VistA Imaging Exchange (VIX) VIX Enhancements

MAG*3.0*348

VIX Installation Guide

January 2024

Version 47.5

Department of Veterans Affairs (VA)

Office of Information Technology (OIT)

VistA Imaging Product Development
Department of Veterans Affairs
Internet: https://www.va.gov/health/imaging/
VA intranet: REDACTED

Revision History

Date	Revision	Description	Author
01/08/2024	47.5	Updates to Updating an Existing VIX.	VA IT VistA Imaging Technical team
01/02/2024	47.4	Updates to Updating an Existing VIX.	VA IT VistA Imaging Technical team
12/01/2023	47.3	Updates to Updating an Existing VIX.	VA IT VistA Imaging Technical team
11/21/2023	47.2	Updates to Updating an Existing VIX.	VA IT VistA Imaging Technical team
11/01/2023	47.1	Updates to Updating an Existing VIX.	VA IT VistA Imaging Technical team
10/01/2023	47.0	Initial draft for MAG*3.0*348.	VA IT VistA Imaging Technical team
05/01/2023	46.5	Updates to Updating an Existing VIX.	VA IT VistA Imaging Technical team
04/19/2023	46.4	Updates to Installing a New VIX, Updating an Existing VIX, and Post-Installation for New VIX Installations and Updating Existing VIX Installations.	VA IT VistA Imaging Technical team

Date	Revision	Description	Author
04/13/2023	46.3	Updates to Installing a New VIX, Troubleshooting, and Back Out/Uninstall.	VA IT VistA Imaging Technical team
04/03/2023	46.2	Updates to Installing a New VIX, Updating an Existing VIX, and Post-Installation for New VIX Installations and Updating Existing VIX Installations.	VA IT VistA Imaging Technical team
03/23/2023	46.1	Updates to Installing a New VIX and Updating an Existing VIX.	VA IT VistA Imaging Technical team
03/20/2023	46.0	Updates to Installing a New VIX and Updating an Existing VIX.	VA IT VistA Imaging Technical team
03/15/2023	45.9	Updates to Installing a New VIX and Updating an Existing VIX.	VA IT VistA Imaging Technical team
03/09/2023	45.8	Updates to Installing a New VIX and Updating an Existing VIX.	VA IT VistA Imaging Technical team
03/03/2023	45.7	Updates to Installing a New VIX, Updating an Existing VIX, and Enable MUSE Functionality Appendix.	VA IT VistA Imaging Technical team
02/17/2023	45.6	Updates to Installing a New VIX, Updating an Existing VIX, and Enable MUSE Functionality Appendix.	VA IT VistA Imaging Technical team
02/13/2023	45.5	Updates to Installing a New VIX and Updating an Existing VIX.	VA IT VistA Imaging Technical team
02/13/2023	45.4	Updates to Installing a New VIX and VIX Install Checklist.	VA IT VistA Imaging Technical team
02/03/2023	45.3	Updates to Installing a New VIX, Updating an Existing VIX, and Post-Installation for New VIX Installations and Updating Existing VIX Installations.	VA IT VistA Imaging Technical team
01/14/2023	45.2	Updates to Updating an Existing VIX.	VA IT VistA Imaging Technical team

Date	Revision	Description	Author
01/09/2023	45.1	Fixed a typo.	VA IT VistA Imaging Technical team
12/15/2022	45.0	Initial draft for MAG*3.0*329.	VA IT VistA Imaging Technical team
11/03/2022	44.7	Updates to Updating an Existing VIX, Post-Installation for New VIX Installations and Updating Existing VIX Installations, and Troubleshooting/Reconfiguration.	VA IT VistA Imaging Technical team
10/27/2022	44.6	Updates to Updating an Existing VIX and SQL Server Removal.	VA IT VistA Imaging Technical team
10/07/2022	44.5	Updates to Installing a New VIX.	VA IT VistA Imaging Technical team
10/06/2022	44.4	Updates to Installing a New VIX, Updating an Existing VIX, and Post-Installation for New VIX Installations and Updating Existing VIX Installations.	VA IT VistA Imaging Technical team
10/05/2022	44.3	Updates to Post-Installation for New VIX Installations and Updating Existing VIX Installations.	VA IT VistA Imaging Technical team
09/19/2022	44.2	Revisions to Preparing for a New VIX Installation.	VA IT VistA Imaging Technical team
09/16/2022	44.1	Updates for MAG*3.0*303 based on review.	VA IT VistA Imaging Technical team
08/25/2022	44.0	Initial draft for MAG*3.0*303.	VA IT VistA Imaging Technical team
06/07/2022	43.4	Revisions to Service Account Settings Appendix.	VA IT VistA Imaging Technical team
06/03/2022	43.3	Updates for MAG*3.0*269 release date.	VA IT VistA Imaging Technical team

Date	Revision	Description	Author
05/26/2022	43.2	Revisions to Installing a New VIX, Updating an Existing VIX, Post Installation Instructions, Troubleshooting, and Service Account Settings Appendix.	VA IT VistA Imaging Technical team
05/12/2022	43.1	Revisions to Installing a New VIX, Updating an Existing VIX, Post Installation Instructions, and Troubleshooting.	VA IT VistA Imaging Technical team
05/11/2022	43.0	Revisions to Service Account Settings Appendix.	VA IT VistA Imaging Technical team
05/10/2022	42.9	Revisions to Installing a New VIX, Updating an Existing VIX, and Post Installation Instructions.	VA IT VistA Imaging Technical team
04/20/2022	42.8	Revisions to Installing a New VIX and Updating an Existing VIX.	VA IT VistA Imaging Technical team
03/18/2022	42.7	Revisions to Updating an Existing VIX, and Post Installation Instructions.	VA IT VistA Imaging Technical team
02/22/2022	42.6	Revisions to Updating an Existing VIX, and Post Installation Instructions.	VA IT VistA Imaging Technical team
02/10/2022	42.5	Revisions to Updating an Existing VIX, and Post Installation Instructions.	VA IT VistA Imaging Technical team
02/04/2022	42.4	Revisions to Installing a New VIX and Updating an Existing VIX, and Back Out/Uninstall Scenarios.	VA IT VistA Imaging Technical team
01/03/2022	42.3	Revisions to Installing a New VIX and Updating an Existing VIX.	VA IT VistA Imaging Technical team
12/10/2021	42.2	Revisions to Installing a New VIX and Updating an Existing VIX.	VA IT VistA Imaging Technical team
11/16/2021	42.1	Incorporated comments from reviewers for MAG*3.0*269, Revisions to Installing a New VIX, Updating an Existing VIX, Back Out/Uninstall Scenarios, & Appendices. Reduced image file sizes.	VA IT VistA Imaging Technical team

Date	Revision	Description	Author
09/03/2021	42.0	Update for MAG*3.0*269, Revisions to Installing a New VIX and Updating an Existing VIX.	VA IT VistA Imaging Technical team
09/02/2021	41.0	Updates for MAG*3.0*284	REDACTED
04/06/2021	40.4	Additional Updates for MAG*3.0*254, Revisions to Installing a New VIX, Updating an Existing VIX, Post-Installation for New VIX Installations and Updating Existing VIX Installations.	VA IT Vista Imaging Technical team
03/17/2021	40.3	Additional Updates for MAG*3.0*254, Post-Installation for New VIX Installations and Updating Existing VIX Installations.	VA IT VistA Imaging Technical team
03/11/2021	40.2	Additional Updates for MAG*3.0*254, Back Out/Uninstall Scenarios.	VA IT VistA Imaging Technical team
02/24/2021	40.1	Additional Updates for MAG*3.0*254, Post-Installation for New VIX Installations and Updating Existing VIX Installations, & Appendices.	VA IT VistA Imaging Technical team
01/28/2021	40.0	Additional Updates for MAG*3.0*254, Revisions to Installing a New VIX, Updating an Existing VIX, Post-Installation for New VIX Installations and Updating Existing VIX Installations, & Appendices.	VA IT VistA Imaging Technical team
01/20/2021	39.0	Update for MAG*3.0*254, Revisions to Installing a New VIX, Updating an Existing VIX, Post-Installation for New VIX Installations and Updating Existing VIX Installations, & Appendix A.	VA IT VistA Imaging Technical team
05/29/2020	38.0	Update for MAG *3.0*249, Addition of PowerShell Verification section, Revisions to Pre-Installation Configuration - Backup Copies and Tomcat User Permissions section.	REDACTED
05/26/2020	37.0	Revisions for Zip/Unzip, Manual restart sections, Figure headings, Post-Installation for New VIX Installations and Updating Existing VIX Installations & Appendix A.	REDACTED

Date	Revision	Description	Author
03/16/2020	36.0	Update for MAG*3.0*249, 508 compliant.	REDACTED
08/16/2019	35.5	Update for T3 Build.	REDACTED
08/02/2019	35.0	Update for MAG*3.0*230.	REDACTED
05/20/2019	34.0	Update to save VIX configuration settings.	REDACTED
04/29/2019	33.0	Update to save VIX configuration settings.	REDACTED
04/05/2019	32.0	Updated for MAG*3.0 221 T5 Updates.	REDACTED
03/22/2019	31.0	Updated for MAG*3.0 221 T4.	REDACTED
03/01/2019	30.0	Updated for MAG*3.0 221 T4.	REDACTED
02/22/2019	29.0	Updated for MAG*3.0 221.	REDACTED
02/01/2019	28.0	Updated for MAG*3.0 201 T9.	REDACTED
11/19/2018	27.0	Updated for MAG*3.0*201.	REDACTED
09/27/2018	26.0	Additional MAG*3.0*197 Updates.	REDACTED
08/21/2018	25.0	Additional MAG*3.0*197 Updates.	REDACTED
08/14/2018	24.0	Additional MAG*3.0*197 Updates.	REDACTED
07/26/2018	23.0	Additional MAG*3.0*197 Updates.	REDACTED
07/06/2018	22.0	Updated for MAG*3.0*197.	REDACTED
06/21/2018	21.0	Additional MAG*3.0*197 Updates.	REDACTED
05/25/2018	20.0	Additional MAG*3.0*197 Updates.	REDACTED
03/13/2018	19.0	Additional MAG*3.0*197 Updates.	REDACTED
01/26/2018	18.0	Updated for MAG*3.0*197.	REDACTED
01/25/2018	17.0	Additional MAG*3.0*185 Updates.	REDACTED
01/11/2018	16.0	Additional MAG*3.0*185 updates.	REDACTED
12/05/2017	15.0	Updated MAG*3.0*185 build numbers.	REDACTED
11/14/2017	14.0	Incorporated comments from reviewers regarding MAG*3.0*185.	REDACTED
10/25/2017	13.0	MAG*3.0*185 Updates.	REDACTED
10/03/2017	12.0	MAG*3.0*177 Updates.	REDACTED
08/01/2017	11.0	MAG*3.0*177 Updates.	REDACTED
07/26/2017	10.0	MAG*3.0*170 Updates.	REDACTED
07/05/2017	9.0	MAG*3.0*170 Installer Updates.	REDACTED

Date	Revision	Description	Author
04/27/2017	8.0	Updated port information.	REDACTED
03/24/2017	7.0	Date updates.	REDACTED
02/14/2017	6.0	Updated for MAG 3.0*170.	REDACTED
05/10/2016	5.0	Updated for MAG*3.0*162.	REDACTED
09/09/2013	4.0	Updated for MAG*3.0*130.	REDACTED
07/25/2013	3.0	Updated for MAG*3.0*034/116/118, MAG*3.0*119, MAG*3.0*127, MAG*3.0*129.	REDACTED
05/07/2012	2.0	Updated for MAG*3.0*122.	REDACTED
10/14/2011	1.0	Created for MAG*3.0*104. WPR complete Aug 31; labeled for release Oct 14.	REDACTED

Table of Contents

Table of Figures

Table of Tables

1. Introduction

This document explains how to install the VistA Imaging Exchange (VIX) service. Please follow the install checklist in *Appendix E: VIX Install Checklist* at the same time as you follow the main sections of this document. To do that, most people open two copies of this document at once.

1.1. Intended Audience

This document is intended for VA staff responsible for managing a local VIX, called *the VIX server* for the remainder of this document.

This document presumes a working knowledge of the VistA environment, VistA Imaging components and workflow, and Windows administration.

1.2. Document Conventions

This document uses the following conventions:

Controls, options, and button names are displayed in **Bold**.

A vertical bar is used to separate successive menu choices. For example: "Click **File** | **Open**" means: "Click the **File** menu; then click the **Open** option."

Keyboard key names are displayed in bold and in brackets.

Sample output is displayed in `monospace`.

Helpful information is denoted by a **TIP**.

Important or required information is displayed in a **NOTE**.

Critical information is indicated by:

1.3. Terms of Use

The VIX is a component of VistA Imaging and is regulated as a medical device by the Food and Drug Administration (FDA). Use of the VIX is subject to the following provisions:

 The FDA classifies VistA Imaging and the VIX (as VistA Imaging component) as a medical device. **Unauthorized modifications to VistA Imaging, including the VIX, such as installing unapproved software, adulterates the medical device.** The use of an adulterated medical device violates US federal law (21CFR820).

 Because software distribution/inventory management tools can install inappropriate or unapproved software without a local administrator's knowledge, sites must exclude the VIX server from such systems.

1.4. Related Information

In addition to this manual, the following document contains information about the VIX:

VistA Image Exchange (VIX) Administrator's Guide

2.   Installing a New VIX

This section explains how to implement a new VIX. The installation checklist in *Appendix E: VIX Install Checklist* summarizes the process.

TIP: If you are updating an existing VIX, do not use this section; instead, use the *Updating an Existing VIX* section.

2.1.   Preparing for a New VIX Installation

Preparing to install a new VIX involves:

- Configuring the MUSE interface. This requires the MUSE username, MUSE password, MUSE port, and MUSE protocol for the site's online MUSE server. If the MUSE username, password, port, and protocol are not documented in existing site VistA Imaging documentation, please contact the local BioMed team or MUSE administrator for the information.
- Acquiring Installation File. Copy MAG3_0P348_VIX_SETUP.msi to C:\temp. (Download if required. See the patch description of the patch for the download location.)
- Selecting and validating the server where the VIX gets installed, see *Selecting and Validating the VIX Server*.
- Getting VIX component licenses, see *Getting VIX Component Licenses*.
- Getting a VIX security certificate, see *VIX Security Certificate*.
- Java Version Verification, see *Java Version Verification*.
- LibreOffice Verification, see *LibreOffice Verification*.

NOTE: Please ensure you have scheduled a downtime of VIX services. It may take 1-2 hours to complete.

Please restart the server, before installing a new VIX.

Specifics are covered in the following sections.

2.1.1.   Selecting and Validating the VIX Server

The VIX server must meet the FDA, hardware, and operating system/environmental requirements specified in the following sections.

2.1.1.1.   FDA Requirements

The VIX is a component of VistA Imaging and is therefore regulated as a medical device by the FDA. Use of the VIX is subject to the terms of use listed in the introduction.

2.1.1.2.   Operating System and Hardware Requirements

The VIX hardware requirements are as follows:

- Installation must be done on a 64-bit Operating System (OS) machine running Windows Server 2012 R2, Windows Server 2016, or Windows Server 2019.
- Installation requires at least 2 Gigabytes (GBs) of free disk space.

- The VIX servers run with required settings of at least:
    - 4 Central Processing Units (CPUs)
    - 32 GBs of Random Access Memory (RAM)
    - A primary local drive with 120 GBs of disk space
    - A dedicated local drive for the VIX cache with 500 GBs of disk space
- The VIX requires at least a 1 gigabit Ethernet connection.

It is recommended to install on the latest supported OS. Slow performance may occur with VIX servers running under the required settings.

2.1.1.3. Port Requirements

On the VIX server, ports REDACTED, REDACTED, REDACTED, REDACTED, REDACTED, and REDACTED are accessible to VA wide area network IP addresses (10.x.x.x).

If using standard MUSE (not MUSE NX™), verify that port REDACTED is open and accessible to the VIX for communication with the site's MUSE.

NOTE: MUSE™ NX requires port REDACTED is open and accessible to the VIX for communication.

2.1.1.4. Environment Requirements

The VIX environment requirements include .NET 4.8 framework installed. With MAG*3.0*348, .NET Framework 4.8 is installed if it is not already installed with the VIX Installer.

2.1.2. Getting VIX Component Licenses

Two toolkits used by the VIX require third-party licenses.

2.1.2.1. Laurel Bridge DCF Toolkit

The Laurel Bridge DICOM Connectivity Framework (DCF) toolkit is a third-party toolkit used by the VIX to convert images to and from DICOM format.

The VA has purchased an enterprise-wide license for this toolkit.

If you are adding a new server in addition to the current server, you can transfer the current license to a new machine and run it in parallel with the old machine for 2 weeks to ensure your new server works properly. If doing this, please keep Laurel Bridge posted as to your license activity via their license transfer form at https://laurelbridge.com/support/. If transferring the Laurel Bridge license please ensure the Product Serial Number has been transferred to the new server.

If you do not have a site-specific serial number for this license, do the following:

1. From the VIX server, attempt to access the Laurel Bridge activation code server at https://laurelbridge.com. (A login page displays if you can access the site.)

   If you cannot access this site, enter a ticket and indicate that your site ACL (access control list) needs to be modified to access REDACTED over HTTPS port REDACTED.

2. Contact the REDACTED mail group to obtain a request form and instructions for completing the form.

The VIX installation process generates an activation code using the serial number information provided. The activation code allows the Laurel Bridge DCF toolkit to be installed and used.

The Laurel Bridge activation code links to the hardware of the server where the toolkit is installed. If you must replace the licensed server, email the contacts listed previously to arrange to get the serial number(s) transferred as well.

2.1.2.2. Aware JPEG2000 Toolkit License

The Aware JPEG2000 toolkit is a third-party toolkit used for DICOM-to-JPEG2000 image conversion by the VIX.

Sites that implement the VIX must purchase a one-time permanent license for the latest version of the Aware JPEG2000 toolkit from Aware for each server where the VIX is used.

NOTE: Do not install the Aware JPEG2000 toolkit before you run the VIX installer. The VIX installer installs the version of the Aware JPEG2000 toolkit with which the VIX has been tested. If you install the Aware JPEG2000 toolkit before running the VIX installer, this interferes with the installation process.

2.1.3. VIX Security Certificate

Each server that hosts the VIX must have a security certificate.
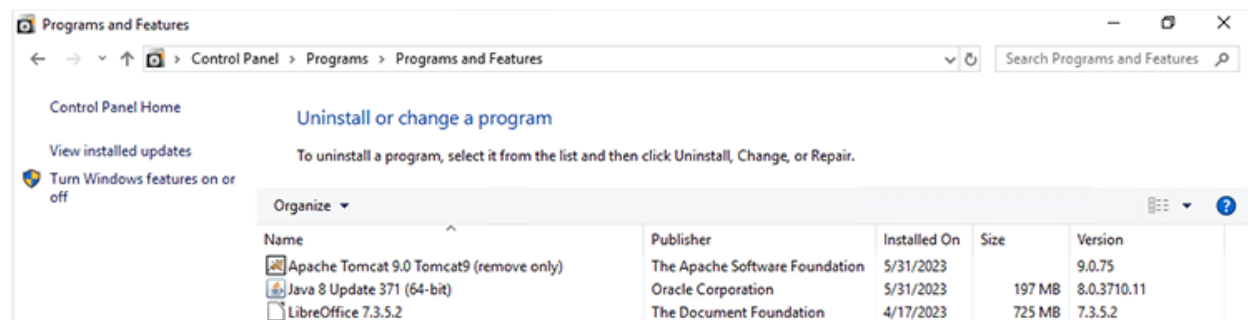
With MAG*3.0*348 a default security certificate named federation.zip is included with VIX installer that includes the following files federation.truststore and federation.keystore. The VIX Service Installation Wizard prompts for the federation.zip file during the installation process.

NOTE: If the Fully Qualified Domain Name (FQDN) of the VIX server does not use a standard name (i.e., not ending in med.va.gov or va.gov) send an email to REDACTED and include the following: the Fully Qualified Domain Name (FQDN) of the VIX server and contact information for the primary and backup administrators of the VIX. Requests typically process within five business days.

2.1.4. Java Version Verification

Before beginning the VIX install, validate any Java version installed. MAG*3.0*348 VIX installer uninstalls Java 8.0.351, if installed, and installs Java 8.0.371. If the Java version installed is older than Java 8.0.351, you must uninstall manually. The current Java version can be checked using the Control Panel (Figure 1). Reboot your server after Java uninstall.

Figure 1: Java and LibreOffice Version Check

2.1.5. LibreOffice Verification

Before beginning the VIX install, validate any LibreOffice version installed. MAG*3.0*348 VIX installer uninstalls LibreOffice 7.3.5 and installs LibreOffice 7.3.5. If the LibreOffice version installed is not 7.3.5, it must be uninstalled manually. The current LibreOffice version can be checked using the Control Panel (Figure 1).

2.2. New VIX Server Installation

The following steps are used to install a VIX on a server for the first time. Installation should take less than 30 minutes if all preparation steps in the previous sections are complete.

NOTE: Only perform the steps in this section if you are installing the VIX on a single server.

2.3. Preparing Passwords, Activating Components, and Staging Files

NOTE: Use proper safeguards to securely store passwords.

Before starting the VIX installation process, do the following:

1. As already stated in Section 2.1, configuring the MUSE interface requires the MUSE username, MUSE password, MUSE port, and MUSE protocol for the site's online MUSE server. If the MUSE username, password, port, and protocol are not documented in existing site VistA Imaging documentation, please contact the local BioMed team or MUSE administrator for the information.

2. Prepare a password to be used for the Apache Tomcat administrator account created as part of the VIX installation process.
   - The password is case sensitive, must contain at least **eight (8) alphanumeric characters**, and must contain at least one capital letter and one number.

3. Prepare a password for the Windows account that the VIX installation process creates.
   - The system uses this Windows account, named "apachetomcat" when it is created by the VIX installer, to run the VIX in the Tomcat environment. This account is limited to only the functions it needs to run the VIX.
   - The password is case sensitive, must contain at least **fourteen (14) alphanumeric characters**, and must contain at least one capital letter and one number.

4. To use the Release of Information (ROI) and DICOM Query Retrieve Service Class Provider (SCP), set up a local VistA service account as specified in *Appendix D: Service Account Settings*.

5. Determine the email address or addresses for notification about invalid ROI periodic processing credentials. The VIX sends an email notification to the email address or addresses if the ROI periodic processing credentials are invalid or have expired. You must specify this address when you install the VIX. You can set up a new email account for this purpose or use an existing one.

2.3.1. VIX Server Installation

VIX installation involves running two processes back-to-back. The first short process installs the VIX Service Installation Wizard. The second, longer process involves using the VIX Service Installation Wizard to install the actual VIX.

NOTE: These steps presume you have already obtained a serial number for the Laurel Bridge DCF toolkit. These steps also presume the VIX can access the Laurel Bridge license server via the internet.

2.3.1.1. To install the VIX Server

1. Use an administrator-level account to log onto the VIX server.
2. If you did not already do this, copy the latest VIX installer (MAG3_0P348_VIX_SETUP.msi) to C:\temp.
3. Do the following to prepare the VIX Service Installation Wizard:
   a. Right-click the MAG3_0P348_VIX_SETUP.msi file and click on Install.
   b. While running the VIX Service Installation Wizard, if prompted with "Do you want to allow the following program from a verified publisher to make changes to this computer?", click **Yes** (Figure 2).

Figure 2: User Account Control - VIX Service Installation Wizard
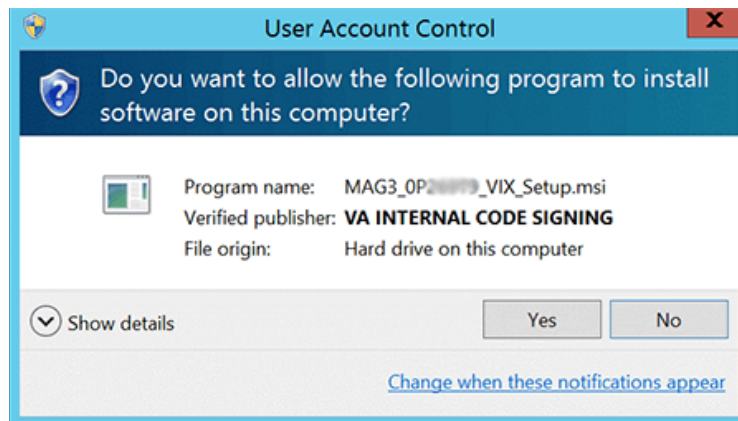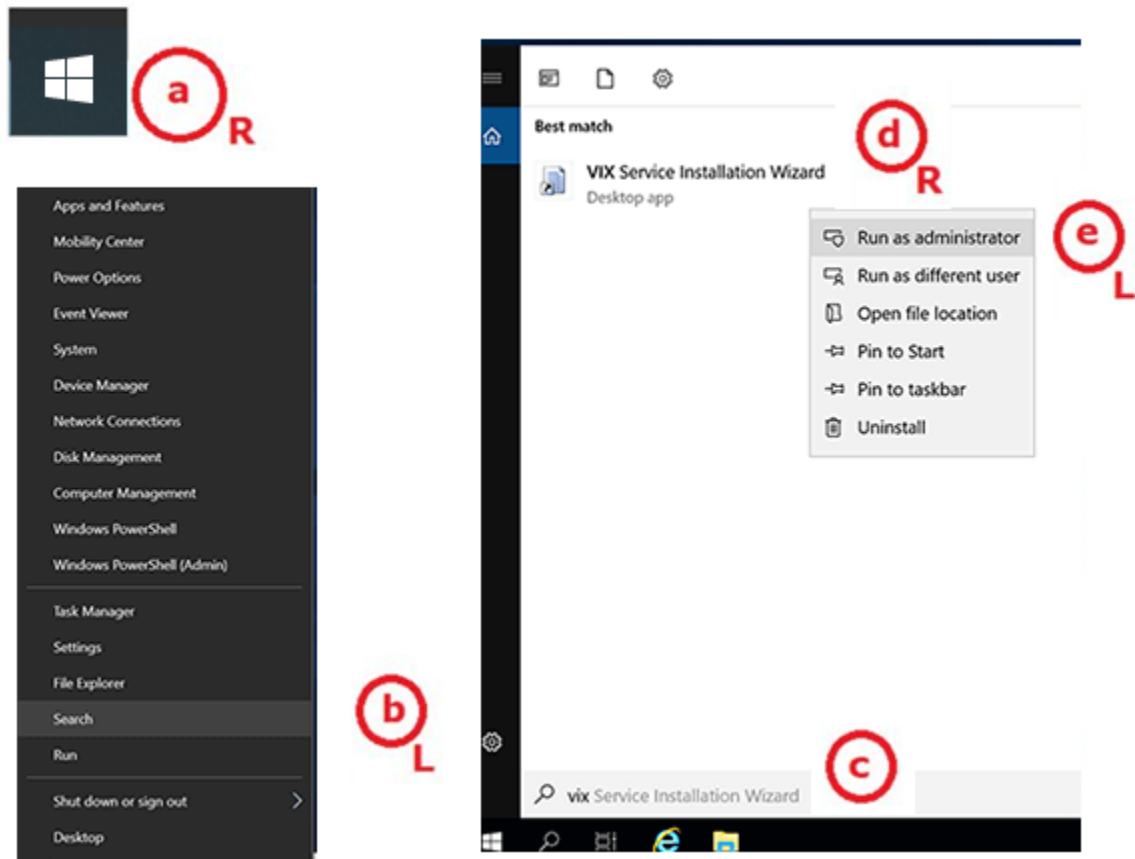
   NOTE: This step may occur after clicking Next.

   c. When the Welcome page displays, click **Next**.
   d. When the Confirm Installation page displays, click **Next**.
   e. When the Installation Complete screen displays, click **Close**.

4. Run the VIX Service Installation Wizard as an administrator (Figure 3 shows this for a server with Windows Server 2019).

    a. **R**ight-click **Start**.
    b. **L**eft-click **Search**.
    c. Type **VIX**.
    d. **R**ight-click **VIX Service Installation Wizard**.
    e. **L**eft-click **Run as administrator**.

Figure 3: Run the VIX Service Installation Wizard

NOTE: If the VIX Service Installation Wizard does not appear in the Search bar as in Figure 3, logout of the Windows administrator account session and log back in. The VIX Service Installation Wizard may alternatively be run as an administrator by performing the following: open Windows Explorer and navigate to the **C:\Program Files (x86)\Vista\Imaging\VixInstaller** folder, **r**ight-click **VixInstaller.exe** and **l**eft-click **Run as administrator**.

5. If prompted with "Do you want to allow the following program from an unknown publisher to make changes to this computer?", click **Yes** (Figure 4).

