\vha.med.va.gov/cs/Production/Software Packages](http://vha.med.va.gov/cs/Production/Software Packages)

All third party software should be installed using a Domain Service account that has been granted administrator privileges and will be used to run the FDA Med Guide Automatic Printing software. Refer to section 2.4 Domain Service Account on page 4.

2.3.1. Windows Server

Microsoft's Windows Server software must be properly installed and configured on the server hardware. Consult the vendor's documentation for instructions on installing Server if not already installed.

According to the VA Technical Reference Model (TRM) forecast, Windows Server 2012 is supported as of this writing. Instructions provided here are based on a Windows 2012 installation.

2.3.2. Java Runtime Environment Version 1.8 for Windows

The FDA Med Guides project requires that Java Runtime Environment (JRE) version 1.8 or higher be installed on the host server.

Note:	To confirm whether Java 1.8 is already installed on the server, or was installed correctly, open a command window and type the command:
	java -version Information text should appear in the command window, indicating the nomenclature of the java version. If Java is not installed, or not installed properly, the message returned will indicate: “Java is not a recognized system command.”

If Java Runtime Environment (JRE) is not installed, download a TRM compliant version of JRE version 1.8 or higher for Windows. To install Java JRE, follow the instructions posted on the Oracle/Java website and install the version matching the host operating system.

According to the Technical Reference Model (TRM) forecast, Java Runtime Environment **1.8.231** is supported as of this writing. Instructions provided here are based on a Java Runtime Environment (JRE) version **1.8.231** installation.

NOTE: Note the directory path where JRE is installed and verify that path is the only Java installation path included in the Windows PATH environment variable.

2.3.3. Adobe Reader DC for Windows

The FDA Med Guides Printer Tool requires that Adobe Reader DC software be installed on the host server. Adobe Reader DC is used to print chosen med guides.

According to the Technical Reference Model (TRM) forecast, Adobe Reader DC 19 is supported as of this writing. Instructions provided here are based on Adobe Reader DC 19 installation.

2.3.3.1. Download Adobe Reader DC

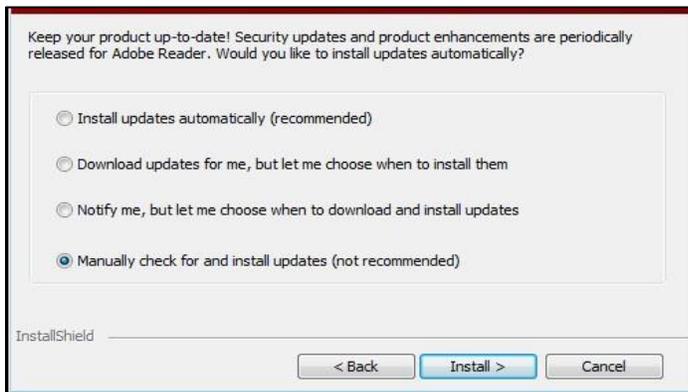
Download a VA TRM approved version of Adobe Reader DC software and follow the installation instructions below.

2.3.3.2. Install Adobe Reader DC

Install Adobe Reader DC using the downloaded software. Complete the Adobe Reader DC installation by responding to the prompts as shown below.

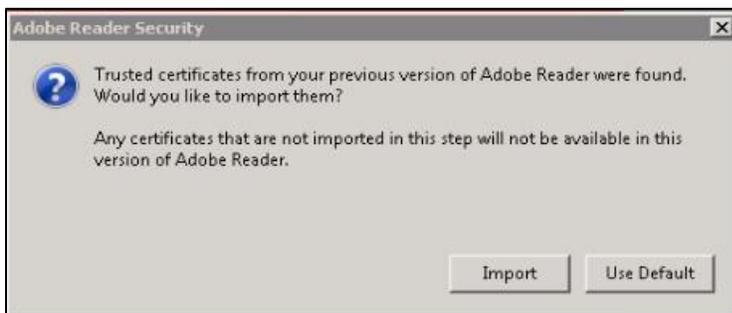
Note: Select “Manually check for and install updates” as shown below.

Figure 1: Adobe Reader DC Installation Display Prompt



Note: Select **Import** if Adobe displays the following prompt.

Figure 2: Adobe Reader DC Security Prompt



2.4. Domain Service Account

A Domain Service account must be created in Active Directory for the FDA Med Guides Automatic Printing application to work properly. The FDA Med Guides Automatic Printing task must be run using this Domain Service account as described in section 4.5.2.1.

2.4.1. Create Domain Service Account for FDA Med Guides

A Domain Service account for the FDA Med Guides Automatic Printing application must be created in Active Directory.

Add a Domain Service account to the Administrator group on the server as it needs Administrative privileges.

Add a Domain Service account to the Server Security Admin group (for example, V21PAL IRMSSERVERSECADMIN) and the Print Operators group permissions to invoke Adobe Reader DC and send print jobs to the network printers.

Ensure the Domain Service account has permissions to view and download files from the [CMOP portal](#).

3. Deployment package contents

The FDA Med Guides Printer Tool deployment package consists of a single archive (ZIP) file that contains several folders, each containing a number of files. All the needed components, and file paths, are stored in this archive. A listing and description of these folders and files are found in the Appendix.

4. Installation Procedure

The installation steps listed below are specific to the FDA Med Guides Printer Tool Java component.

4.1. Obtain ZIP distribution file

The file listed below may be obtained via Secure File Transfer Protocol (SFTP). The preferred method is to access the file from **download.vista.med.va.gov**.

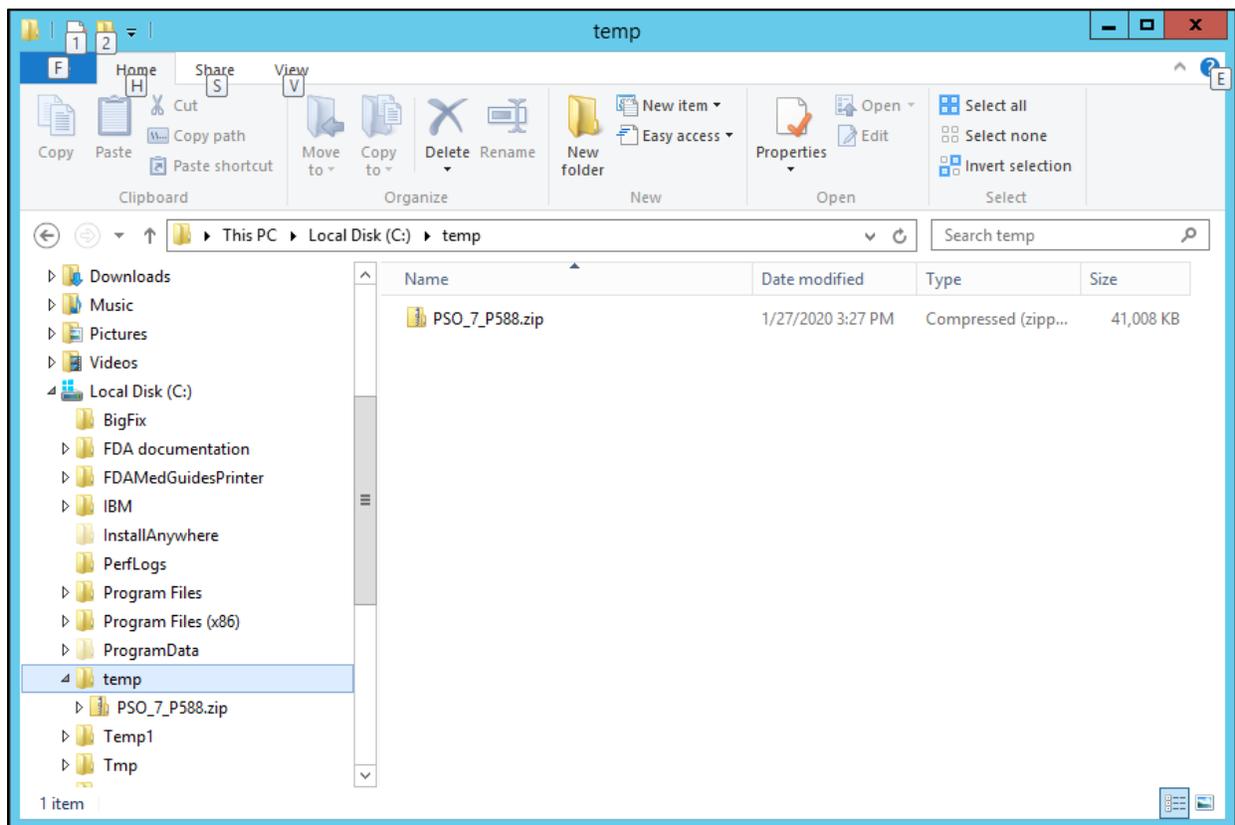
This transmits the file from the first available server.

Table 1: Downloadable File

File Name	Retrieval Format
PSO_7_P588.zip	BINARY

Download the file and save it to the C:\temp folder.

Figure 3: Download and save to C:\temp



4.2. Deploy files from the distribution file

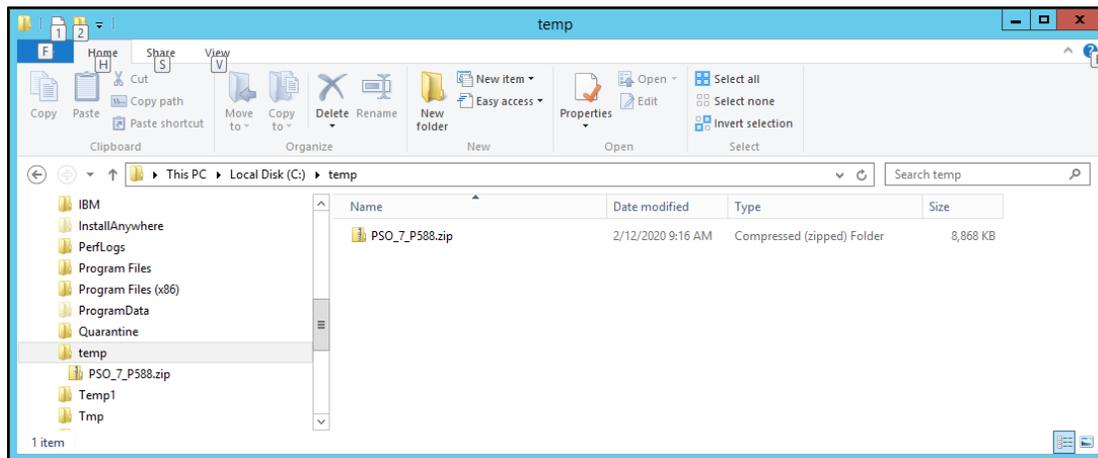
4.2.1. Extract ZIP file contents into C:\

Extract the contents of the distribution ZIP file into the root folder of the C drive (C:\). The embedded file structure will be recreated.

Note: The file name of the downloaded distribution ZIP file may be a variation from that shown in the following screen captures.

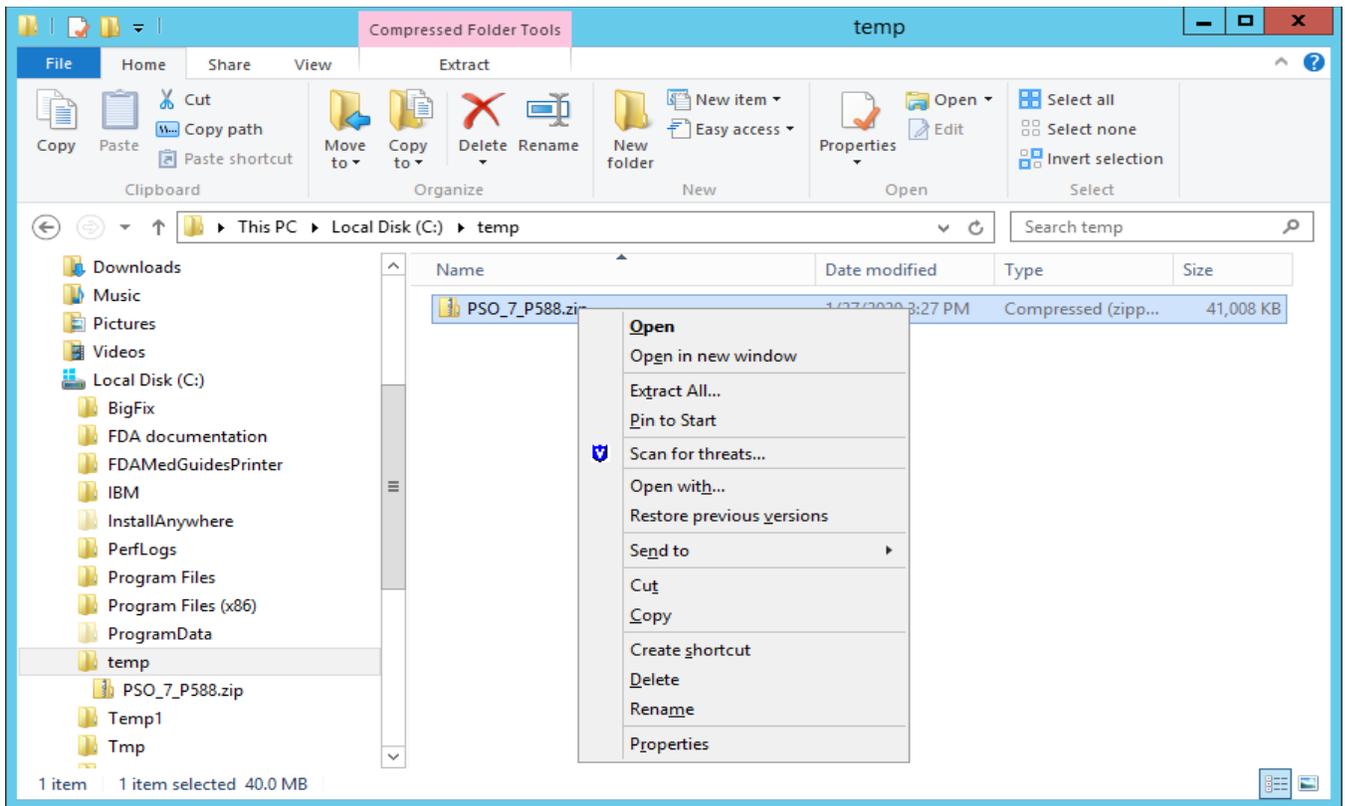
Locate the distribution file.

Figure 4: C:\Temp Folder



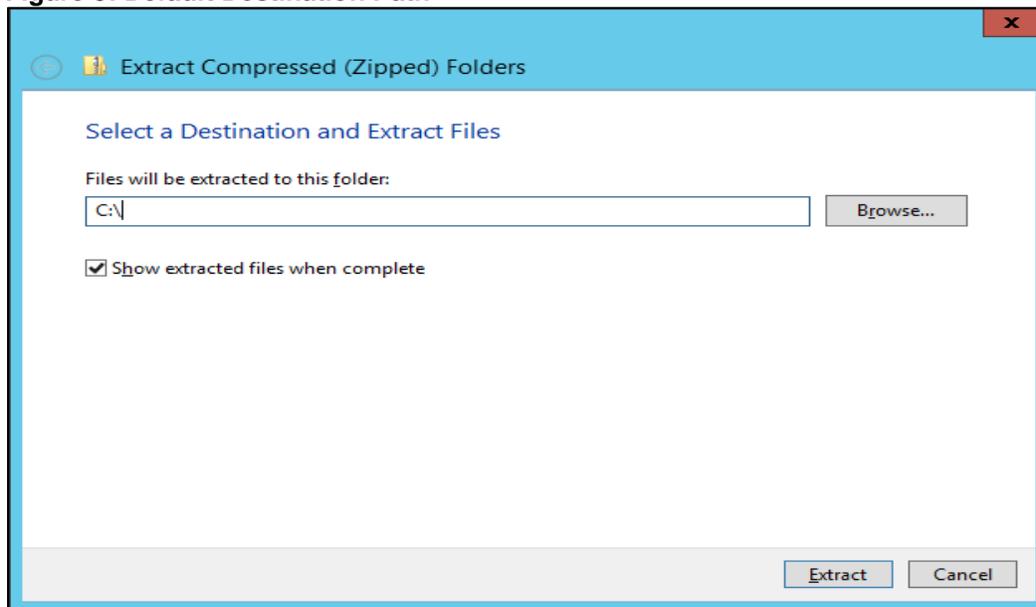
Right click on the zip file and select ‘Extract All...’

