Image Viewer Version 3.0

Deployment, Installation, Back-out, and Rollback Plan



Version 28.0

MAG*3.0*201

Department of Veterans Affairs

Office of Information and Technology (OI&T)

Property of the US Government

This is a controlled document. No changes to this document may be made without the express written consent of the VistA Imaging development group.

While every effort has been made to assure the accuracy of the information provided, this document may include technical inaccuracies and/or typographical errors. Changes are periodically made to the information herein and incorporated into new editions of this document.

Product names mentioned in this document may be trademarks or registered trademarks of their respective companies, and are hereby acknowledged.

VistA Imaging Product Development Department of Veterans Affairs Internet: REDACTED VA intranet: REDACTED

Revision History

Date	Rev	Notes	
Oct 14 2011	1	Created for MAG*3.0*104. WPR complete Aug 31; labeled for release Oct 14. REDACTED	
May 07 2012	2	Updated for MAG*3.0*122. REDACTED	
July 25 2013	3	Updated for MAG*3.0*034/116/118, MAG*3.0*119, MAG*3.0*127, MAG*3.0*129. REDACTED	
September 09 2013	4	Updated for MAG*3.0*130, REDACTED	
May 10 2016	5	Updated for MAG*3.0*162, REDACTED	
February 14 2017	6	Updated for MAG 3.0*170, REDACTED	
March 24 2017	7	Date updates REDACTED	
April 27 2017	8	Updated port information REDACTED	
July 05 2017	9	MAG*3.0*170 Installer Updates REDACTED	
July 26 2017	10	MAG*3.0*170 Updates REDACTED	
August 01 2017	11	MAG*3.0*177 Updates REDACTED	
October 03 2017	12	MAG*3.0*177 Updates REDACTED	
October 25 2017	13	MAG*3.0*185 Updates. REDACTED	
November 14 2017	14	Incorporated comments from reviewers regarding MAG*3.0*185. REDACTED	
December 5 2017	15	Updated MAG*3.0*185 build numbers. REDACTED.	

Date	Rev	Notes
January 11 2018	16	Additional MAG*3.0*185 updates. REDACTED.
January 25 2018	17	Additional MAG*3.0*185 Updates. REDACTED.
January 26 2018	18	Updated for MAG*3.0*197. REDACTED.
March 13 2018	19	Additional MAG*3.0*197 Updates. REDACTED.
May 25 2018	20	Additional MAG*3.0*197 Updates. REDACTED.
June 21 2018	21	Additional MAG*3.0*197 Updates. REDACTED.
July 6 2018	22	Additional MAG*3.0*197 Updates. REDACTED.
July 26 2018	23	Additional MAG*3.0*197 Updates. REDACTED.
August 14 2018	24	Additional MAG*3.0*197 Updates. REDACTED.
August 21 2018	25	Additional MAG*3.0*197 Updates. REDACTED.
September 27 2018	26	Updated for MAG*3.0*197 REDACTED
November 19 2018	27	Updated for MAG*3.0*201
February 1 2019	28	Updated for MAG*3.0 201 T9

Contents

Introduction	1
Intended Audience	1
Terms of Use	1
Document Conventions	1
Related Information	2
Installing a New VIX	3
Preparing for a New VIX Installation	3
Setting up VistA	
Selecting and Validating the VIX Server	
Getting VIX Component Licenses	
Getting a VIX Security Certificate	
Java Version	
Port Setting	
Registry Update	9
Tomcat User Permissions	
New VIX Installation – Standalone Server	11
Preparing Passwords, Activating Components, and Staging Files	11
Verifying Installation Is Complete	23
Activating a New VIX	26
Updating an Existing VIX	27
Preparing for a VIX Update	27
VistA Software Dependencies	
Scheduling Downtime and Impact of a VIX Update	
Java Version	
Port Setting	31
Registry Update	31
Uninstall Prior Version of SQL (If older than current patch version).	32
Stop VIX Services (Apache Tomcat, VIX Viewer, and VIXRender) I upgrade	
Check Tomcat Permissions (Ensure the Apache Tomcat account is	
group. If it does not exist, add it.)	
Performing a VIX Update – Standalone Server	
Post-installation	
McAfee Exclusions	
Verifying VIX Operations	
Verifying Access to the VIX Transaction Log	
Spot-checking VIX Image Delivery	
Using the VIX Installation Wizard to Reconfigure the VIX	
Reconfiguring a VIX – Standalone Server	48
Troubleshooting	
Resuming an Interrupted VIX Installation	
Resuming Installation (single server VIX)	50
MAG*3.0*201 Deployment, Installation, Back-out, and Rollback Plan	