Figure 4: User Account Control - VIX Installer
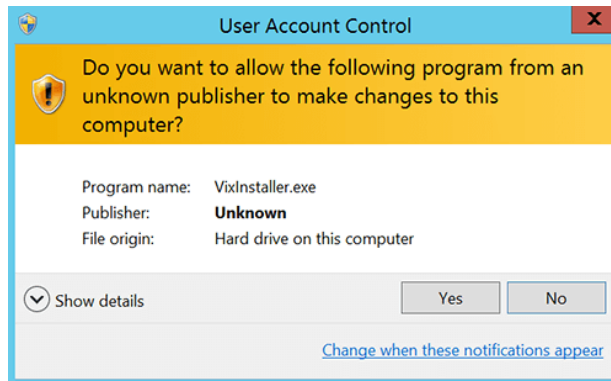
6. If .NET Framework 4.8 or greater is not installed, the VIX Service Installation automatically installs .NET Framework 4.8 and setup dialogs will appear (Figure 5 and Figure 6) to extract files and install. If no .NET Framework setup dialogs appear, skip to step 7. Otherwise, the install of .NET Framework may take over five minutes to complete and the setup dialogs progress bars will update.

Figure 5: .NET Framework 4.8 Extracting Files
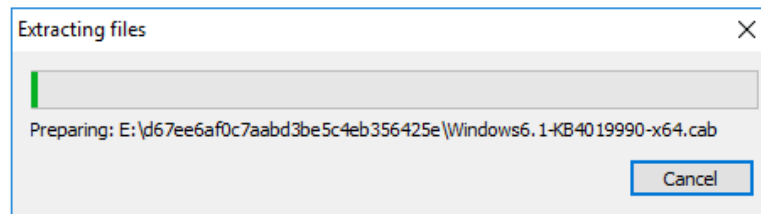
Figure 6: .NET Framework 4.8 Setup
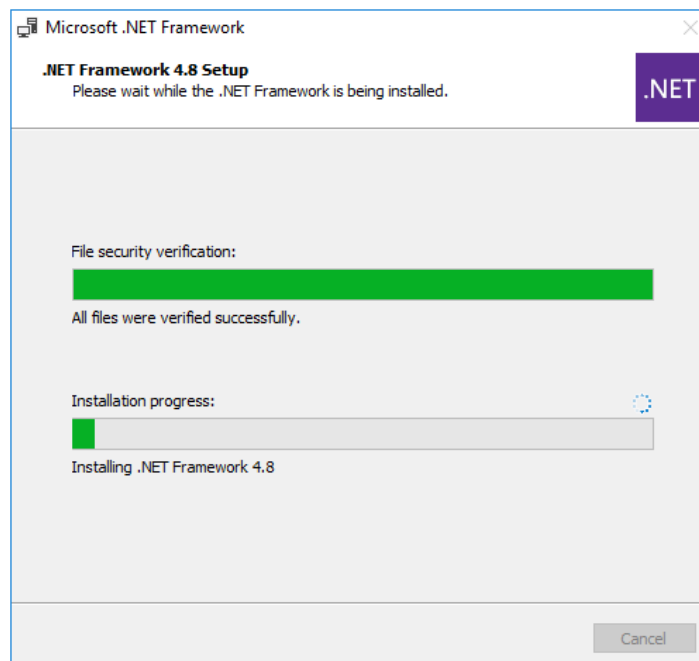
When the installation of .NET Framework 4.8 completes, click **Finish** (Figure 7) and then click **Restart Now** (Figure 8) to reboot your server.

Figure 7: .NET Framework Setup Complete
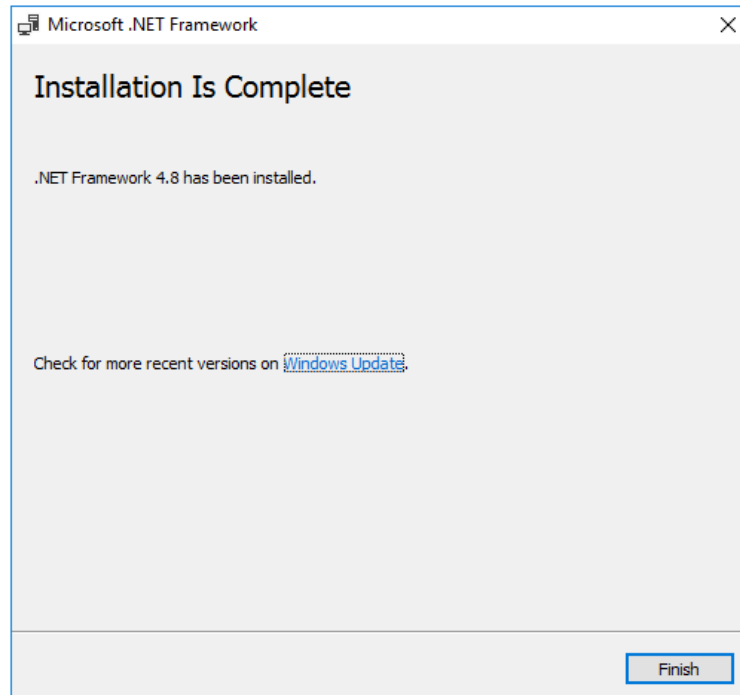
Figure 8: .NET Framework Restart
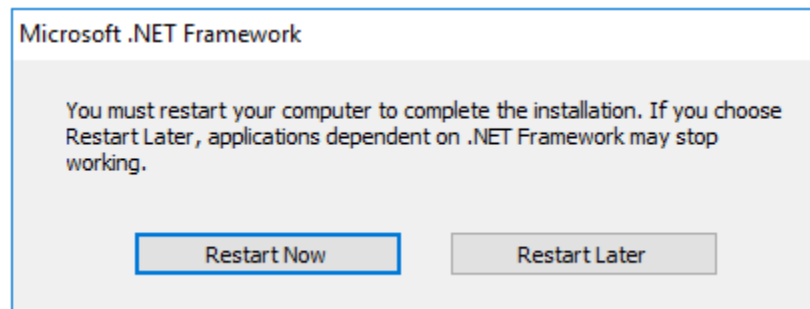
After the server reboots, Run the VIX Service Installation Wizard as an administrator and if prompted with "Do you want to allow the following program from an unknown publisher to make changes to this computer?", click **Yes,** as discussed in steps 4 and 5, and then continue to step 7.

7. When the Welcome page for the VIX Service Installation Wizard displays, click **Next**.

8. In the **Site Number** field of the Specify the VA site... page, enter the STATION NUMBER (field (#99) in the INSTITUTION file (#4) of your site, the information is in FileMan in VistA).

9. Confirm the connection by clicking Lookup Server Address. Then click Next (Figure 9).

Figure 9: Specify the VA site the VIX will service

10. Verify the site-related information retrieved by the lookup is correct. Then, click **Next**.

    NOTE: The VIX server hostname is blank, and the port number is 0; these values are populated automatically once the VIX is registered with the VistA site service.

11. Please be patient for the VIX Prerequisites page to appear, as it may take a while. When the Install the VIX Prerequisites page displays, verify that the icons for the first three items on the page are ✅.

    a. *account* **has Administrator role** – This line indicates if an administrative account is being used. If not, cancel the installation and restart it using a Windows administrator account.

    b. **Current operating system** – This line indicates if the proper operating system is present. If a non-supported operating system is identified, the installation cannot continue.

    c. **Sufficient disk space** – This line indicates if sufficient disk space is available for installation.

12. On the same page, read the line that indicates the state of the Java Runtime Environment. If ✅ displays, skip to the next step. If ❌ displays (Figure 10), do the following:

a. Click **Install**.

b. Wait until the status icon for the Java Runtime Environment changes to ✅. This install of Java may take over five minutes to complete. Please be patient, as this step may take a while to complete.

Figure 10: VIX Service Installation Wizard 30.348.X.XXXX
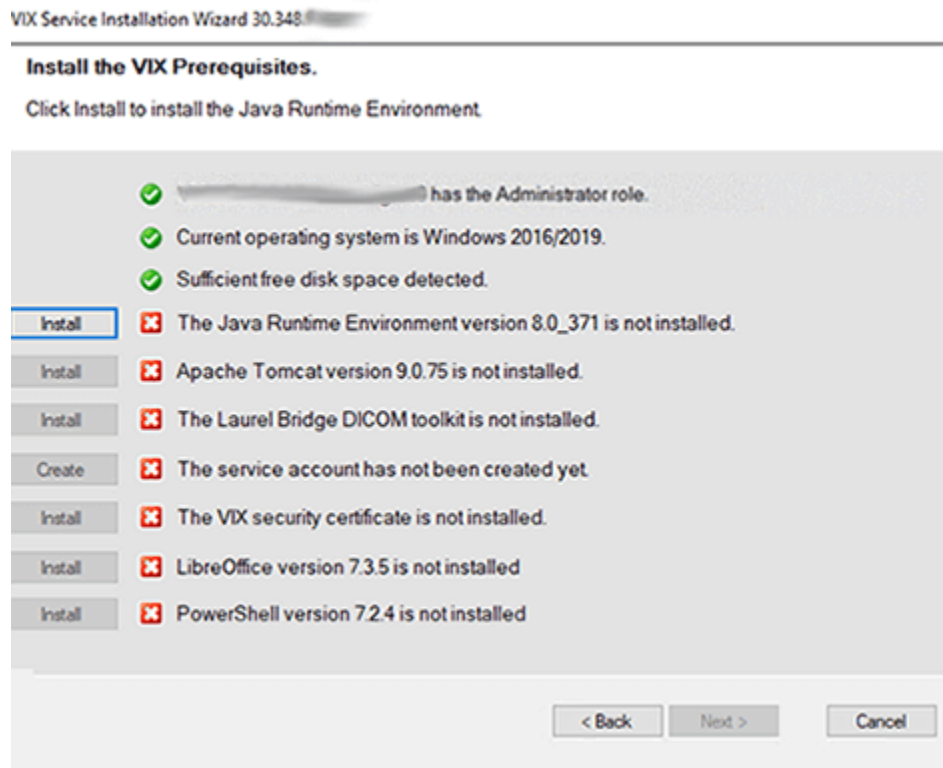
NOTE: The person installing the VIX software does not need to be in the VHAMASTER domain. The installer's domain should appear with their name. This (and subsequent screenshots) is just an example of what the installer sees.

13. On the same page, read the line that indicates the state of the Apache Tomcat installation. Since you may have reached this page by clicking the **Back** button on a subsequent page, if ✅ displays, skip to the next step. If ❌ displays (Figure 11), do the following:

a. Click **Install**.

b. In the dialog box that displays, enter and confirm the Apache Tomcat administrator account password that you previously prepared as described in *Preparing Passwords, Activating Components, and Staging Files*. Then, click **OK**.

c. Wait until the status icon for Apache Tomcat changes to ✅. This install of Tomcat may take over five minutes to complete. Please be patient, as this step may take a while to complete.

Figure 11: VIX Prerequisites - Tomcat Not Installed

VIX Service Installation Wizard

Install the VIX Prerequisites.

Click Install to install Apache Tomcat. You will be prompted to enter a password for the Tomcat admin account.

	✅	▨ has the Administrator role.
	✅	Current operating system is Windows 2016/2019.
	✅	Sufficient free disk space detected.
Install	✅	The Java Runtime Environment version 8.0_371 is installed.
Install	❌	Apache Tomcat version 9.0.75 is not installed.
Install	❌	The Laurel Bridge DICOM toolkit is not installed.
Create	❌	The service account has not been created yet.
Install	❌	The VIX security certificate is not installed.
Install	❌	LibreOffice version 7.3.5 is not installed
Install	❌	PowerShell version 7.2.4 is not installed

< Back   Next >   Cancel

14. On the same page, read the line that indicates the state of the Laurel Bridge toolkit. Since you may have reached this page by clicking the **Back** button on a subsequent page, if ✅ displays, skip to the next step. If ❌ displays (Figure 12), do the following:

Figure 12: VIX Prerequisites - Laurel Bridge Not Installed
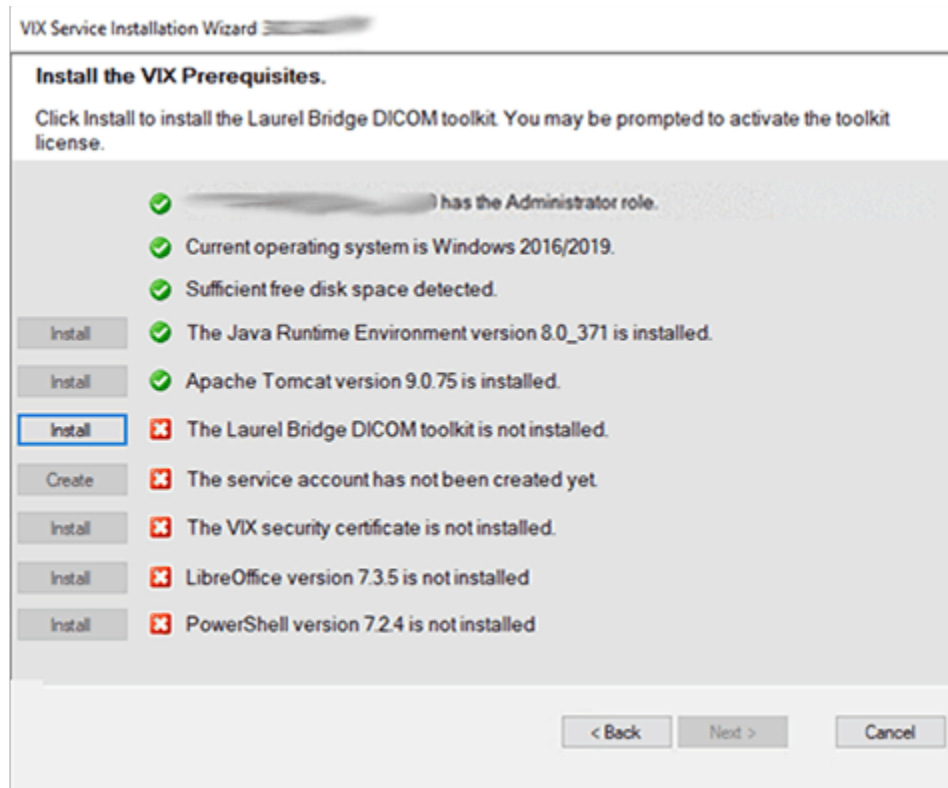
a. On the Install the VIX Prerequisites window, click **Install**. The Activate DCF License window opens with the **Network Activation** tab open and pre-populates with about half of the boxes in the window.

b. For **Network Activation** (requires a Product Serial Number) enter all the following information in the Network Activation tab:

NOTE: The system disables the Activate button if any of the following boxes are left blank.

    i. **Product Serial Number** – the new Laurel Bridge DCF serial number (include dashes).

    ii. **Site** – the name of your site.

    iii. **CPUs** – the number of CPUs on the server hosting the VIX.

    iv. **End User name** and **End User email** – the administrator of your local VistA Imaging system.

    v. **Maintenance Contact Name**, **Maintenance Contact E-mail,** and **Maintenance Contact Phone** – information for the Health, Clinical Services Diagnostics Team.

c. Near the bottom of the window, click **Activate**. After a brief delay, the **Status** box displays a message.

d. If a green "Success" message appears click **Exit with success** and skip to the next prerequisite step, otherwise select the Manual Activation tab.

e. If network activation was not successful, for **Manual Activation** do the following:

    i.   Select the Manual Activation tab.

    ii.   On the Manual Activation tab on the line **Activation Code**, enter the activation code.

    iii.   Near the bottom of the window, click Activate. After a brief delay, the Status box displays a message.

    iv.   If a green "Success" message appears click **Exit with success** and skip to the next prerequisite step, otherwise download the Laurel Bridge license from Laurel Bridge's website and continue with the steps below.

        NOTE: If downloading the Laurel Bridge license, such as using the Manual Product License Activation from https://laurelbridge.com/product_activation.php, please select the Version in the drop-down as 3.3.x before clicking Submit.

    v.   Click **Exit with error** to close out of the Manual Activation tab.

    vi.   Copy the contents of the downloaded Laurel Bridge license into the systeminfo file in C:\DCF_RunTime_x64\cfg.

    vii.   Click **Install** again next to the Laurel Bridge DICOM toolkit on the prerequisite window.
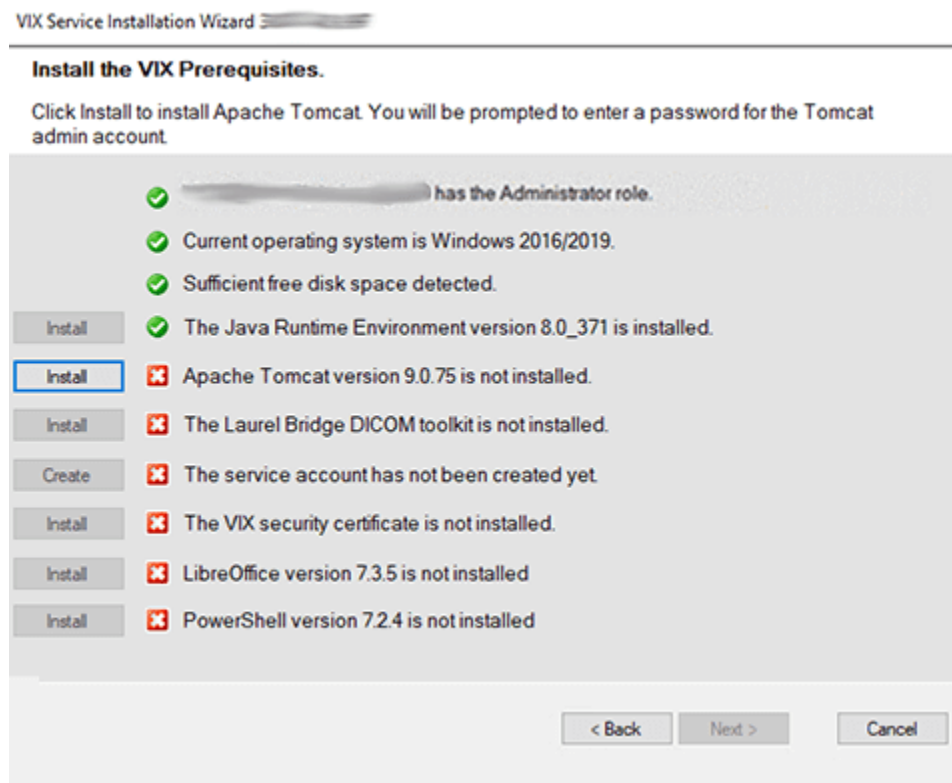
15. On the same page, read the line that indicates the state of the service account. Since you may have reached this page by clicking the **Back** button on a subsequent page, if ✅ displays, skip to the next step. If ❌ displays (Figure 13), do the following:

    a. Click **Create**.

    b. In the dialog box that displays, enter the Windows service account password that you prepared in *Preparing Passwords, Activating Components, and Staging Files*, previously. Then, click **OK**.

    c. Wait until the status icon for the service account changes to ✅ .

Figure 13: VIX Prerequisites - Service Account not Created
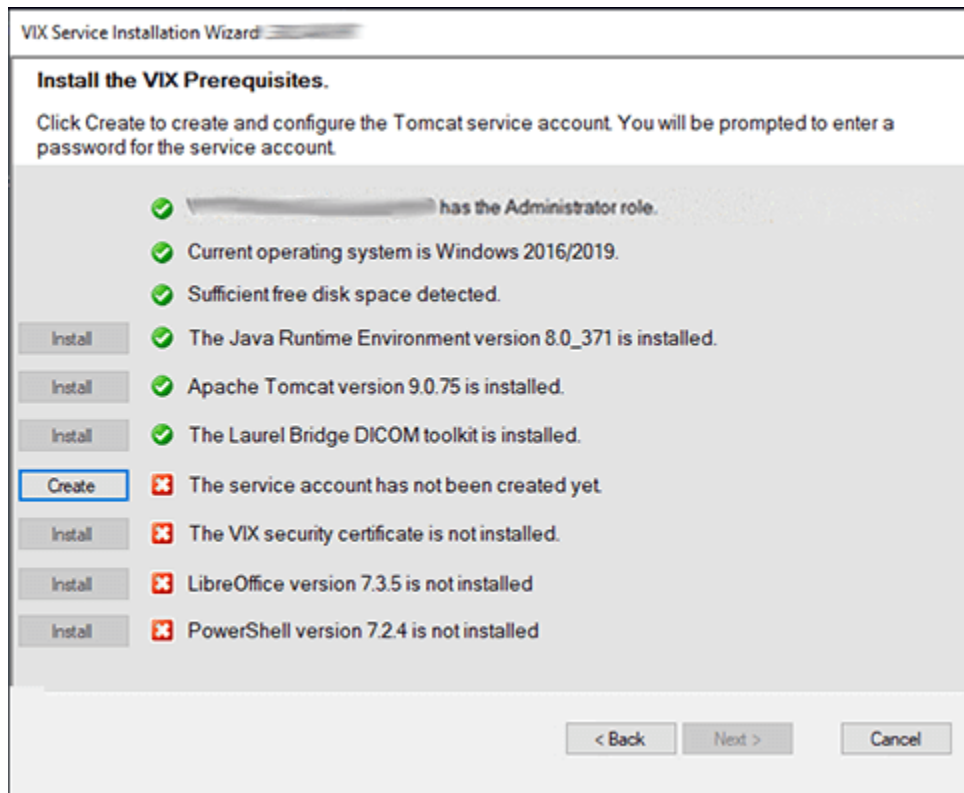
16. On the same page, check the line that indicates the state of VIX security certificate. Since you may have reached this page by clicking the **Back** button on a subsequent page, if ✅ displays, skip to the next step. If ❌ displays (Figure 14), do the following:

a. Click **Install**.

b. In the dialog box that displays, click **OK** if using the default security certificate included with the VIX Installer. Otherwise, in the dialog box that displays, click **Select**. Specify the location of the security certificate on the local VIX server. Then, click **OK**.

Figure 14: VIX Prerequisites - VIX Security Certificate not Installed

VIX Service Installation Wizard

Install the VIX Prerequisites.

Click Install to specify the location of the VIX security certificate.

	✅ has the Administrator role.
	✅ Current operating system is Windows 2016/2019.
	✅ Sufficient free disk space detected.
Install	✅ The Java Runtime Environment version 8.0_371 is installed.
Install	✅ Apache Tomcat version 9.0.75 is installed.
Install	✅ The Laurel Bridge DICOM toolkit is installed.
Create	✅ The service account has been configured.
Install	❌ The VIX security certificate is not installed.
Install	❌ LibreOffice version 7.3.5 is not installed
Install	❌ PowerShell version 7.2.4 is not installed

< Back   Next >   Cancel

17. On the same page, read the line that indicates the state of the LibreOffice installation. If ✅ displays, skip to the next step. If ❌ displays (Figure 15), do the following:

    a. Click **Install**.

    b. Wait until the status icon for LibreOffice changes to ✅. (This install of LibreOffice may take several minutes to complete. Please be patient, as this step may take a while to complete.)

Figure 15: VIX Prerequisites - LibreOffice not Installed

VIX Service Installation Wizard

Install the VIX Prerequisites.

Click Install to install LibreOffice.

	✅	[____] has the Administrator role.
	✅	Current operating system is Windows 2016/2019.
	✅	Sufficient free disk space detected.
Install	✅	The Java Runtime Environment version 8.0_371 is installed.
Install	✅	Apache Tomcat version 9.0.75 is installed.
Install	✅	The Laurel Bridge DICOM toolkit is installed.
Create	✅	The service account has been configured.
Install	✅	The VIX security certificate is installed.
Install	❌	LibreOffice version 7.3.5 is not installed
Install	❌	PowerShell version 7.2.4 is not installed

< Back   Next >   Cancel

18. On the same page, read the line that indicates the state of the PowerShell installation. If ✅ displays, skip to the next step. If ❌ displays (Figure 16), do the following:

a. Click **Install**.

b. Wait until the status icon for PowerShell changes to ✅. (This install of PowerShell may take several minutes to complete. Please be patient, as this step may take a while to complete.)

Figure 16: VIX Prerequisites - PowerShell not Installed
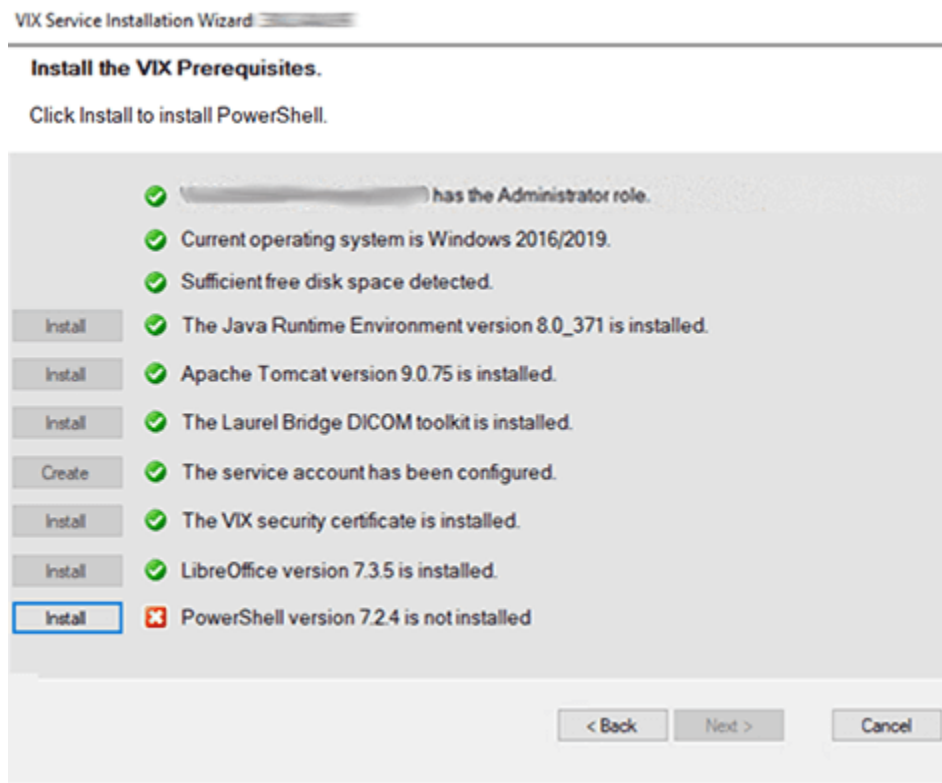
NOTE: Do not update the PowerShell 7 version with Windows updates.

19. In the Install the VIX Prerequisites page, confirm that all the icons are ✅. Then, click **Next** (Figure 17).

Figure 17: VIX Service Installation Wizard Prerequisites Complete
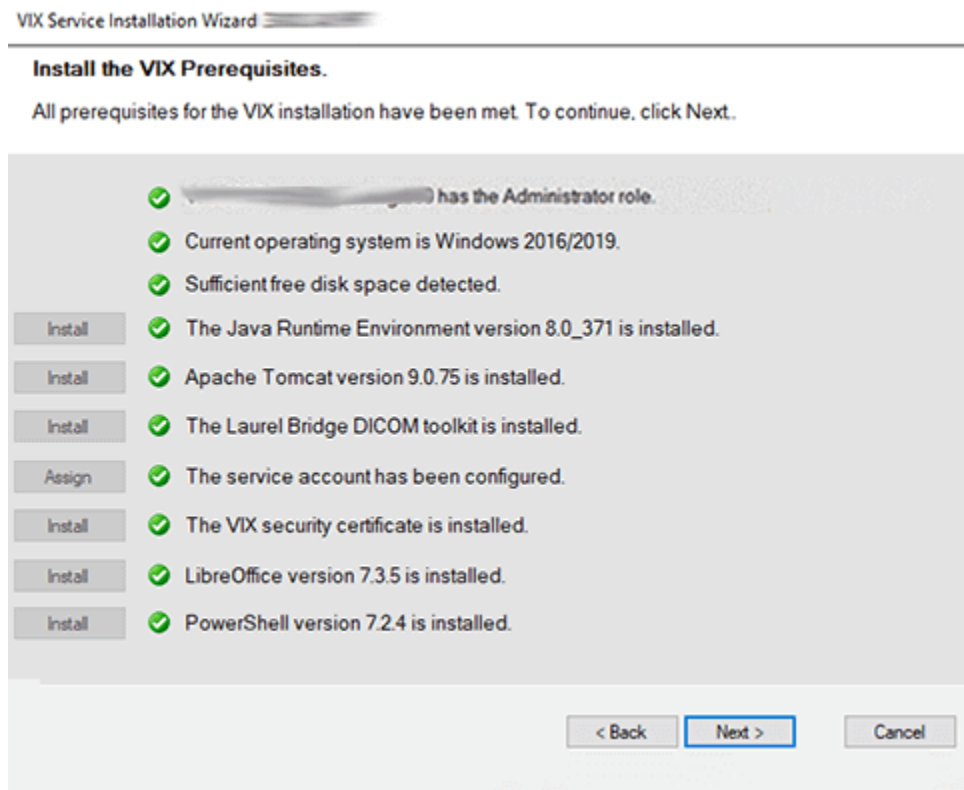
20. In the Specify the location page, select the drive for the VIX configuration files to reside. Select the "C:\" drive for the VixConfig folder. Then, click **Create**.