Figure 5: Initiate the Extract All wizard



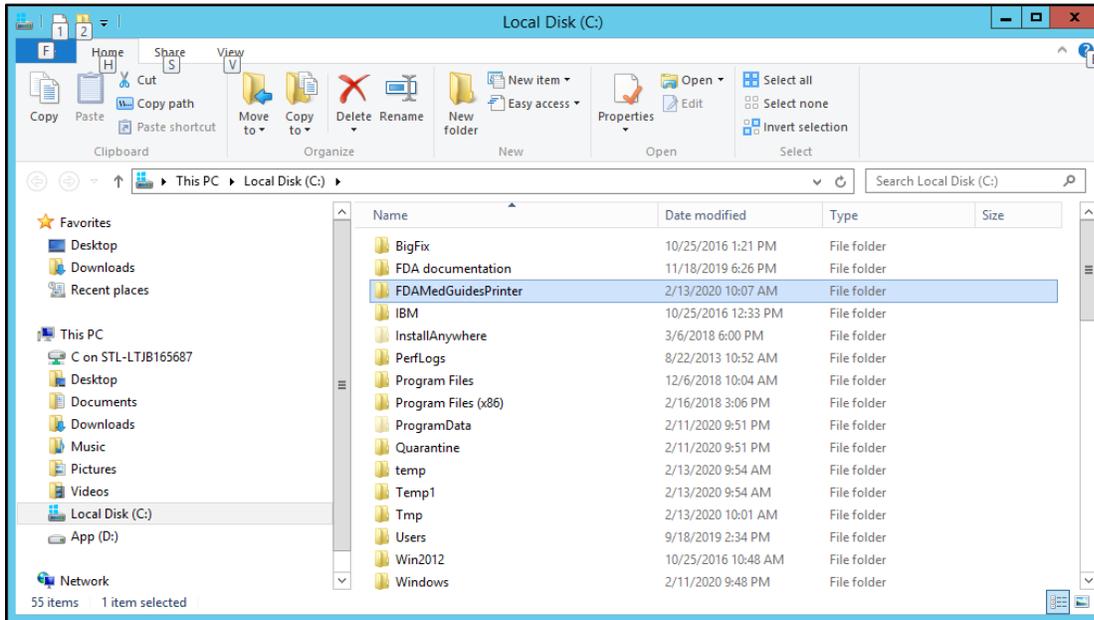
Change the default destination path to C:\ and select the 'Show extracted files when complete' checkbox.

Figure 5: Default Destination Path



Select **Extract** and observe the Post-Extraction screen.

Figure 6: Post-Extraction Screen



4.3. Edit the properties configuration file

The FDA Med Guides Printer Tool needs to locate the Adobe Reader DC executable so that it can instruct Adobe Reader DC to print a med guide. The path to Adobe Reader DC is stored in a properties file named **fda_med_guides.properties**. This entry is set with a default value assuming an Adobe Reader DC version 19 installation on Windows Server 2012. However, the path’s validity must be confirmed or adjusted if necessary.

4.3.1. Verify path to Adobe Reader DC program

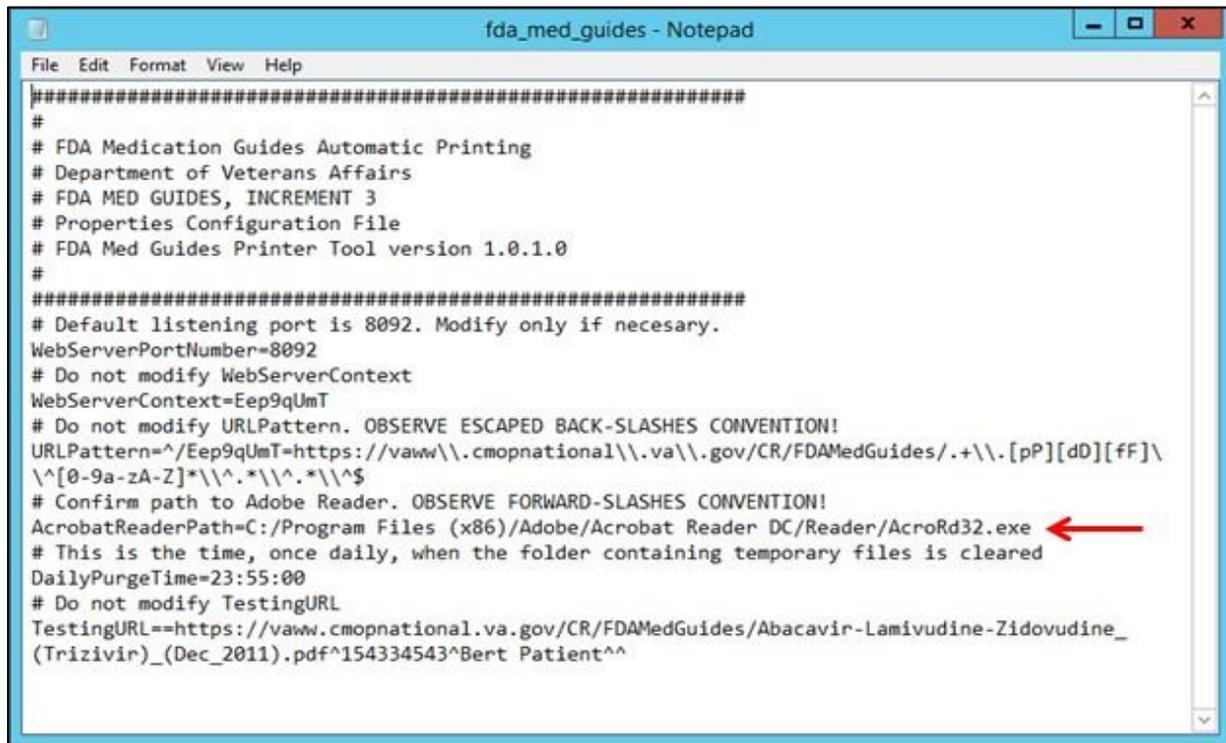
Confirm that the path indicated in the following property file is correct.

Table 2: Property File

File	Element	Description
C:\FDAMedGuidesPrinter\fda_med_guides.properties	AcrobatReaderPath	The path to the Adobe Reader DC executable file

Open the file **C:\FDAMedGuidesPrinter\fda_med_guides.properties** for editing. This is a text file and using a text editor like Notepad will be adequate. Locate the AcrobatReaderPath element in the list.

Figure 7: Example AcrobatReaderPath Element



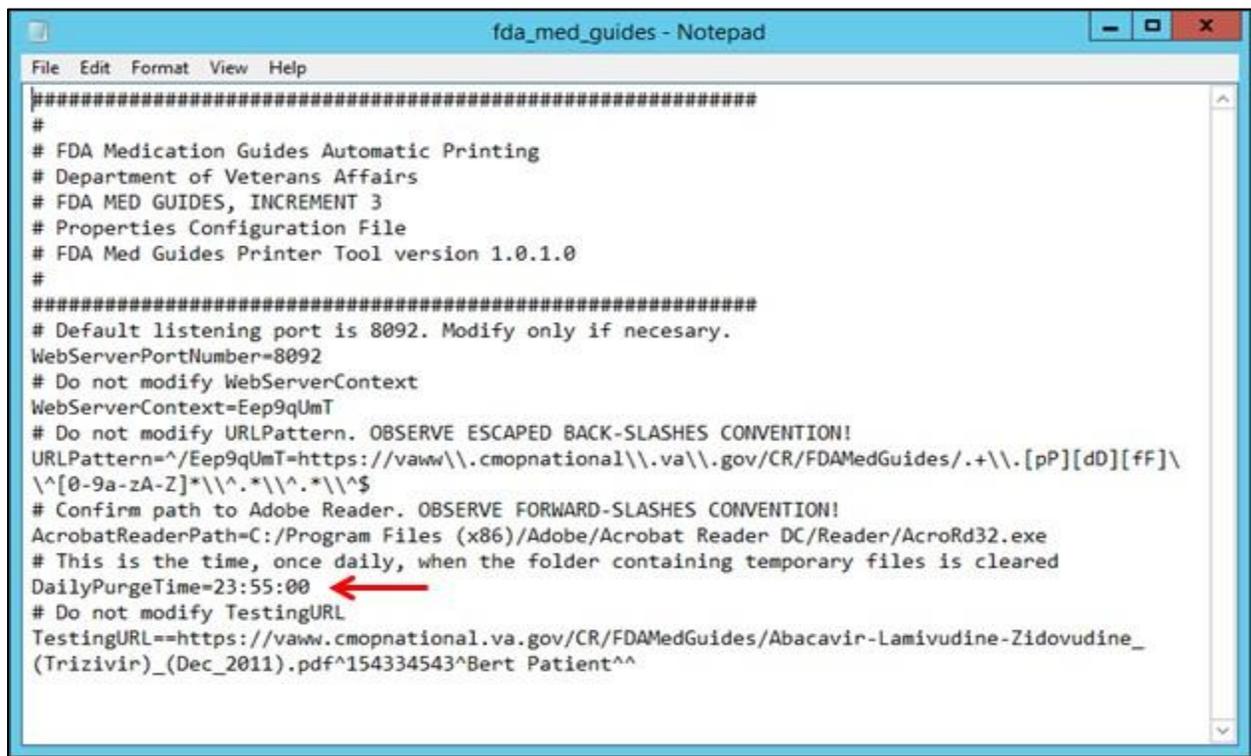
```
#####  
#  
# FDA Medication Guides Automatic Printing  
# Department of Veterans Affairs  
# FDA MED GUIDES, INCREMENT 3  
# Properties Configuration File  
# FDA Med Guides Printer Tool version 1.0.1.0  
#  
#####  
# Default listening port is 8092. Modify only if necessary.  
WebServerPortNumber=8092  
# Do not modify WebServerContext  
WebServerContext=Eep9qUmT  
# Do not modify URLPattern. OBSERVE ESCAPED BACK-SLASHES CONVENTION!  
URLPattern=~/Eep9qUmT=https://vaww\\.cmopnational\\.va\\.gov/CR/FDAMedGuides/.+\\.\\. [pP][dD][fF]\  
\\^[0-9a-zA-Z]*\\|^.*\\|^.*\\|^$  
# Confirm path to Adobe Reader. OBSERVE FORWARD-SLASHES CONVENTION!  
AcrobatReaderPath=C:/Program Files (x86)/Adobe/Adobe Reader DC/Reader/AcroRd32.exe  
# This is the time, once daily, when the folder containing temporary files is cleared  
DailyPurgeTime=23:55:00  
# Do not modify TestingURL  
TestingURL=https://vaww.cmopnational.va.gov/CR/FDAMedGuides/Abacavir-Lamivudine-Zidovudine_  
(Trizivir)_(Dec_2011).pdf^154334543^Bert Patient^^
```

Confirm that the path to AcroRd32.exe is correct for the installed version of Adobe Reader DC. Make proper adjustments if needed and save the changes.

4.3.2. Confirm DailyPurgeTime

The DailyPurgeTime element in the properties file represents the time of a 24-hour day when the folder containing temporary work files is cleared of all files. This is an automatic clean-up process performed at the indicated time. Adjust this entry as needed to list the most convenient time to perform this operation, based on the time when system use is at a minimal.

Figure 8: DailyPurgeTime Example



```
#####  
#  
# FDA Medication Guides Automatic Printing  
# Department of Veterans Affairs  
# FDA MED GUIDES, INCREMENT 3  
# Properties Configuration File  
# FDA Med Guides Printer Tool version 1.0.1.0  
#  
#####  
# Default listening port is 8092. Modify only if necessary.  
WebServerPortNumber=8092  
# Do not modify WebServerContext  
WebServerContext=Eep9qUmT  
# Do not modify URLPattern. OBSERVE ESCAPED BACK-SLASHES CONVENTION!  
URLPattern=~/Eep9qUmT=https://vaww\\.cmopnational\\.va\\.gov/CR/FDAMedGuides/.+\\. [pP][dD][fF]\  
\\^[0-9a-zA-Z]*\\^.*\\^.*\\^$  
# Confirm path to Adobe Reader. OBSERVE FORWARD-SLASHES CONVENTION!  
AcrobatReaderPath=C:/Program Files (x86)/Adobe/Acrobat Reader DC/Reader/AcroRd32.exe  
# This is the time, once daily, when the folder containing temporary files is cleared  
DailyPurgeTime=23:55:00  
# Do not modify TestingURL  
TestingURL=https://vaww.cmopnational.va.gov/CR/FDAMedGuides/Abacavir-Lamivudine-Zidovudine_  
(Trizivir)_(Dec_2011).pdf^154334543^Bert Patient^^
```

4.4. Configure JAVA

4.4.1. Run the CMOP SSL Certificate installation batch file

The FDA Med Guides Printer Tool needs the CMOP SSL certificate to download FDA Medication guides from the new CMOP server. The script adds the SSL certificate for the CMOP server to the Java trust store.

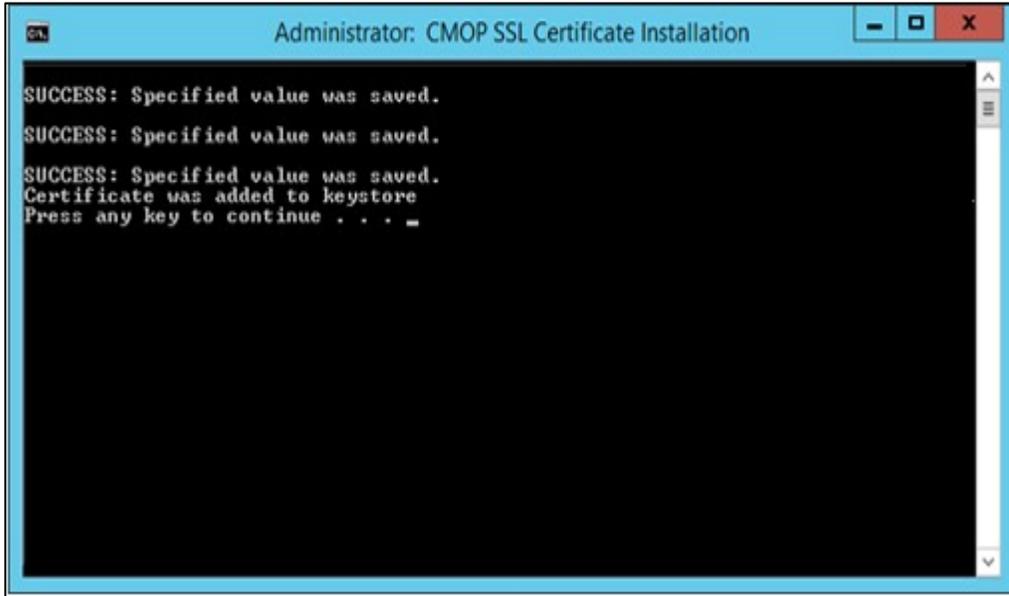
The following steps must be executed:

- Go to C:\FDAMedGuidesPrinter\installation
- Select SSL_Certificate_installation.bat and select Run as administrator.

Note: The script needs to be run as an Administrator, or the user needs to be an Administrator in order for it to work. It is recommended to complete this while logged into the server with the Domain Service account that will be used to run the FDA Med Guide Automatic Printing software.

The following window will be displayed. Press any key to close the window.

Figure 9: SSL Certificate Installation Window



If the SSL Certificate already exists, the error message shown below in Figure 11 will be displayed to the user. If the certificate already exists, the user can proceed to the next step in the installation process.

Figure 10: SSL Certificate Already Exists



If the error message in the screenshot below appears, the user can proceed as the certificate has been installed. The error message results when the script cannot find a JRE version installed. If JRE exists, the Automatic Printing will work, and the user can proceed with the installation.

Figure 11: SSL Certificate Added to the Java Keystore



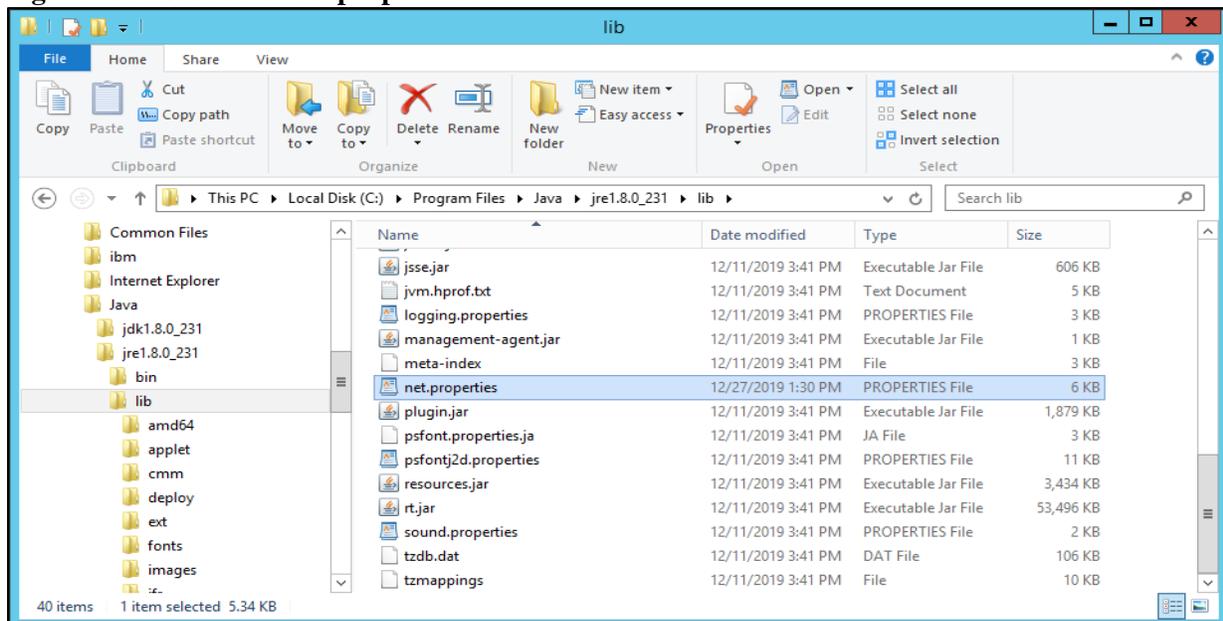
If there is no JRE installed, then the script will display error message, failed to locate any installed Java environments, please install a Java Runtime Environment as described in Section 2.3.2.

4.4.2. Install the JAVA net.properties file

Navigate to the Java installation folder noted in Section 2.3.2.