VIX Support	
February 2019	iv

Back Out/Uninstall5	51
Back Out/Uninstall Scenarios	51
Uninstall/Restore as part of Troubleshooting5	51
Relocating a VIX onto a New Server5	51
Decommissioning a VIX5	52
Uninstalling the VIX	52
Stopping the VIX service	
Remove VIX-related applications, accounts, directories, and variables.5	3
Appendix A: VIX Install Checklist5	56
VIX Install Checklist	56

Introduction

This document explains how to install the VistA Imaging Exchange (VIX) service. Please review the install checklist in Appendix A prior to starting the install and reference throughout.

Intended Audience

This document is intended for VA staff responsible for managing a local VIX.

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

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 a component of VistA Imaging) as a medical device. Unauthorized modifications to VistA Imaging, including the VIX, such as the installation of unapproved software, will adulterate 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.

Document Conventions

This document uses the following conventions:

- Controls, options, and button names are shown 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 shown in bold and in brackets.
- Sample output is shown in monospace.
- Important or required information is shown in a **Note**.
- Critical information is indicated by:

Related Information

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

VistA Image Exchange (VIX) Viewer Administrator's Guide

Installing a New VIX

This section explains how to implement a new VIX. The installation checklist in Appendix A, VIX Update Checklist, summarizes the process.

Tip: If you are updating an existing VIX, see the Updating an Existing VIX section.

Preparing for a New VIX Installation

Preparing to install a new VIX involves:

- Acquiring Installation Files
 - MAG3_0P201_VIX_Setup.msi and SQLEXPRESS_X64-14_0_1000_169.ZIP found in the VIXSqlInstaller folder should be copied to a temporary folder on the desktop. (Download from SFTP site SOFTWARE folder if required)
 - If MAG 3.0*197 VIX has been installed then the SQLexpress .zip file should have already been installed and came with SQL 2017. If not, remove any old SQL files from add/remove programs before proceeding with the install.
 - Note: please make sure you had scheduled a down-time of VIX service, it may take 1-2 hours to complete.
- Selecting and validating the server where the VIX will be installed
- Getting VIX component licenses
- Getting a VIX security certificate
- Port Setting
- Registry Update
- Tomcat User Permissions

Specifics are covered in the following sections.

Setting up VistA

You must install the compatible KIDS package on the VistA system before installing the VIX server software. For information about how to install the KIDS package, see the patch description of the patch you are installing.

 If you are implementing a VIX for the first time, the MAG VIX ADMIN key, introduced in Patch MAG*3.0*83, must be assigned to the VistA accounts of administrators who need access to the VIX transaction log. While it is not required, it is recommended that sites run the MagDexter and MagKat utilities provided in patch MAG*3.0*98. Doing so populates DICOM series information for radiology exams acquired before the release of MAG*3.0*50. See the <u>VistA Imaging Storage Utilities Manual</u> for details.

Selecting and Validating the VIX Server

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

FDA Requirements

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

Hardware Requirements

Minimum VIX hardware requirements:

- Installation must be done on a 64bit OS machine.
- <u>The VIX servers will run on a minimum configuration of 2 CPUs, 4 gigabytes of RAM, and 200 gigabytes of disk space. However, during previous field testing, VIX performance was found to be less than optimal with image retrieval taking several minutes. Because of the slow performance with the minimum configuration, the following specifications are strongly recommended. If using minimum configurations, see Figure 2 below.</u>
- Strongly Recommended
 - o 4 CPUs and 8 gigabytes of RAM
- A dedicated local drive for the VIX cache
 - Strongly Recommended
 - o 500 gigabytes of disk space
- A 1 gigabit Ethernet connection will need to be available for use by the VIX.