21. On the same page, select the drive where to create the VIX cache. Select the appropriate VixCache drive for your site (E: is displayed as an example in Figure 18). Then, click **Create**.

22. On the same page, select the drive where to create the VIX log archive. Select the appropriate VIX log archive drive for your site (E: is displayed as an example in Figure 18). Then, click **Create**.

NOTE: It is suggested to use the same local drive for the VIX Cache and VIX log archive.

Figure 18: VIX Cache, Configuration, and Log Archive Folder Creation

23. Click **Next**.

24. In the VistA and Email Configuration (Figure 20), perform the following:

   a. Specify the access and verify codes for the account with the VistA credentials. The VIX uses this account for periodic processing of ROI disclosure requests and DICOM SCP query retrieve requests. The account must be valid VistA credentials with the settings specified in *Appendix D: Service Account Settings*.

   NOTE: Hidden/asterisk and plain text forms of the access and verify codes can by toggled. Click **Show** to show the plain text forms and click **Hide** to show the hidden/asterisk forms.

   b. Specify the email address that gets notifications for invalid credentials. The VIX sends an email notification to the address or addresses specified in this field if the ROI periodic processing credentials are expired or invalid. You can enter several addresses, separated by a comma.

c. Click **Confirm** (Figure 19).

Figure 19: VistA and Email Configuration - Confirm

The VIX installation program checks the information. If it detects an error, it displays a tooltip with information about the error. When it confirms the configuration, Next becomes available. Click **Next** (Figure 20).

Figure 20: VistA and Email Configuration - Next

25. In the Specify the MUSE Configuration, if enabling the MUSE, **check** Enable and configure MUSE. Specify the MUSE site number, server host, username, password, port, and protocol. If changes are needed, please refer to *Appendix A: Enable* MUSE Functionality for additional information to assist with the MUSE configuration. Click **Confirm** (Figure 21).

NOTE: Hidden/asterisk and plain text forms of the username and password can by toggled. Click **Show** to show the plain text forms and click **Hide** to show the hidden/asterisk forms.

NOTE: It is expected that the site administrator is aware of all needed entries in the MUSE configuration, including the MUSE Site Number, Host, Username, Password, Port, and Protocol if changes are needed. One method to obtain the MUSE site number, host, and username is from the Background processor discussed in *Appendix A: Enable* MUSE Functionality. If the password is not documented in existing site VistA Imaging documentation or if not available, please contact the local BioMed team or MUSE administrator. The default standard MUSE port is REDACTED and protocol is http. The default MUSE™ NX port is REDACTED and protocol is https. Contact the local BioMed team or MUSE administrator if the MUSE port and protocol are not known.

Figure 21: Specify the MUSE Configuration - Before Confirm

26. In the Specify the MUSE Configuration, after it confirms the configuration, Next becomes available. Click **Next** (Figure 22).

NOTE: During MUSE Configuration validation, the VIX installation program checks the information. If the installation program detects an error, it displays a tooltip with information about the error.

Figure 22: Specify the MUSE Configuration - After Confirm

27. On the Install the VIX page (Figure 23), click **Install**. (The information on this page is saved in C:\Program Files (x86)\VistA\Imaging\VIXInstaller for future reference or troubleshooting.) This starts the installation process. This starts the installation process of the VIX and the VIX Viewer/Render Services.

Figure 23: Begin the VIX and VIX Viewer/Render Services Install
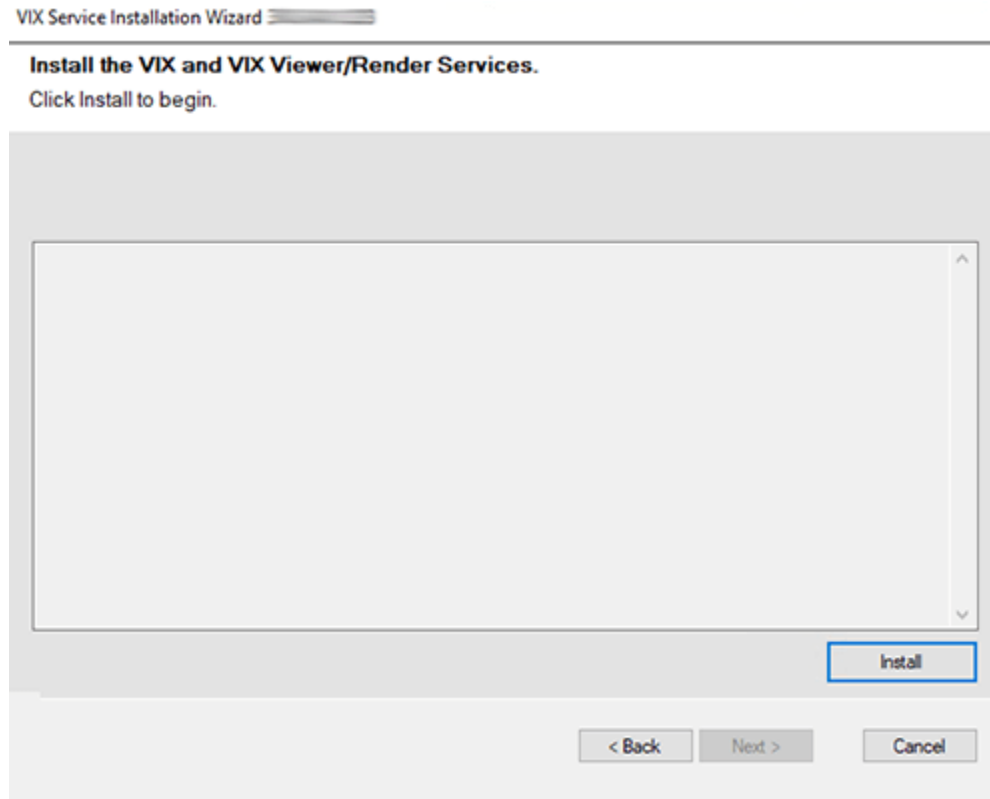
a. Wait a moment and then click **Configure Viewer/Render** (Figure 24).

Figure 24: VIX Viewer/Render Info Dialog
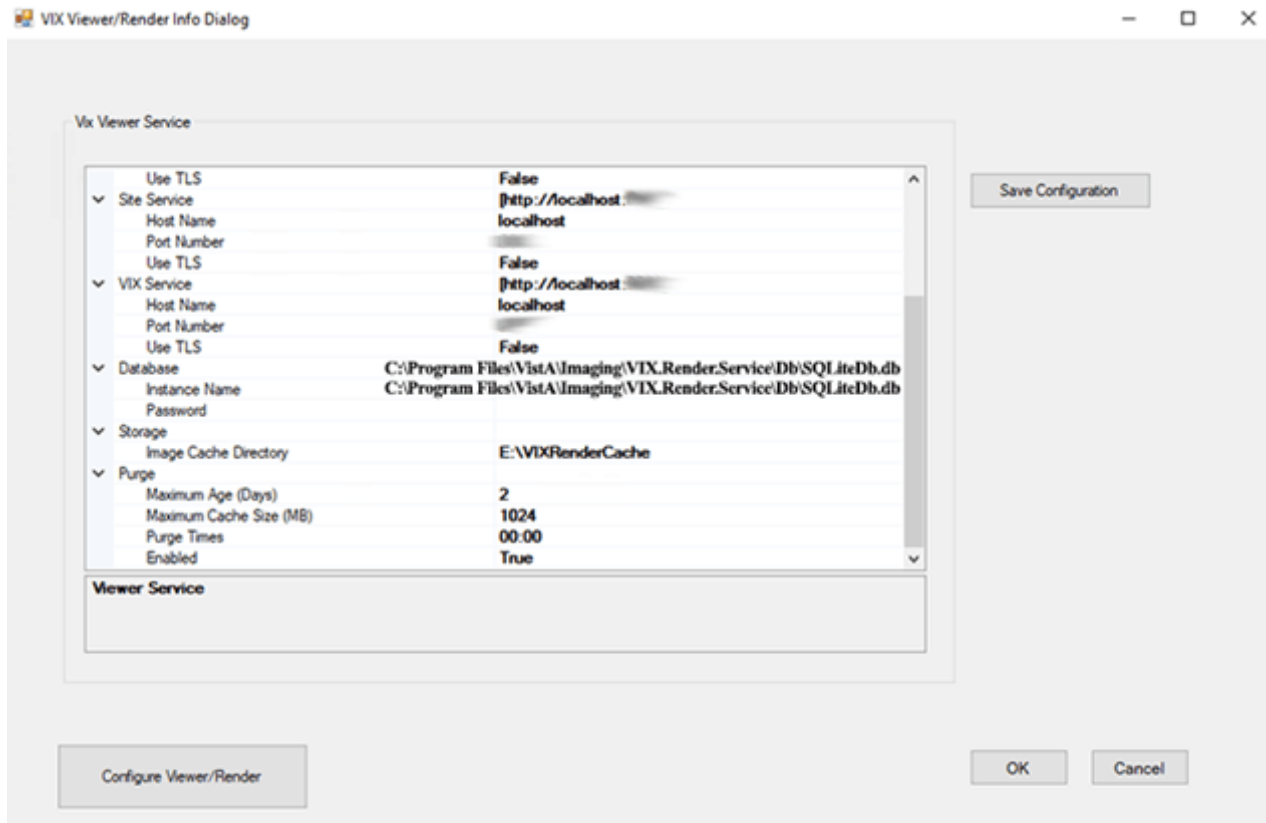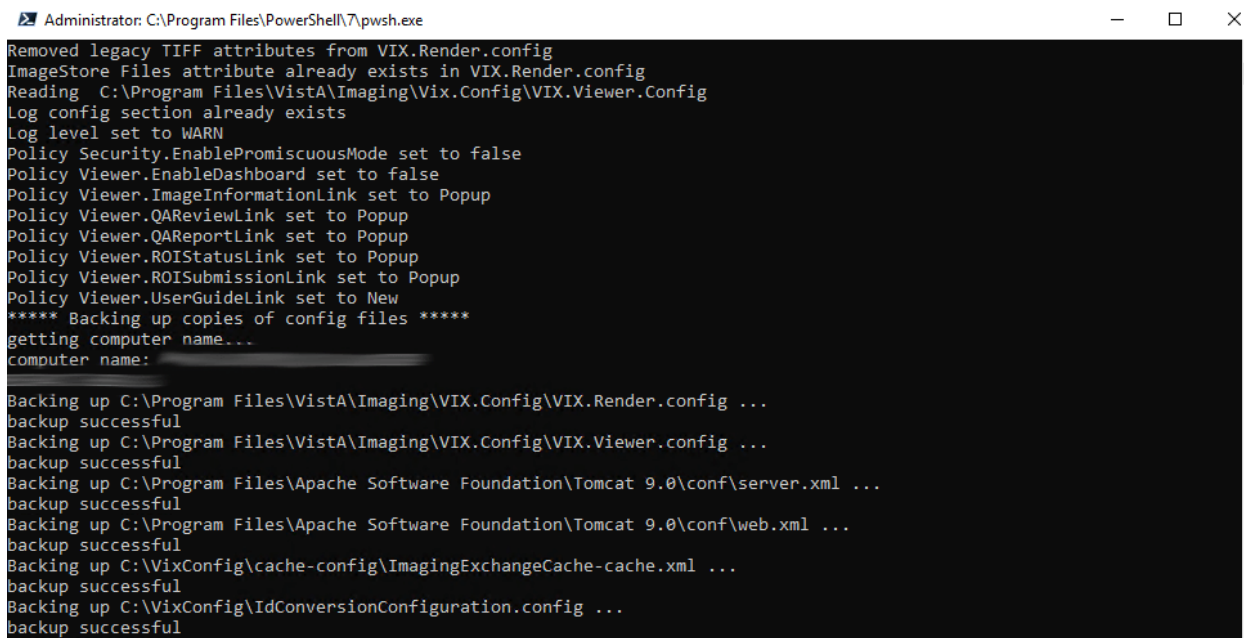
b. Verify the following settings:
   i. Verify the viewer port number is <mark>REDACTED</mark>.
   ii. Verify the trusted client port is <mark>REDACTED</mark>.
   iii. Verify Render Service > Port Number is <mark>REDACTED</mark>.
   iv. Verify Site Service > Host Name is localhost.
   v. Verify Site Service > Port Number is <mark>REDACTED</mark>.
   vi. Verify VIX Service > Host Name hostname is localhost.
   vii. Verify Database > Instance Name is C:\Program Files\VistA\Imaging\VIX.Render.Service\Db\SQLiteDb.db.

c. Edit image cache directory drive to the dedicated VIX cache drive. (i.e. "E:\VIXRenderCache")

d. If setting values were modified, click the **Save Configuration** button in the top right corner.

e. Click **OK**.

f. The installation updates the VIX Viewer/Render Services in the background. Then the VIX installation will finish. This takes up to over five minutes to complete.

28. During the final install, a PowerShell script utility pops up (Figure 25) to perform additional install tasks and closes when complete.

NOTE: The PowerShell pop-up performs various configuration and certificate tasks and executes patch-specific post-scripts.

NOTE: If the MUSE service is not enabled, the PowerShell pop-up may display a red error message in the MUSE check section. See Figure 25.

Figure 25: PowerShell Pop-up Script


```
Administrator: C:\Program Files\PowerShell\7\pwsh.exe                              —    □    ✕

Removed legacy TIFF attributes from VIX.Render.config
ImageStore Files attribute already exists in VIX.Render.config
Reading  C:\Program Files\VistA\Imaging\Vix.Config\VIX.Viewer.Config
Log config section already exists
Log level set to WARN
Policy Security.EnablePromiscuousMode set to false
Policy Viewer.EnableDashboard set to false
Policy Viewer.ImageInformationLink set to Popup
Policy Viewer.QAReviewLink set to Popup
Policy Viewer.QAReportLink set to Popup
Policy Viewer.ROIStatusLink set to Popup
Policy Viewer.ROISubmissionLink set to Popup
Policy Viewer.UserGuideLink set to New
***** Backing up copies of config files *****
getting computer name...
computer name:

Backing up C:\Program Files\VistA\Imaging\VIX.Config\VIX.Render.config ...
backup successful
Backing up C:\Program Files\VistA\Imaging\VIX.Config\VIX.Viewer.config ...
backup successful
Backing up C:\Program Files\Apache Software Foundation\Tomcat 9.0\conf\server.xml ...
backup successful
Backing up C:\Program Files\Apache Software Foundation\Tomcat 9.0\conf\web.xml ...
backup successful
Backing up C:\VixConfig\cache-config\ImagingExchangeCache-cache.xml ...
backup successful
Backing up C:\VixConfig\IdConversionConfiguration.config ...
backup successful
```

29. The VIX starts automatically (Tomcat and Viewer/Render services) when the installation is complete. When the installation is complete, click **Finish** to exit the wizard (Figure 26). The VIX Service Installation Wizard closes.

Figure 26: VIX Install Complete
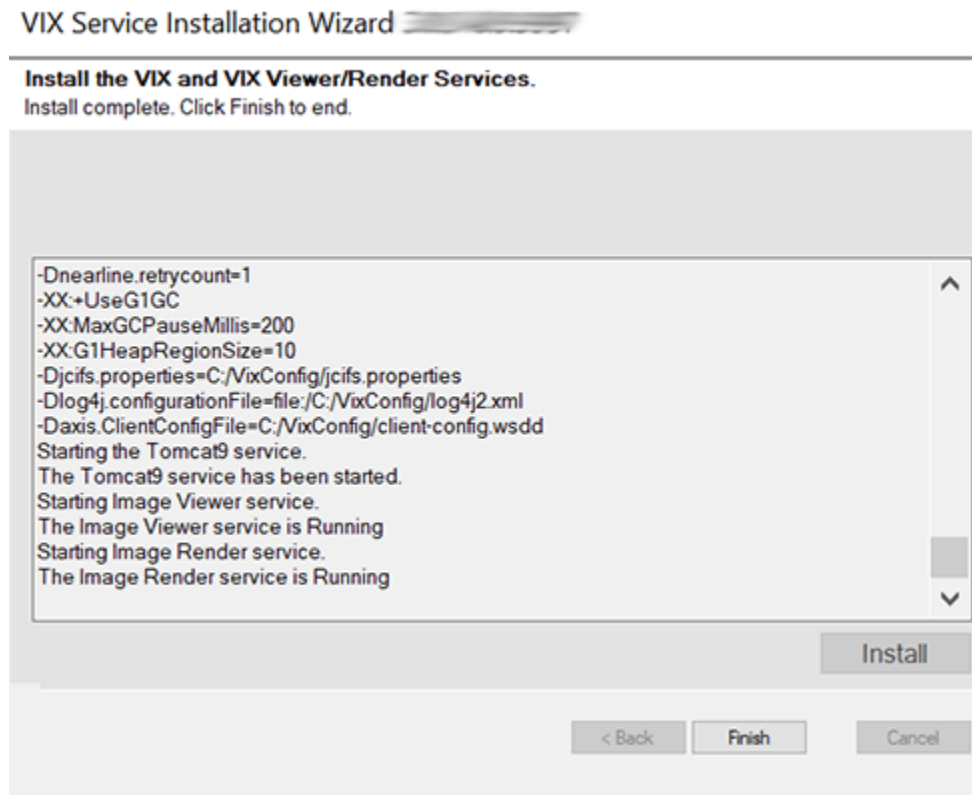
The VIX starts automatically but cannot be used until it is activated and registered with the VistA Site Service. See the next section for details.

2.4.   Activating a New VIX

After the VIX is installed, it is inactive until it is registered with the VistA Site Service. Clinical Display workstations and VistARad workstations use the site service to determine if local and remote VIX servers are available.

After the VIX is registered in the site service, the VIX begins to be actively used, both by clinicians at your site and remote VA sites for access to locally stored images.

NOTE: Do not register the VIX with the site service until after it is installed. Registering the VIX before it is installed causes errors and timeout issues for Clinical Display users.

2.4.1.   To Register the VIX

1. Gather the following information:
   o   Primary contact name, phone, and email:
   o   Backup contact name, phone, and email:
   o   Site name:

- o STATION NUMBER (field #99) from INSTITUTION file (#4):
- o Network Name defined for Imaging Resources group:

2. Enter a National ticket to the Health, Clinical Services Diagnostics Team (previously known as Clin 3, the group name is SPM.Health.ClinSvs.Diag) for a site service update.

    a. Paste the lines in the preceding step into the ticket.

    b. Include "Add VIX server to Site Service database."

3. The Health, Clinical Services Diagnostics Team notifies you, typically within five business days, when the site service registration is complete.

4. Continue to *Post-Installation for New VIX Installations and Updating Existing VIX Installations.*

3. Updating an Existing VIX

This chapter explains how to update an existing VIX server. An installation checklist that summarizes this process can be found in *Appendix E: VIX Install Checklist*.

3.1. Preparing for a VIX Update

Preparing for a VIX update involves:

- Configuring the MUSE interface. This requires the MUSE username, MUSE password, MUSE port, and MUSE protocol for the site's online MUSE server. If the MUSE username, password, port, and protocol are not documented in existing site VistA Imaging documentation, please contact the local BioMed team or MUSE administrator for the information.

- Acquiring Installation File.
  - Acquiring Installation Files. Copy MAG3_0P348_VIX_SETUP.msi to C:\temp. (Download if required. See the patch description of the patch for the download location.)
  - Copy the MAG3_0P329_VIX_SETUP.msi to C:\temp for the backup plan if not already present.

- Ensure downtime has been scheduled to install the VIX service. Local administrations of the applications and services impacted by an offline VIX should be contacted prior to installing the MAG3_0P348_VIX_SETUP.msi. The installation needs to be coordinated to avoid any disruption of services. This communication should be done in advance of the VIX update, see *Scheduling Downtime and Impact of a VIX Update.*

TIP: VIX-specific account passwords and security key assignments established for older VIX systems automatically carry over to new VIX systems.

NOTE: It is strongly suggested to restart the VIX Server prior to updating an existing VIX.

3.1.1. Scheduling Downtime and Impact of a VIX Update

You need to schedule downtime with appropriate personnel for the duration of the VIX installation. Schedule 1 to 2 hours for the downtime and notify users of the impact of the VIX update.

While the VIX server is being updated, VIX assisted functions are unavailable. The list of known applications and services impacted by a local offline VIX includes:

- Clinical Display access to remote images may be temporarily inaccessible.
- VistARad access to remote images and other teleradiology features.
- DICOM Importer client.
- Local Joint Legacy Viewer (JLV) user display of images (local or remote).
- Signed Informed Consent ability to store new consents.
- Any new Ingest consuming application.
- Integrated Visualization System (IVS) mobile application access to local images.
- Enterprise DICOM Q/R functionality.

- Access to DoD images or artifacts.
- Access to VA Cerner images or artifacts.
- Any other external application calling a local VIX service directly.

Table 1 summarizes how a VIX outage affects clinicians.

Table 1: Functions Affected by VIX Updates

Clinical Group	Impact
Local Clinical Display Users	DoD images are inaccessible for the duration of the VIX shutdown.
	Remote VA images may be temporarily inaccessible. Clinical Display attempts to revert to pre-VIX remote image views, but users may have to disconnect from and reconnect to remote sites, or in some cases, restart Clinical Display.
	Clinicians may notice longer retrieval times for remote images for the duration of the VIX shutdown.
	After the VIX is restarted, restart Clinical Display to ensure that Clinical Display is no longer using pre-VIX remote image views for remote sites.
Local VistARad Users	Remote exam data and images and monitored exam lists are unavailable. For additional information, refer to the documentation for VistARad.
Remote VA or DoD Clinicians requesting Images or Artifacts	Remote clinicians may experience transitory application errors if the VIX is shut down while it is in the middle of processing a request; the clinician may have to repeat the request.
	Remote VA clinicians issuing new requests may notice longer retrieval times for the duration of the VIX shutdown.
	Remote DoD clinicians are unable to retrieve locally stored images for the duration of the VIX shutdown.
Local DICOM Importer Users	The DICOM importer client cannot log into VistA and process imports for the duration that the VIX is down.
VIX Image Viewer/JLV Users	Clinical users of JLV cannot access images or artifacts (local or remote) using the VIX image viewer.
iMedConsent Users	Patients' consent forms are unavailable. Currently, this results in multiple unsigned Text Integration Utility (TIU) notes in Computerized Patient Record System (CPRS) due to CVIX and iMedConsent Web (ICW) deficiencies until the necessary corrective action(s) can be deployed by both the CVIX and ICW development teams.
IVS Mobile Application Users	IVS mobile application users cannot access local images.

3.2. Preparing Service Account and Passwords

Before starting the VIX server update process, identify your DICOM/ Release of Information (ROI) periodic processing VistA Imaging VistA service account. It is suggested to verify the name of the VistA service account as described in *Appendix D: Service Account Settings*. To

ensure DICOM query retrieve/ROI periodic processing functionality, verify the SSN of the service account, verify it has the security keys, secondary menu options, a value for the INITIAL field, and additional options as described in *Appendix D: Service Account Settings*.

Locate the current password used for the Windows account named "apachetomcat" and the DICOM query retrieve/ROI periodic processing VistA Imaging VistA service account credentials.

- The Windows account named "apachetomcat" password is case sensitive, must contain at least **fourteen (14) alphanumeric characters**, and must contain at least one capital letter and one number.

3.3.   Performing a VIX Server Update

Use the following steps to update a VIX server.

NOTE: If LibreOffice has any documents open, please close them before beginning the install process. Otherwise, you do not have to stop any currently running services because this install process automatically stops them for you.

1. Use an administrator-level account to log onto the VIX server.
2. If you did not already do so in Section 3.1, copy the VIX installation file `MAG3_0P348_VIX_SETUP.msi` to C:\temp on the VIX server. (Download if required, see the patch description of the patch for the download location).
3. Go into Control Panel/Programs/Programs and Features, and remove the prior VIX Service Installation Wizard by right-clicking on it and choosing Uninstall.
4. To Install the VIX Service Installation Wizard perform the following steps:
   a. Right-click the **VIX installation** file (MAG3_0P348_VIX_SETUP.msi) and click on Install.
   b. While running the VIX Service Installation Wizard, if prompted with "Do you want to allow the following program from a verified publisher to make changes to this computer?", click **Yes** (Figure 27)

Figure 27: User Account Control - Vix Service Installation Wizard
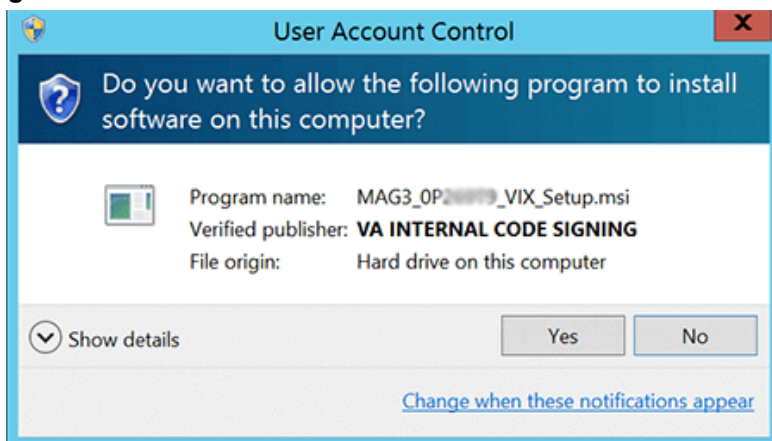
NOTE: This step may occur after clicking Next.

   c. When the Welcome page displays, click **Next**.

d. When the Confirm Installation page displays, click **Next**.

e. When the Installation Complete screen displays, click **Close**.

5. Run the VIX Service Installation Wizard as an administrator (Figure 28 shows this for a server with Windows Server 2019).

a. **R**ight-click **Start**.

b. **L**eft-click **Search**.

c. Type **VIX**.

d. **R**ight-click VIX Service Installation Wizard.

e. **L**eft-click Run as administrator.

Figure 28: Run the VIX Service Installation Wizard
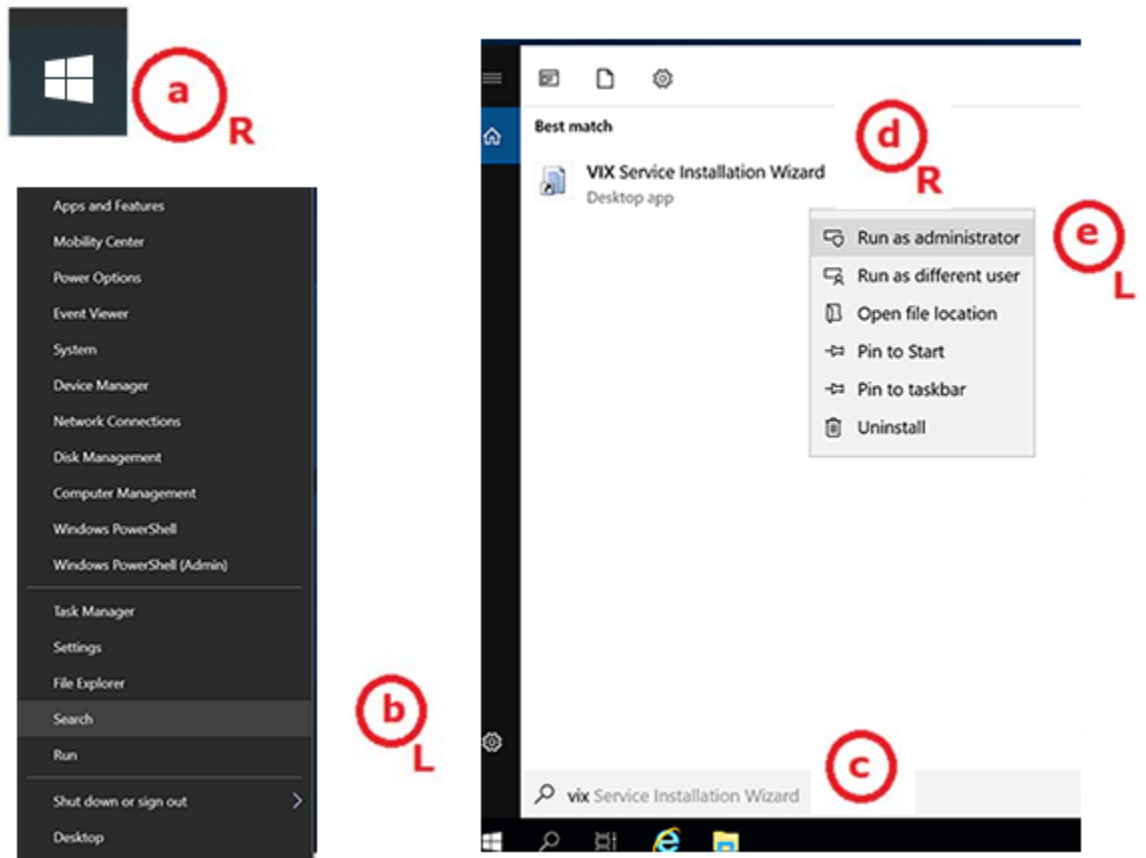
NOTE: If the VIX Service Installation Wizard does not appear in the Search bar as in Figure 28, logout of the Windows administrator account session and log back in. The VIX Service Installation Wizard can alternatively be run as an administrator by performing the following: open Windows Explorer and navigate to the **C:\Program Files (x86)\Vista\Imaging\VixInstaller** folder, **r**ight-click **VixInstaller.exe** and **l**eft-click **Run as administrator**.