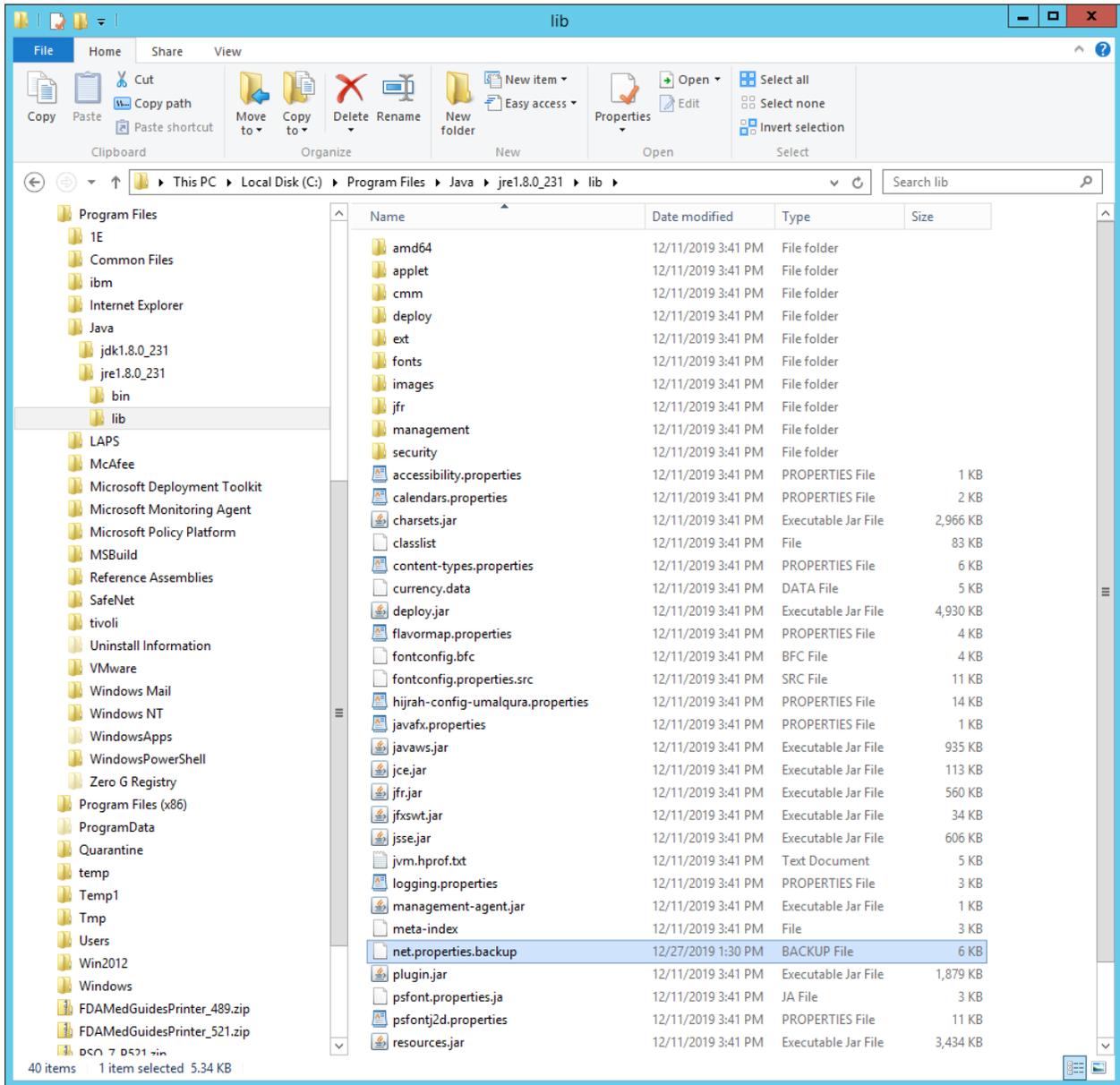
Navigate to the <java installation folder>\lib directory and locate the net.properties file.

Figure 13: Location of net.properties file



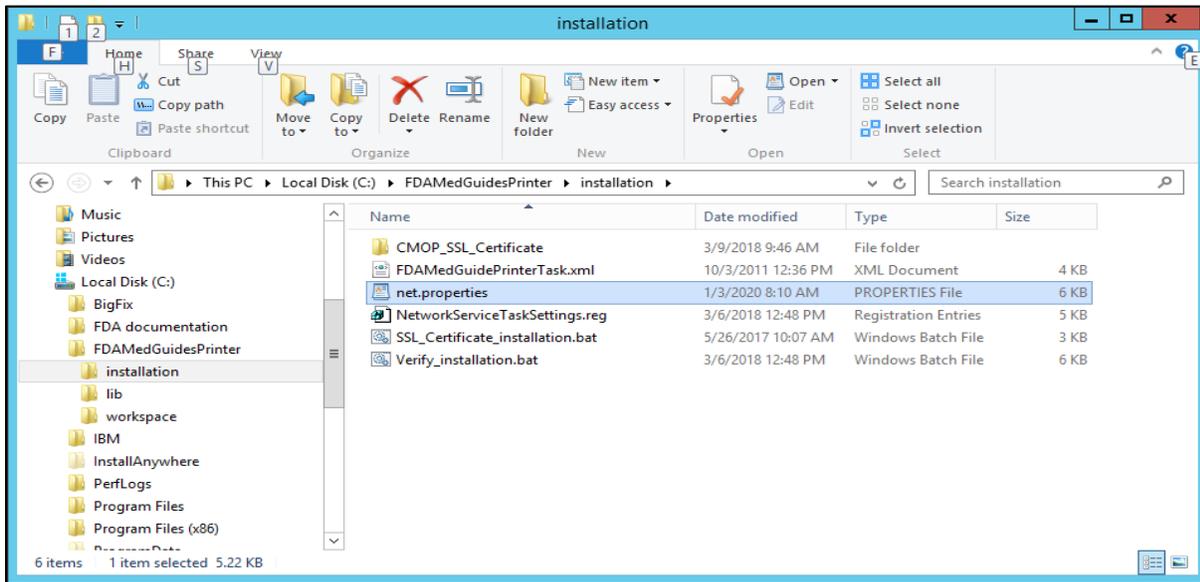
Select the net.properties file, right click and select 'Rename'. Rename the file net.properties.backup.

Figure 14: Example of renamed net.properties file



Navigate to the C:\FDAMedGuidesPrinter\installation directory.

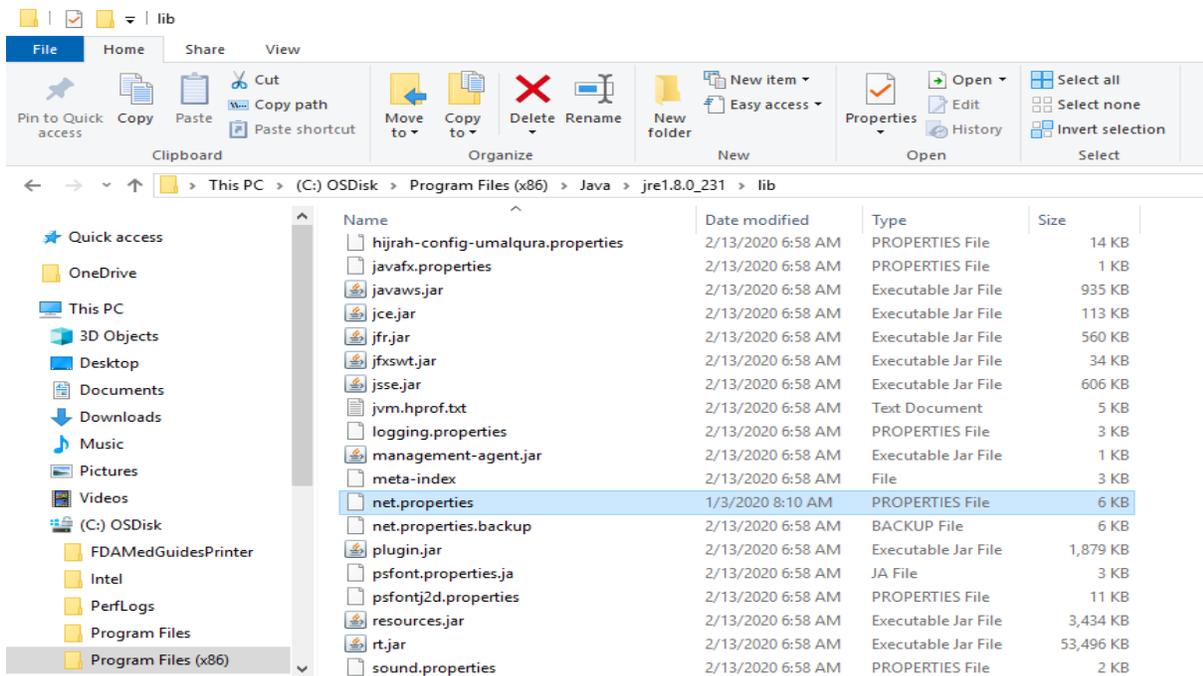
Figure 15: C:\FDAMedGuidesPrinter\installation folder



Copy the net.properties file to the .\lib directory under the JRE installation path noted in Section 2.3.2.

Note: The following screenshot is an example of the destination for the net.properties file and may vary depending on the location of the installed JRE.

Figure 16: Example of the Destination for the net.properties File after installation



This completes the JAVA configuration.

4.5. Create a new FDAMedGuidePrinterTask task

The FDA Med Guides Printer Tool is deployed to run as a non-interactive background process (Windows Scheduled Task) and is listed on the server's list of scheduled tasks. This program runs in the background; therefore, not evident to users that are logged on. There is no user interface associated with the FDA Med Guides Printer Tool; therefore, there is no user interactivity.

The following characteristics apply to the task configuration:

The name of the scheduled task is FDAMedGuidePrinterTask.

By default, the Automatic Printing application runs under NT AUTHORITY\NETWORK SERVICE account. The Network Service account on the server may or may not have adequate permissions based on the server settings. The account **MUST** have permissions to download files from the [CMOP portal](#) and also requires permissions to print to the network printers.

We strongly recommend the use of a Domain Service account created for the FDA Med Guides Automatic Printing application as suggested in Section 2.4. To change the user account associated with FDA Med Guides from a Network Service account to a Domain Service account see instructions given in section, 4.5.2.1. Change User account associated with the FDAMedGuidePrinterTask.

The C:\FDAMedGuidesPrinter\START_fda_med_guides_automatic_printing.bat batch file will be run by the task.

The task starts in the C:\FDAMedGuidesPrinter (application) folder.

The task is configured to run whether the assigned user is logged in or not. Typically, no user is logged in.

4.5.1. Import a new Scheduler Task configuration file

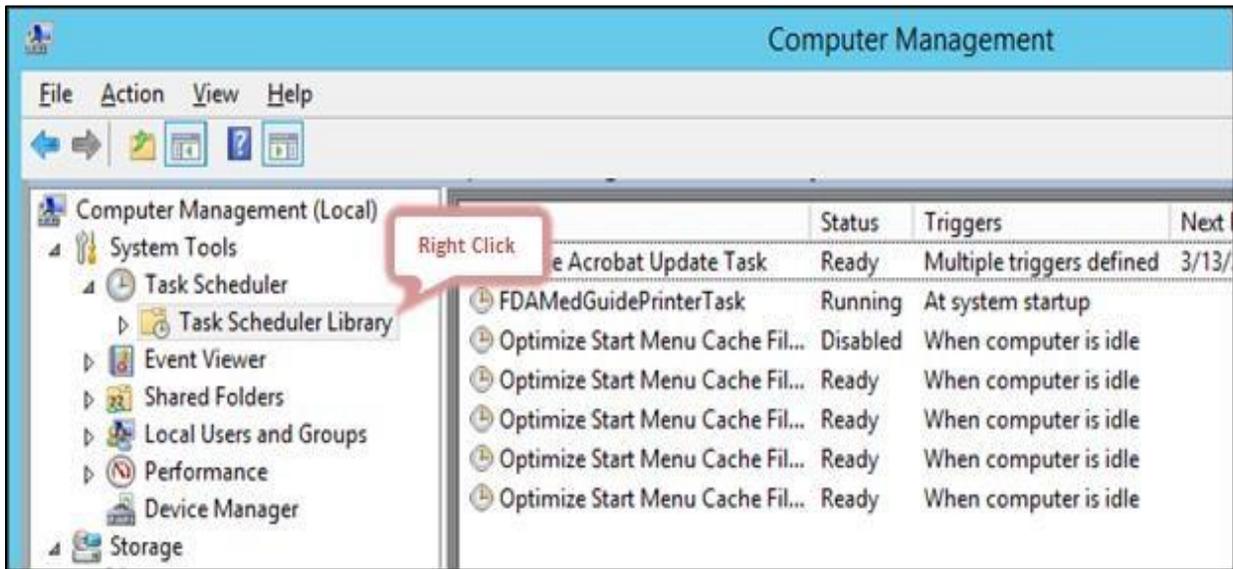
A predefined task configuration XML file is distributed as part of this installation package. The file is named FDAMedGuidePrinterTask.xml, and it is located in the C:\FDAMedGuidesPrinter\installation folder.

Importing this file into Task Scheduler automatically configures the FDAMedGuidePrinterTask with default settings. After importing the settings file, saving the task creates the new task in Task Scheduler.

Follow the steps and the screenshots below to create the FDAMedGuidePrinterTask task.

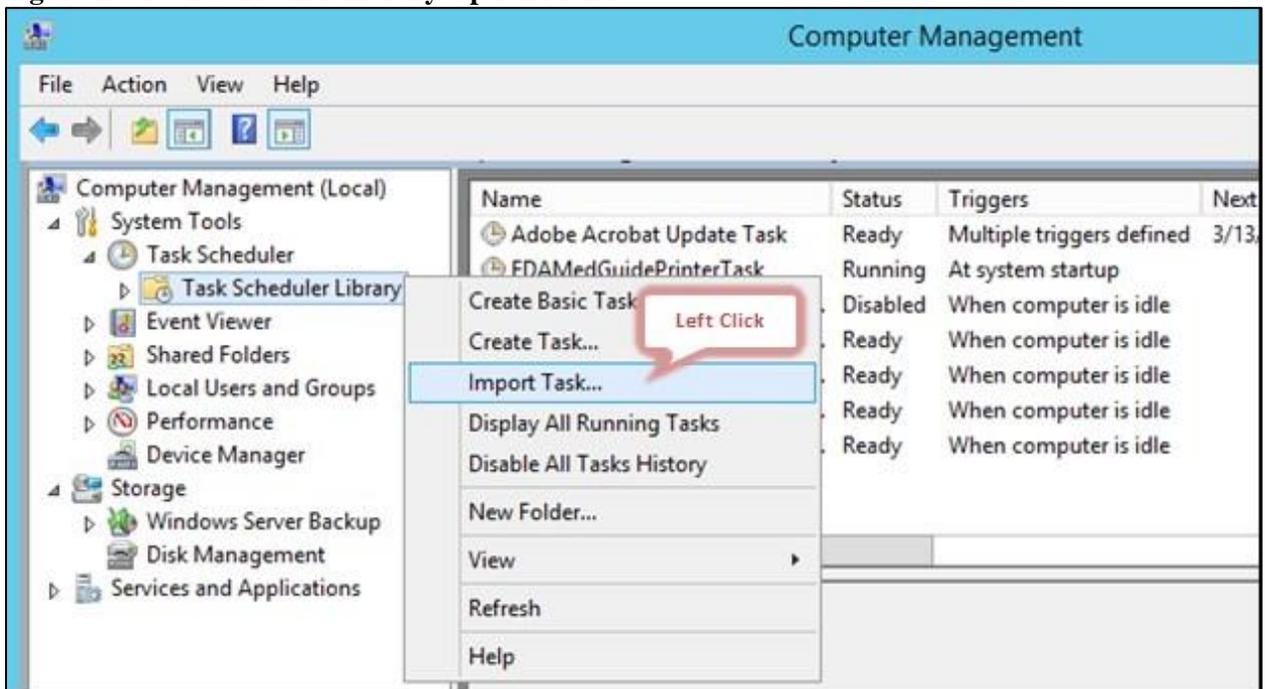
Select Task Scheduler Library from Computer Management.

Figure 17: Task Scheduler Shown Within Computer Management



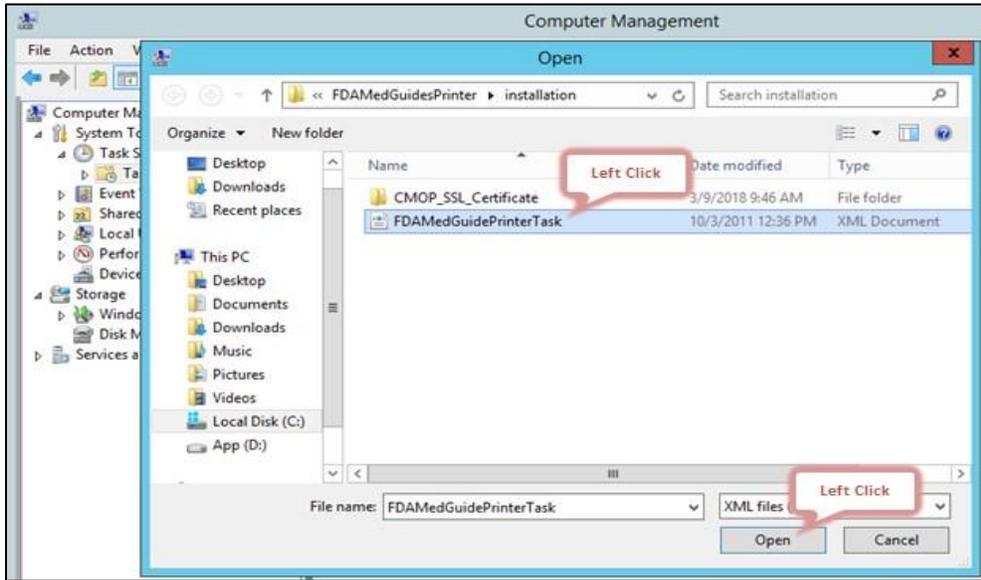
Select Import Task....