*	Hardware	Memory
	M Add Hardware	and Preside y
	Firmware Boot from File	You can configure options for assigning and managing memory for this virtual machine.
	Memory	Specify the amount of memory that this virtual machine will be started with.
	8192 MB	Startup RAM: 8192 MB
R	Processor 4 Virtual processors	Dynamic Memory
	SCSI Controller Hard Drive vhapugimmvvix2.vhdx OVD Drive	You can manage the amount of memory assigned to this virtual machine dynamically within the specified range.
Đ		Minimum RAM: 4096 MB
	VGC Public Management	Maximum RAM: 1048576 MB
and an other states	Name VHAPUGIMMVDX1 Ltegration Services Some services offered Checkpoint File Location	Specify the percentage of memory that Hyper-V should try to reserve as a buffer. Hyper-V uses the percentage and the current demand for memory to determine an amount of memory for the buffer. Memory buffer: 20 💭 %
	C:\ClusterStorage\Production_DIC	Memory weight
	Smart Paging File Location C:\ClusterStorage\Production_DIC	Specify how to prioritize the availability of memory for this virtual machine compared to other virtual machines on this computer.
	Automatic Start Action	Low High
	Automatic Stop Action Save	Specifying a lower setting for this virtual machine might prevent it from starting when other virtual machines are running and available memory is low.
		A This virtual machine is configured with uniform memory access. Virtual machines configured with a large amount of memory or many virtual processors can often benefit from non-uniform memory access. Disable Dynamic Memory to allow non-uniform memory access.
		Some settings cannot be modified because the virtual machine was running

Figure 1: STRONGLY RECOMMENDED VIX Settings

VIX TEST 🗸	4) Q			
* Hardware	Memory			
1 Add Hardware	and Preside y			
Firmware	You can configure options for assigning and managing memory for this virtual machin			
Boot from File	Specify the amount of memory that this virtual machine will be started with.			
Memory 4096 MB	Startup RAM: 4096 MB			
# 🔲 Processor	Dynamic Memory			
2 Virtual processors	You can manage the amount of memory assigned to this virtual machine			
SCSI Controller	dynamically within the specified range.			
Hard Drive vixtest.vhdx	Enable Dynamic Memory			
DVD Drive None	Minimum RAM: 512 MB			
VGC Public	Maximum RAM: 1048576 MB			
& Management	Specify the percentage of memory that Hyper-V should try to reserve as a buffer.			
I Name VIX TEST	Hyper-V uses the percentage and the current demand for memory to determine a amount of memory for the buffer.			
Integration Services Some services offered	Memory buffer: 20 🗘 %			
Checkpoint File Location C:\ClusterStorage\Production_DIC	Memory weight			
Smart Paging File Location C:\ClusterStorage\Production_DIC	Specify how to prioritize the availability of memory for this virtual machine compared to other virtual machines on this computer.			
Automatic Start Action	Low High			
Automatic Stop Action Save	(i) Specifying a lower setting for this virtual machine might prevent it from starting when other virtual machines are running and available memory is low			
	This virtual machine is configured with uniform memory access. Virtual machines configured with a large amount of memory or many virtual processors can often benefit from non-uniform memory access. Disable Dynamic Memory to allow non-uniform memory access.			
	l			

Figure 2: MINIMUM VIX Settings

Port Requirements

On the server where the VIX is installed, verify that ports 343, 443, 8080, 8442, and 8443 are accessible to VA wide area network IP addresses (10.x.x.x).

Operating System and Environment Requirements

The VIX can run on:

- Minimum: Windows Server 2012 R2
- If you are installing on Windows Server 2012 R2
 - Verify that .Net 3.5 is enabled. It must be enabled for the VIX install.
 - .Net 4.5 framework should be installed on your server. If it isn't installed, the installer will fail. To discover if you have the feature installed it should be present in "Control Panel\Programs\Programs and Features" as "Microsoft .NET Framework 4.5.x".
 - To remedy download and install the .Net 4.5 framework. (for convenience, a copy is placed on the FTP site)

Getting VIX Component Licenses

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

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. To request site-specific serial numbers for this license, do the following:

1. From the server where the VIX is installed, attempt to access the Laurel Bridge activation code server at **REDACTED**. (A login page will display if you can access the site.)