6. If prompted with "Do you want to allow the following program from an unknown publisher to make changes to this computer?", click **Yes** (Figure 29).

Figure 29: User Account Control - VixInstaller
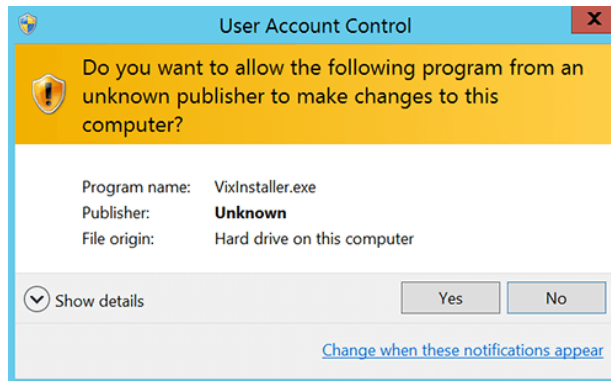
7. If .NET Framework 4.8 or greater is not installed, the VIX Service Installation automatically installs .NET Framework 4.8 and setup dialogs will appear (Figure 30 and Figure 31) to extract files and install. If no .NET Framework setup dialogs appear, skip to step 8. Otherwise, the install of .NET Framework may take over five minutes to complete and the setup dialogs progress bars will update.

Figure 30: .NET Framework 4.8 Extracting Files
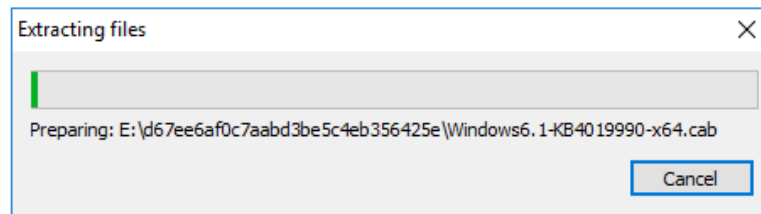
Figure 31: .NET Framework 4.8 Setup
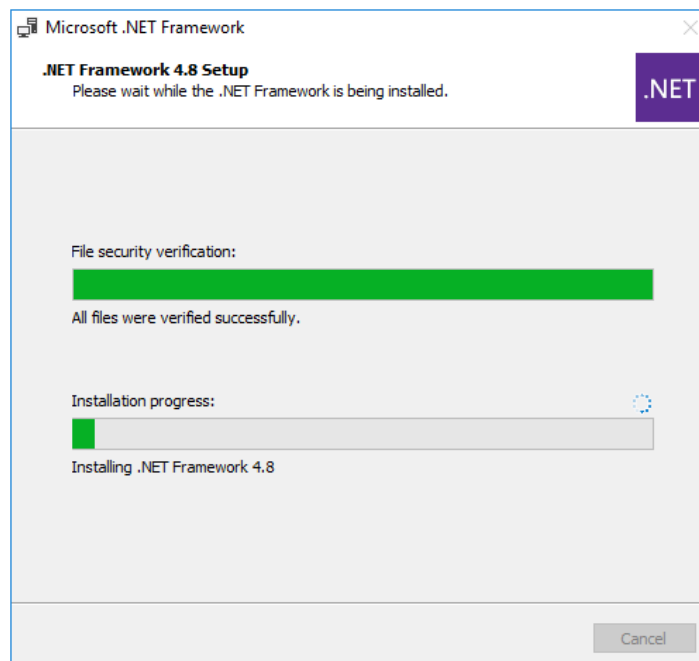
When the installation of .NET Framework 4.8 completes, click **Finish** (Figure 32) and then click **Restart Now** (Figure 33) to reboot your server.

Figure 32: .NET Framework Setup Complete
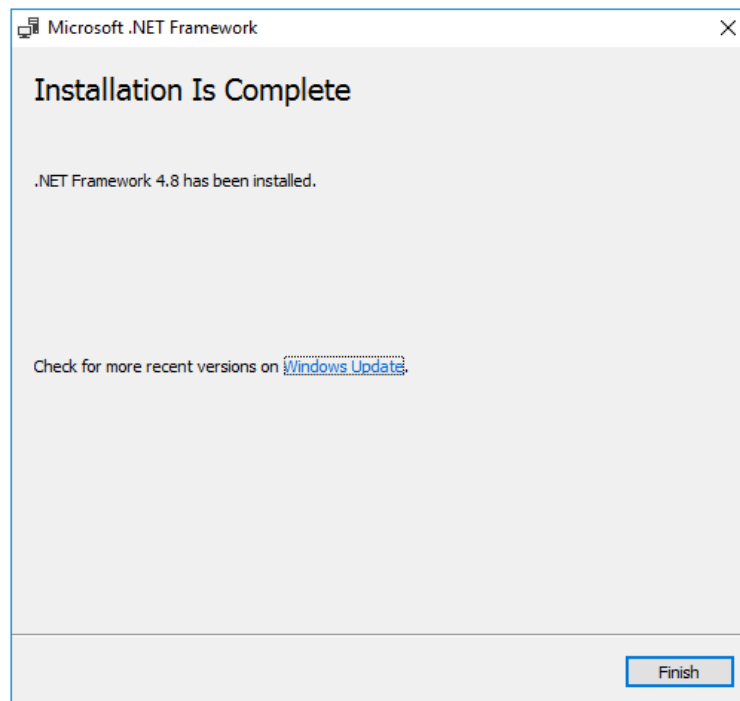
Figure 33: .NET Framework Restart
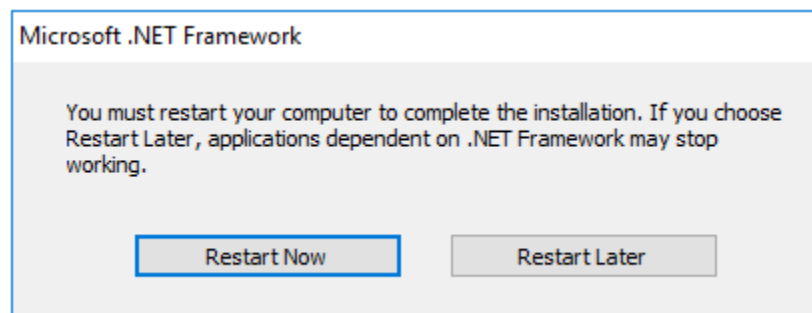
After the server reboots, Run the VIX Service Installation Wizard as an administrator and if prompted with "Do you want to allow the following program from an unknown publisher to make changes to this computer?", click **Yes,** as discussed in steps 5 and 6, and then continue to step 8.

8. When the Welcome page for the VIX Service Installation Wizard displays, click **Next.**
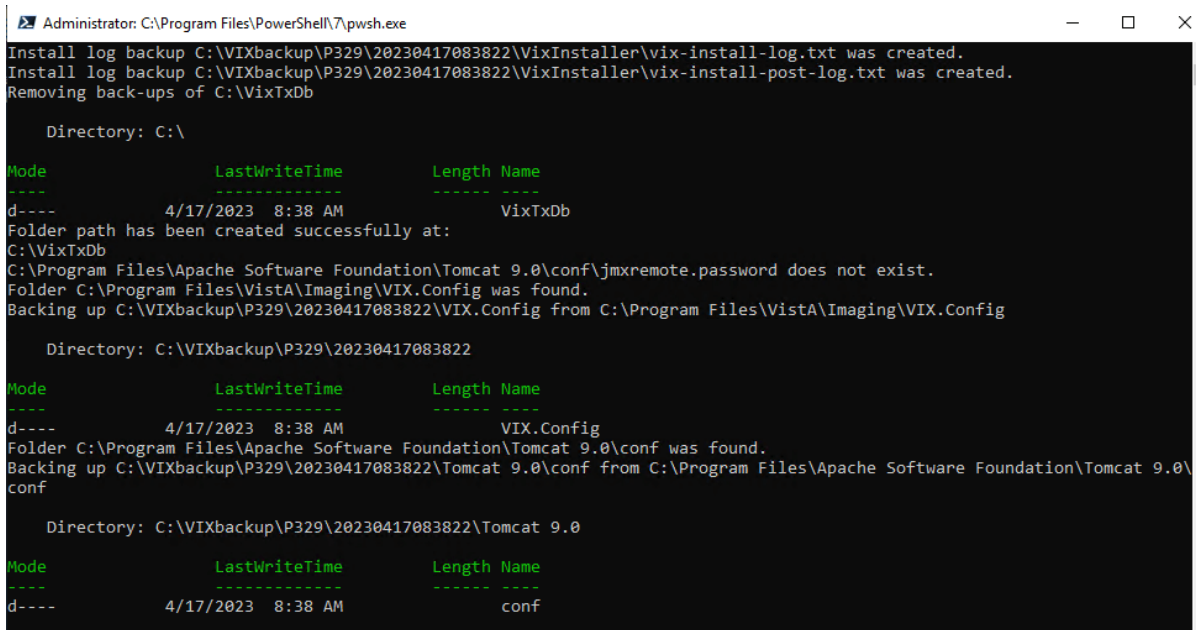
9. **Click** on the button labeled **Uninstall version 30.329.1.XXXX** to uninstall (Figure 34) the pre-existing VIX software. (If it is not already stopped, the wizard gracefully stops the VIX service before performing the uninstall.)

Figure 34: Update VIX Components
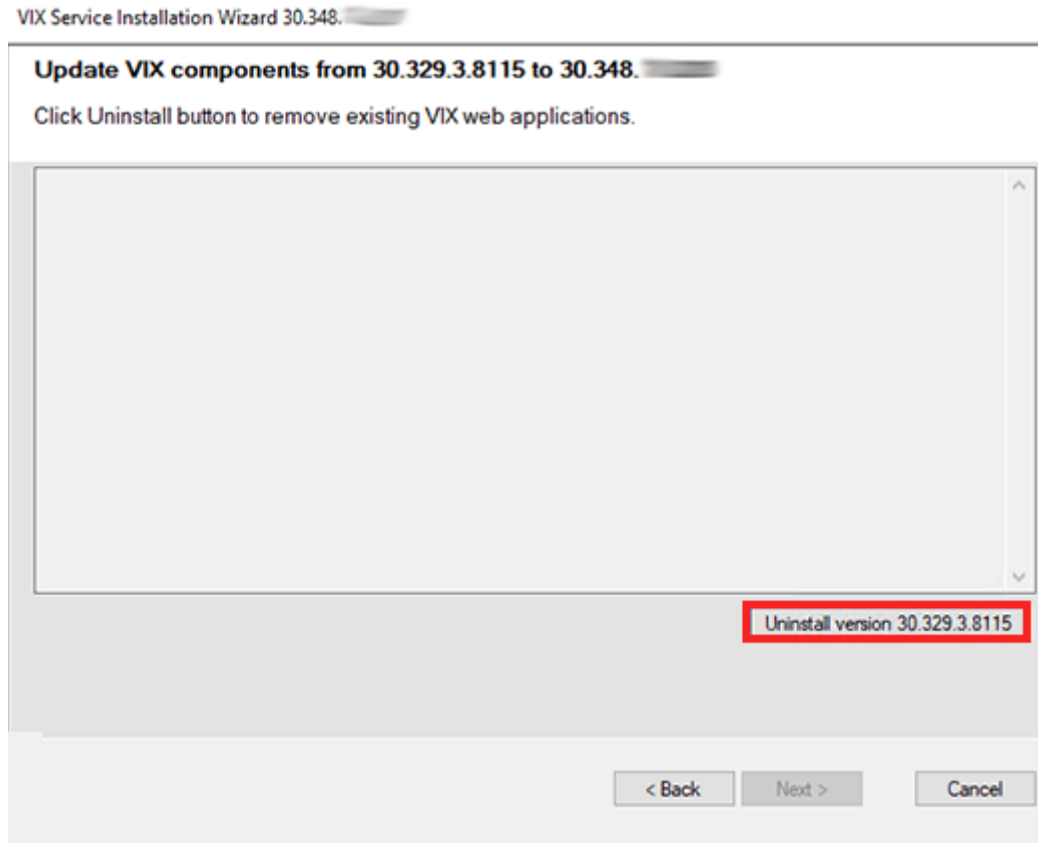
10. During the uninstall, a PowerShell script utility pops up (Figure 35) to perform back-ups of prior configuration files and, if present, execute any patch-specific pre-scripts. Please be patient, as this step may take up to five minutes. The PowerShell window closes when complete.

Figure 35: Update VIX Components PowerShell Pop-up Script


```
Administrator: C:\Program Files\PowerShell\7\pwsh.exe                    —    □    ×
Install log backup C:\VIXbackup\P329\20230417083822\VixInstaller\vix-install-log.txt was created.
Install log backup C:\VIXbackup\P329\20230417083822\VixInstaller\vix-install-post-log.txt was created.
Removing back-ups of C:\VixTxDb

    Directory: C:\

Mode                LastWriteTime         Length Name
----                -------------         ------ ----
d----         4/17/2023   8:38 AM                VixTxDb
Folder path has been created successfully at:
C:\VixTxDb
C:\Program Files\Apache Software Foundation\Tomcat 9.0\conf\jmxremote.password does not exist.
Folder C:\Program Files\VistA\Imaging\VIX.Config was found.
Backing up C:\VIXbackup\P329\20230417083822\VIX.Config from C:\Program Files\VistA\Imaging\VIX.Config

    Directory: C:\VIXbackup\P329\20230417083822

Mode                LastWriteTime         Length Name
----                -------------         ------ ----
d----         4/17/2023   8:38 AM                VIX.Config
Folder C:\Program Files\Apache Software Foundation\Tomcat 9.0\conf was found.
Backing up C:\VIXbackup\P329\20230417083822\Tomcat 9.0\conf from C:\Program Files\Apache Software Foundation\Tomcat 9.0\
conf

    Directory: C:\VIXbackup\P329\20230417083822\Tomcat 9.0

Mode                LastWriteTime         Length Name
----                -------------         ------ ----
d----         4/17/2023   8:38 AM                conf
```

11. When the Uninstall is complete, **Press Next to continue** displays in the VIX Service Installation Wizard, click **Next.**

12. On the "Specify the VA Site the VIX will service" page, if in Developer Mode (selected after clicking the lower left corner of the VIX Service Installation Wizard in the grey notch) the **Site Service URL** appears.

    NOTE: Only use Developer mode in the event that changes are needed to the Site Service URL.

13. In the **Site Number** field of the "Specify the VA Site the VIX will service" page, verify that the **Site Number** box shows your STATION NUMBER (field (#99) in the INSTITUTION file (#4) of your site, the information is in FileMan in VistA).

14. Confirm the connection by clicking **Lookup Server Address**. Then click **Next** (Figure 36).

Figure 36:Specify the VA site the VIX will service

15. Please be patient for the VIX Prerequisites page to appear, as it may take a while. When the Install the VIX Prerequisites page displays, read the line that indicates the state of the Java Runtime Environment. If ✅ displays, skip to the next step. If ❌ displays (Figure 37), do the following:

   a. Click Install.

   b. Wait until the status icon for the Java Runtime Environment changes to ✅. (This install of Java may take over five minutes to complete. Please be patient, as this step may take a while to complete.)

Figure 37: VIX Prerequisites - Java Not Installed
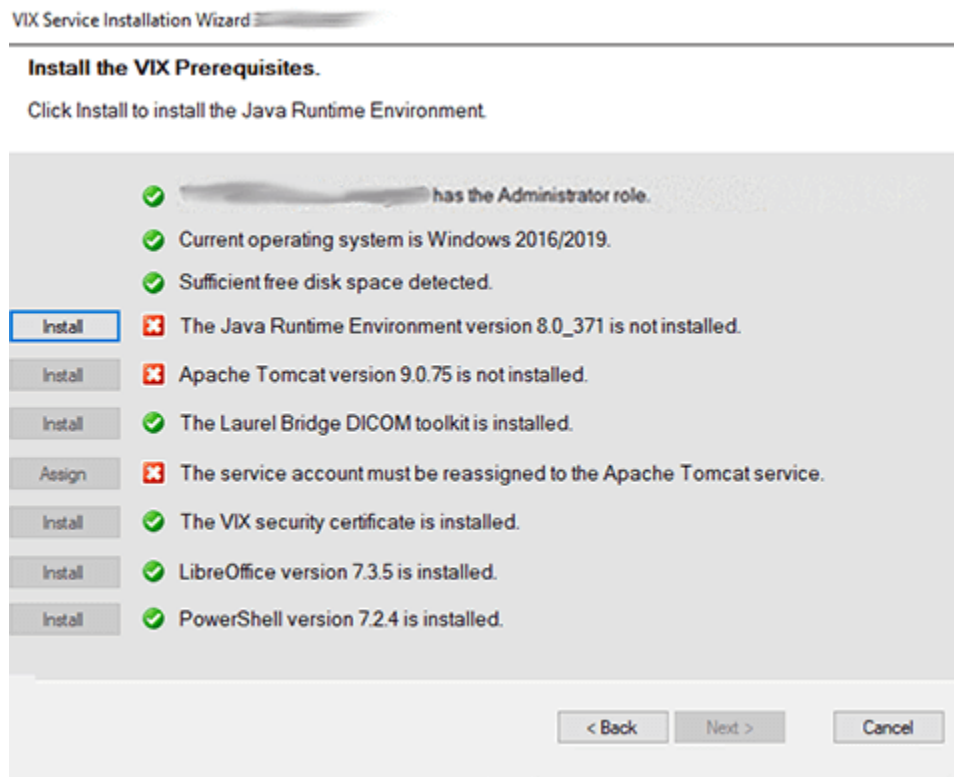
NOTE: The person installing the VIX software does not need to be in the VHAMASTER domain. The installer's domain should appear with their name. This (and subsequent screenshots) is just an example of what the installer sees.

16. On the same page, read the line that indicates the state of the Apache Tomcat installation. If ✅ displays, skip to the next step. If ❌ displays (Figure 38), do the following:

   a. Click **Install**.

   b. Wait until the status icon for Apache Tomcat changes to ✅. (This install of Tomcat may take over five minutes complete. Please be patient, as this step may take a while to complete.)

Figure 38: VIX Prerequisites - Tomcat Not Installed

17. On the same page, check the line that indicates the state of the Laurel Bridge toolkit. Verify ✅ displays. If ❌ displays, click the **Install** button next to the Laurel Bridge item. If necessary and only if the Activate DCF License window opens, continue with the steps below. Otherwise skip to the next prerequisite step. If necessary, refer to the *Laurel Bridge DCF Toolkit* instructions to obtain an updated serial number and activation code.

   a. The activate DCF License window opens with the **Network Activation** tab open and pre-populates with about half of the boxes in the window.

   b. For **Network Activation** (requires a Product Serial Number) enter all the following information in the Network Activation tab:

   NOTE: The system disables the Activate button if any of the following boxes are left blank.

      i. **Product Serial Number** – the new Laurel Bridge DCF serial number (include dashes).

      ii. **Site** – the name of your site.

      iii. **CPUs** – the number of CPUs on the server hosting the VIX.

iv. **End User name** and **End User email** – the administrator of your local VistA Imaging system.

v. **Maintenance Contact Name**, **Maintenance Contact E-mail,** and **Maintenance Contact Phone** – information for the Health, Clinical Services Diagnostics Team.

c. Near the bottom of the window, click **Activate**. After a brief delay, the **Status** box displays a message.

d. If a green "Success" message appears click **Exit with success** and skip to the next prerequisite step, otherwise select the Manual Activation tab.

e. If network activation was not successful, for **Manual Activation** do the following:

 i. Select the Manual Activation tab.

 ii. On the Manual Activation tab on the line **Activation Code**, enter the activation code.

 iii. Near the bottom of the window, click Activate. After a brief delay, the Status box displays a message.

 iv. If a green "Success" message appears click **Exit with success** and skip to the next prerequisite step, otherwise download the Laurel Bridge license from Laurel Bridge's website and continue with the steps below.

 NOTE: If downloading the Laurel Bridge license, such as using the Manual Product License Activation from https://laurelbridge.com/product_activation.php, please select the Version in the drop-down as 3.3.x before clicking Submit.

 v. Click **Exit with error** to close out of the Manual Activation tab.

 vi. Copy the contents of the downloaded Laurel Bridge license into the systeminfo file in C:\DCF_RunTime_x64\cfg and save.

 vii. Click **Install** again next to the Laurel Bridge DICOM toolkit on the prerequisite window.

18. On the same page, read the line that indicates the state of the service account. If ✅ displays, skip to the next step. If ❌ displays, do the following:

a. Click **Assign** (Figure 39).

Figure 39: Apache Tomcat Service Account Password
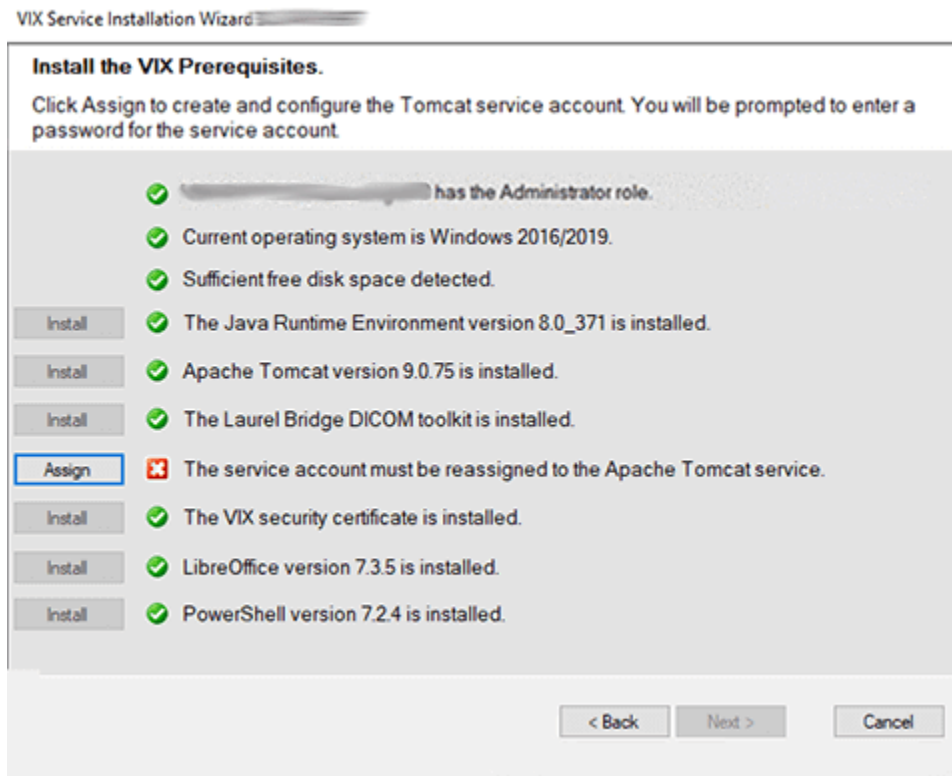
b. In the dialog box that displays enter the Windows service account password that you previously prepared in *Preparing Passwords, Activating Components, and Staging Files.* Then click **OK**.

o The password is case sensitive, must contain at least **fourteen (14) alphanumeric characters,** and must contain at least one capital letter and one number.

c. Wait until the status icon for the service account changes to ✅.

19. On the same page, check the line that indicates the state of VIX security certificate. Verify ✅ displays.

20. On the same page, read the line that indicates the state of the LibreOffice installation. If ✅ displays, skip to the next step. If ❌ displays, do the following:

    a. Click **Install**.

    b. Wait until the status icon for LibreOffice changes to ✅. (This install of LibreOffice may take several minutes to complete. Please be patient, as this step may take a while to complete.)
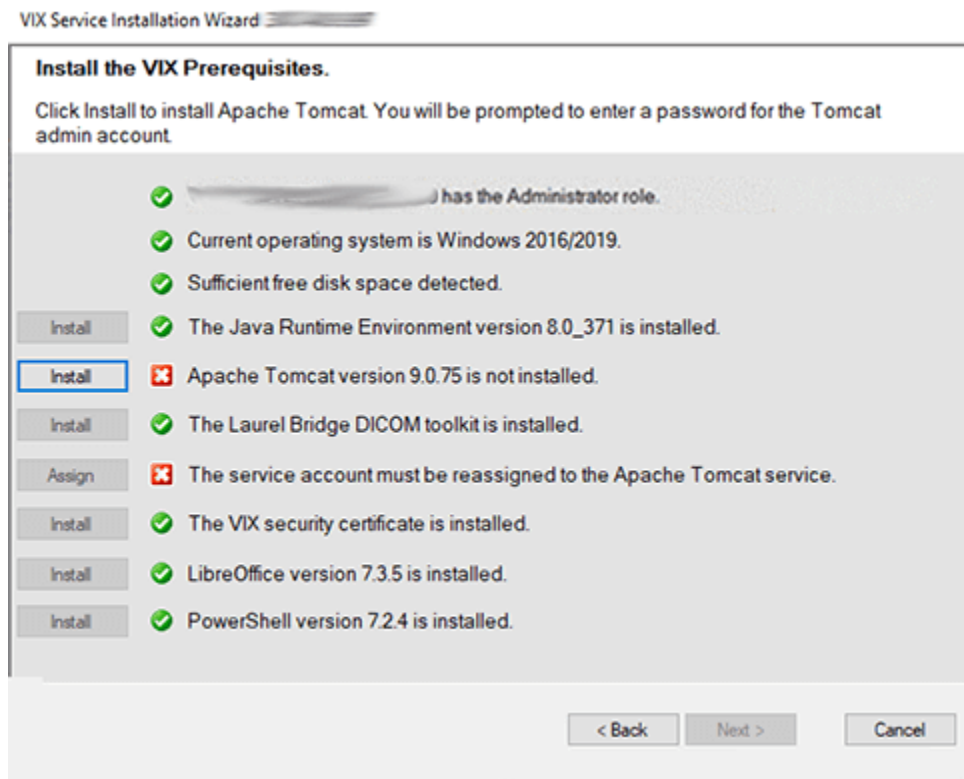
21. On the same page, read the line that indicates the state of the PowerShell installation. If ✅ displays, skip to the next step. If ❌ displays, do the following:

    a. Click **Install**.

    b. Wait until the status icon for PowerShell changes to ✅. (This install of PowerShell may take several minutes to complete. Please be patient, as this step may take a while to complete.)

NOTE: Do not update the PowerShell 7 version with Windows updates.

22. Once PowerShell is installed, the Install the VIX Prerequisites page will update with a ✅ icon. Confirm that all the icons are ✅ and click **Next** (Figure 40).

Figure 40: All VIX Prerequisites Installed or Configured
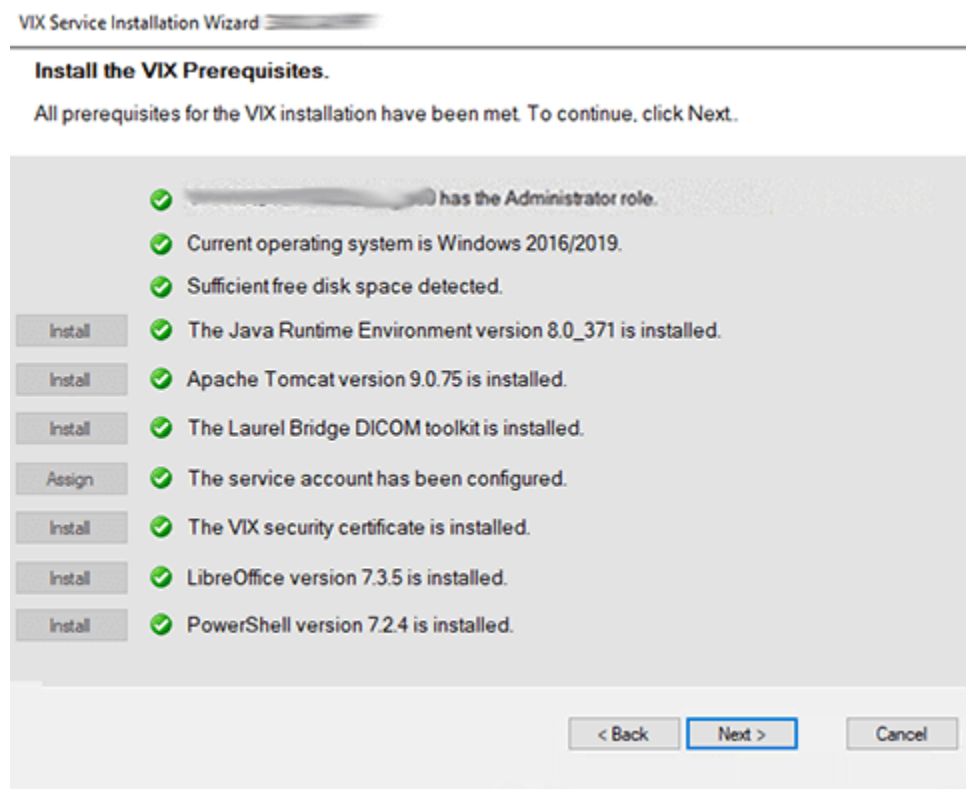
23. If you want to keep your existing locations for the VIX configuration files and the VIX cache, and the Create buttons are grayed out, skip to the next step.