Figure 18: Task Scheduler Library Option Menu



Select FDAMedGuidePrinterTask and select Open.

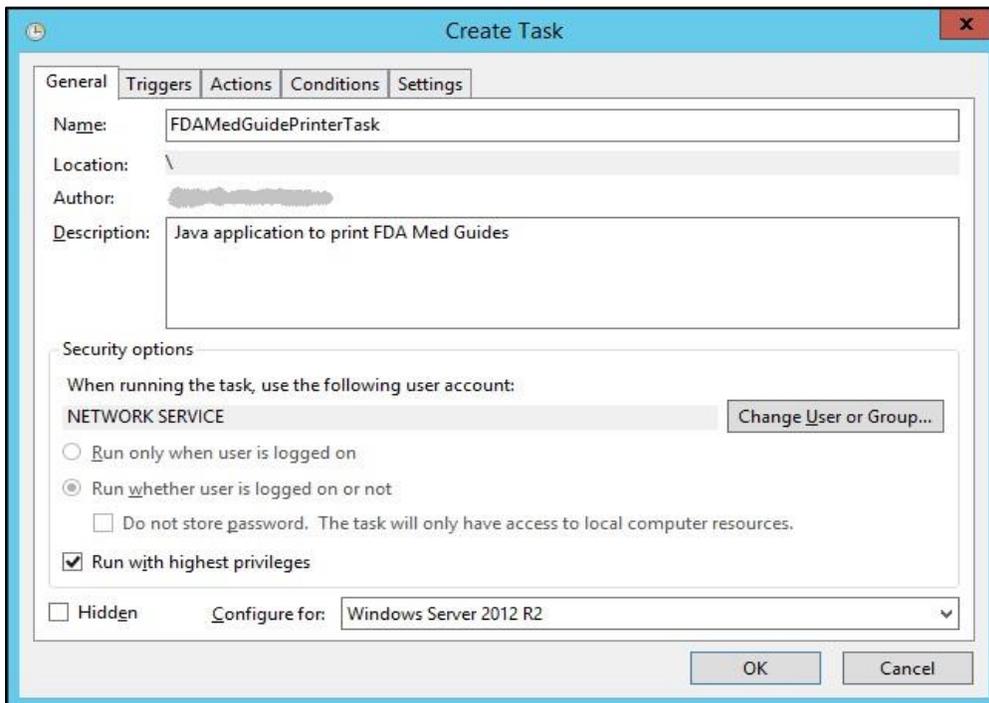
Figure 1912: FDAMedGuidePrinterTask XML File



Verify settings and select **OK** to add the new task.

Note: The Change User or Group field should be changed to the Domain Service account with administrator privileges that is going to be used to run the FDAMedGuidePrinterTask.

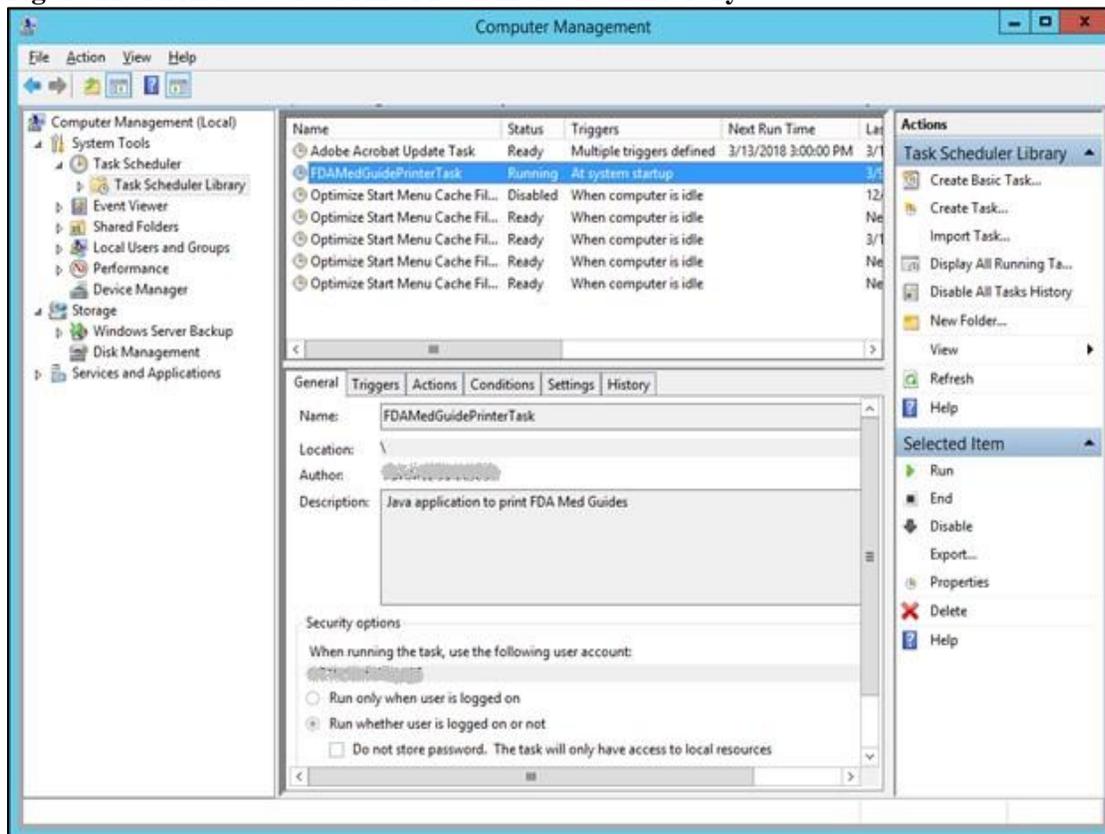
Figure 20: Create Task Dialog Box- example



4.5.2. Confirm or fine-tune the scheduled task configuration

After creating the FDAMedGuidePrinterTask, verify that the imported settings are correct. The following screen captures represent the desired configuration settings for the FDAMedGuidePrinterTask task on a Windows Server 2012 system. The system in use should be set up in a similar fashion. Compare the following screenshots with the user's settings and adjust accordingly—if necessary.

Figure 21: FDAMedGuidePrinterTask in the Task Library



4.5.2.1. Change User account associated with the FDAMedGuidePrinterTask

The default user is set to NT AUTHORITY\NETWORK SERVICE account. The Network Service account on the server may or may not have adequate permissions based on the server settings. In the General tab, the user account associated with the FDAMedGuidePrinterTask task can be changed from the default Windows Network Service account to the Domain Service account created for the FDA Med Guides Automatic Printing application, as shown in Figures 21 and 22 below.

Open the options menu for the FDAMedGuidePrinterTask task and select Properties.

In the General tab, select the Change User or Group... button.

Enter the Domain Service account user name created, or the FDA Med Guides Automatic Printing application as given in Section 2.4 and select the location (for example, Entire Directory).

Enter the password when prompted.

The Domain Service account needs to have Administrative privileges on the server and should be added to the appropriate Printer and Server Security Admin groups so that it has permissions to invoke Adobe Reader DC and send print jobs to the network printers.

Figure 22: General Tab Settings

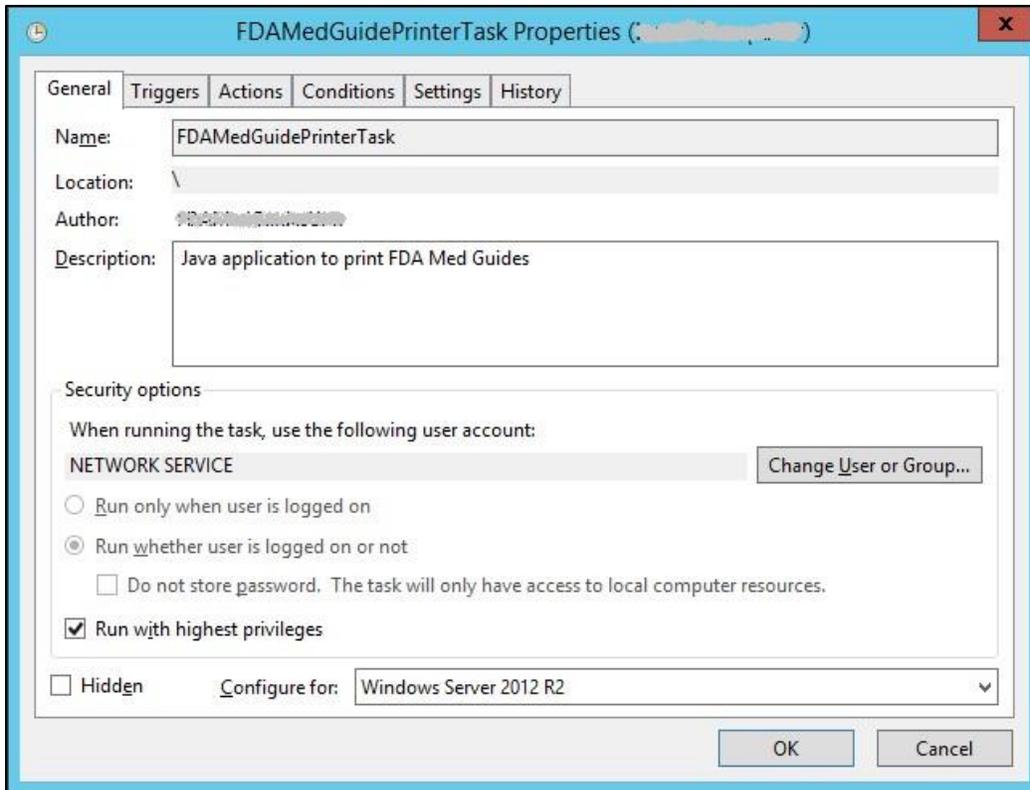
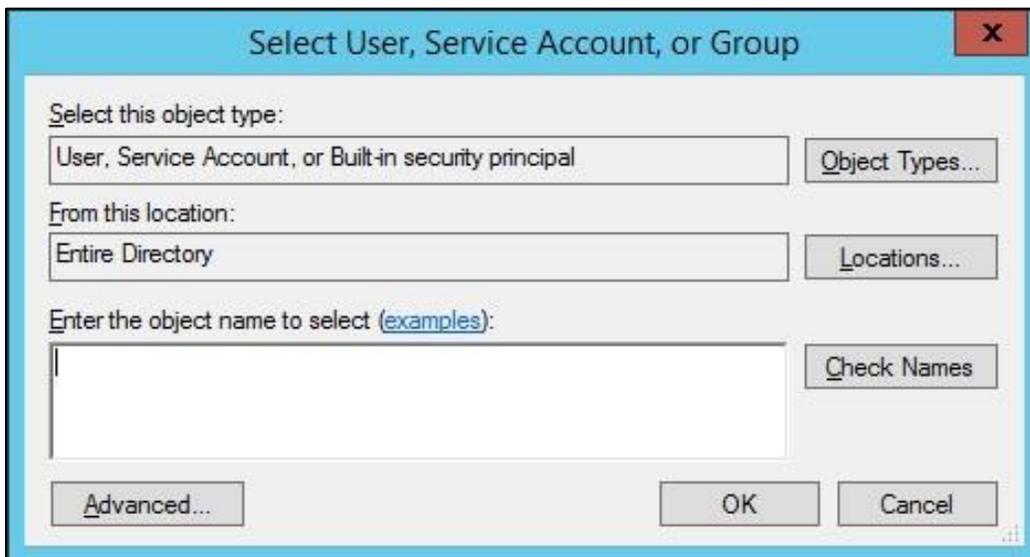


Figure 23: Select User, Service Account, or Group



The screenshots below are examples of the setup for the Triggers, Actions, Conditions, Settings and History Tabs.