    If you want to change the locations for the VIX configuration files and the VIX cache, select the "C:\" drive for VixConfig folder and the appropriate VIX cache drive for the VixCache folder for your site. Ensure the VIX cache drive correctly points to the drive letter that is currently being used, for example, "E:\VIXCache" as displayed in Figure 41. For each folder, click **Create** to confirm and create the folders.

24. If you want to change or need to update the location for the VIX log archive, ensure the VIX log archive drive correctly points to the drive letter currently being used, for example, "E:\ImagingArchivedLogs" as displayed in Figure 41, and click either **Create** or **Update**. Then, click **Next**.

    If you want to keep the existing locations for the VIX log archive, and the Create or Update button is grayed out, click **Next**.

    NOTE: It is necessary to click **Update** if Apache Tomcat was installed on the VIX Prerequisites page.

    NOTE: It is suggested to use the same local drive for the VIX Cache and VIX log archive.

Figure 41: VIX Cache, Configuration, and Log Archive Folder Creation

25. In the Specify the VistA and Email Configuration, specify the access and verify codes for the account with the VistA credentials. If the email address(es) has changed, specify the email address(es) that gets notifications for invalid credentials. You can enter several email addresses, separated by a comma. Click **Confirm** (Figure 42).

NOTE: Hidden/asterisk and plain text forms of the access and verify codes can by toggled. Click **Show** to show the plain text forms and click **Hide** to show the hidden/asterisk forms.

NOTE: The VIX uses this account for periodic processing of ROI disclosure requests and DICOM SCP query retrieve requests. The account must be valid VistA credentials with the settings described in *Appendix D: Service Account Settings*.

NOTE: The VIX sends an email notification to the address or addresses specified if the ROI periodic processing credentials are expired or invalid.

Figure 42: Specify the VistA and Email Configuration - Before Confirm

26. In the Specify the VistA and Email Configuration, after it confirms the configuration, **Next** becomes available. Click **Next** (Figure 43).

NOTE: During VistA Configuration validation, the VIX installation program checks the information. If the installation program detects an error, it displays a tooltip with information about the error.

Figure 43: Specify the VistA and Email Configuration - After Confirm

27. In the Specify the MUSE Configuration, verify if the MUSE settings have not changed since the prior installation and if you want to keep the existing values. If changes are needed, if enabling the MUSE, **check** Enable and configure MUSE. Specify the MUSE site number, server host, username, password, port, and protocol. If changes are needed, please refer to *Appendix A: Enable* MUSE Functionality for additional information to assist with the MUSE configuration. Click **Confirm** (Figure 44).

NOTE: Hidden/asterisk and plain text forms of the username and password can by toggled. Click **Show** to show the plain text forms and click **Hide** to show the hidden/asterisk forms.

NOTE: It is expected that the site administrator is aware of all needed entries in the MUSE configuration, including the MUSE Site Number, Host, Username, Password, Port, and Protocol if changes are needed. One method to obtain the MUSE site number, host, and username is from the Background processor discussed in *Appendix A: Enable* MUSE Functionality. If the password is not documented in existing site VistA Imaging documentation or if not available, please contact the local BioMed team or MUSE administrator. The default standard MUSE port is REDACTED and protocol is http. The default MUSE™ NX port is REDACTED and protocol is https. Contact the local BioMed team or MUSE administrator if the MUSE port and protocol are not known.

Figure 44: Specify the MUSE Configuration - Before Confirm

28. In the Specify the MUSE Configuration, after it confirms the configuration, Next becomes available. Click **Next** (Figure 45).

NOTE: During MUSE Configuration validation, the VIX installation program checks the information. If the installation program detects an error, it displays a tooltip with information about the error.

Figure 45: Specify the MUSE Configuration - After Confirm

29. On the Install the VIX page (Figure 46), if in Developer Mode (selected after clicking the lower left corner of the VIX Service Installation Wizard in the grey notch) a check box appears to "Update server.xml as if new installation.". This checkbox can be checked if changes are being made to the Specify Site and Site Service Information a page since the last installation.

NOTE: Only use Developer mode and checkbox in the event that changes are needed to the Site Service or Site Information.

Figure 46: Begin the VIX and VIX Viewer/Render Services Install Developer Mode
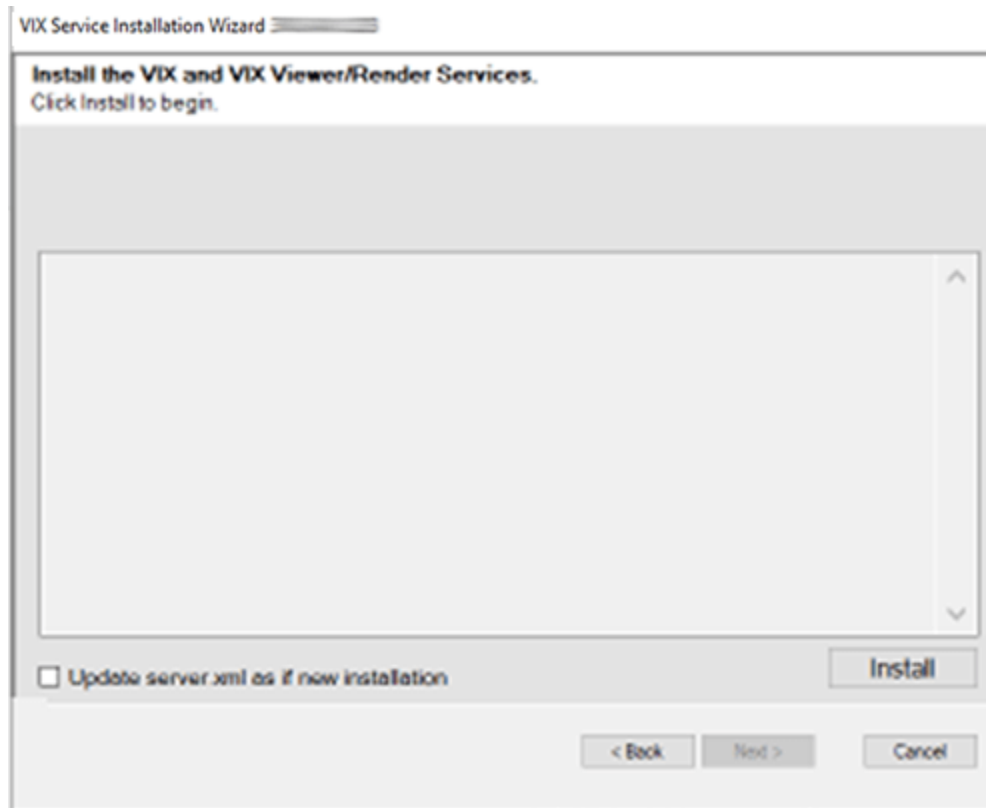
30. On the Install the VIX page (Figure 47), click **Install.** (The information on this page is saved in C:\Program Files (x86)\VistA\Imaging\VIXInstaller for future reference or troubleshooting.) This starts the installation process of the VIX and the VIX Viewer/Render Services.

Figure 47: Begin the VIX and VIX Viewer/Render Services Install
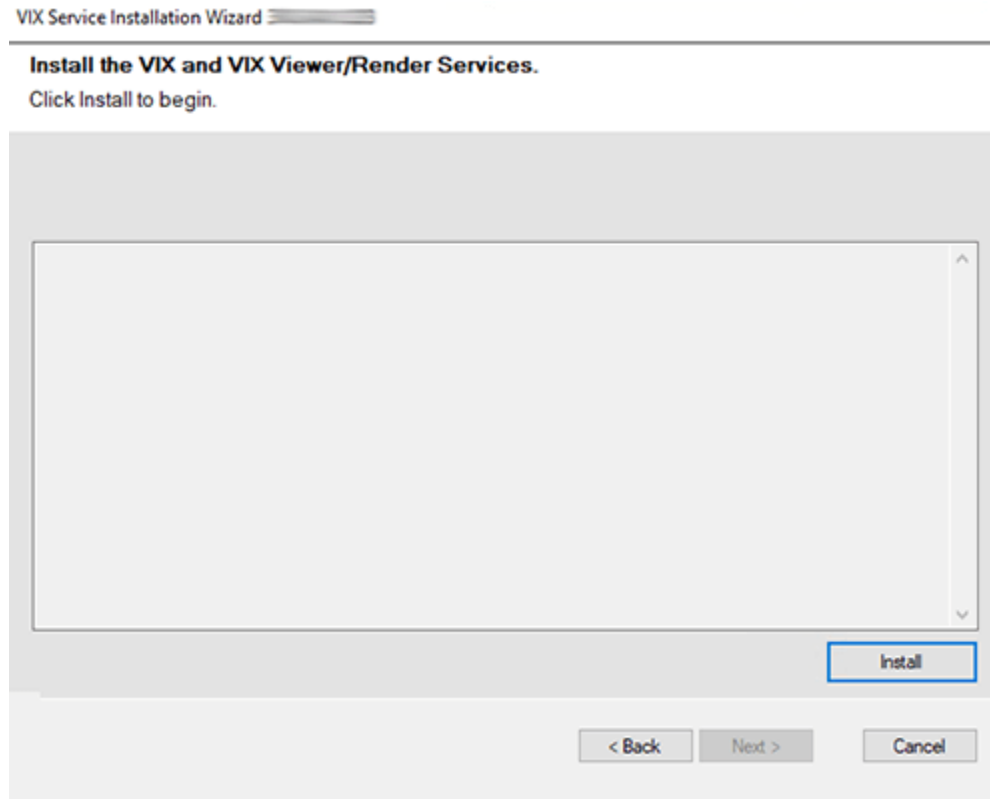
a. Wait a moment and then click **Configure Viewer/Render** (Figure 48).

Figure 48: VIX Viewer/Render Info Dialog Screenshot
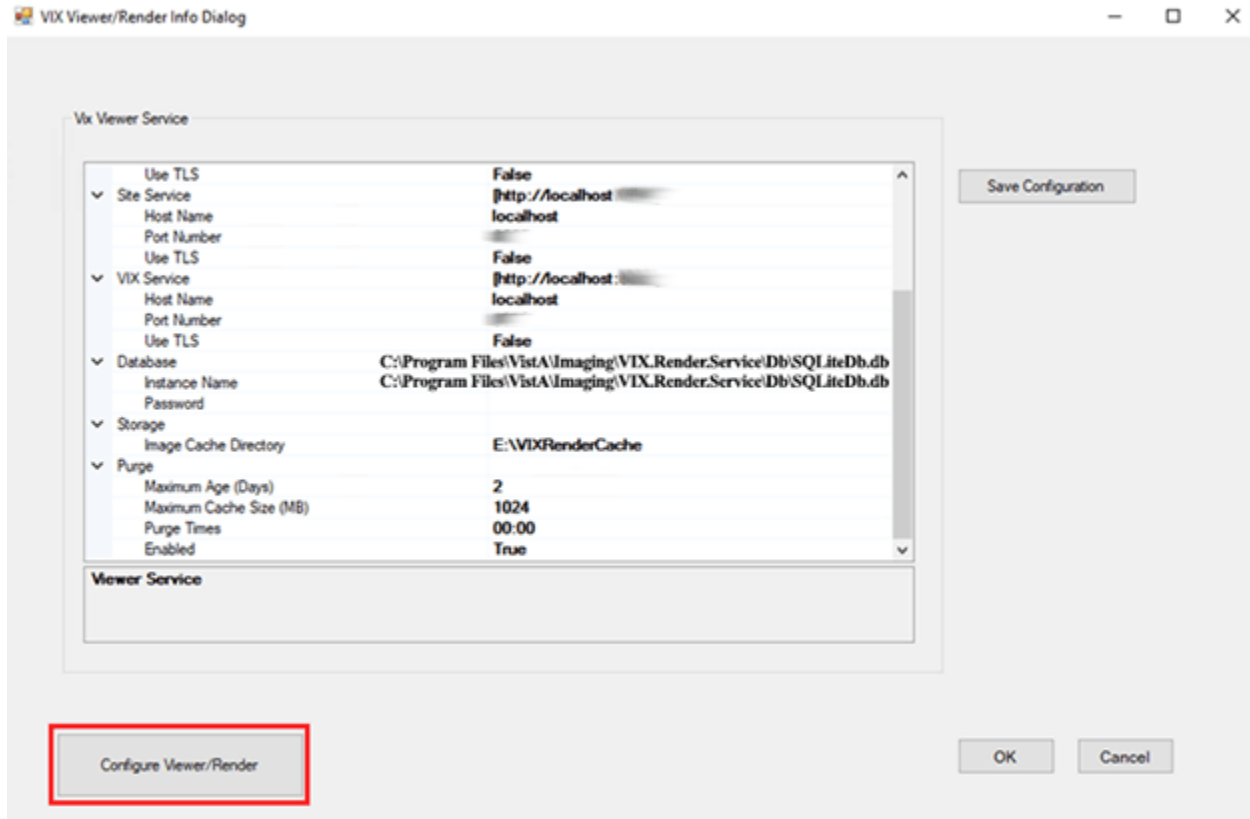
b. Verify the following settings:
   i. Verify the viewer port number is REDACTED.
   ii. Verify the trusted client port is REDACTED.
   iii. Verify the Render Service > Port Number is REDACTED.
   iv. Verify Site Service > Host Name is localhost.
   v. Verify Site Service > Port Number is REDACTED.
   vi. Verify VIX Service > Host Name is localhost.
   vii. Verify Database > Instance Name is C:\Program Files\VistA\Imaging\VIX.Render.Service\Db\SQLiteDb.db.
   viii. Verify the image cache directory drive is the dedicated VIX cache drive. (i.e. "E:\VIXRenderCache").

c. If setting values were modified, click the **Save Configuration** button in the top right corner, otherwise skip to the next step.

NOTE: The 'Save Configuration' button does not activate unless you changed the configuration (Figure 49).

Figure 49: Save/Configuration Button
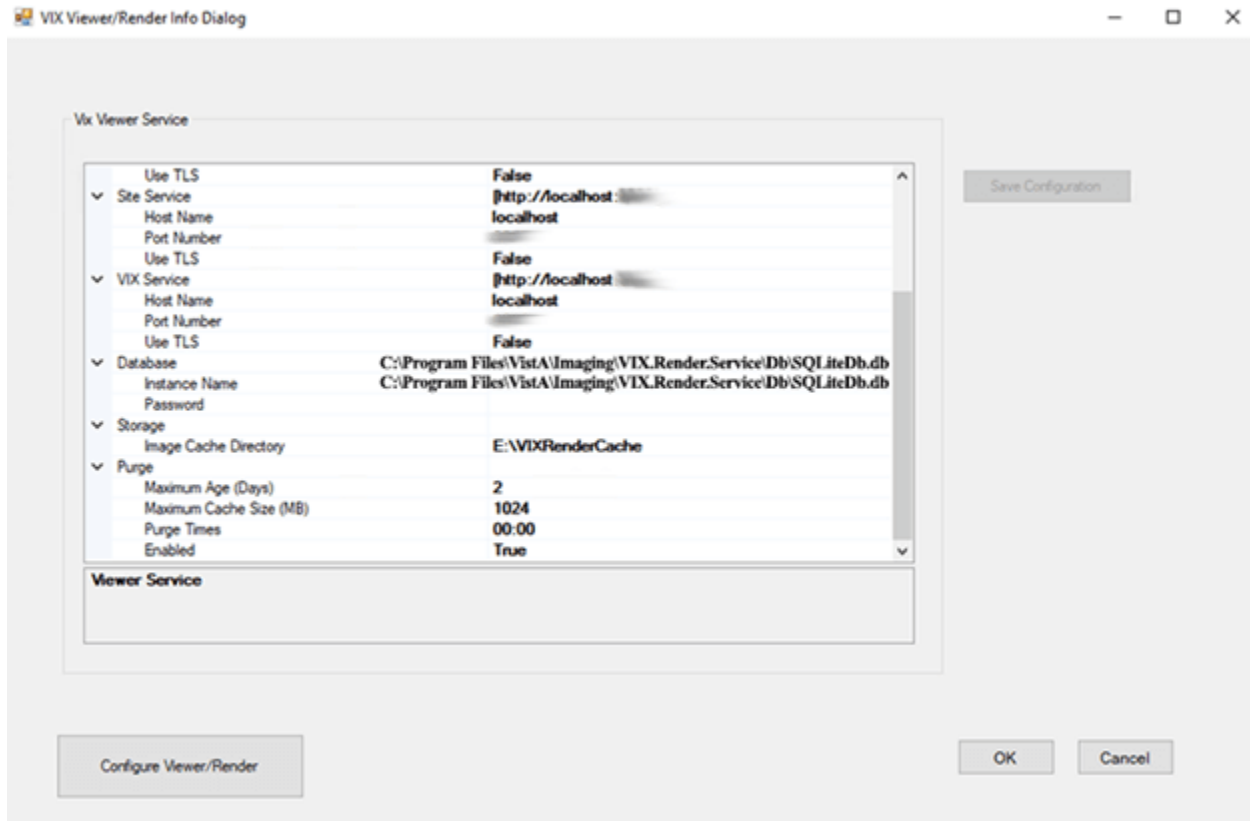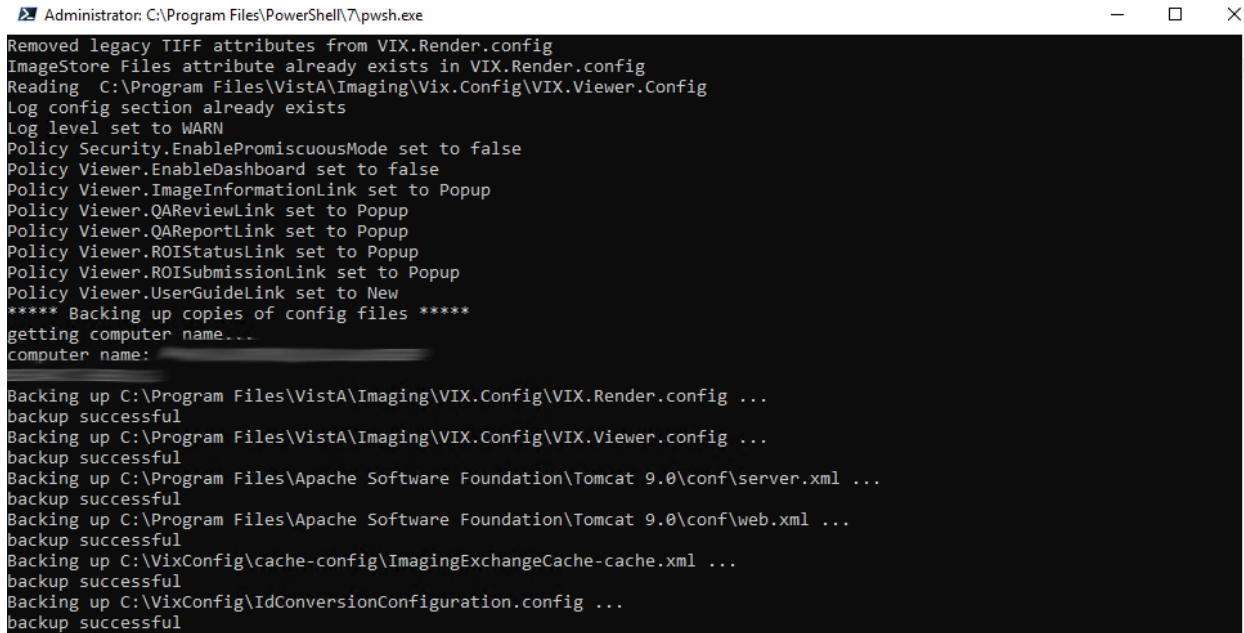
d. Click **OK**.

e. The installation updates the VIX Viewer/Render Services will be updated in the background. Then the VIX installation finishes. This takes up to over five minutes to complete.

31. During the final install, a PowerShell script utility pops up (Figure 50) to perform additional install tasks and closes when complete.

NOTE: The PowerShell pop-up performs various configuration and certificate tasks and executes patch-specific post-scripts.

NOTE: If the MUSE service is not enabled, the PowerShell pop-up may display a red error message in the MUSE check section. See *Appendix A: Enable MUSE Functionality*.

Figure 50: PowerShell Pop-up Script Top Portion

32. When the installation completes, the VIX automatically starts the Tomcat, Viewer, and Render services. Click **Finish** to exit the wizard (Figure 51). The VIX Service Installation Wizard closes.

Figure 51: VIX Installation Complete
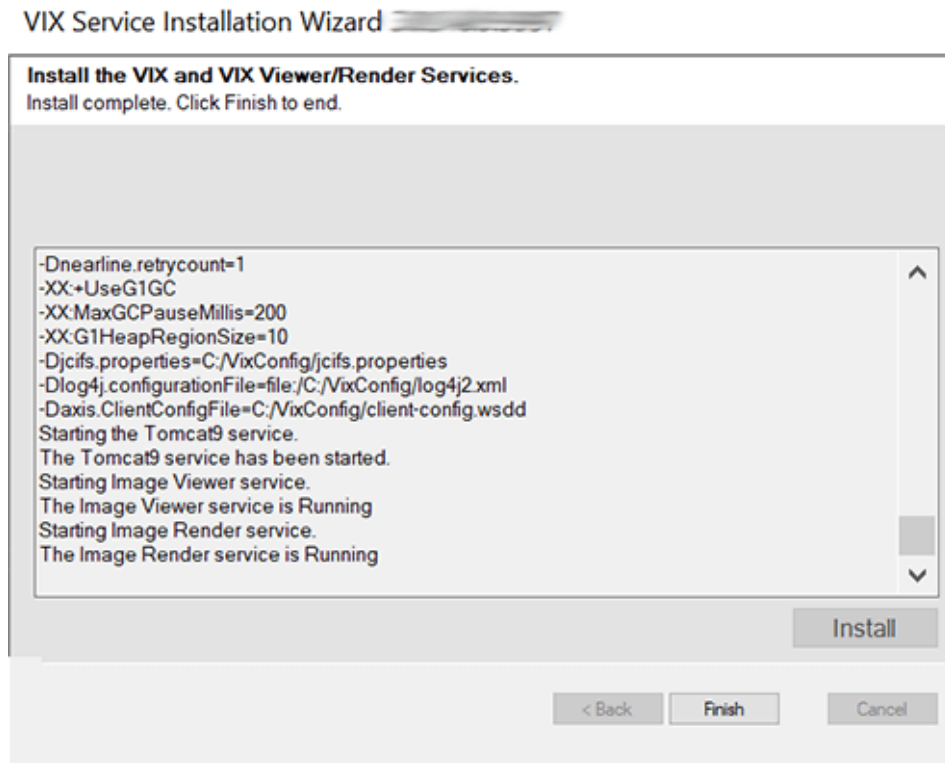
33. Continue to *Post-Installation for New VIX Installations and Updating Existing VIX Installations.*

4. Post-Installation for New VIX Installations and Updating Existing VIX Installations

4.1. Verifying Installation/Upgrade is Complete

Verify that your installation is complete by obtaining the current version (Figure 52). Follow these steps:

1. Go to the VIX homepage: **https://*FQDN of VIX server*/**
2. The current version is listed in the format XX.XXX.X.X. The first two digits represent Version 3.0 of the VistA Imaging system. The next three digits are the number of the latest patch that has affected the VIX. This patch number should match the number of the VIX component you have most recently installed.

Figure 52: VISA Version Verification
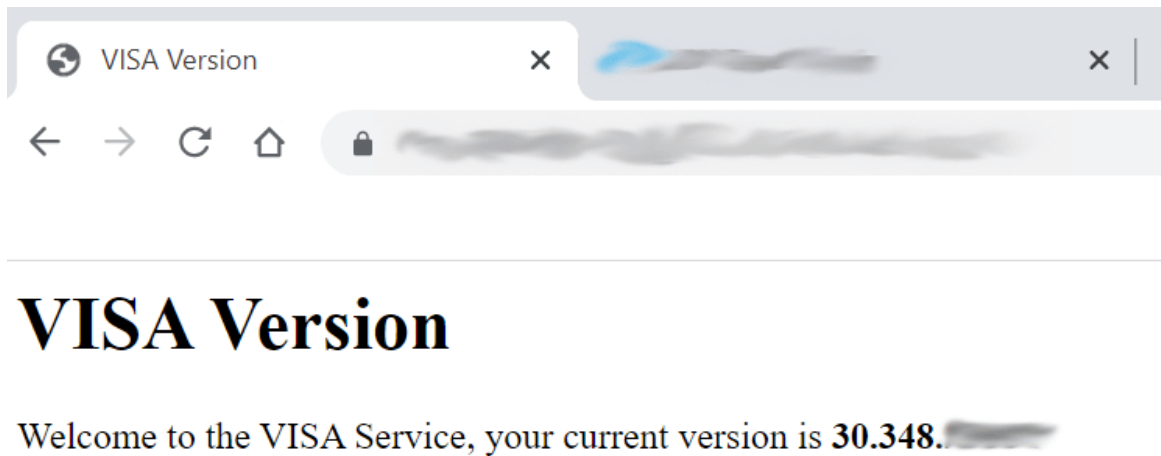
NOTE: Alternatively go to: **https://*FQDN of VIX server*:REDACTED/vix/viewer/version** to obtain the current version.

3. Verify VIX Viewer and VIX Render services are running (Figure 53).

Figure 53: VIX Viewer and Render Services Running
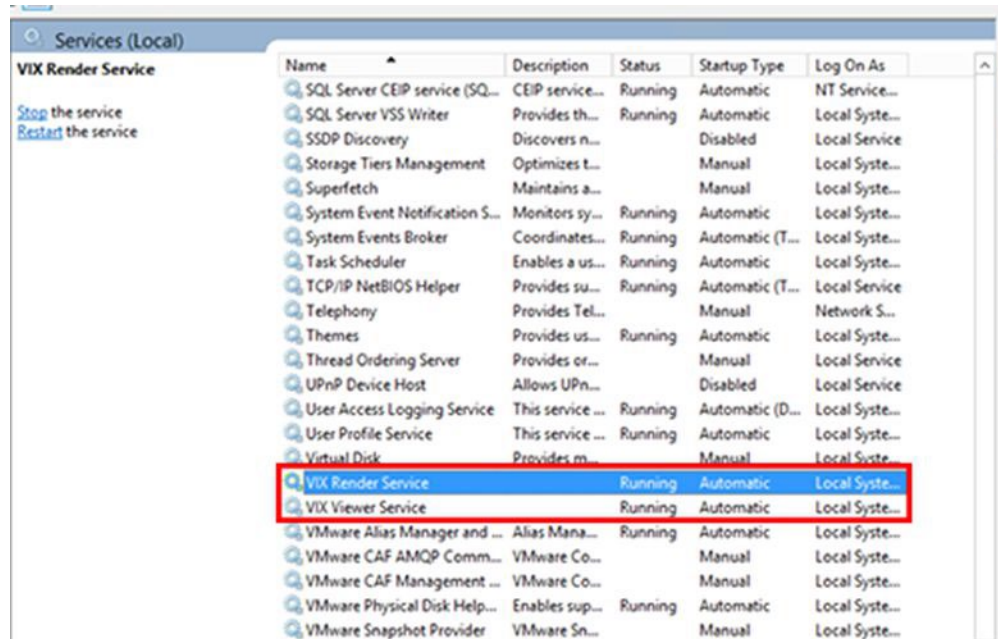
4. Verify that you have 10 Hydra IX Processor and 5 Hydra VistA Worker processes running (Figure 54):

Figure 54: 10 Hydra IX Processor and 5 Hydra VistA Worker Processes Running

4.2. Verifying VIX Operations

After a VIX is installed and is registered with the Image Exchange Service (not needed if VIX is only being updated), Clinical Display (MAG*3.0*258 or later) and VistARad (MAG*3.0*199 or later) workstations automatically start using the VIX.

- Clinical Display begins sending requests for remote data to the VIX immediately. No configuration changes are required for Clinical Display to start using the VIX.

- VistARad needs some local configuration changes to enable some of its VIX-supported capabilities; refer to the VistARad documentation for details.

- JLV Image Viewing does not require any additional configuration changes. The Image Viewer should launch without issue and be able to display MUSE images.
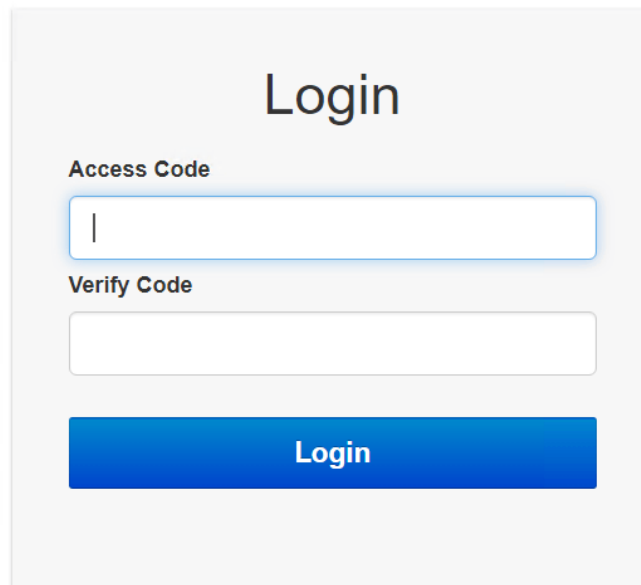
NOTE: Please use either Chrome or Edge on your Government Furnished Equipment (GFE) or VIX server to verify and perform VIX Operations.

4.2.1. Verifying Access to the VIX Tools and VIX Transaction Log

VIX administrators can use the VIX Tools as described in the *VIX Administrator's Guide* with a listing of available tools in Appendix B: VIX Tools of the VIX Administrator's Guide.
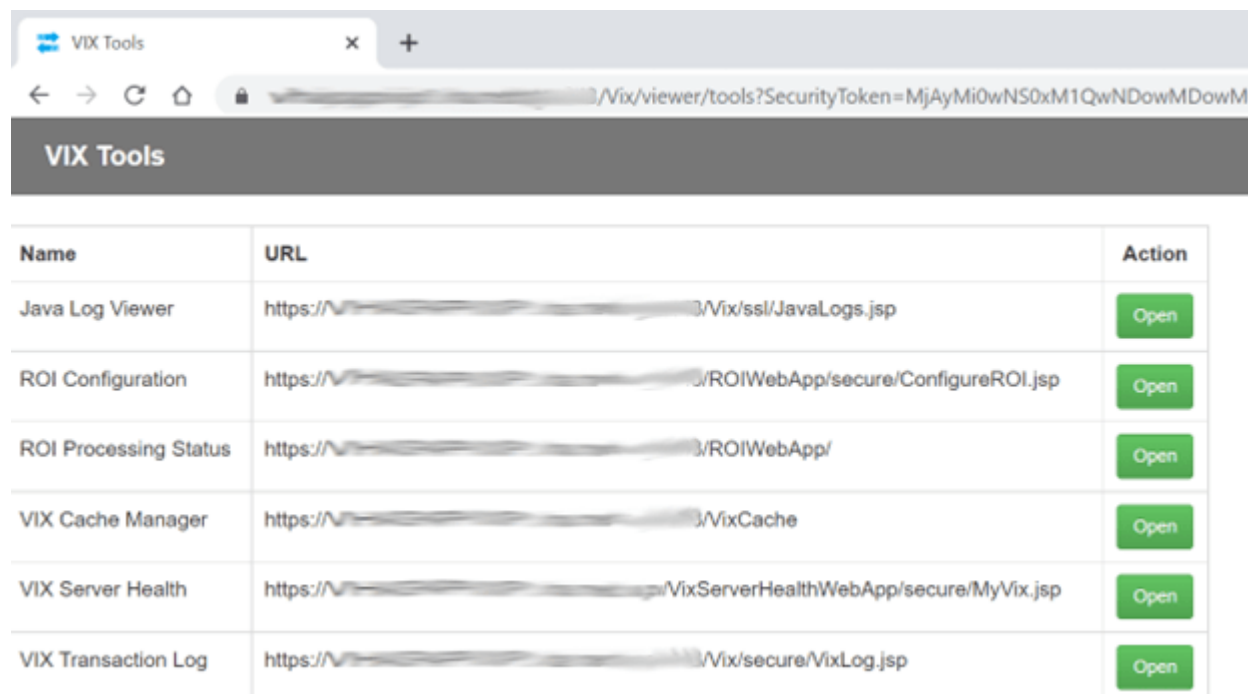
To access the VIX Tools, navigate to REDACTED/vix/viewer/tools to be prompted to login (Figure 55). Use a VistA account with the MAG VIX ADMIN security key and INITIAL to log in.

Figure 55: Login Page

The VIX transaction log can be used to monitor VIX activities. Once logged in to the VIX Tools page, access to the transaction log at **http://*FQDN*:<mark>REDACTED</mark>/Vix/secure/VixLog.jsp** is available
(where *FQDN* is the fully qualified domain name of the VIX server) (Figure 56).

Figure 56: VIX Tools Page

If you cannot access the transaction log, verify that the VIX service is running.

If the VIX is running, but you cannot access the transaction log, ensure that ports <mark>REDACTED</mark>, <mark>REDACTED</mark>, and <mark>REDACTED</mark> on the VIX server are not blocked. Possible culprits of a blocked port include antivirus firewalls and modifications to ACLs (Access Control Lists).

For detailed information about the transaction log contents, refer to the *VIX Administrator's Guide.*

4.2.2.   Spot-Checking VIX Image Delivery

This section shows different ways you can spot-check displaying remote images.

1. Using JLV:
   a. Select an image with a camera icon, and launch the Image Viewer to display the selected image.
   b. Select the "Cardiology Studies VA MUSE Only" widget, and view a MUSE EKG image by selecting the camera icon. This launches the Image Viewer to display the selected MUSE EKG image.
   c. Turn on the Display DOD Image User Preference in JLV. View a DoD image by selecting the camera icon. This launches the Image Viewer to display the selected DoD image.
2. On the Clinical Display workstation:

a. Select a patient with remote images.

b. If it is not visible already, display the Abstracts area to display an abstract for one of the remote images.

c. Right-click the abstract for the remote image, and open the Image Information Advanced window.

d. In the Image Information Advanced window, check the IEN (Internal Entry Number) value or Image Number. If the value starts with "urn", the remote image was retrieved by the VIX.

4.3. DICOM SCP Configuration

Please refer to *Appendix B: DICOM SCP Configuration* to configure the DICOM SCP.

5. Troubleshooting

5.1. Resuming an Interrupted VIX Installation

If you have had to interrupt or cancel an in-progress VIX installation, you can resume the installation.

NOTE: If you re-run MAG3_0P*number*_VIX_SETUP.msi, you are repeating the installation of the VIX Service Installation Wizard software, not the installation of the VIX itself. If you do this, click **Cancel**, choose **Yes** when prompted for confirmation, and then exit the installer. Then restart the VIX installation following the steps below.

5.1.1. Resuming Installation (single server VIX)

1. Log onto the VIX server as an administrator.
2. Run the VIX Service Installation Wizard as an administrator (Figure 57 shows this for a server with Windows Server 2019).
   a. **R**ight-click **Start**.
   b. **L**eft-click **Search**.
   c. Type **VIX**.
   d. **R**ight-click VIX Service Installation Wizard.
   e. **L**eft-click Run as administrator.

Figure 57: Run the VIX Service Installation Wizard
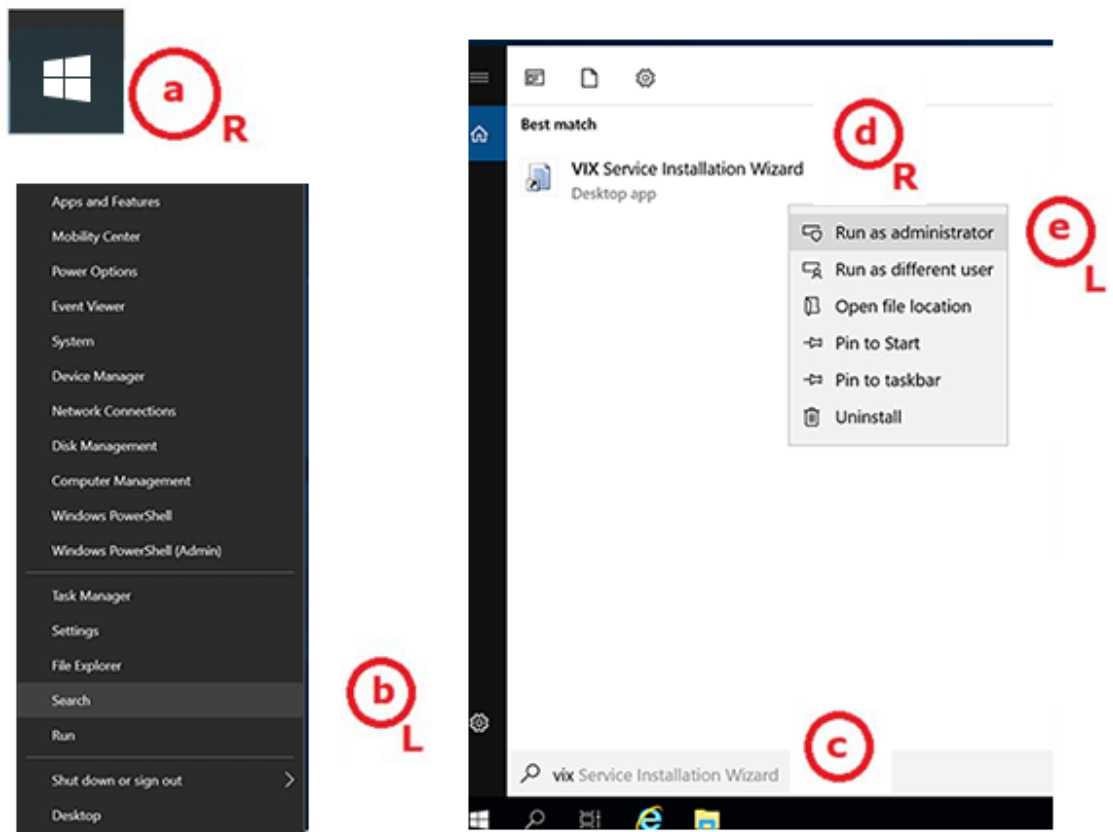
3. If prompted with "Do you want to allow the following program from an unknown publisher to make changes to this computer?", click **Yes.**

4. Follow the steps for a new VIX installation, see *New VIX Server Installation* section, or for updating a VIX, see *Updating an Existing VIX* section.

5.2. Using the VIX Service Installation Wizard to Reconfigure the VIX

You must re-execute the VIX Service Installation Wizard if you need to:

- Change the drive where the VixCache, VixConfig, VixTxDb, and/or ImagingArchivedLogs folders are located. It is recommended that the VixCache, VixTxDb, and ImagingArchivedLogs folders reside on the same shared drive.

- Change the VIX configuration to use a different local VistA hostname or port number.

Using the VIX Service Installation Wizard to reconfigure VIX is like the steps for updating a VIX, except the process is much faster since no actual software is being installed.

TIP: Changing a VIX cache location or local connection information should take about 5 minutes.

5.2.1. Reconfiguring a VIX Server

1. Review the information in the *Scheduling Downtime and Impact of a VIX Update* section, and schedule downtime and notify appropriate groups of the downtime.

2. Run the VIX Service Installation Wizard as an administrator (Figure 58 shows this for a server with Windows Server 2019).

   a. **R**ight-click **Start**.
   b. **L**eft-click **Search**.
   c. Type **VIX**.
   d. **R**ight-click VIX Service Installation Wizard.
   e. **L**eft-click Run as administrator.

Figure 58: Run the VIX Service Installation Wizard

NOTE: If the VIX Service Installation Wizard does not appear in the Search bar as in Figure 58, a logout of the Windows administrator account session may be necessary. Alternatively, the server may be restarted. The VIX Service Installation Wizard may alternatively be run as an administrator by performing the following: open Windows Explorer and navigate to the **C:\Program Files (x86)\Vista\Imaging\VixInstaller** folder, **r**ight-click **VixInstaller.exe** and **l**eft-click **Run as administrator**.

3. If prompted with "Do you want to allow the following program from an unknown publisher to make changes to this computer?", click **Yes**.

4. When the Welcome page displays, verify that the screen displays "This wizard will guide you through the installation of the Vista Imaging Patch MAG*3.0*348 VIX" and click **Next**.

5. Then, when prompted to do so, click Uninstall version 30.348.xxx. (The wizard gracefully stops the VIX service before performing the uninstall.).

6. When the Uninstall is complete, **Press Next to continue** displays in the VIX Service Installation Wizard, click **Next.**

7. Click **Next** until the "Specify the VA Site the VIX will service" page displays.

8. On this page, verify that the **Site Number** box shows your STATION NUMBER (field (#99) in the INSTITUTION file (#4) of your site, the information is in FileMan in VistA). Then, click the **Lookup Server Address**.

9. Verify the correct hostname and port number for the local VistA system displays. Then, click **Next**.

10. When the Install the VIX Prerequisites page displays, click **Next**. (All prerequisites are installed already.)

11. On the "Specify the VA Site the VIX will service" page, do one of the following:
    a. If you are changing the location of the VIX cache and configuration files, select the new drive for each. Click **Create**. Then, click **Next**.
    b. If you are NOT changing the location of the VIX cache and configuration files, click **Next**.

12. In the Specify the VistA and email Configuration, do the following:
    a. Enter the access and verify codes. If you are changing the email address or addresses enter them. Click **Confirm**.
    b. Click **Next**.

13. In the "Specify the MUSE Configuration" page do one of the following:
    a. If you are changing the MUSE configuration, enter the configuration settings. Click **Confirm**. Then click **Next**.
    b. If you are NOT changing the location of the MUSE configuration, click **Next**.

14. In the Install the VIX page, click **Install**.

15. Wait a moment and then click **Configure Viewer/Render**.
    a. If you are changing the Viewer/Render configuration, enter the configuration settings. Click **Save Configuration**. Then click **OK**.
    b. If you are NOT changing the Viewer/Render configuration, click **OK**.

16. Wait until the installation is complete and click **Finish**.

17. Re-execute the Post-Installation instructions, see *Post-Installation for New VIX Installations and Updating Existing VIX Installations* section.

18. Check the apachetomcat user permissions on the YOUR_DRIVE_LETTER:\VixCache folder. If Modify and Write access rights are not present, run the tomcat permissions script, see *Tomcat User Permissions* section.

5.3.   Tomcat User Permissions

If encountering file system access errors after VIX Installation, start-up, slowness, or cache not-purged issues, please refer to Appendix C: VIX Utility Scripts of the VIX Administrator's Guide, for instructions to run the tomcat permissions script (permission_fixer.ps1).

To check the modify and write access on the YOUR_DRIVE_LETTER:\VixCache folder for the apachetomcat user permissions, right-click on the folder, select Properties > Security then select the apachetomcat user (Figure 59). If the Modify and Write access rights are not present for the apachetomcat user, run the tomcat permissions script (permission_fixer.ps1).

Figure 59: VixCache Properties Check
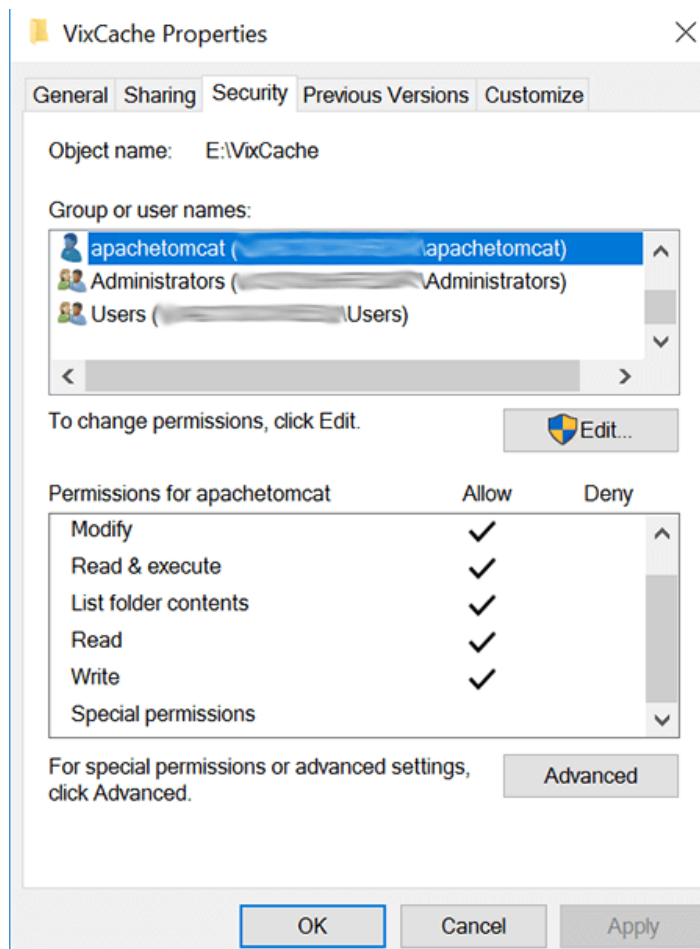
5.4.　Java Management Extensions (JMX)

If encountering errors starting the Tomcat service or errors during VIX Installation related to the jmxremote.password file, please refer to Appendix C: VIX Utility Scripts of the VIX Administrator's Guide, for instructions to run the Java Management Extensions (JMX) script (set_jmx_permissions.ps1).

5.5.　VIX Support

If you encounter problems installing the VIX, please call the Enterprise Service Desk at REDACTED.

6. Back Out/Uninstall

6.1. Stopping the VIX Services

This section describes stopping any currently running services to assist with the back out/uninstall for complete VIX removal.

(Server Manager | Tools | Component Services | Services (Local), or Task Manager | Services | Open Services), sort the Name column, and stop each VIX service shown below by selecting **Stop** (Figure 60).

- Tomcat9
- VIX Render Service
- VIX Viewer Service

Always use the Window 'Task Manager' to monitor the processing tasks as needed.

Figure 60: Stopping VIX Viewer Service
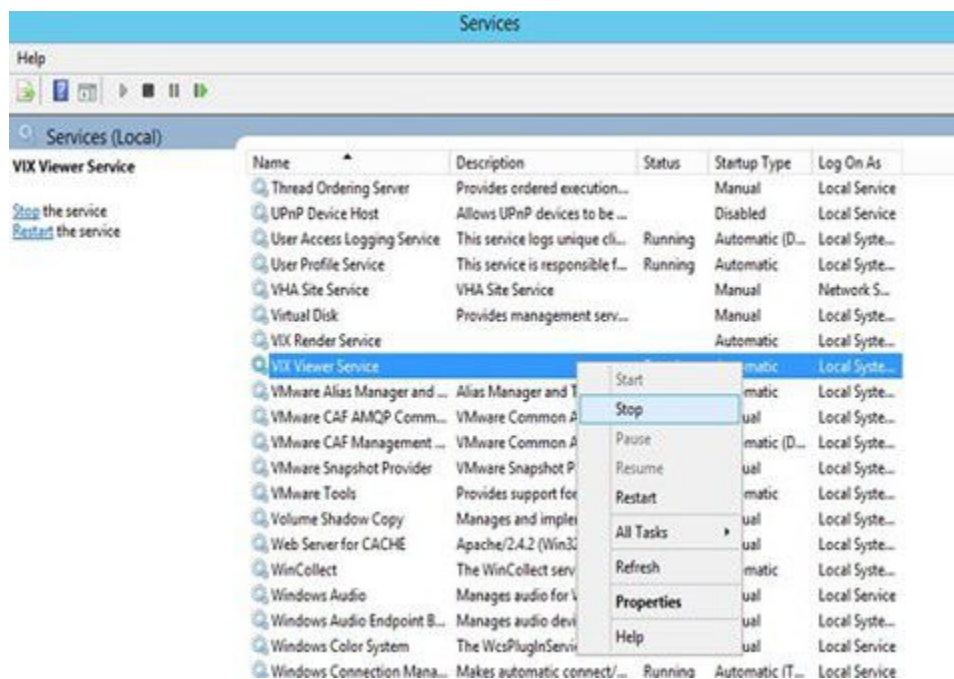
6.2. Back Out/Uninstall Scenarios

The information in this section addresses three possible cases that involve uninstalling a VIX:

- Troubleshooting
- Relocation onto a different server
- Decommission

Each of these scenarios is outlined in the following sections.

6.2.1. Uninstall/Restore as part of Troubleshooting

If you need to remove and then immediately reinstall the VIX on the same server for troubleshooting purposes, you need to do the following:

1. Locate the product serial number for the Laurel Bridge software that is bundled with the VIX. This number is in the license paperwork that was provided by <mark>REDACTED</mark> when the VIX was set up.

    NOTE: You need to re-enter this serial number as a part of the VIX installation process.

2. Run the VIX Service Installation Wizard as an administrator.
    a. **R**ight-click **Start**.
    b. **L**eft-click **Search**.
    c. Type **VIX**.
    d. **R**ight-click VIX Service Installation Wizard.
    e. **L**eft-click Run as administrator.

3. When the Welcome page displays, verify that the screen displays "This wizard will guide you through the installation of the Vista Imaging Patch MAG*3.0*348 VIX" and click **Next**.

4. Then, when prompted to do so, click **Uninstall version 30.348.xxx**. (The wizard gracefully stops the VIX service before performing the uninstall.)

5. When the Uninstall completes, "Press Next to continue" displays in the VIX Service Installation Wizard, click **Cancel**. Click **Yes** in the dialog box that displays "Do you really want to quit the VIX Service Installation Wizard?"

6. Go to the Control Panel, choose **Add/Remove Programs**, and remove the MAG*3.0*348 VIX Service Installation Wizard.

7. Re-execute the VIX installation as if for a new VIX, see *New VIX Server Installation* section.

8. Re-execute the Post-Installation instructions, see *Post-Installation for New VIX Installations and Updating Existing VIX Installations* section.

9. Check the apachetomcat user permissions on the YOUR_DRIVE_LETTER:\VixCache folder. If Modify and Write access rights are not present, run the tomcat permissions script, see *Tomcat User Permissions* section.

6.2.2. Relocating a VIX onto a New Server

If you need to remove all traces of the VIX from the old server and set up the VIX on a new server, you need to do the following:

1. Contact the <mark>REDACTED</mark> mail group and arrange to have the existing Laurel Bridge DCF toolkit licenses transferred to a new server.

2. Validate the new VIX server as described in the *Selecting and Validating the VIX Server* section.

3. Manually remove the VIX as described in the *Uninstalling the VIX* section below.

4. Re-execute the VIX installation as if for a new VIX, see *New VIX Server Installation* section.

6.2.3. Decommissioning a VIX

If you need to completely decommission a VIX and not replace it by another VIX, do the following:

1. Notify the <mark>REDACTED</mark> mail group that the Laurel Bridge license seats used by your site are no longer being used.
2. Contact <mark>REDACTED</mark> mail group to have the VIX retired and the VIX removed from the site service.
3. Manually remove the VIX as described in the *Uninstalling the VIX* section below.
4. In VistA, remove the MAG VIX ADMIN security key from the accounts that have this key assigned.

6.3. Uninstalling the VIX

The following steps explain how to completely remove a VIX and all its supporting components (toolkits, runtime environments, etc.) from the server where the VIX is installed:

⚠ These steps remove the VIX and permanently delete the VIX cache.

Depending on the VIX server configuration and operating system, the specifics of removing the VIX vary, but the general process is as follows:

1. Stop the VIX service. See Section 6.1.
2. Remove VIX-related applications, accounts, directories, and variables.

These steps do not require a server reboot and can be performed while the rest of the Imaging system is active.

6.3.1. Remove VIX related applications, accounts, directories, and variables

After stopping (and/or removing) the VIX services as described in the previous sections, you need to remove VIX software and settings.

These steps presume you are already logged in as an administrator on the server where the VIX service used to reside.

These steps cover all supported VIX configurations.

1. Use Windows Explorer to navigate to the drive where the VIXCache is located, and delete the following folders:

   shared drive letter:\VixCache

2. Delete the VixRenderCache, ImagingArchivedLogs, and VixTxDb folders, which are usually on that same drive.
3. Use Windows Explorer to delete the following directories:

   C:\ DCF_RunTime_x64
   C:\Program Files\Java\jre1.8.0_371

4. If you are removing the VIX permanently, also delete the following folders:

⚠️ SKIP THIS STEP if you are uninstalling and reinstalling the VIX on the same server for troubleshooting purposes. If you delete these folders, you need to recreate the VIX configuration.

C:\VixBackup

C:\VixConfig

C:\VixCertStore

5. Open the window used to remove programs.

   a. On Windows, click **Start | Control Panel**. Under the Programs item, click **Uninstall a program**.

   b. Remove these four programs (no reboot required):

      o Apache Tomcat 9.0.75

      o Java (TM) 1.8.0. Update 371

      o LibreOffice 7.3.5

      o VIX Service Installation Wizard

6. In Windows Explorer, right-click the Local Disk (C:) folder, select Properties. Then, select the **Security** tab.

7. Select the apachetomcat user and click **Remove**.

8. Click **OK** to close the Properties dialog box and click **Yes** when asked if you want to continue.

   NOTE: If one or more "Error applying security" messages display, click Continue until they are all closed.

9. Open the Computer Management/Server Manager window.

   a. On Windows, right-click **Computer** on the desktop. Then, click **Manage**.

10. In the tree on the left side of the window, navigate to Users.

    a. On Windows, go to Server Manager/Configuration/ Local Users and Groups/Users.

11. On the right side of the window, right-click the apachetomcat user, click **Delete**, and click **Yes** when you are asked for confirmation.

12. Open the System Properties dialog box.

    a. On Windows, right-click **Computer** on the desktop. Then, click **Properties**. Then on the left side of the System window, click **Advanced** system settings.

13. In the Advanced tab, click **Environment Variables**.

14. In the System variables list near the bottom of the dialog, delete the following variables:

CATALINA_HOME	DCF_USER_CLASSES
DCF_BIN	DCF_USER_LIB
DCF_CFG	DCF_USER_ROOT
DCF_CLASSES	LD_LIBRARY_PATH
DCF_LIB	OMNI_BIN
DCF_LOG	OMNI_LIB
DCF_PLATFORM	OMNI_ROOT
DCF_ROOT	vixcache

DCF_TMP	vixconfig
DCF_USER_BIN	vixtxdb

15. In the System variables list, select the Path system variable. Then, click Edit.

    a. In the Variable value box, delete the following substrings:

    b. C:\DCF_Runtime_x64\bin
       C:\DCF_Runtime_x64\lib
       C:\Program Files\Java\jre1.8.0_371\bin

    c. NOTE: If using Windows Server 2012 R2, it is recommended that after deleting each substring you delete any extra semicolon characters.

    d. After removing the substrings, click OK. Then click OK twice more to close the Environment Variables and System Properties dialog boxes.

16. VIX removal is complete.

6.4. Rollback and Back Out of MAG*3.0*348

If it is necessary to uninstall the MAG*3.0*348 VIX and back out the VIX to a prior version perform the following steps:

1. Run the MAG*3.0*348 VIX Service Installation Wizard as an administrator.

    a. **R**ight-click **Start**.

    b. **L**eft-click **Search**.

    c. Type **VIX**.

    d. **R**ight-click VIX Service Installation Wizard.

    e. **L**eft-click Run as administrator.

NOTE: If the VIX Service Installation Wizard does not appear in the Search bar, open Windows Explorer and navigate to the **C:\Program Files (x86)\Vista\Imaging\VixInstaller** folder, **r**ight-click **VixInstaller.exe** and **l**eft-click **Run as administrator**.

2. When the Welcome page displays, verify that the screen displays "This wizard will guide you through the installation of the Vista Imaging Patch MAG*3.0*348 VIX" and click **Next**.

3. Then, when prompted to do so, click **Uninstall version 30.348.xxx**. (The wizard gracefully stops the VIX service before performing the uninstall.)

4. When the Uninstall completes, "Press Next to continue" displays in the VIX Service Installation Wizard, click **Cancel**. Click **Yes** in the dialog box that displays "Do you really want to quit the VIX Service Installation Wizard?"

5. Go to the Control Panel, choose **Add/Remove Programs**, and remove the MAG*3.0*348 VIX Service Installation Wizard.

6. Verify backup copies of critical configuration file folders exist within C:\VIXBackup\P329\YYYYMMDDHHMMSS. Where YYYYMMDDHHMMSS is the latest version of the folder that contains the backups (most current date).

    NOTE: Backups exist of the following:

      o C:\DCF_RunTime_x64\cfg

      o C:\Program Files\Apache Software Foundation\Tomcat 9.0\conf

- o C:\Program Files\VistA\Imaging\VIX.Config
- o C:\VixConfig
- o C:\VixCertStore
- o Install logs from C:\Program Files (x86)\Vista\Imaging\VixInstaller

7. Stop each VIX service: Tomcat9, VIX Render Service, and VIX Viewer Service by opening Windows Services and then selecting **Stop** for each service (Figure 60) as described in Section 6.1.