Figure 24: Triggers Tab Settings

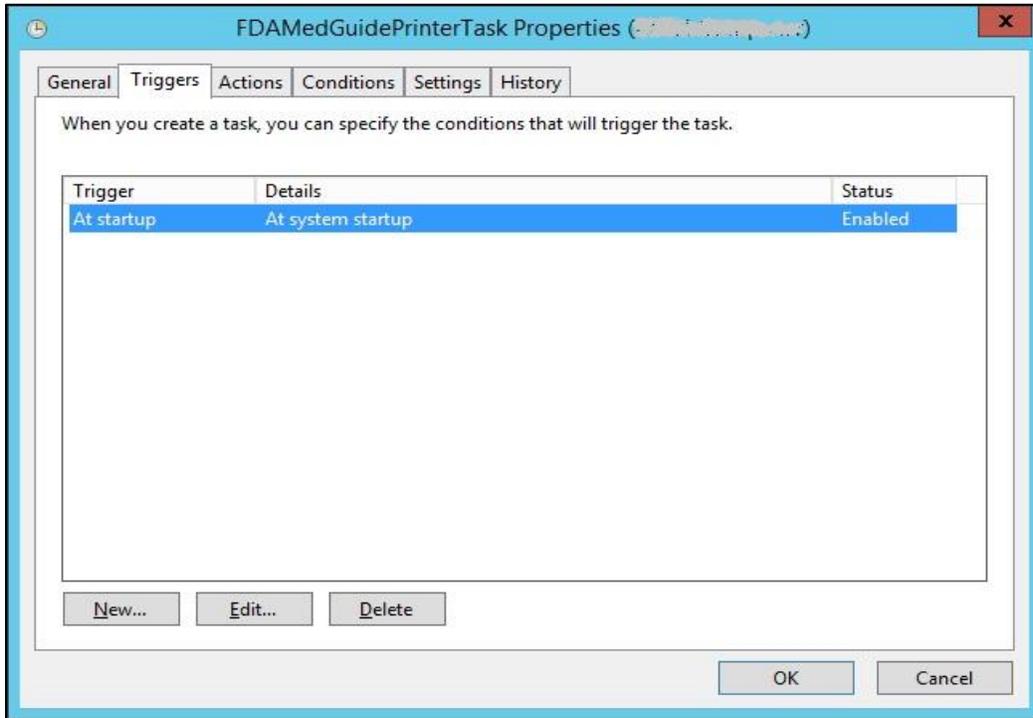


Figure 25: Edit Trigger Settings

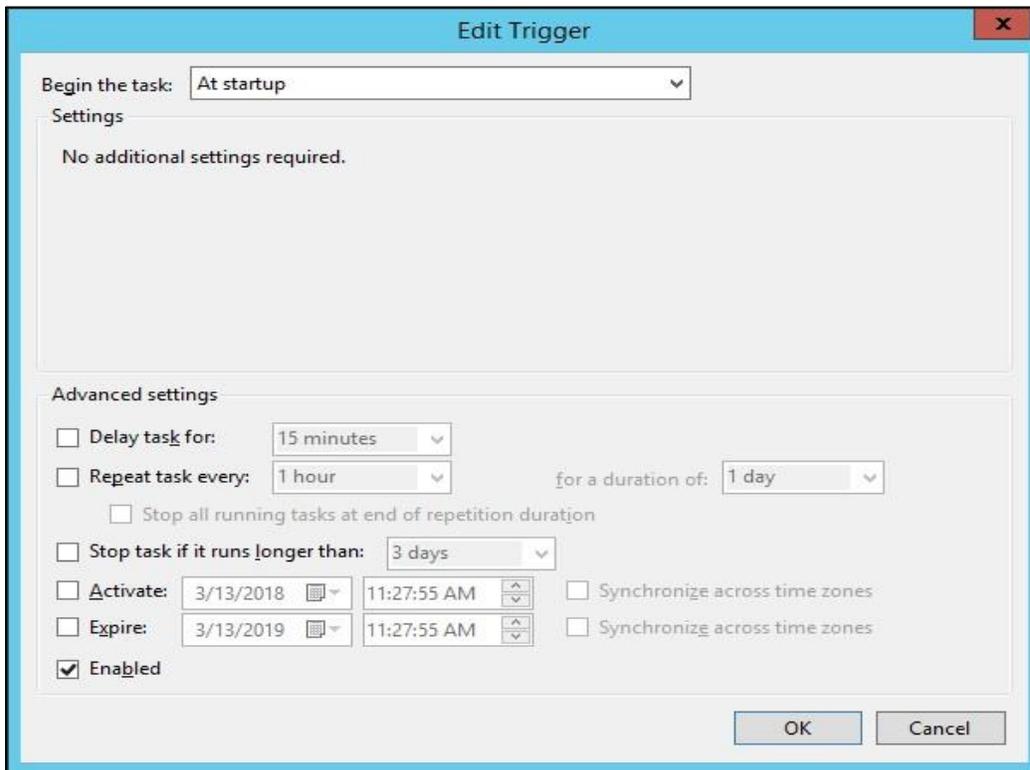


Figure 26: Actions Tab Settings

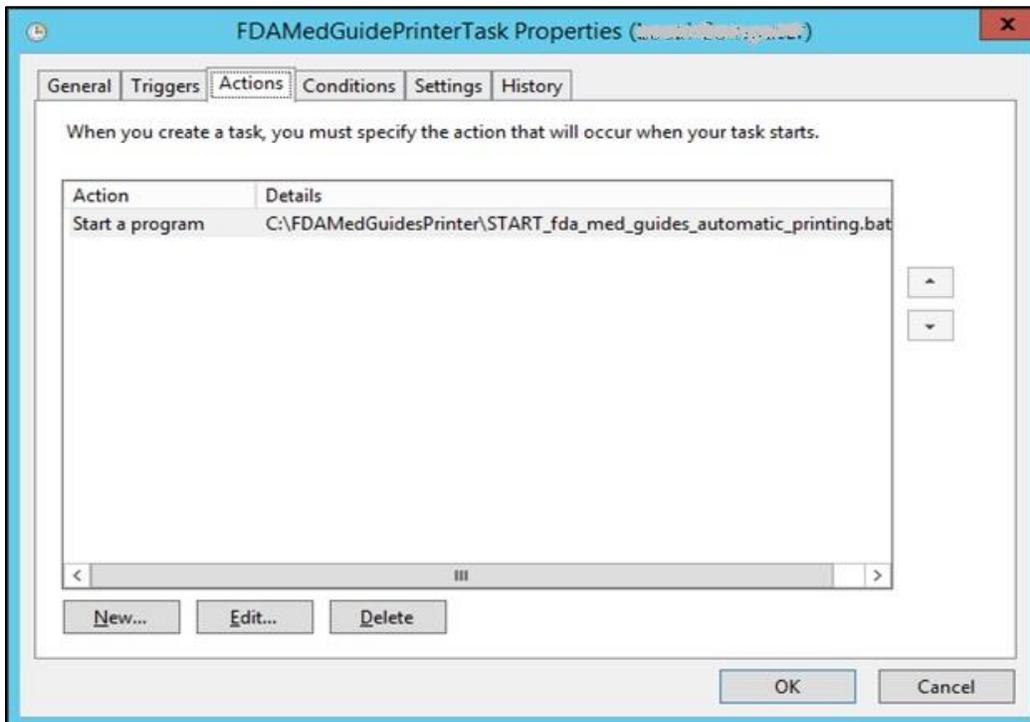


Figure 13: Edit Action Settings

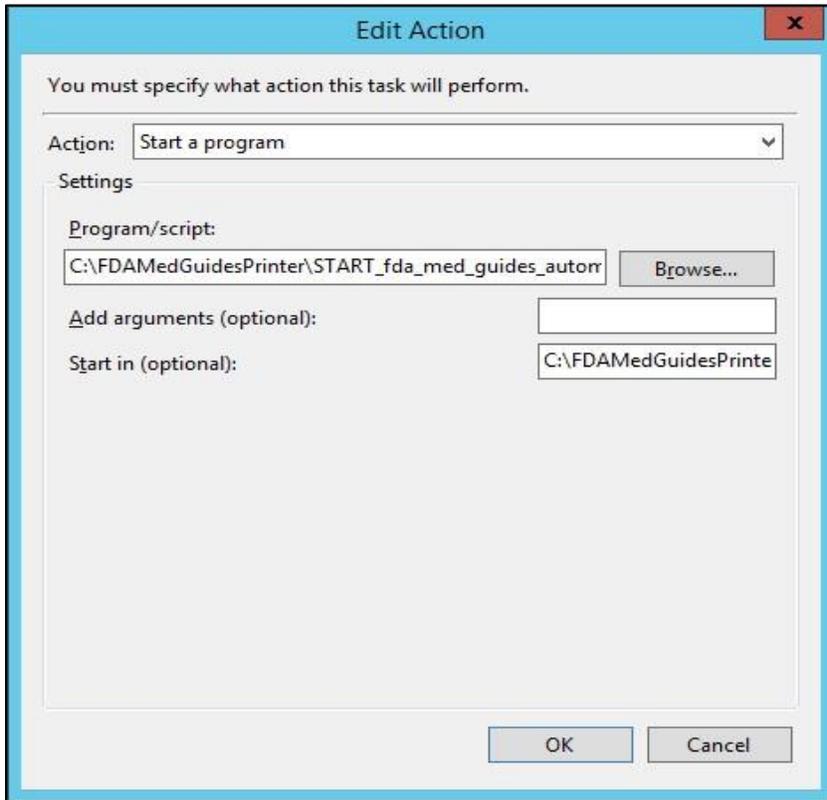


Figure 28: Conditions Tab Settings

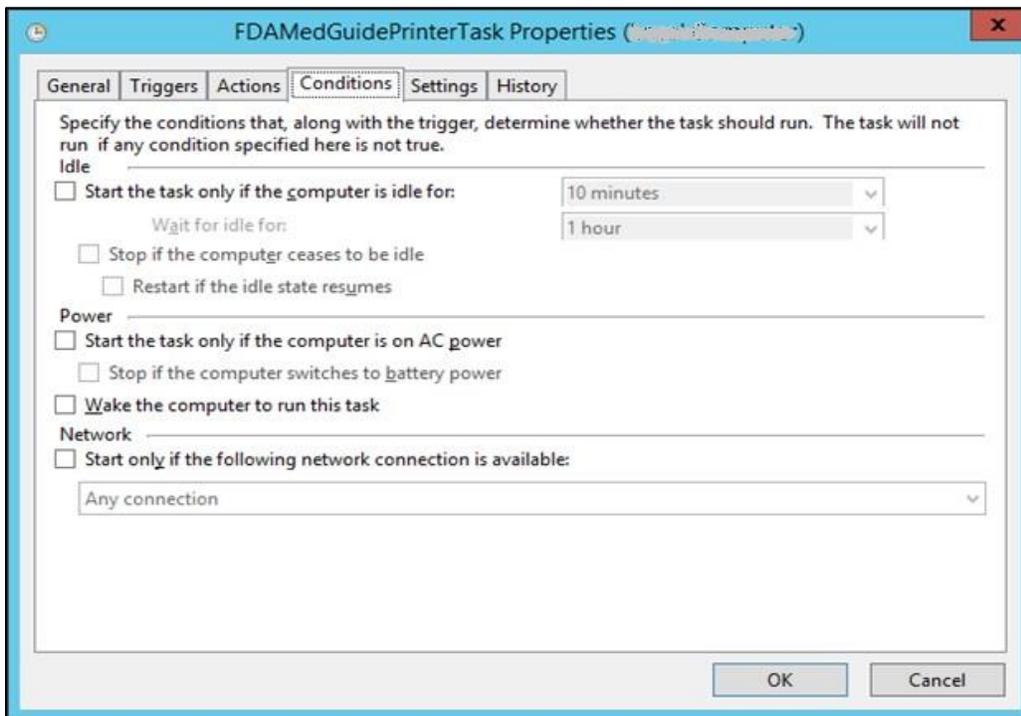


Figure 29: Settings Tab Settings

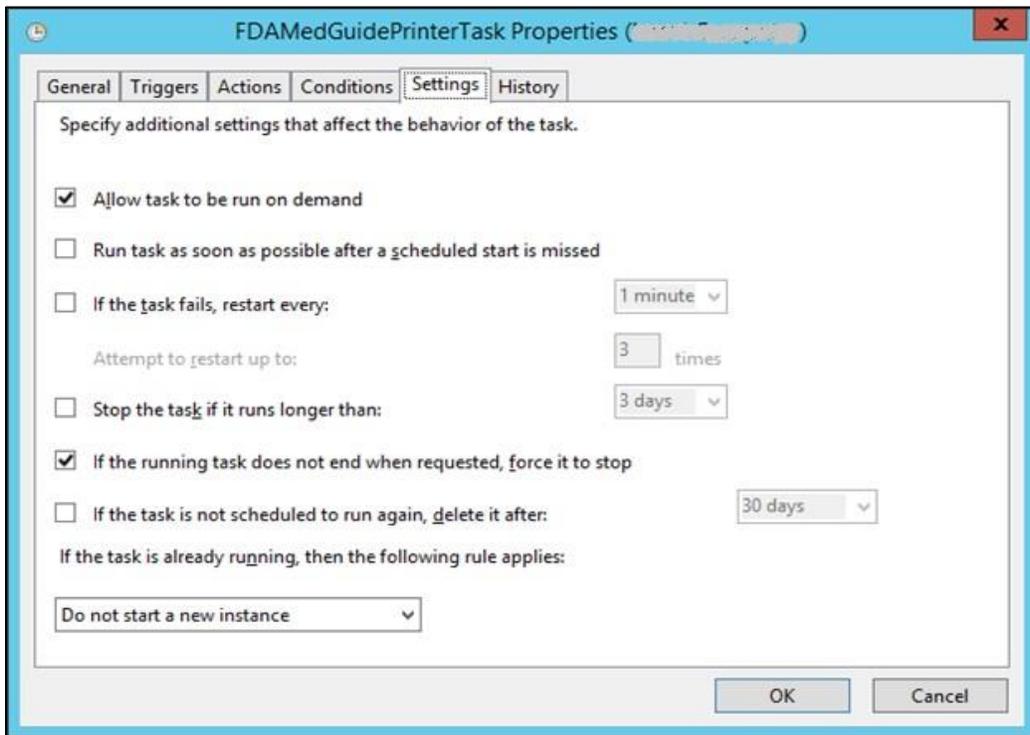
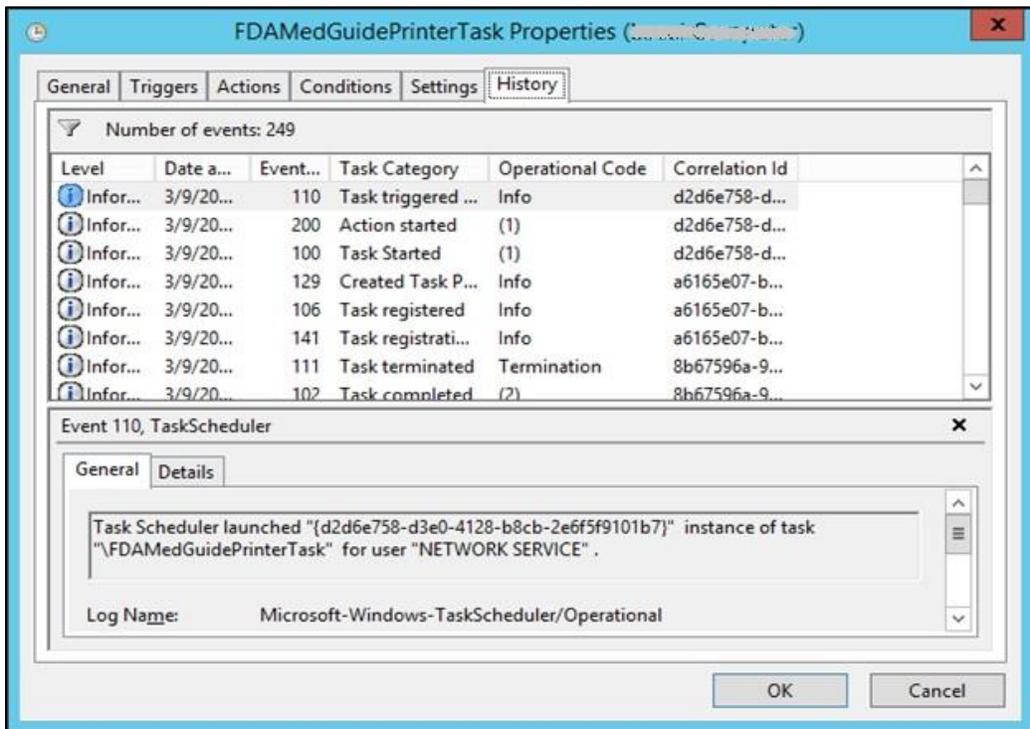


Figure 30: Sample History Tab



4.6. Import customized Adobe Reader DC Windows Registry settings

The FDA Med Guides Printer Tool controls Adobe Reader in the background, while no interactive user is logged in. Adobe Reader sometimes tries to interact with a user when no user is available to reply to Adobe Reader prompts. An example of this is when Adobe Reader presents the End-User License Agreement (EULA) screen. There are Registry settings that can be set to inhibit these prompts. These are listed in the included Windows Registry Editor file.

Important:	If the FDAMedGuidePrinterTask task is configured to run using a Domain Service account , instead of the Network Service account, one of the following options must be executed.
	<p><i>Option 1:</i> Login to the server using the Domain Service account that is being assigned to the FDAMedGuidePrinterTask task and apply the registry keys by executing the NetworkServiceTaskSettings.reg file according to the instructions given below.</p> <p><i>Option 2:</i> The NetworkServiceTaskSettings.reg file must be edited to replace HKEY_USERS\S-1-5-20 with the SID of the Service account, which looks like S-1-5-20, from the windows registry at the path</p> <p>HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\ProfileList. Then apply the registry keys by executing the NetworkServiceTaskSettings.reg file according to the instructions given below.</p>

Before starting the task (first use), the following Registry settings must be imported. Locate the **NetworkServiceTaskSettings.reg** file in the **C:\FDAMedGuidesPrinter\installation** folder, then import the settings as indicated in the screen captures below.

Figure 31: NetworkServiceTaskSettings.reg Registry Settings

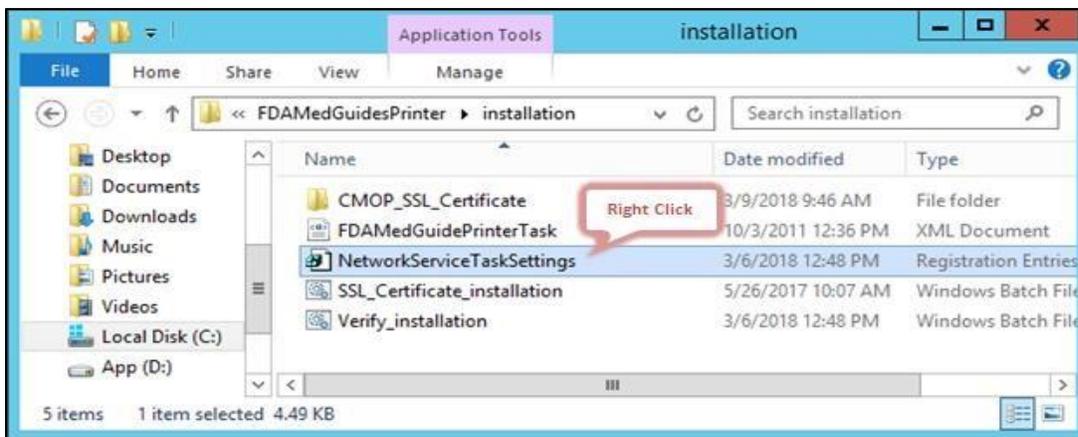


Figure 32: Merge Menu Option

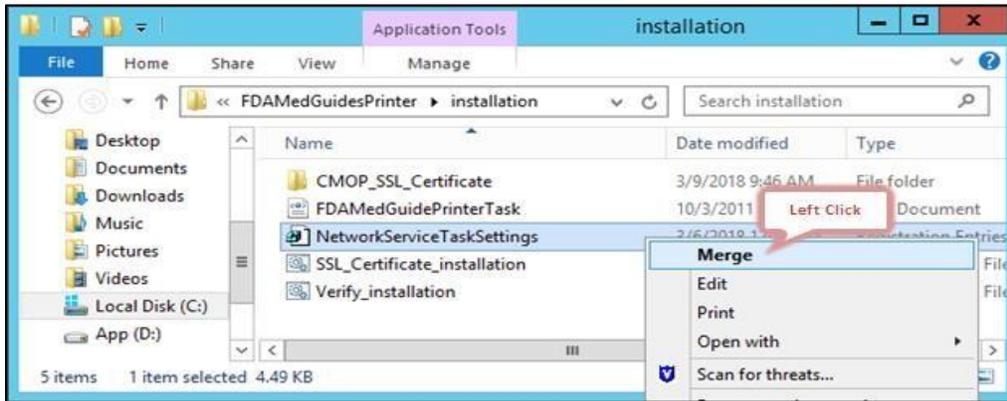


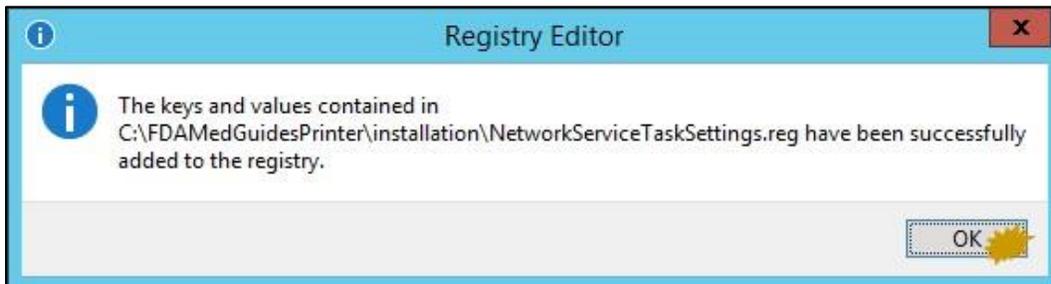
Figure 33: User Account Control Dialog Box



Figure 34: Registry Editor Dialog Box



Figure 35: Follow Up Dialog Box for Registry Editor



4.7. Confirm correct deployment of program files

A batch file automates the process of confirming that the necessary folders and files were deployed correctly. Confirmation is made only on files belonging to the FDA Med Guides Printer Tool.

4.7.1. Run the verifying batch file

Open the options menu for the file and select Run as administrator to execute the batch file located in C:\FDAMedGuidesPrinter\installation\Verify_installation.bat. The resulting display should look like Figure 37 below. Any missing files or configuration errors should be listed in the results.