8. Uninstall any LibreOffice version later than 7.3.5 using the Control Panel.

9. Install the previous version of VIX, which was included in MAG*3.0*329 (find it on the VA SFTP site or from a local backup folder). Do the following to prepare the VIX Service Installation Wizard:

   a. Right-click the MAG3_0P329_VIX_SETUP.msi file and click on Install.
   b. When the Welcome page displays, click **Next**.
   c. When the Confirm Installation page displays, click **Next**.
   d. When the Installation Complete screen displays, click **Close**.

10. Run the MAG*3.0*329 VIX Service Installation Wizard as an administrator.

    a. **R**ight-click **Start**.
    b. **L**eft-click **Search**.
    c. Type **VIX**.
    d. **R**ight-click **VIX Service Installation Wizard**.
    e. **L**eft-click **Run as administrator**.

NOTE: If the VIX Service Installation Wizard does not appear in the Search bar, open Windows Explorer and navigate to the **C:\Program Files (x86)\Vista\Imaging\VixInstaller** folder, **r**ight-click **VixInstaller.exe** and **l**eft-click **Run as administrator**.

11. Once the MAG*3.0*329 VIX Service Installation Wizard is running, click **Next** and continue with the installation steps described in detail in the *MAG*3.0*329 VIX Installation Guide* as if it is an upgrade MAG*3.0*329 install.

12. Upon completion of the installation, if necessary, configuration files in C:\VIXBackup\P329\YYYYMMDDHHMMSS\VixConfig can be copied to C:\VixConfig as needed (e.g. MuseDataSource-1.0.Config) to restore the prior version. Where YYYYMMDDHHMMSS is the latest version of the folder that contains the backups (most current date).

    If configuration files are to be restored, first stop each VIX service: Tomcat9, VIX Render Service, and VIX Viewer Service by opening Windows Services and then selecting **Stop** for each service.

13. If able, apply the McAfee Exclusions after MAG*3.0*329 install as discussed in the *MAG*3.0*329 VIX Installation Guide*.

14. Reboot your server.

6.4.1. Rollback Verification Procedure

1. Verify the version of Java after reinstalling MAG*3.0*329 by running Windows 'Programs and Feature', is Java 8.0.351

2. Verify the version of Tomcat after reinstalling MAG*3.0*329 by running Windows 'Programs and Features', is Tomcat 9.0.68

3. Verify the version of the VIX by going to the VIX homepage **http://*FQDN of VIX server*:<mark>REDACTED</mark>/** using a browser e.g.: Chrome or Edge.

7.   Appendix A: Enable MUSE Functionality

The MUSE configuration is specified during VIX Installation in the Specify the MUSE Configuration page. On this page, set or update if needed, the value for the MUSE site number of the MUSE server that contains EKGs for your facility, the value of the MUSE host, the value of the MUSE username, the password for the MUSE obtained from existing site VistA Imaging documentation (if not available, please contact the local BioMed team or MUSE administrator for the password), the MUSE port, and the MUSE protocol.

Enabling the MUSE functionality is only needed to be performed if this is a new installation, or in the case of an upgrade installation, it is determined it is not enabled by following *Has the MUSE functionality already been configured to be enabled?*

Has the MUSE functionality already been configured to be enabled?

- To determine if MUSE functionality is already configured, observe the behavior when the MUSE Configuration page loads during VIX Installation.
    - **No, it is not enabled**. A checkbox does **not** appear next to Enable and configure MUSE. Continue with this Appendix to perform the steps to enable MUSE functionality.
    - **Yes, it is enabled.** A checkbox appears next to Enable and configure MUSE and values for a real MUSE site number, host, username, password, port, and protocol are pre-populated and present for each entry on the page (Figure 61). The MUSE functionality is already enabled. There is no reason to perform the steps in this Appendix unless reconfiguring.

Figure 61: Specify the MUSE configuration Enable and configure MUSE pre-populated

- Alternatively, a manual check of the MuseDataSource-1.0.Config file may be used to determine if MUSE functionality is already configured. Open the MuseDataSource-1.0.Config file located in C:\VixConfig. Run Notepad, Notepad++, or WordPad as an administrator and then open the file.

  - **No, it is not enabled**. If the MuseDataSource-1.0.Config file located in C:\VixConfig is similar to the template displayed in Figure 62, continue with this Appendix to perform the steps to enable MUSE functionality.

  - **Yes, it is enabled.** If the MuseDataSource-1.0.Config file located in C:\VixConfig is <u>not</u> similar to the template displayed in Figure 62 (i.e. a real MUSE site number, host, username, password, port, and protocol are present), the MUSE functionality is already enabled. There is no reason to perform the steps in this Appendix unless reconfiguring.

NOTE: A manual check of the MuseDataSource-1.0.Config may not always be reliable and it is recommended to use the MUSE Configuration page during VIX Installation to determine if MUSE functionality is already configured.

Figure 62: Sample MuseDataSource-1.0.Configure File for One Server (MUSE ENABLED FOR JLV VIX Image Viewer)

```
1   <gov.va.med.imaging.musedatasource.configuration.MuseConfiguration>
2     <servers>
3       <gov.va.med.imaging.musedatasource.configuration.MuseServerConfiguration>
4         <id>0</id>
5         <museSiteNumber>***MUSE SITE NUMBER HERE***</museSiteNumber>
6         <host>***MUSE HOST HERE***</host>
7         <port>    </port>
8         <metadataTimeoutMs>60000</metadataTimeoutMs>
9         <username>***MUSE USER HERE***</username>
10        <password>***MUSE PASSWORD HERE***</password>
11        <protocol>http</protocol>
12        <museDisabled>false</museDisabled>
13      </gov.va.med.imaging.musedatasource.configuration.MuseServerConfiguration>
14    </servers>
15    <museAPIKey>***MUSE API KEY HERE***</museAPIKey>
16    <museApplicationName>MUSEAPIREST</museApplicationName>
17    <musePatientFilterRegularExpression>000(-*)0(-*).*</musePatientFilterRegularExpression>
18    <preExpirationMinutes>2</preExpirationMinutes>
19    <expirationDateFormat>yyyy-MM-dd&apos;T&apos;HHmmss.nZ</expirationDateFormat>
20    <enableSessionCache>true</enableSessionCache>
21  </gov.va.med.imaging.musedatasource.configuration.MuseConfiguration>
```

One of the methods identified to obtain the values of the MUSE site number, host, and username is from the Background Processor (BP) Queue Processor. For more information on the Background Processor, please see the *VistA Imaging System Background Processor User Manual*. If the site is running the BP Queue processor, use the below steps to obtain the values of the MUSE site number, host, and username.

1. From the Background Processor Queue Processor (Figure 63) menu bar, select **Edit** > **Network Location Manager** to open the Network Location Manager window.
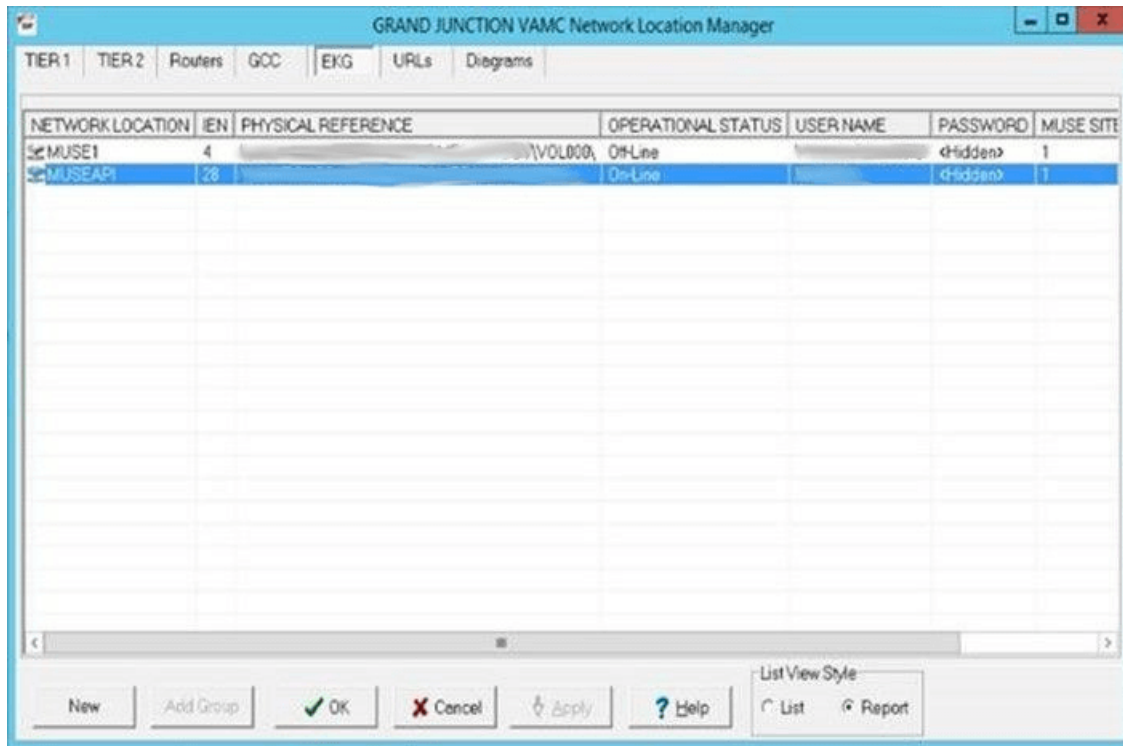
Figure 63: Background Processor Queue Processor
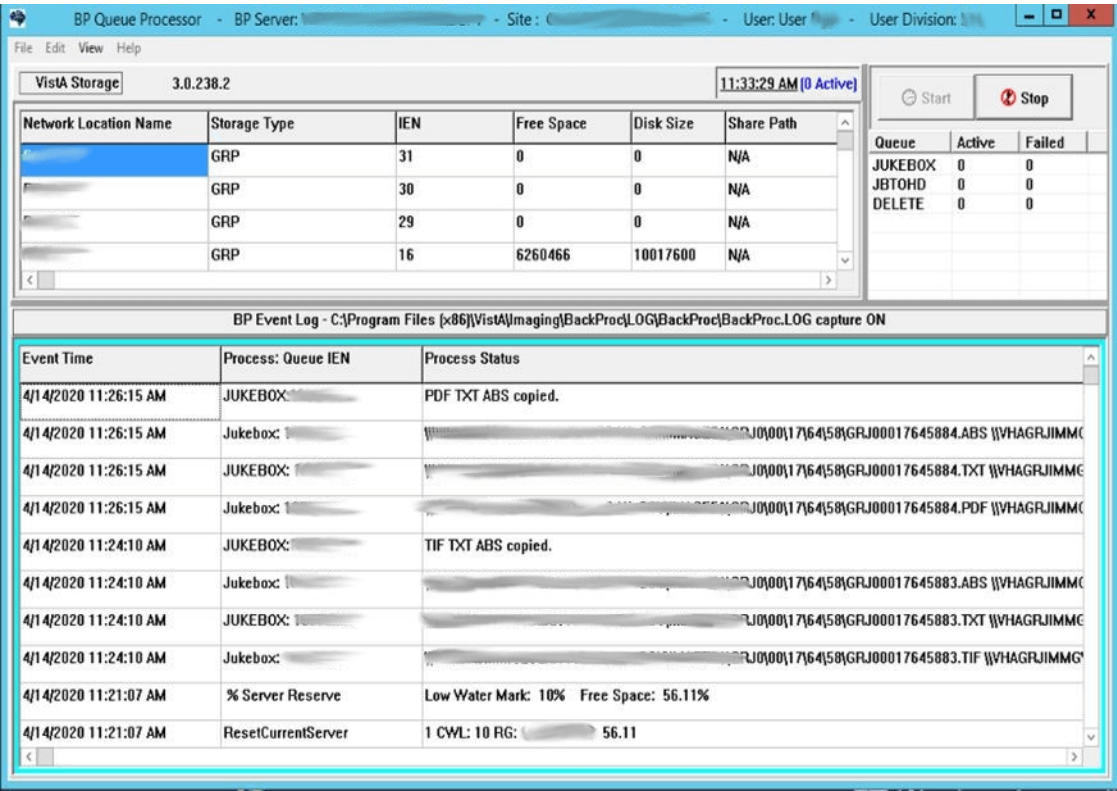
2. Click on the EKG tab in the Network Location Manager window. A listing of the network location of available MUSE servers appears (Figure 64).

NOTE: Pay attention to the Operational Status of available MUSE servers. Only add the MUSE server that is **On-Line and contains EKGs of the local site.**

Figure 64: EKG Tab in Network Location Manager in Background Processor Queue Processor

3. To obtain details for a MUSE server, right-click on the server and run **Properties** to launch Network Location Properties. The network share and username for that MUSE server displays (Figure 65).

4. Use the details from the Network Location Properties for the MUSE server that is On-Line to obtain the MUSE site number, host, and username. The MUSE site number is listed under "Site Number" under "MUSE". The Fully Qualified Domain Name of the Server for the host entry is listed under "Network Share" between \\ and \ (Figure 65). The MUSE site username for the username entry displays under "User Name" under "Network Credentials Security".

Figure 65: Network Location Properties in Background Processor Queue Processor
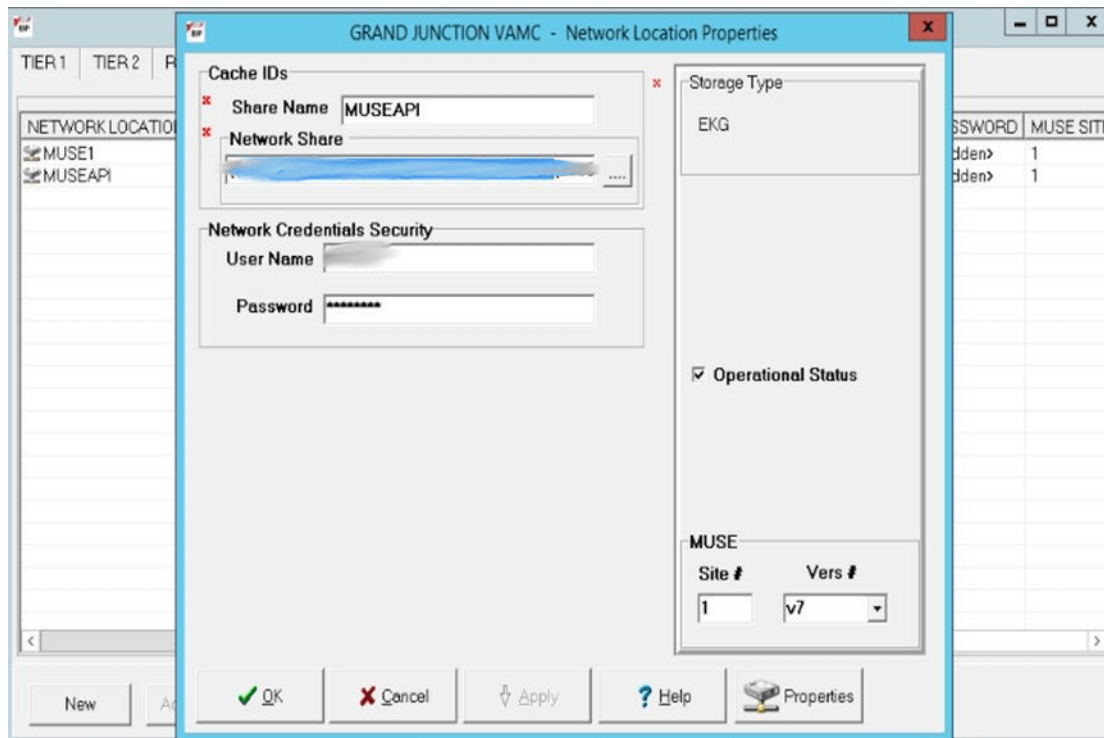
Note the entries for the MUSE site number, host, and username for the MUSE server that is On-Line. This is obtained from the Network Location Manager Properties tab in the Background Processor Queue Processor. The MUSE site password can be obtained from the existing site VistA Imaging documentation (if not available, obtain your MUSE site password from the local BioMed team or MUSE administrator).

NOTE: The default standard MUSE port is REDACTED and protocol is http. The default MUSE™ NX port is REDACTED and protocol is https. Contact the local BioMed team or MUSE administrator if the MUSE port and protocol is not known.

8. Appendix B: DICOM SCP Configuration

NOTE: Perform this step as part of the *Post-Installation for New VIX Installations and Updating Existing VIX Installations.*

The DICOM SCP enables Commercial Picture Archive and Communication System (PACS) and various query retrieve devices at VA facilities to get remote VistA images through the use of DICOM C-FIND and C-MOVE.

Henceforth, this Appendix refers to the Commercial PACS and query retrieve devices as a DICOM SCP client.

You need to configure the DICOM SCP if this is a new installation, or in the case of an upgrade installation, you determine it is not yet configured by following *Has the DICOM SCP functionality already been configured?*

Has the DICOM SCP functionality already been configured?

- To determine if DICOM SCP functionality is already configured, open the ae_title_mappings file located in the folder cfg\dicom within the Laurel Bridge installation directory (C:\DCF_RunTime_x64\cfg\dicom by default). Run, Notepad, Notepad++, or WordPad as an administrator, and then open the file.
  - **No, it is not configured**. If the ae_title_mappings file located in the folder cfg\dicom within the Laurel Bridge installation directory (C:\DCF_RunTime_x64\cfg\dicom by default) is like the template displayed in Figure 66, continue with this Appendix to perform the steps to configure DICOM SCP functionality.
  - **Yes, it is configured.** If the ae_title_mappings file located in the folder cfg\dicom within the Laurel Bridge installation directory (C:\DCF_RunTime_x64\cfg\dicom by default) is not like the template displayed in Figure 66 (i.e. a real DICOM SCP host IP, port, and AE Title are present), the DICOM SCP functionality is already configured. There is no reason to perform the steps in this Appendix unless reconfiguring.

Additional details on the DICOM SCP Configuration are provided in the "*Configure DICOM SCP Functionality*" section in the *VIX Administrator's Guide*.

8.1. AE Titles Configuration

This section describes both the calling and called Application Entities (AE) Titles that must both be configured for DICOM SCP to work. It is necessary to configure both the AE Titles on the VIX server with those of the DICOM SCP client and also to configure the AE Titles on the DICOM SCP client with those of the VIX server.

NOTE: The port for the host for DICOM SCP must be configured as a bi-directional open port in any firewall.

8.1.1. Laurel Bridge AE Titles Configuration on VIX/CVIX

This section describes how to configure the AE Titles configuration file ae_title_mappings located in the folders cfg\dicom within the Laurel Bridge installation directory

(C:\DCF_RunTime_x64\cfg\dicom by default). Open the ae_title_mappings file to perform edits. Run, Notepad, Notepad++, or WordPad as an administrator, and then open the file.

For each DICOM SCP client, the AE Title name and its host/port attributes must be set. For each DICOM SCP client, update the following entries for the AE Titles configuration file (see Figure 66):

1. Set the IP address for the host for the DICOM SCP client, (after host = line 11).
2. Set the port for the DICOM SCP client where the DICOM SCP is used for the C-STORE operation, (after port = line 12).
3. Set the AE Title the DICOM SCP client is using to communicate with the DICOM SCP (calling AE) (inside [ ] on line 10 and after ae_title = line 13).

Ensure that each of these lines is uncommented (i.e. remove the # at the front of the line if present). Save the ae_title_mappings file after updating the entries.

Figure 66: Sample AE Titles Configuration File

```
1   #
2   # VistA Imaging map between an Application Entity Title and a full address
3   # i.e. host:port:called-ae-title
4   #
5   # [ **Insert AE Title the Commercial PACS client is using to communicate with the DICOM SCP** ]
6   # host = **Insert IP Address for the host for the Commercial PACS client**
7   # port = **Insert port for the Commercial PACS client where the DICOM SCP is used for the C-STORE operation**
8   # ae_title = **Insert AE Title the Commercial PACS client is using to communicate with the DICOM SCP**
9
10  [ **Insert AE Title the Commercial PACS client is using to communicate with the DICOM SCP** ]
11  host = **Insert IP Address for the host for the Commercial PACS client**
12  port = **Insert port for the Commercial PACS client where the DICOM SCP is used for the C-STORE operation**
13  ae_title = **Insert AE Title the Commercial PACS client is using to communicate with the DICOM SCP**
14
```

An example of the ae_title_mappings file updated for one DICOM SCP client is shown in Figure 67.

NOTE: The example in Figure 67 for configuration of one DICOM SCP client is not how an actual VIX site's ae_title_mappings file is to be configured. This example is for illustrative purposes only.

Figure 67: Example AE Titles Configuration File

```
1   #
2   # VistA Imaging map between an Application Entity Title and a full address
3   # i.e. host:port:called-ae-title
4   #
5   # [ **Insert AE Title the Commercial PACS client is using to communicate with the DICOM SCP** ]
6   # host = **Insert IP Address for the host for the Commercial PACS client**
7   # port = **Insert port for the Commercial PACS client where the DICOM SCP is used for the C-STORE operation**
8   # ae_title = **Insert AE Title the Commercial PACS client is using to communicate with the DICOM SCP**
9
10  [            ]
11  host =
12  port =
13  ae_title =
14
```

For each additional DICOM SCP client, similarly add lines for the host, port, and ae_title with the correct values as new lines below the prior lines for the prior DICOM SCP client (Figure 68). Save the ae_title_mappings file after updating the entries.

Figure 68: Sample AE Titles configuration File with Multiple DICOM SCP Clients

```
1   #
2   # VistA Imaging map between an Application Entity Title and a full address
3   # i.e. host:port:called-ae-title
4   #
5   # [ **Insert AE Title the Commercial PACS client is using to communicate with the DICOM SCP** ]
6   # host = **Insert IP Address for the host for the Commercial PACS client**
7   # port = **Insert port for the Commercial PACS client where the DICOM SCP is used for the C-STORE operation**
8   # ae_title = **Insert AE Title the Commercial PACS client is using to communicate with the DICOM SCP**
9
10  [ **Insert AE Title the 1st Commercial PACS client is using to communicate with the DICOM SCP** ]
11  host = **Insert IP Address for the host for the 1st Commercial PACS client**
12  port = **Insert port for the 1st Commercial PACS client where the DICOM SCP is used for the C-STORE operation**
13  ae_title = **Insert AE Title the 1st Commercial PACS client is using to communicate with the DICOM SCP**
14
15  [ **Insert AE Title the 2nd Commercial PACS client is using to communicate with the DICOM SCP** ]
16  host = **Insert IP Address for the host for the 2nd Commercial PACS client**
17  port = **Insert port for the 2nd Commercial PACS client where the DICOM SCP is used for the C-STORE operation**
18  ae_title = **Insert AE Title the 2nd Commercial PACS client is using to communicate with the DICOM SCP**
19
```

After updating the ae_title_mappings file, as described above, execute the restart script (Restart_VIX_Services.ps1) to restart the Apache Tomcat service, VIX Viewer and VIX Render services, see *Appendix C: Restart Script*.

8.1.2.   AE Titles Configuration on DICOM SCU

This section describes the AE Titles configuration on the DICOM SCU. Installation/administration personnel on the VIX server might not be able to perform this configuration and, in which case, must provide the necessary information to the DICOM SCU administration personnel to perform.

The following three pieces of information are needed for the configuration of the DICOM SCU: 1) the IP address for the host for the VIX server, 2) the port of DICOM SCP on the VIX server, and 3) the AE Title of DICOM SCP (called AE).

Many different DICOM SCU vendors exist and each of these systems has their own distinct approach for configuration. If additional information regarding specifics of configuring the DICOM SCU is needed, please reach out to its vendor or consult its documentation.

8.2.   Tomcat/ Laurel Bridge DICOM SCP Configuration

The VIX install performs some of the configuration for the DICOM SCP automatically with reasonable defaults and predefined entries. Update two entries in the ScpConfiguration.Config file located in C:\VixConfig to configure the DICOM SCP. Run Notepad, Notepad++, or WordPad as an administrator, and then open the file.

Update the following entries for the DICOM SCP functionality (see Figure 69):

1. Set the DICOM SCU calling AE title, inside opening and closing aeTitle tags (inside <aeTitle> </aeTitle> - line 21). Change the value from the default setting of ALL.

2. Set the DICOM SCU IP address inside the opening and closing callingAeIp tags (inside < callingAeIp> </callingAeIp> - line 22). Change the value from the default setting of 0.0.0.0.

Figure 69: Sample DICOM SCP Configuration File

```
1   <gov.va.med.imaging.facade.configuration.ScpConfiguration>
2     <dirty>false</dirty>
3     <accessCode>                                      /accessCode>
4     <verifyCode>                                      </verifyCode>
5     <siteFetchTPoolMax>20</siteFetchTPoolMax>
6     <siteFetchTimeLimit>45</siteFetchTimeLimit>
7     <imageFetchTPoolMax>15</imageFetchTPoolMax>
8     <imageFetchTimeLimit>1000000</imageFetchTimeLimit>
9     <useRemoteImageFetch>true</useRemoteImageFetch>
10    <useDirectFetch>true</useDirectFetch>
11    <cacheLifespan>1</cacheLifespan>
12    <preFetchSeries>true</preFetchSeries>
13    <calledAETitle>ANY_0.0.0.0</calledAETitle>
14    <remotePatientResolution>true</remotePatientResolution>
15    <imageQueueSize>10000</imageQueueSize>
16    <cacheMetaHoursToLive>24</cacheMetaHoursToLive>
17    <isFdtEnabled>true</isFdtEnabled>
18    <fdtPort>2762</fdtPort>
19    <callingAEConfigs>
20      <gov.va.med.imaging.facade.configuration.ScpCallingAE>
21        <aeTitle>ALL/aeTitle>
22        <callingAeIp>0.0.0.0</callingAeIp>
23        <buildReport>SC</buildReport>
24        <returnQueryLevel>false</returnQueryLevel>
25        <studyQueryFilter>radiology</studyQueryFilter>
26        <sendKeepAlive>false</sendKeepAlive>
27        <modalityBlockList>
28          <gov.va.med.imaging.facade.configuration.ScpModalityList>
29            <dataSource>ALL</dataSource>
30            <addImageLevelFilter>false</addImageLevelFilter>
31            <modalities>
32              <string>none</string>
33            </modalities>
34          </gov.va.med.imaging.facade.configuration.ScpModalityList>
35        </modalityBlockList>
36        <siteCodeBlackList>
37          <string>100</string>
38          <string>200CLMS</string>
39          <string>200CORP</string>
40          <string>741</string>
41          <string>LOCAL</string>
42        </siteCodeBlackList>
43      </gov.va.med.imaging.facade.configuration.ScpCallingAE>
44    </callingAEConfigs>
45  </gov.va.med.imaging.facade.configuration.ScpConfiguration>
```

An example of the ScpConfiguration.Config file updated for one DICOM SCP client is shown in Figure 70.

NOTE: The example in Figure 70 for configuration of the aeTitle and callingAeIp is not how an actual VIX site's ScpConfiguration.Config file is to be configured. This example is for illustrative purposes only.

Figure 70: Example ScpConfiguration Configuration File

```
1   <gov.va.med.imaging.facade.configuration.ScpConfiguration>
2     <dirty>false</dirty>
3     <accessCode>0_____N</accessCode>
4     <verifyCode>_____=</verifyCode>
5     <siteFetchTPoolMax>20</siteFetchTPoolMax>
6     <siteFetchTimeLimit>45</siteFetchTimeLimit>
7     <imageFetchTPoolMax>15</imageFetchTPoolMax>
8     <imageFetchTimeLimit>1000000</imageFetchTimeLimit>
9     <useRemoteImageFetch>true</useRemoteImageFetch>
10    <useDirectFetch>true</useDirectFetch>
11    <cacheLifespan>1</cacheLifespan>
12    <preFetchSeries>true</preFetchSeries>
13    <calledAETitle>ANY_0.0.0.0</calledAETitle>
14    <remotePatientResolution>true</remotePatientResolution>
15    <imageQueueSize>10000</imageQueueSize>
16    <cacheMetaHoursToLive>24</cacheMetaHoursToLive>
17    <isFdtEnabled>true</isFdtEnabled>
18    <fdtPort>2762</fdtPort>
19    <callingAEConfigs>
20      <gov.va.med.imaging.facade.configuration.ScpCallingAE>
21        <aeTitle>AE_SCP_HOST/aeTitle>
22        <callingAeIp>_____</callingAeIp>
23        <buildReport>SC</buildReport>
24        <returnQueryLevel>false</returnQueryLevel>
25        <studyQueryFilter>radiology</studyQueryFilter>
26        <sendKeepAlive>false</sendKeepAlive>
27        <modalityBlockList>
28          <gov.va.med.imaging.facade.configuration.ScpModalityList>
29            <dataSource>ALL</dataSource>
30            <addImageLevelFilter>false</addImageLevelFilter>
31            <modalities>
32              <string>none</string>
33            </modalities>
34          </gov.va.med.imaging.facade.configuration.ScpModalityList>
35        </modalityBlockList>
36        <siteCodeBlackList>
37          <string>100</string>
38          <string>200CLMS</string>
39          <string>200CORP</string>
40          <string>741</string>
41          <string>LOCAL</string>
42        </siteCodeBlackList>
43      </gov.va.med.imaging.facade.configuration.ScpCallingAE>
44    </callingAEConfigs>
45  </gov.va.med.imaging.facade.configuration.ScpConfiguration>
```

If additional changes to the defaults for the Tomcat DICOM SCP Configuration and/or Laurel Bridge DICOM SCP Configuration are desired, see the *VIX Administrator's Guide* for details.

NOTE: For each additional DICOM SCP client, insert an additional block of code containing the elements from lines 19 to 43 before current line 44 (Figure 70), as described in the *VIX Administrator's Guide.*

NOTE: If additional updates are needed to the encrypted access and verify codes in the ScpConfiguration.Config file, refer to lines 3 and 4 in Figure 70, for the account with VistA credentials see the section "Modifying the ROI Processing and DICOM Query/Retrieve Parameters of the VIX" in the *VIX Administrator's Guide* to update (preferred) or see the section "*Reconfiguring a VIX Server*," in this VIX Installation Guide to perform a reconfigure installation.

9.   Appendix C: Restart Script

This appendix describes how to execute the restart script (Restart_VIX_Services.ps1) to restart the Apache Tomcat service, VIX Viewer service, and VIX Render service.

Perform the following:

1. Run PowerShell as an administrator (Figure 71).

    a. Right-click **Start**.

    b. Left-click **Search**.

    c. Type **powershell**.

    d. Right-click **PowerShell 7 (x64)**.

    e. Left-click Run as administrator.
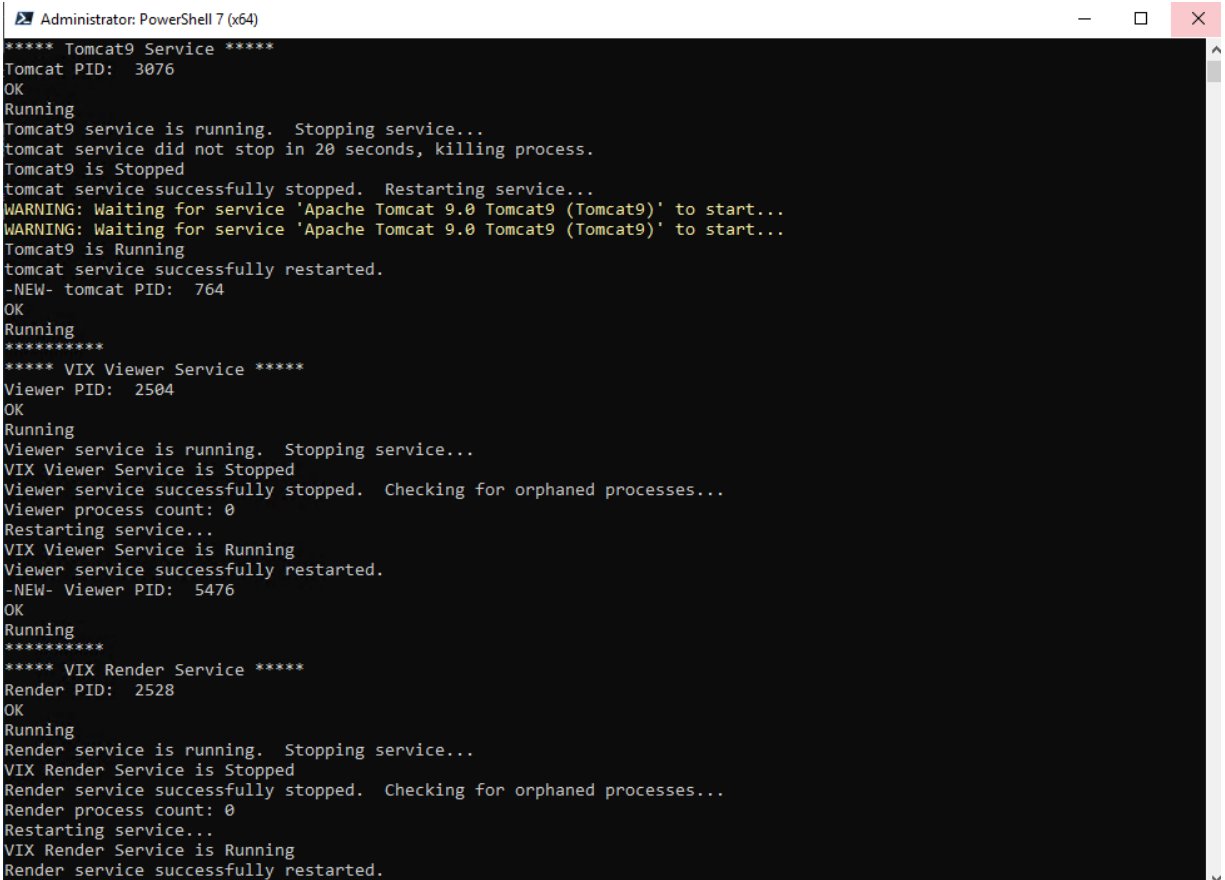
Figure 71: Execute Windows PowerShell
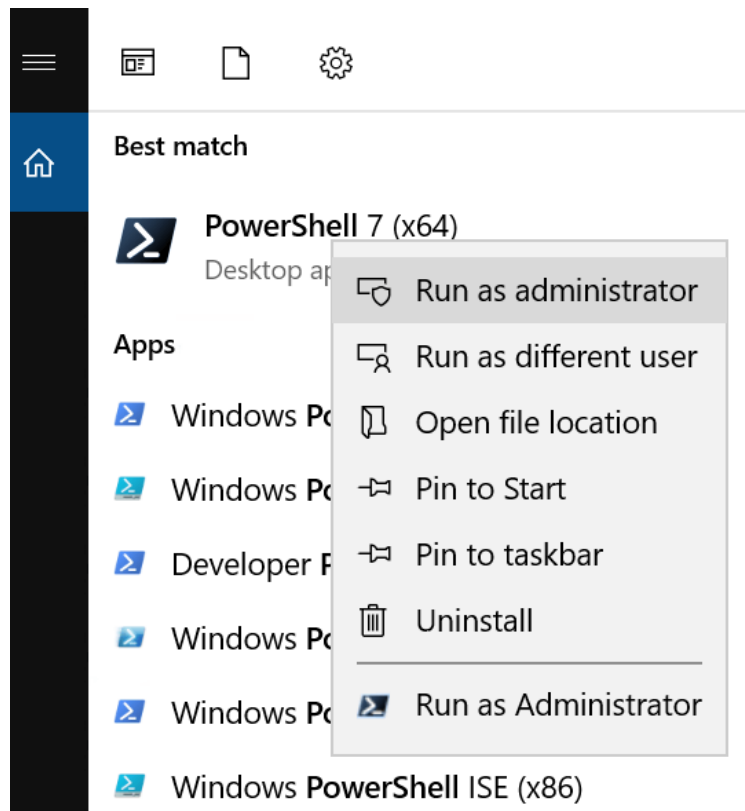
2. If prompted with "Do you want to allow the following program from an unknown publisher to make changes to this computer?", click **Yes**.

3. Once PowerShell launches, **type** the command:

    ```
    cd "C:\Program Files\VistA\Imaging\Scripts"
    ```

    Then press **[ENTER]** to change the working directory to the Scripts folder.

4. Then **type** the command:

    ```
    .\Restart_VIX_Services.ps1
    ```

And press **[ENTER]** to execute the restart script. Wait for the script to complete (Figure 72).

Figure 72: Windows PowerShell Restart Script

5. Close PowerShell.

10. Appendix D: Service Account Settings

The VIX uses a service account on the local VistA for periodic processing of ROI disclosure requests and DICOM query retrieve SCP requests. The service account may be the same one used by the DICOM Gateway and the Hybrid DICOM Gateway (HDIG). You may also use it to log into the VIX Tools page described in the *Verifying Access to the VIX Tools and VIX Transaction Log* section.

Table 2 lists each VIX site's current and suggested local VistA service account. The Designated User (DUZ) identifies the service account. The suggested service account enables each site to have a unique name.

The VIX's service account on its local VistA must have the following SSN format, security keys, secondary menus, a value for the INITIAL field, RAD/NUC med classification, CPRS TAB, and authorized to write med orders. If any setting is missing, update the service account.

NOTE: If unable to update the service account on the local VistA yourself, please create a ticket assigned to the ESD Tier 1 group to update the service account on the local VistA. Example text for the ticket appears after the table.

Verify the SNN of the service account on the local VistA is as specified in Table 2. All SSNs begin with 9 to avoid possible collisions with a real SSN issued by the Social Security Administration.

Verify the service account on the local VistA has the following security keys:

- MAG SYSTEM
- MAG VIX ADMIN
- MAG DOD FIX
- RA MGR
- RA VERIFY
- RA ALLOC

Verify the service account on the local VistA has the following secondary menus:

- MAG WINDOWS (All MAG* RPC's)
- MAG DICOM VISA (DICOM VISA)
- OR CPRS GUI CHART (CPRSChart version x.xx.xxx.x)
- MAG DICOM GATEWAY FULL
- MAG DICOM QUERY RETRIEVE

Verify the service account on the local VistA has a value for the INITIAL field.

Verify the service account on the local VistA has the following RAD/NUC med classification:

- 1   staff
- 4   technologist

Verify the service account on the local VistA has the following CPRS TAB:

- CPRS TAB: COR

- EFFECTIVE DATE: <TODAY

Verify the service account on the local VistA has the following authorized to write med orders:

- YES

NOTE: To verify the service account on the local VistA has a value for the INITIAL field perform the following:

1. Access VA FileMan [DIUSER] in your VistA instance.
2. Select Inquire to File Entries [DIINQUIRE], then choose the NEW PERSON file (#200).
3. When prompted "Select NEW PERSON NAME", select your VistA Imaging service account.
4. Either answer Yes to Standard Captioned Output (followed by No in "Include COMPUTED fields"), or answer No, and then choose the INITIAL field (#1).
5. The latter just shows the INITIAL field, the former shows all fields. Either way, verify that the results include a value for the account's initials.

If the service account on the local VistA does not have a value for the INITIAL field set one:

1. Access VA FileMan [DIUSER] in your VistA instance.
2. Select Enter or Edit File Entries [DIEDIT], then choose the New Person file (#200). When prompted "EDIT WHICH FIELD", choose INITIAL (#1).
3. When prompted "Select NEW PERSON NAME", choose your VistA Imaging service account.
4. Finally, when you see the "INITIAL" prompt, enter the initials for the user. Enter any appropriate value, such as VSA

Table 2: VIX Site's User Profile SSN, Service Account on Local VistA, and Suggested Service Account on Local VistA

Site Name	Site Number	VIX User Profile SSN	VIX's Service Account on Local VistA	Suggested VIX's Service Account on Local VistA
Manila, PI	358	REDACTED	REDACTED	REDACTED
Togus, ME	402	REDACTED	REDACTED	REDACTED
White River Junction, VT	405	REDACTED	REDACTED	REDACTED
Montana HCS	436	REDACTED	REDACTED	REDACTED
Fargo, ND	437	REDACTED	REDACTED	REDACTED
Sioux Falls, SD	438	REDACTED	REDACTED	REDACTED
Cheyenne, WY	442	REDACTED	REDACTED	REDACTED
Honolulu, HI	459	REDACTED	REDACTED	REDACTED
Wilmington, DE	460	REDACTED	REDACTED	REDACTED
Anchorage, AK	463	REDACTED	REDACTED	REDACTED
Albuquerque, NM	501	REDACTED	REDACTED	REDACTED
Alexandria, LA	502	REDACTED	REDACTED	REDACTED
Altoona, PA	503	REDACTED	REDACTED	REDACTED
Amarillo, TX	504	REDACTED	REDACTED	REDACTED
Ann Arbor, MI	506	REDACTED	REDACTED	REDACTED
Atlanta, GA	508	REDACTED	REDACTED	REDACTED
Augusta, GA	509	REDACTED	REDACTED	REDACTED
Maryland HCS	512	REDACTED	REDACTED	REDACTED
Battle Creek, MI	515	REDACTED	REDACTED	REDACTED
Bay Pines, FL	516	REDACTED	REDACTED	REDACTED

Beckley, WV	517	REDACTED	REDACTED	REDACTED
Bedford, MA	518	REDACTED	REDACTED	REDACTED
Big Spring, TX	519	REDACTED	REDACTED	REDACTED
Biloxi, MS	520	REDACTED	REDACTED	REDACTED
Birmingham, AL	521	REDACTED	REDACTED	REDACTED
Boston HCS	523	REDACTED	REDACTED	REDACTED
Bronx, NY	526	REDACTED	REDACTED	REDACTED
Upstate NY HCS	528	REDACTED	REDACTED	REDACTED
Butler, PA	529	REDACTED	REDACTED	REDACTED
Boise, ID	531	REDACTED	REDACTED	REDACTED
Charleston, SC	534	REDACTED	REDACTED	REDACTED
Chicago, IL (Westside)	537	REDACTED	REDACTED	REDACTED
Chillicothe, OH	538	REDACTED	REDACTED	REDACTED
Cincinnati, OH	539	REDACTED	REDACTED	REDACTED
Clarksburg, WV	540	REDACTED	REDACTED	REDACTED
Cleveland, OH	541	REDACTED	REDACTED	REDACTED
Coatesville, PA	542	REDACTED	REDACTED	REDACTED
Columbia, SC	544	REDACTED	REDACTED	REDACTED
Miami, FL	546	REDACTED	REDACTED	REDACTED
West Palm Beach, FL	548	REDACTED	REDACTED	REDACTED
North Texas HCS	549	REDACTED	REDACTED	REDACTED
Danville, IL	550	REDACTED	REDACTED	REDACTED
Dayton, OH	552	REDACTED	REDACTED	REDACTED
Detroit, MI	553	REDACTED	REDACTED	REDACTED

Eastern Colorado HCS	554	REDACTED	REDACTED	REDACTED
North Chicago, IL	556	REDACTED	REDACTED	REDACTED
Dublin, GA	557	REDACTED	REDACTED	REDACTED
Durham, NC	558	REDACTED	REDACTED	REDACTED
New Jersey HCS	561	REDACTED	REDACTED	REDACTED
Erie, PA	562	REDACTED	REDACTED	REDACTED
Fayetteville, AR	564	REDACTED	REDACTED	REDACTED
Fayetteville, NC	565	REDACTED	REDACTED	REDACTED
Black Hills HCS	568	REDACTED	REDACTED	REDACTED
Fresno, CA	570	REDACTED	REDACTED	REDACTED
N. Florida/S. Georgia HCS	573	REDACTED	REDACTED	REDACTED
Grand Junction, CO	575	REDACTED	REDACTED	REDACTED
Hines, IL	578	REDACTED	REDACTED	REDACTED
Houston, TX	580	REDACTED	REDACTED	REDACTED
Huntington, WV	581	REDACTED	REDACTED	REDACTED
Indianapolis, IN	583	REDACTED	REDACTED	REDACTED
Iron Mountain, MI	585	REDACTED	REDACTED	REDACTED
Jackson, MS	586	REDACTED	REDACTED	REDACTED
Kansas City, MO	589	REDACTED	REDACTED	REDACTED
Hampton, VA	590	REDACTED	REDACTED	REDACTED
Las Vegas, NV	593	REDACTED	REDACTED	REDACTED
Lebanon, PA	595	REDACTED	REDACTED	REDACTED
Lexington, KY	596	REDACTED	REDACTED	REDACTED

Little Rock, AR	598	REDACTED	REDACTED	REDACTED
Long Beach, CA	600	REDACTED	REDACTED	REDACTED
Louisville, KY	603	REDACTED	REDACTED	REDACTED
Loma Linda, CA	605	REDACTED	REDACTED	REDACTED
Madison, WI	607	REDACTED	REDACTED	REDACTED
Manchester, NH	608	REDACTED	REDACTED	REDACTED
Northern Indiana HCS	610	REDACTED	REDACTED	REDACTED
Northern California HCS	612	REDACTED	REDACTED	REDACTED
Martinsburg, WV	613	REDACTED	REDACTED	REDACTED
Memphis, TN	614	REDACTED	REDACTED	REDACTED
Minneapolis, MN	618	REDACTED	REDACTED	REDACTED
Central Alabama HCS	619	REDACTED	REDACTED	REDACTED
Hudson Valley HCS	620	REDACTED	REDACTED	REDACTED
Mountain Home, TN	621	REDACTED	REDACTED	REDACTED
Muskogee, OK	623	REDACTED	REDACTED	REDACTED
Tennessee Valley HCS	626	REDACTED	REDACTED	REDACTED
New Orleans, LA	629	REDACTED	REDACTED	REDACTED
NY HCS	630	REDACTED	REDACTED	REDACTED
Northampton, MA	631	REDACTED	REDACTED	REDACTED
Northport, NY	632	REDACTED	REDACTED	REDACTED
Oklahoma City, OK	635	REDACTED	REDACTED	REDACTED
Central Plains HCS	636	REDACTED	REDACTED	REDACTED
Asheville, NC	637	REDACTED	REDACTED	REDACTED

Palo Alto HCS	640	REDACTED	REDACTED	REDACTED
Philadelphia, PA	642	REDACTED	REDACTED	REDACTED
Phoenix, AZ	644	REDACTED	REDACTED	REDACTED
Pittsburgh HCS	646	REDACTED	REDACTED	REDACTED
Portland, OR	648	REDACTED	REDACTED	REDACTED
Prescott, AZ	649	REDACTED	REDACTED	REDACTED
Providence, RI	650	REDACTED	REDACTED	REDACTED
Richmond, VA	652	REDACTED	REDACTED	REDACTED
Roseburg, OR	653	REDACTED	REDACTED	REDACTED
Reno, NV	654	REDACTED	REDACTED	REDACTED
Saginaw, MI	655	REDACTED	REDACTED	REDACTED
St. Cloud, MN	656	REDACTED	REDACTED	REDACTED
St. Louis, MO	657	REDACTED	REDACTED	REDACTED
Salem, VA	658	REDACTED	REDACTED	REDACTED
Salisbury, NC	659	REDACTED	REDACTED	REDACTED
Salt Lake City, UT	660	REDACTED	REDACTED	REDACTED
San Francisco, CA	662	REDACTED	REDACTED	REDACTED
Puget Sound HCS	663	REDACTED	REDACTED	REDACTED
San Diego, CA	664	REDACTED	REDACTED	REDACTED
Sheridan, WY	666	REDACTED	REDACTED	REDACTED
Shreveport, LA	667	REDACTED	REDACTED	REDACTED
Spokane, WA	668	REDACTED	REDACTED	REDACTED
South Texas HCS	671	REDACTED	REDACTED	REDACTED
San Juan, PR	672	REDACTED	REDACTED	REDACTED

Tampa, FL	673	REDACTED	REDACTED	REDACTED
Central Texas HCS	674	REDACTED	REDACTED	REDACTED
Orlando, FL	675	REDACTED	REDACTED	REDACTED
Tomah, WI	676	REDACTED	REDACTED	REDACTED
Tucson, AZ	678	REDACTED	REDACTED	REDACTED
Tuscaloosa, AL	679	REDACTED	REDACTED	REDACTED
Walla Walla, WA	687	REDACTED	REDACTED	REDACTED
Washington, DC	688	REDACTED	REDACTED	REDACTED
Connecticut HCS	689	REDACTED	REDACTED	REDACTED
West Los Angeles, CA	691	REDACTED	REDACTED	REDACTED
White City OR	692	REDACTED	REDACTED	REDACTED
Wilkes Barre, PA	693	REDACTED	REDACTED	REDACTED
Milwaukee, WI	695	REDACTED	REDACTED	REDACTED
Valley Coastal Bend HCS	740	REDACTED	REDACTED	REDACTED
El Paso, TX	756	REDACTED	REDACTED	REDACTED
Columbus, OH	757	REDACTED	REDACTED	REDACTED
Billings, MT CBOC	436GH	REDACTED	REDACTED	REDACTED
Pensacola, FL	520BZ	REDACTED	REDACTED	REDACTED
Canandaigua, NY	528A5	REDACTED	REDACTED	REDACTED
Bath, NY	528A6	REDACTED	REDACTED	REDACTED
Syracuse, NY	528A7	REDACTED	REDACTED	REDACTED
Albany, NY	528A8	REDACTED	REDACTED	REDACTED
Lake City VA Medical Center	573A4	REDACTED	REDACTED	REDACTED
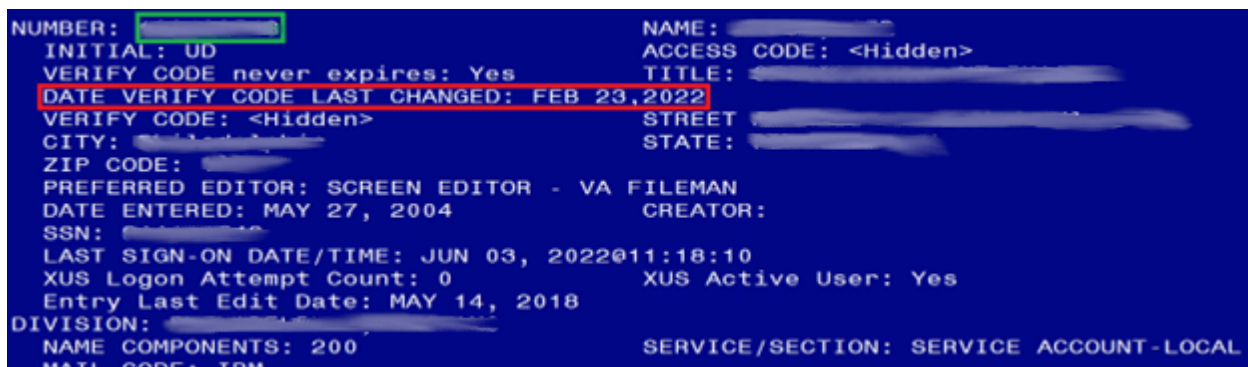
Columbia, MO	589A4	REDACTED	REDACTED	REDACTED
Topeka, KS	589A5	REDACTED	REDACTED	REDACTED
Leavenworth, KS	589A6	REDACTED	REDACTED	REDACTED
Wichita, KS	589A7	REDACTED	REDACTED	REDACTED
Lexington, KY -CDD	596A4	REDACTED	REDACTED	REDACTED
Grand Island, NE	636A4	REDACTED	REDACTED	REDACTED
Lincoln, NE	636A5	REDACTED	REDACTED	REDACTED
Central Iowa HCS	636A6	REDACTED	REDACTED	REDACTED
Iowa City, IA	636A8	REDACTED	REDACTED	REDACTED
Poplar Bluff, MO	657A4	REDACTED	REDACTED	REDACTED
Marion, IL	657A5	REDACTED	REDACTED	REDACTED

NOTE: For several sites, the VIX service accounts in Table 2 are missing because they expired at the time of publication of version 43.4 of this document.

NOTE: Sites can find the DUZ corresponding to their VIX service account on the local VistA by following the steps below:

1. In FileMan, choose the option to Inquire to File Entries, choose the New Person file (#200), and then enter the name of your VIX's service account on its local VistA.

2. Accept the defaults for Standard Captioned Output, when asked "Include COMPUTED fields", answer either B or R, as you need to view the record number.

3. If multiple results are returned based on the name you entered, you will need to view each of them to determine which is your local service account and which are visitor accounts. Select one of the accounts.

4. In the data listed for each account, check for the presence of the DATE VERIFY CODE LAST CHANGED field (refer to the red highlighted field in Figure 73). If the DATE VERIFY CODE LAST CHANGED field is not present return to step 2 and select a different account upon reaching step 4, otherwise continue to the next step.

Figure 73: FileMan File Entry 200

5. If the field is present, it is the local service account. If it is not, it is a visitor account and should not be edited. The number printed in the NUMBER field is the DUZ of the VIX's service account on the local VistA (refer to the green highlighted field in Figure 73). Record the DUZ of the VIX's service account on the local VistA. (Consider documenting the DUZ of the service account on the local VistA in your Master Site Profile.)

NOTE: Once the DUZ is obtained, follow the steps below to update the corresponding VIX service account:

1. To view a record once you have its DUZ value, access VA FileMan [DIUSER] and select Inquire to File Entries [DIINQUIRE].

2. When prompted "Output from what File", select NEW PERSON (#200).

3. When asked to "Select NEW PERSON NAME", enter a back-tick (`) followed by the DUZ for the account. Select whichever view options you want (the defaults are fine), and then view the account's record to determine the details and make any necessary adjustments.

NOTE: If you are unable to perform the above steps, please create a support ticket with VistA Apps for assistance.

Below is an example of the information to provide in a ticket to update the VIX's service account on the local VistA. The example shows specifying the access code of the VIX's service account on the local VistA, the name of the VIX's service account on the local VistA, the suggested name of the VIX's service account on the local VistA, the SSN of the VIX's service

account on the local VistA, and any missing VistA menus, keys, and other settings to add. Be sure to copy and paste the security keys, secondary menus, INITIAL, and RAD/NUC information shown before Table 2 into the ticket as needed.

```
Assignment group: ESD Tier 1
Category: Service
Subcategory: Access

Please use the SITE_SERVICE_ACCOUNT_ACCESS_CODE_HERE to look up the
DUZ for the SITE_SERVICE_ACCOUNT_NAME_HERE service account in
SITE_VISTA_NAME_HERE VistA and then update the service account with
the following:
Change service account name to: IMAGINGSVC,SITE_ABBREVIATION_HERE
Add SSN: SITE_SERVICE_ACCOUNT_SSN_HERE
Add keys: MAG DOD FIX, RA ALLOC
Add secondary menus: MAG WINDOWS, MAG DICOM QUERY RETRIEVE
Add INITIAL field: VSA

Add RAD/NUC med classification: RAD/NUC MED CLASSIFICATION
                                1       staff
                                4       technologist
Add CPRS TAB: CPRS TAB: COR
            EFFECTIVE DATE: <TODAY
Add AUTHORIZED TO WRITE MED ORDERS: YES
```

NOTE: This is a false SSN, which was not generated by, and will not conflict with, a real SSN issued by the Social Security Administration, but meets the requirements for VistA Broker Security Exchange (BSE) authentication between sites. These changes are required for Enterprise DICOM query retrieve with MAG*3.0*269 and beyond.

11. Appendix E: VIX Install Checklist

Table 3 summarizes the VIX installation process.

11.1. VIX Install Checklist

Table 3: VIX Install Checklist

	Requirement	Location in VIX Installation Guide	Action
☐	Verify VIX server meets required hardware specifications.	See *Operating System and Hardware Requirements*	Allocate more CPU cores/RAM as needed to meet the required specifications.
☐	Verify MUSE configuration information needed for installation, if any.	See *Appendix A: Enable MUSE Functionality*	Verify MUSE site number, MUSE server name, MUSE username, and MUSE password.
☐	Initiate the installation of the VIX MAG3_0P348_VIX_SETUP.msi.	See Installation Instructions	Perform steps in Installation Instructions.
☐	Verify VIX install is complete.	See *Verifying Installation/Upgrade is Complete*	Perform steps in Verifying Installation/Upgrade is Complete.
☐	Verify that VIX is running.	See *Verifying Installation/Upgrade is Complete*	Verify VIX is running.
☐	Verify that VIX Viewer and VIX Render services running.	See *Verifying Installation/Upgrade is Complete*	Verify VIX Viewer and VIX Render services are running.
☐	Request Site Service update to your facility if needed.	See *To Register the VIX*	Create a national ticket with the Health, Clinical Services Diagnostics Team (previously known as Clin 3, the group name is SPM.Health.ClinSvs.Diag) to update your site service entry to include the new viewer (Port REDACTED for HTTPS).

	Requirement	Location in VIX Installation Guide	Action
☐	Verify that images, including MUSE EKGs and DoD images, can be viewed via zero-footprint Image Viewer.	See *Spot-Checking VIX Image Delivery*.	Verify JLV utilizing zero-footprint viewer. If unable to view an image including MUSE EKGs and DoD images, enter a support ticket for assistance.

12. Definitions, Acronyms, and Abbreviations

Table 4: Definitions, Acronyms, and Abbreviations

Term	Definition
AE	Application Entities
BP	Background Processor
CPRS	Computerized Patient Record System
DCF	DICOM Connectivity Framework
DUZ	Designated User
FDA	Food and Drug Administration
FQDN	Fully Qualified Domain Number
HDIG	Hybrid DICOM Gateway
ICW	IMedConsent Web
IEN	Internal Entry Number
IVS	Integrated Visualization System
JLV	Joint Legacy Viewer
JMX	Java Management Extensions
PACS	Picture Archive and Communication System
ROI	Release of Information
SCP	Service Class Provider
SSN	Social Security Number
TIU	Text Integration Utility
VIX	VistA Imaging Exchange