Figure 36: File Location



Figure 37: Run as administrator Option

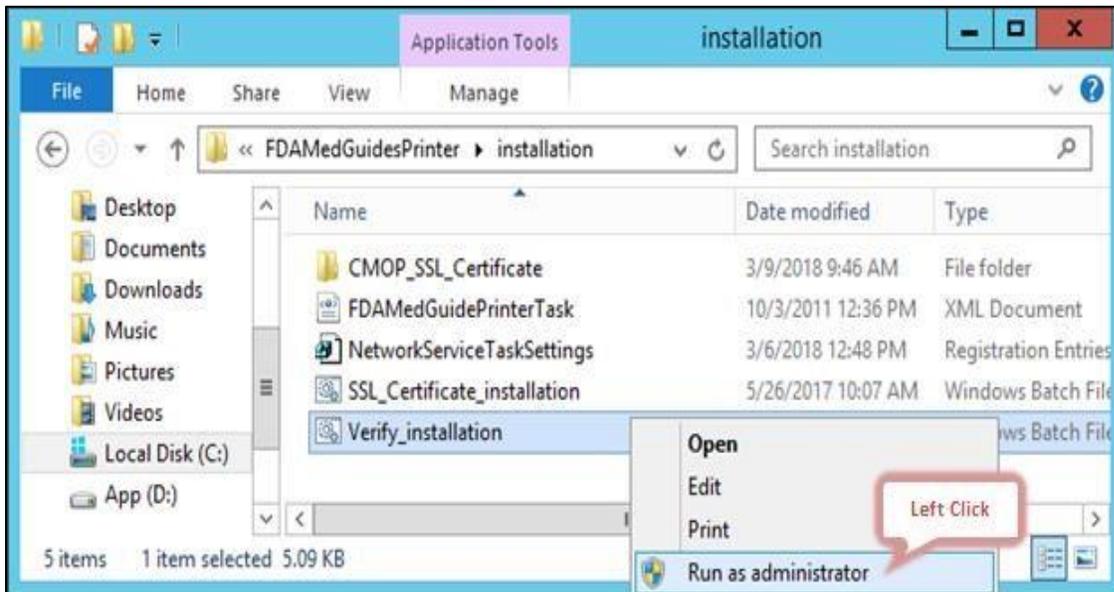


Figure 38: Installation Confirmation result with no Errors Reported

```
Administrator: INSTALLATION CHECK: FDA Medication Guides Printer Tool
Verifying file install and configuration...
=====
Any missing files will be listed within this block
=====
Check Adobe Reader v18.0 Registry values

HKEY_USERS\DEFAULT\Software\Adobe\Acrobat Reader\DC\AdobeViewer
EULA      REG_DWORD    0x1
Launched  REG_DWORD    0x1

HKEY_USERS\DEFAULT\Software\Adobe\Acrobat Reader\DC\AUGeneral
bUserChangedCustomOpenPref  REG_DWORD    0x1
bToggleCustomOpenExperience  REG_DWORD    0x1
bToggleCustomSaveExperience  REG_DWORD    0x1
bCheckForUpdatesAtStartup    REG_DWORD    0x0
bShowWelcomeScreen           REG_DWORD    0x0

HKEY_USERS\DEFAULT\Software\Adobe\Acrobat Reader\DC\IPM
bShowMsgAtLaunch              REG_DWORD    0x0
bDontShowMsgWhenViewingDoc    REG_DWORD    0x1

HKEY_USERS\DEFAULT\Software\Adobe\Acrobat Reader\DC\Language\UseMUI
bUseMUI                        REG_DWORD    0x1

HKEY_USERS\DEFAULT\Software\Adobe\Acrobat Reader\DC\Privileged
bProtectedMode                 REG_DWORD    0x0

HKEY_USERS\DEFAULT\Software\Adobe\Acrobat Reader\DC\Security\cDigSig
iImportAddressBook             REG_DWORD    0x2

HKEY_USERS\DEFAULT\Software\Adobe\Acrobat Reader\DC\Security\cDigSig\cAdobeDown
load

HKEY_USERS\DEFAULT\Software\Adobe\Acrobat Reader\DC\Security\cDigSig\cAdobeDown
load
bAskBeforeInstalling           REG_DWORD    0x0

HKEY_CURRENT_USER\Software\Adobe\Acrobat Reader\DC\AdobeViewer
EULA      REG_DWORD    0x1
Launched  REG_DWORD    0x1

HKEY_CURRENT_USER\SOFTWARE\Adobe\Acrobat Reader\DC\AUGeneral
bUserChangedCustomOpenPref  REG_DWORD    0x1
bToggleCustomSaveExperience  REG_DWORD    0x1
bToggleCustomOpenExperience  REG_DWORD    0x1
uThemeBackgroundCo lor     REG_DWORD    0xfafafa
bExpandRHPInViewer          REG_DWORD    0x1
bPromptBeforeClosingMultipleTabs  REG_DWORD    0x1
bisFirstLaunch              REG_DWORD    0x0
bCheckForUpdatesAtStartup    REG_DWORD    0x0
```

Figure 39: Installation Confirmation result with some Errors Reported

```
Administrator: INSTALLATION CHECK: FDA Medication Guides Printer Tool
Verifying file install and configuration...
=====
Any missing files will be listed within this block
ERROR: Missing file: fontbox-1.8.5.jar
=====
Check Adobe Reader v18.0 Registry values
ERROR: The system was unable to find the specified registry key or value.
ERROR: The system was unable to find the specified registry key or value.
ERROR: The system was unable to find the specified registry key or value.
ERROR: The system was unable to find the specified registry key or value.
ERROR: The system was unable to find the specified registry key or value.
ERROR: The system was unable to find the specified registry key or value.
ERROR: The system was unable to find the specified registry key or value.
ERROR: The system was unable to find the specified registry key or value.
ERROR: The system was unable to find the specified registry key or value.
ERROR: The system was unable to find the specified registry key or value.
ERROR: The system was unable to find the specified registry key or value.
ERROR: The system was unable to find the specified registry key or value.
=====
Check for Java version
java version "1.8.0_144"
Java(TM) SE Runtime Environment (build 1.8.0_144-b01)
Java HotSpot(TM) 64-Bit Server VM (build 25.144-b01, mixed mode)
=====
Check for Task Job
ERROR: The system cannot find the file specified.
=====
Press any key to continue . . . _
```

Note: The Java JRE 1.8 version in the screenshot above would change based on the 1.8.0_xx installed on the server.

4.8. Starting or stopping the FDAMedGuidePrinterTask task manually

After installing and configuring the FDA Med Guides Printer Tool system, it is strongly recommended to perform a server reboot to start the FDAMedGuidePrinterTask task—the task is configured to start with the system. However, the task can be started or stopped manually.

The procedure appears in the following screen captures. To start the task, select **Run** from the pop-up menu. To stop the task, select **End**. To confirm that the task is running, see the text indicated in the Status column. Ready means that the task is active, but not running. Running means that the task is running.

Figure 40: FDAMedGuidePrinterTask Task Listed in the Task Scheduler

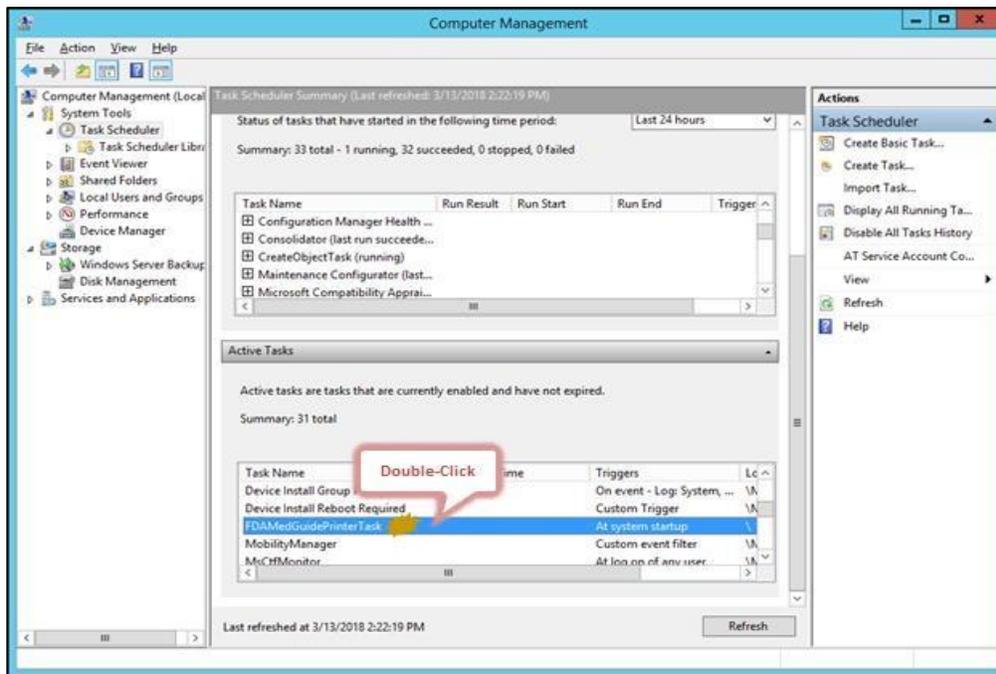


Figure 41: Select Task and Open Menu

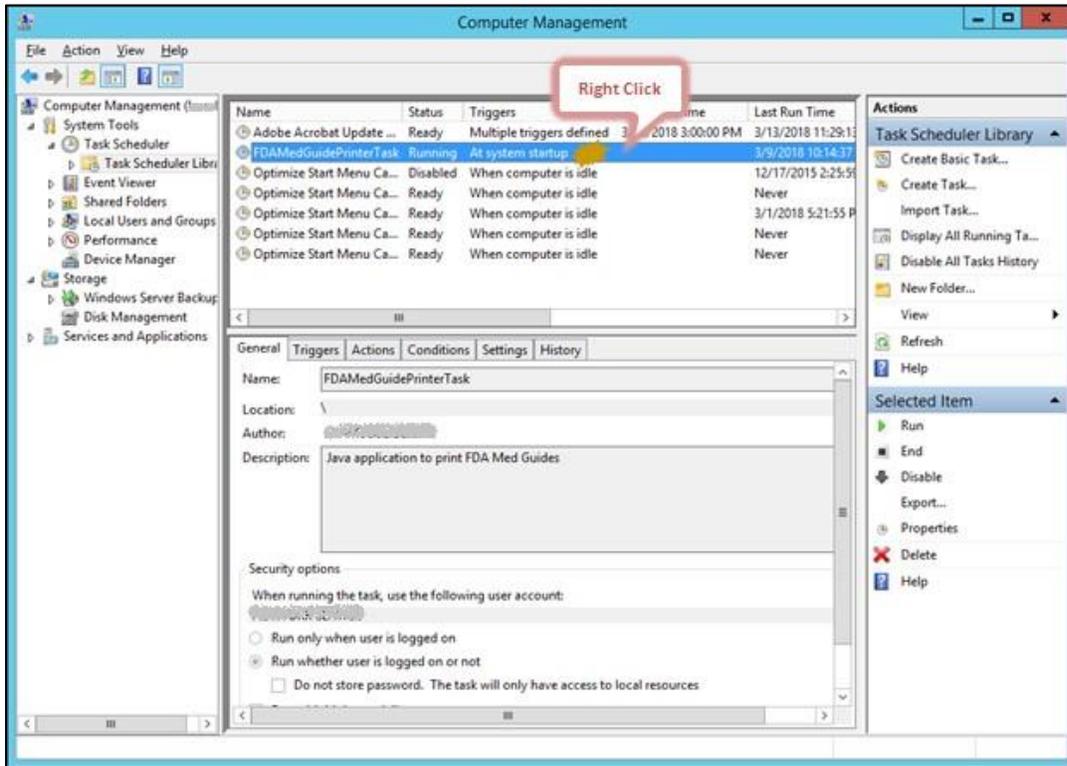


Figure 42: Task Menu Option Run

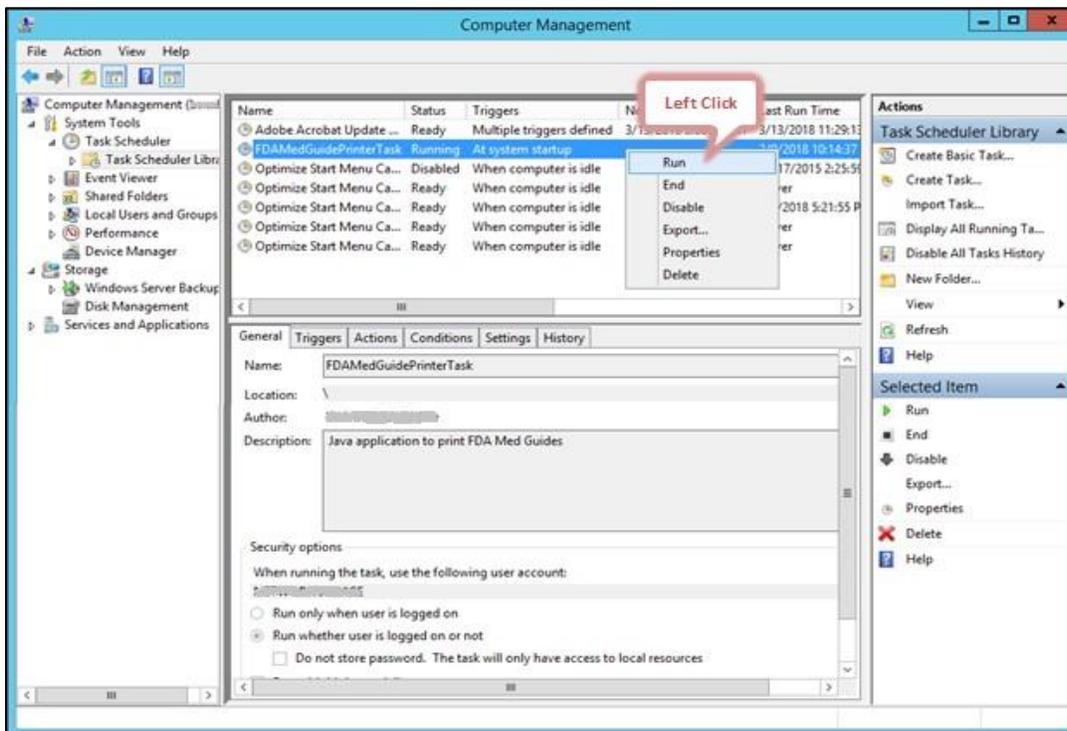
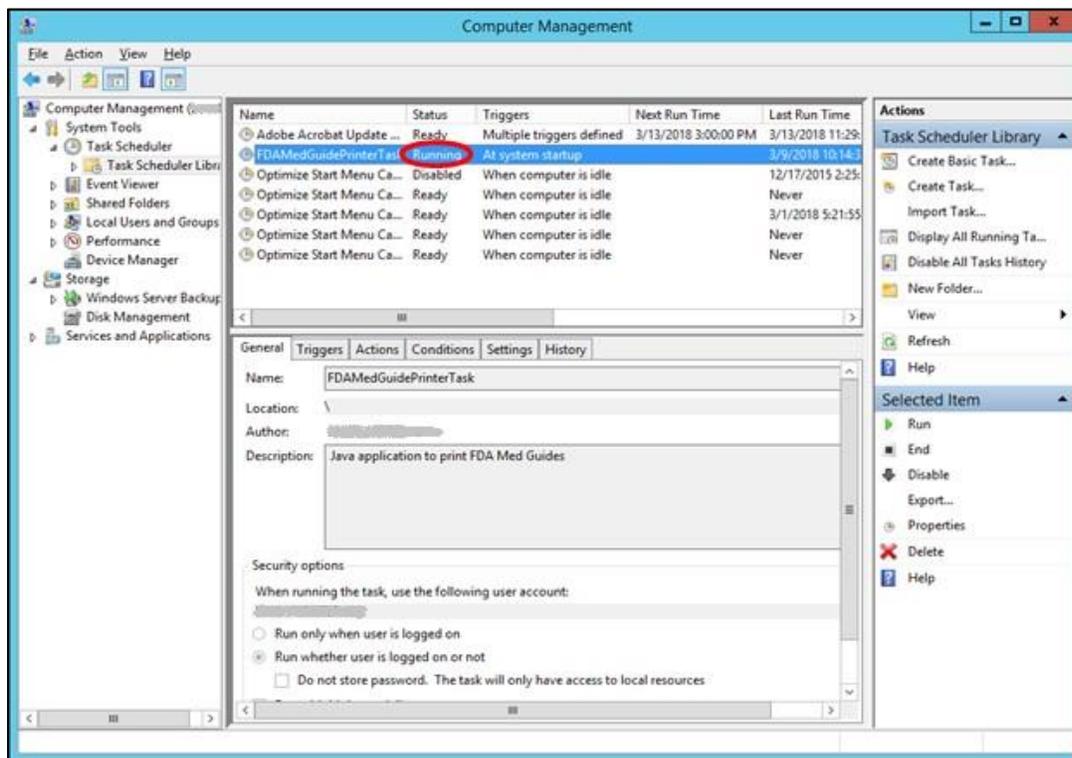


Figure 43: Task Shown in Running State



4.9. Steps to Install a Network Printer via a Local Spooler

To add a Network printer via a Local spooler:

Navigate to Control Panel > Hardware > Devices and Printers

Select Add a Printer

Select Add a local or network printer as an administrator

Select Add a local printer

Select Create a new port

Type of port: Local Port

Select Next

Enter a port name: Enter the IP address of the Network Printer

Select Ok

Select the correct printer driver for the network printer

Select Next

Select Use the driver that is currently installed (recommended) OR as appropriate for the machine

Type a printer name: Enter a printer name

Note: This will later be added to the VistA Device File (#3.5) entry in the **WINDOWS NETWORK PRINTER NAME** field (#75).

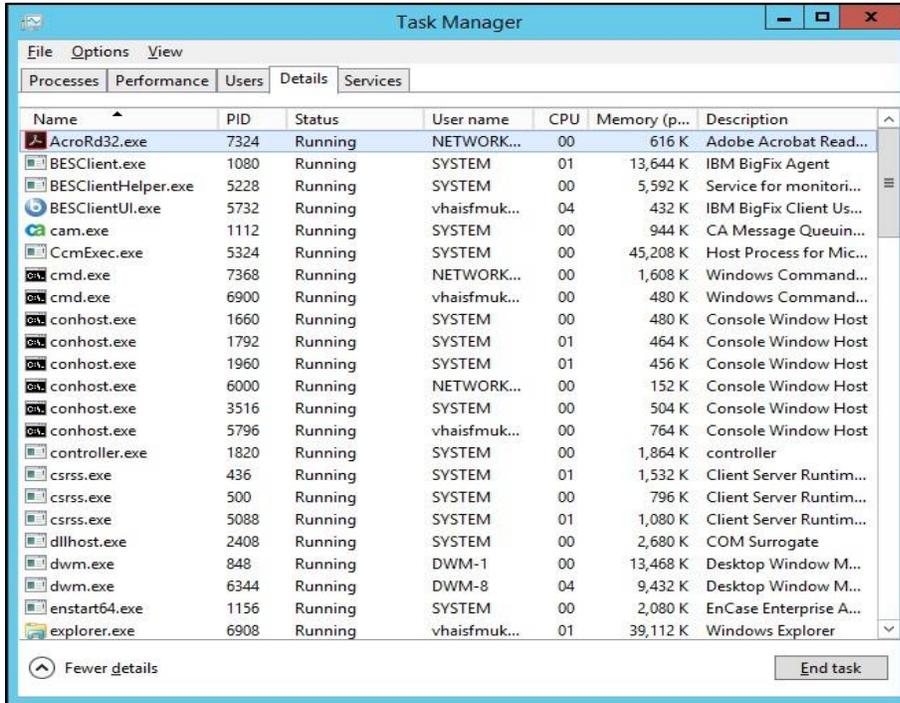
Select Next

Select Share this printer...

Select Next and then Finish

Note: At this point, test the FDA Med Guides Printer Tool by sending a print request. A test is successful if the expected output is found at the destination printer.

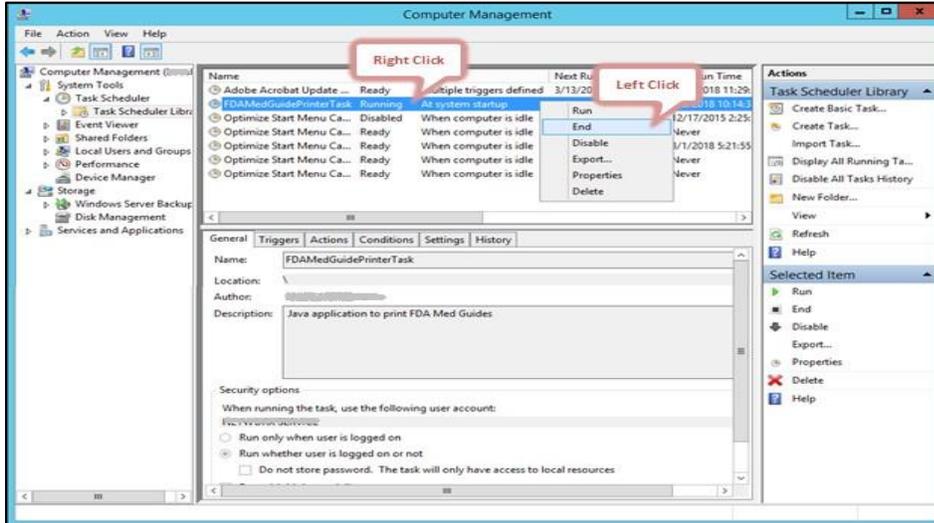
Figure 44: Adobe Reader DC is listed in the Task Manager After a Print Job Request is Sent



5. Back-out/Uninstall Procedures

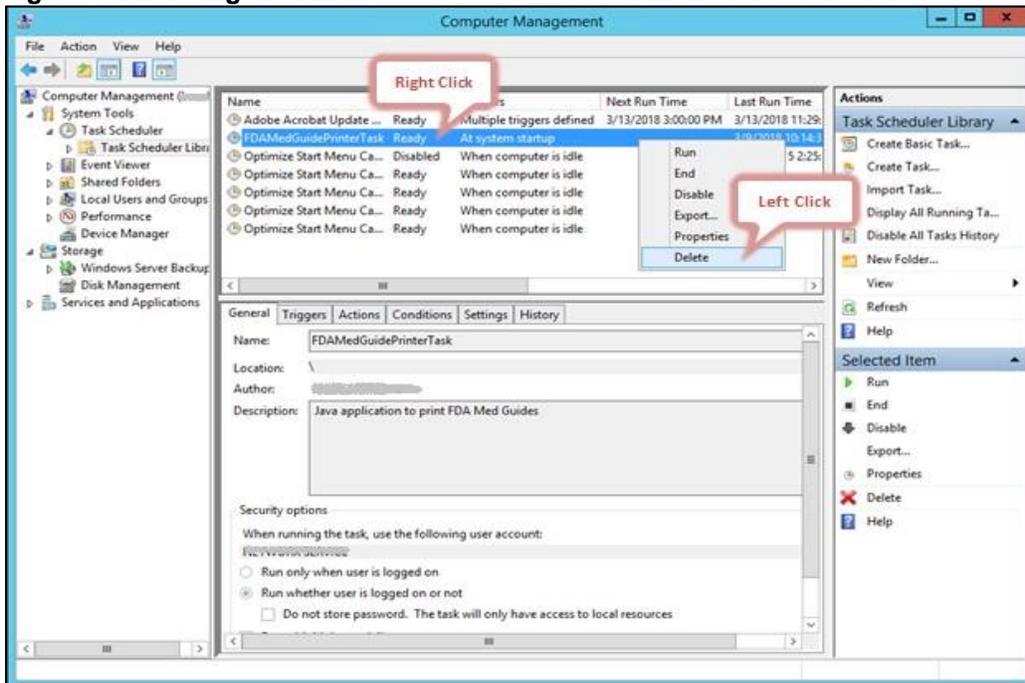
Stop the FDAMedGuidesPrinterTask task in the Task Scheduler.

Figure 45: Stopping the FDAMedGuidesPrinterTask in the Task Scheduler



Delete the FDAMedGuidesPrinterTask task from the Scheduler list.

Figure 46: Deleting the FDAMedGuidesPrinterTask in the Task Scheduler

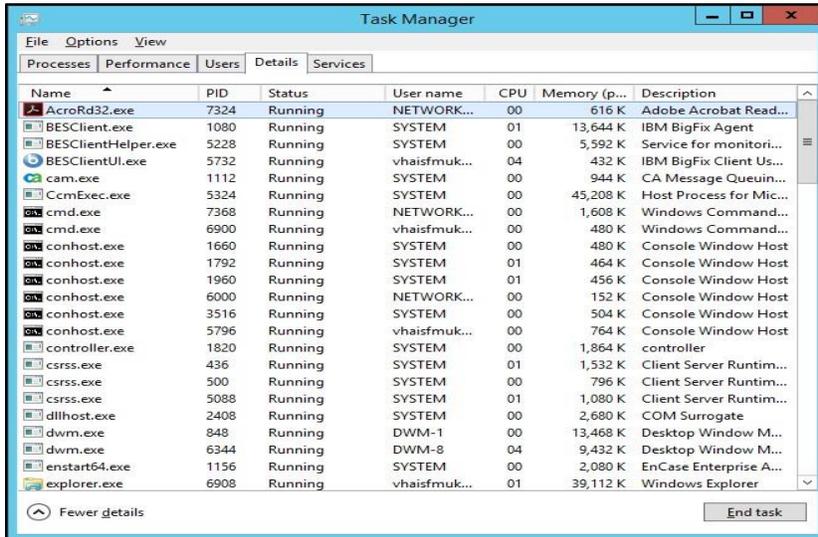


In the Task Manager:

Select the Details tab.

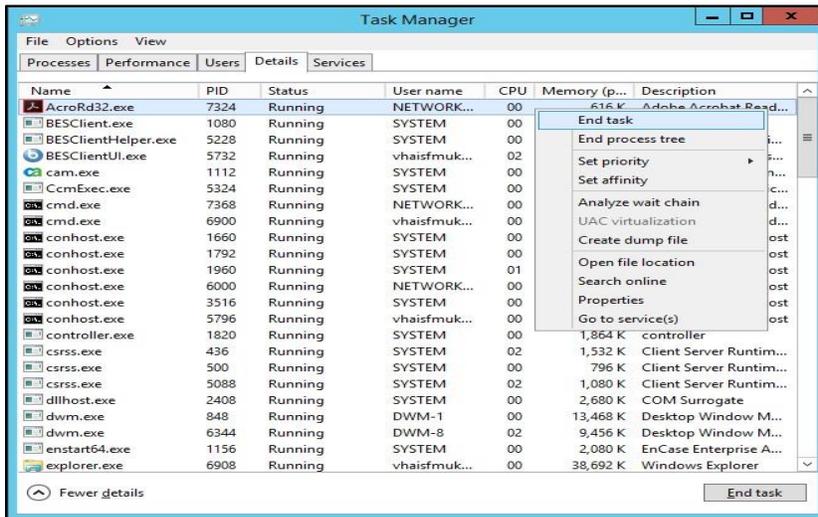
Find the task named AcroRd32.exe running under the FDA Med Guides user account (that is, the account used to run the FDAMedGuidePrinter Task).

Figure 4714 Acrobat Reader process in the Task Manager



Right-click and select End Task. Select End Process in the conformation dialog.

Figure 48: Deleting Acrobat Reader process in the Task Manager



Find the task named java.exe running under the FDA Med Guides user account. Right-click and select End Process. Select End Process in the conformation dialog.

Delete the C:\FDAMedGuidesPrinter folder and all its contents.

6. Upgrading to a new version of Automatic Printing

Uninstall the old version of FDA Med Guides as shown in Section 5.

Do not uninstall the Java 1.8.

Uninstall out of date version of Adobe Reader DC.

Install TRM compliant version of Adobe Reader DC by following the instructions given in Section 2.3.3.

Follow the installation steps in Section 4 to install the new version of FDA Med Guides Automatic Printing.

7. Troubleshooting

If you encounter errors in this system, they are likely to be deployment-related malfunctions. Using Adobe Reader in a non-interactive fashion risks encountering a Server 2008 condition known as Session 0 Isolation. Similarly, using the Network Service account for the FDAMedGuidePrinterTask task has risks that the task may not have sufficient permissions to access needed network resources, like printers or the CMOP Portal. These two risks are the most likely source of a malfunction. The main symptoms are:

No output reaches the destination printer spool.

No file is downloaded to the C:\FDAMedGuidesPrinter\workspace\medguides folder from the CMOP Portal.

No temporary PDF file is created in the C:\FDAMedGuidesPrinter\workspace\temp folder.

Adobe Reader isn't responding or is responding incorrectly. Again, the symptom is that no output reaches the destination printer spool.

The user assigned to the FDAMedGuidePrinterTask task is unable to connect to CMOP.

Note:	One useful troubleshooting technique is to run the FDA Med Guides Printer Tool while bypassing the FDAMedGuidePrinterTask task. This is done in interactive mode by logging in as an interactive user and following these steps:
	<ol style="list-style-type: none">1) End the FDAMedGuidePrinterTask task, if it is running.2) Start the C:\FDAMedGuidesPrinter\START_fda_med_guides_automatic_printing .bat batch file.

The following sections list the possible malfunctions and remedies.

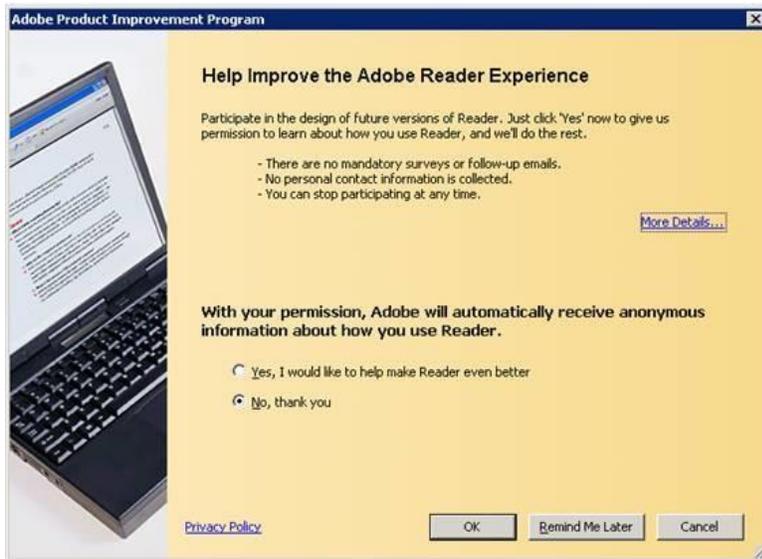
7.1. Session 0 Isolation

Session 0 Isolation is a new security feature in Windows 7 and Windows Server 2008 or 2012. It affects non-interactive sessions by restricting a program's ability to interact with the console. This feature directly affects the way that Adobe Reader is used in this system. A problem may occur when Adobe Reader presents interactive dialogs while expecting a user response.

These events are rare and occur as a result of a new Adobe Reader installation or upgrade. Typically, these are the request to agree to a EULA or a Product Improvement Program opt-in message. Session 0 Isolation is complex and is explained in the links below.

The installation step labeled “Import customized Adobe Reader Windows Registry settings” addresses this problem by importing Registry keys that prevent known prompting events. These Registry settings are bound to individual user accounts and must be applied to the user account selected to control the FDAMedGuidePrinterTask task. You may need to make adjustments to the NetworkServiceTaskSettings.reg file to reflect the correct user account.

Figure 49 Example Adobe Reader Prompt to User



Symptom	Possible solution
Adobe Reader doesn't seem to respond to print requests.	Log on as an interactive user and determine whether Adobe Reader is requesting a response from the user.

This interaction is not visible to the non-interactive user, giving the impression that the med guide’s application is malfunctioning. Therefore, no output is generated at the printer spool. The server’s system administrator must identify the user account associated with the FDA Med Guides scheduled task, log on as that user, start Adobe Reader manually, and respond to all prompts generated. For Network Service, this can only be resolved via Registry adjustments on that account

Figure 50 Session 0 Isolation Symptom Message



The following Web links offer information on this topic.

<http://msdn.microsoft.com/en-us/gg465126>

<http://blogs.technet.com/b/askperf/archive/2007/04/27/application-compatibility-session-0-isolation.aspx>

<http://msdn.microsoft.com/en-us/library/bb756986.aspx>

<http://www.beingmanan.com/wp/2008/06/create-uac-white-list/>

<http://msdn.microsoft.com/enus/windows/hardware/gg463353.aspx>

7.2. Cannot find Adobe Reader DC

Symptom	Possible solution
An error indicates that Adobe Reader DC executable can't be located.	Verify that the path pointing to the Reader executable is correct in the C:\FDAMedGuidesPrinter\fda_med_guides.properties file

7.3. Cannot download Med Guides from CMOP Portal

If a med guide request is made and no med guide file appears in

C:\FDAMedGuidesPrinter\workspace\medguides, the application is likely unable to connect to the CMOP SharePoint site. Reasons for this to occur are as follows:

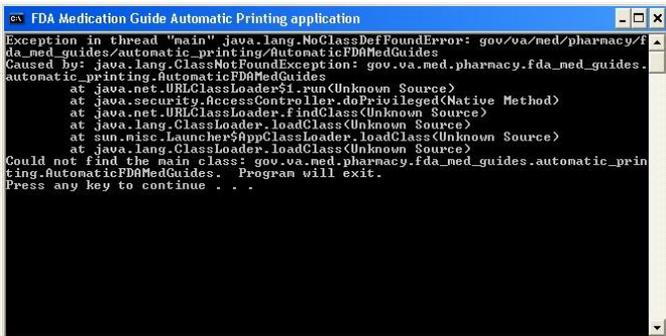
Symptom	Possible solution
CMOP site is down	Try again later.
User assigned to task has insufficient privileges to access CMOP site.	Adjust permissions or create a new user with appropriate access.
Unable to write downloaded med guide to local folder.	Confirm that user has write access to folder.
An error page is printed instead of the expected med guide.	The med guide name is invalid or the med guide PDF file doesn't exist at the CMOP Portal. Verify that the PDF file exists, or that the PDF file name indicated in the print request is correct.
Java uninstall/reinstall	If Java is uninstalled and reinstalled on the FDA Med Guides print server, execute the following SSL script to add CMOP SSL certificate to the Java trust store. C:\FDAMedGuidesPrinter\installation\SSL_Certificate_installation.bat

Adobe Acrobat Reader uninstall/reinstall	<p>If the Adobe Acrobat Reader is uninstalled and reinstalled on the FDA Med Guides print server, execute the following scripts to add Adobe keys to the Windows registry and to verify the FDA Med Guides installation.</p> <ul style="list-style-type: none"> • C:\FDAMedGuidesPrinter\installation\NetworkServiceTaskSettings.reg • C:\FDAMedGuidesPrinter\installation\Verify_installation.bat
--	--

7.4. Nothing is sent to the destination printer spool

Symptom	Possible solution
Adobe Reader DC is malfunctioning	Using Task Manager, kill any AcroRd32.exe processes belonging to the pertinent user account.
Destination printer name in med guide request is incorrect	Verify that the printer name is correct.

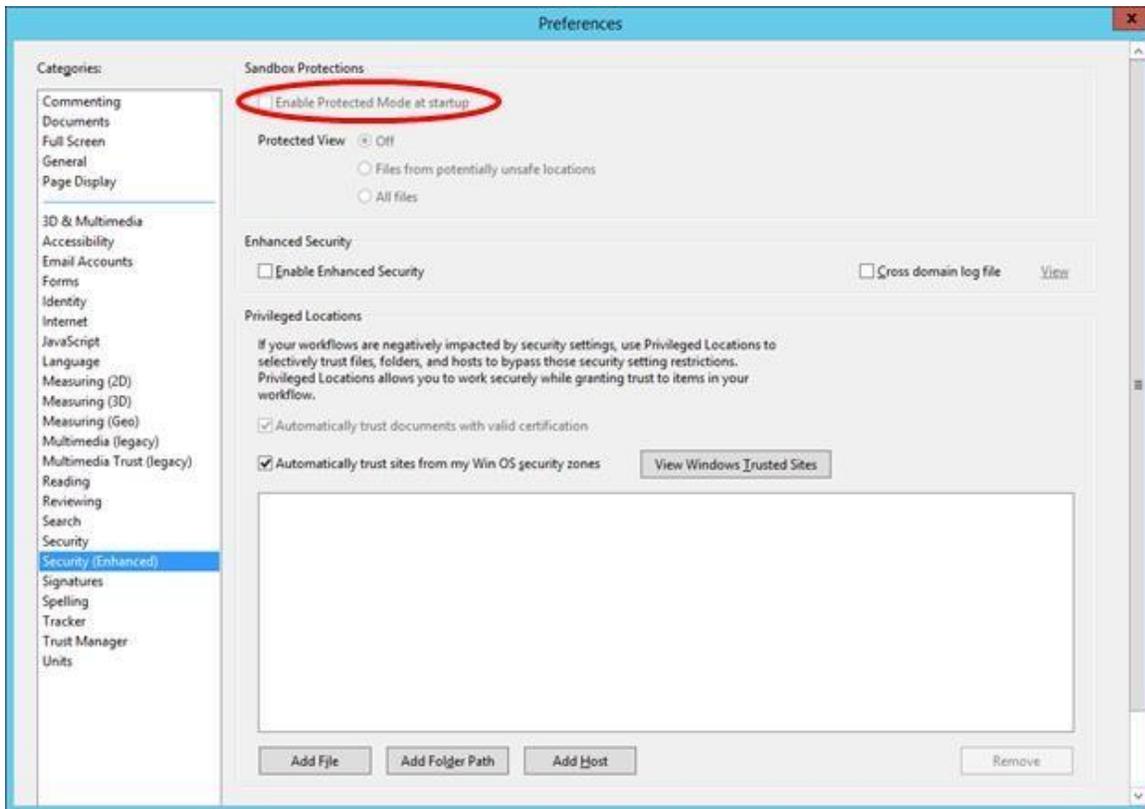
7.5. Exception when running batch file

Symptom	Possible solution
<p>Invoking the START_fda_med_guides_automatic_printing.bat batch file fails to start the Java application and indicates: Exception in thread "main" java.lang.NoClassDefFoundError</p> <p>Figure 51 JAR File Error</p> 	Verify that paths indicated in batch and properties files are correct, particularly the path to the JAR file.

7.6. Protected Mode is enabled in Adobe Reader DC

If you are using the Network Service account, you can skip this procedure--this setting is already toggled off by the Registry settings import procedure listed above. If you are using any other account, Protected Mode is toggled on by default in Adobe Reader DC. This setting interferes with the proper functioning of the Java component, so you must toggle it off while logged on as that account.

Figure 52 Disabling Protected Mode at Startup



7.7. Network Service account and Adobe Reader 9

There is a known “ROAMING PROFILE” issue with Adobe Reader 9.x that causes it to malfunction under certain circumstances while assigning the NETWORK SERVICE account to the FDAMedGuidePrinterTask task. For this reason, Adobe Reader 9.x is not recommended for this application. Use a TRM approved version Adobe Reader DC instead.

7.8. Reinstall SSL Certificate

If Java/JRE is reinstalled, the CMOP SSL certificate also needs to be reinstalled according to the instructions given in Section 4.4.

7.9. Issues with Network Service account

When the FDAMedGuidePrinterTask is run under the NETWORK SERVICE account:

If there are delays in printing or if the Med Guides do not print, a Domain Service account with the highest privileges should be created and used instead of using the NETWORK SERVICE account.

If Domain Service account cannot be created, the FDAMedGuidePrinterTask can be run under the Administrator account. This would require the Administrator to be logged in, while the task is running. This is not a recommended approach.

7.10. Printing Issues

If you experience print issues or delays with the NETWORK SERVICE account, we strongly recommend that you use a Domain Service account created for the FDA Med Guides Automatic Printing application. This account needs to have Administrative privileges on the server.

Add the NETWORK SERVICE account or the Service account to the Server Security Admin group so that it has permissions to invoke Acrobat and send print jobs to the network printers.

Check if the NETWORK SERVICE account or the Service account has permissions to access the printer.

Add NETWORK SERVICE account or the Service account to the 'Users' and 'Print Operators' groups.

Figure 53 Add Service account to Administrators, Users and Print Operators groups

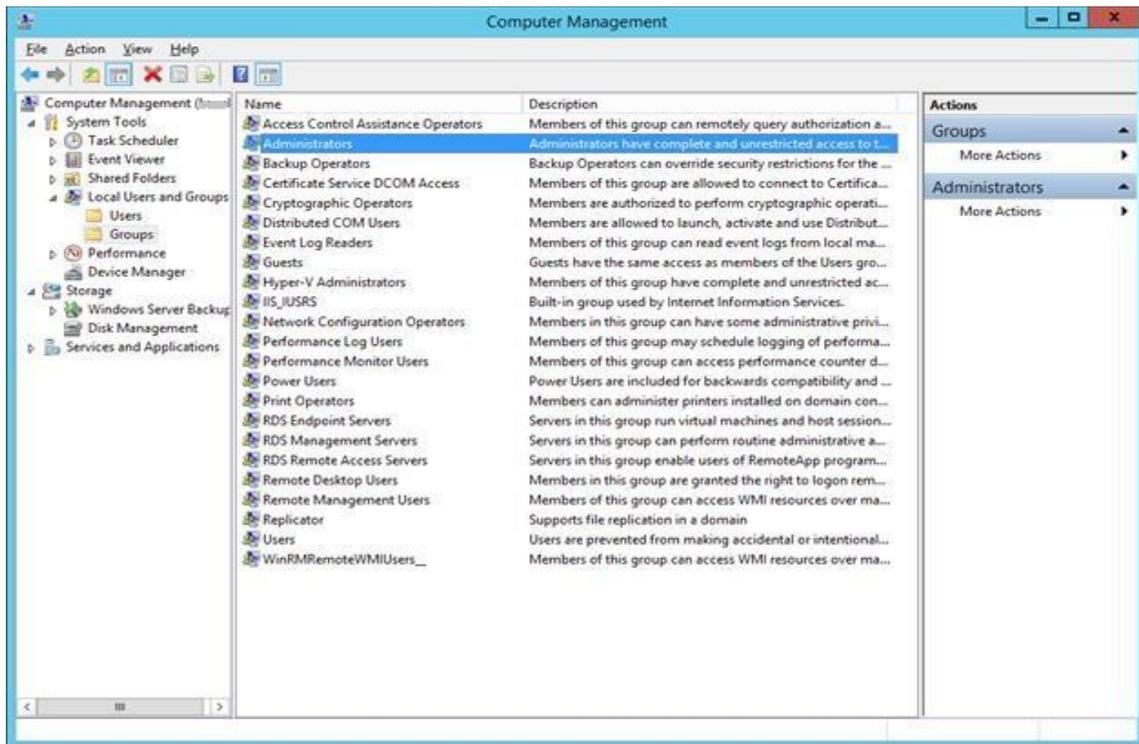
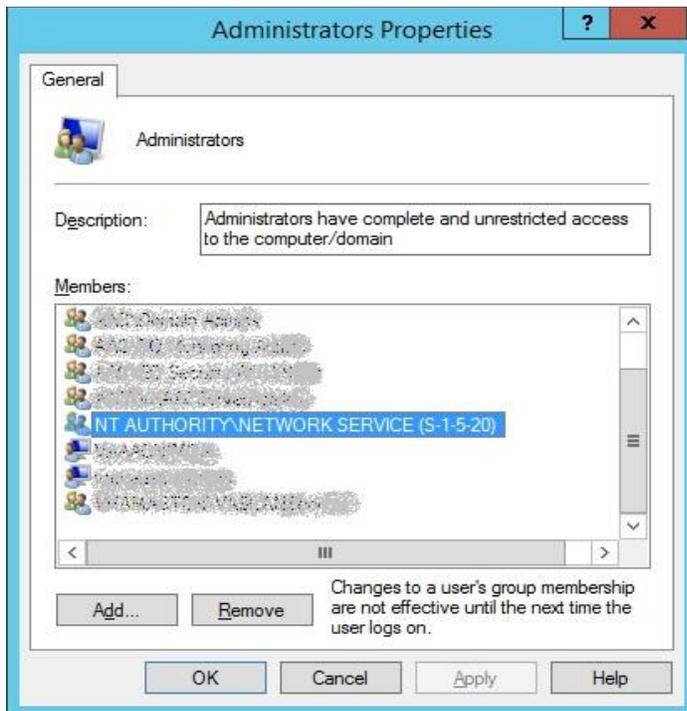
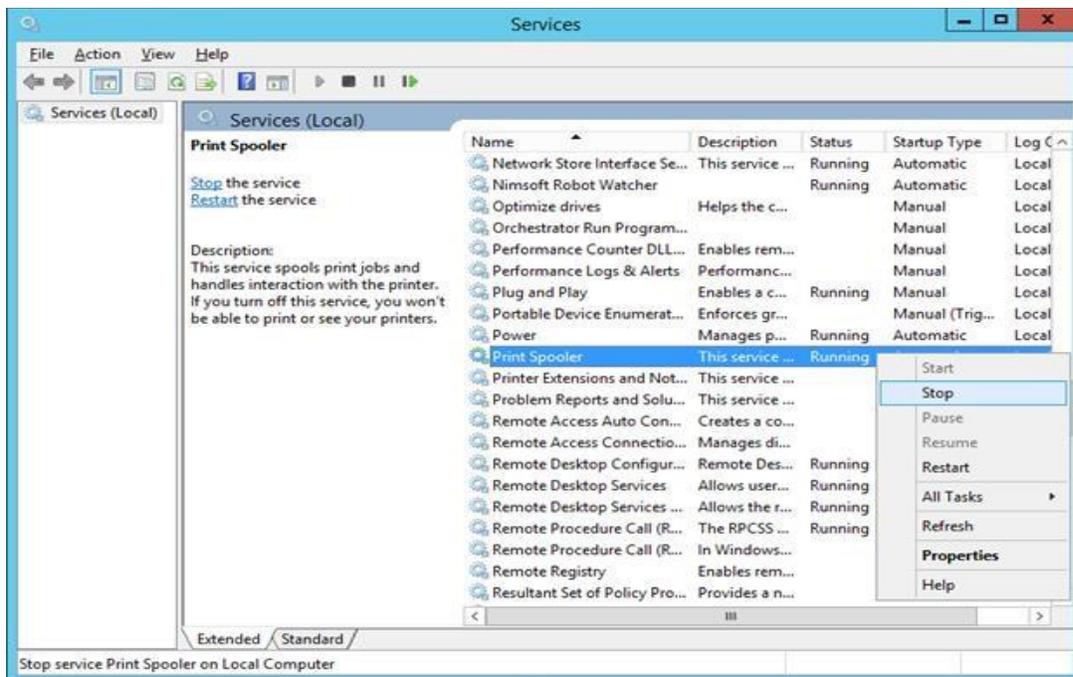


Figure 54 Example of adding the NETWORK SERVICE account to Administrators group



If Med Guides appear in the temp folder but do not go to the printer queue, go to Services and stop the Print Spooler service and start it again.

Figure 55 Restarting Print Spooler service



Restart FDAMedGuidePrinterTask

Go to Task Scheduler and stop the FDAMedGuidePrinterTask task by selecting **End**.

Go to Windows Task Manager. Find any AcorRd32.exe and java.exe tasks running under the NETWORK SERVICE account or the Service account and stop them by selecting **End Process**.

Go to Task Scheduler again and start the FDAMedGuidePrinterTask task by selecting **Run**.

7.11. Nightly Server Reboot recommendation

Given the number of Med Guides that are printed each day and due to the load on the server, it is recommended that the Windows server be rebooted every night to free up resources and to cleanup any hung tasks.

7.12. Increase the priority of java.exe and AcroRd32.exe

Run a PowerShell script that increases the priority of java.exe and AcroRd32.exe from **Below Normal** to **High**. This may speed up the execution of printing under the NETWORK SERVICE account. Below are the lines to run in PowerShell. This needs to be run after the server starts the FDAMedGuidePrinterTask task.

```
$processname="java.exe"
```

```
$process=Get-WmiObject win32_process -f "name='$processname'"
```

```
$process.SetPriority(128)
```

```
$processname="AcroRd32.exe"
```

```
$process=Get-WmiObject win32_process -f "name='$processname'" $process.SetPriority(128)
```

Appendix

After extracting the contents of the ZIP file, the below FDA Med Guides Printer folder structure and files should be available on the C:\ drive.

Path	Type	Description
C:\FDAMedGuidesPrinter	Folder	Main folder. Root folder for application files. These include the JAR, batch and properties files.
C:\FDAMedGuidesPrinter\lib	Folder	Sub-folder containing supporting third-party Java libraries
C:\FDAMedGuidesPrinter\installation	Folder	Folder containing predefined configuration files

C:\FDAMedGuidesPrinter\installation\CMOP_SSL_Certificate	Folder	Folder containing CMOP SSL certificate
C:\FDAMedGuidesPrinter\workspace	Folder	Workspace main folder.
C:\FDAMedGuidesPrinter\workspace\medguides	Folder	Path to med guides local repository. Folder contains copies of original FDA Med Guides as downloaded from the CMOP Portal Site.
C:\FDAMedGuidesPrinter\workspace\temp	Folder	Path to area for temporarily processing stamped med guides. Folder contains scratch files of altered med guides
C:\FDAMedGuidesPrinter\START_fda_med_guides_automatic_printing.bat	Batch file	Batch file to initiate the FDA Med Guides Printer Tool Java program
C:\FDAMedGuidesPrinter\fda_med_guides.properties	Configuration file	User-configurable items for the FDA Med Guides Printer Tool
C:\FDAMedGuidesPrinter\fda_med_guides_logging.properties	Configuration file	User-configurable items for the logging engine
C:\FDAMedGuidesPrinter\fda_med_guides_automatic_printing_1.0.1.0.jar	Java archive	Main jar file containing all Java code for the FDA Med Guides Printer Tool
C:\FDAMedGuidesPrinter\installation\SSL_Certificate_installation.bat	Batch file	Batch file to add CMOP SSL certificate to the Java trust store and set JRE_HOME
C:\FDAMedGuidesPrinter\installation\CMOP_SSL_Certificate\VA-Internal-S2-RCA1-v1.cer	Certificate file	SSL Certificate that is issued by VA which will be added to the Java trust store

C:\FDAMedGuidesPrinter\installation\FDAMedGuidePrinterTask.xml	XML file	Configuration file used to create the FDAMedGuidePrinterTask task
C:\FDAMedGuidesPrinter\installation\NetworkServiceTaskSettings.reg	Windows Registry import file	Configuration file used to set up the Adobe Reader DC setting for use by the NT AUTHORITY\NETWORKS ERVICE user
C:\FDAMedGuidesPrinter\installation\Verify_installation.bat	Batch file	Batch file used to confirm a successful deployment of the FDA Med Guides Printer Tool
Path	Type	Description
C:\FDAMedGuidesPrinter\lib\commons-io-2.4.jar	Java archive	Supporting third-party Apache Commons Java library
C:\FDAMedGuidesPrinter\lib\commons-lang3-3.3.2.jar	Java archive	Supporting third-party Apache Commons Java library
C:\FDAMedGuidesPrinter\lib\commons-logging-1.1.3.jar	Java archive	Supporting third-party Apache Commons Java library
C:\FDAMedGuidesPrinter\lib\fontbox-1.8.5.jar	Java archive	Supporting third-party PDFBox Java library.
C:\FDAMedGuidesPrinter\lib\jempbox-1.8.5.jar	Java archive	Supporting third-party PDFBox Java library.
C:\FDAMedGuidesPrinter\lib\pdfbox-1.8.5.jar	Java archive	Supporting third-party PDFBox Java library.

Log files in folder C:\FDAMedGuidesPrinter	*.log	Log files are used for debugging purposes only and are created AFTER the initial use of the program.
C:\FDAMedGuidesPrinter\installation\net.properties	JAVA properties file	JAVA Properties file for controlling access to network hosts from JAVA processes.