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

2. Contact the **REDACTED** mail group. They will provide a request form and instructions for completing the form.

The serial number information provided will ultimately be used to generate an activation code (this is done during the VIX installation process). The activation code allows the Laurel Bridge DCF toolkit to be installed and used.

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

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

IMPORTANT: 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 will interfere with the installation process.

Getting a VIX Security Certificate

Each server that hosts the VIX must be issued a security certificate. To get security certificates, send an e-mail to **REDACTED** and include the following information:

- Fully Qualified Domain Name (FQDN) of the VIX server name
- Contact information for the primary and backup administrators of the VIX.

Requests will typically be processed within five business days. After the request has been processed, the security certificate (one per server) will be securely transmitted to the requesting site POC for install on the site VIX.

Each security certificate received will need to be copied to the local server where the VIX software is installed. The VIX installation wizard will prompt you for this certificate during the installation process.

Java Version

Before beginning the install, validate the specific patch description document for the current version of Java. If the server has a different version of Java than the required version specified in patch description, please uninstall the application.

Port Setting

Before beginning the install, the port range needs to be set. Follow the steps below: This step is for enabling MUSE which is not currently supported in JLV (future capability).

- 1. Start | Search CMD | Open Command Prompt
- 2. Run the following command: NetSh INT IPV4 SET DynamicPort TCP Start=1025 num=64511
- 3. Verify the command successfully went through by running the following command: NetSh INT IPV4 Show DynamicPort TCP

4. If step 2 was successful, results from step 3 should look like:

Protocol tcp Dynamic Port Range Start Port: 1025 Number of Ports: 64511

5. If results do not look like this, repeat step 2 to ensure there are no typing errors.

Registry Update

Before beginning the install, the client TCP/IP socket connection timeout value must be adjusted to be between 30 and 240.

1. Start | Search regedit | Open Registry Editor

2. Browse to the following key in the registry and select:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters

3. Search for the following registry value: TcpTimedWaitDelay.

If this value is not there, click on the Edit menu, click New, DWORD Value, and then add "TcpTimedWaitDelay" to reduce the length of time that a connection stays in the TIME_WAIT state when the connection is being closed. While a connection is in the TIME WAIT state, the socket pair cannot be reused:

4. Right click on the "TcpTimedWaitDelay" registry value and click "Modify". Then click "Decimal" and ensure the value is between 30 and 240.

5. Close Registry Editor.

Tomcat User Permissions

Due to the VA group policy restriction or rules, there is an issue found while the VIX installer wizard is setting file system access rules - i.e.... error denying access to apachetomcat account to c:\...

If it occurs, please check/verify the Access control of VIX service account [apachetomcat] for the **following folders**, must have the **Modify & Write** access rights (Allow access must be checked) -

- * C:\Program Files\Apache Software Foundation\Tomcat 8.0\
- * C:\Program Files\java\Jre...
- * C:\DCF Run Time x64
- * C:\Vixconfig

Right-click on the Folder, select 'Properties' - 'Security' - 'Edit'

Otherwise, the Tomcat8 or VIX service(s) may experience some start-up, or slowness issues.

VIX Service Installation Wizard 30.201.9.6250
Click Uninstall button to remove existing VIX web applications.
The ApacheTomcat service (Tomcat8) is Running ApacheTomcat service.
Uninstall version 30.2
< Back Next > Cancel

	VIX Service Installation Wizard 30.201.9.6250
Specify the VA site	the VIX will service.
Specify the VA site num	nber for this VIX then click the Lookup Server Addresses button.
Site Number:	589A5 Lookup Server Addresses
VistA Server Name:	vista.kansas-city.med.va.gov
VistA Server Port	19210
VIX Server Name:	VHATOPIMMVV01.v15.med.va.gov
VIX Server Port	8080
	< Back Next Cancel

New VIX Installation – Standalone Server

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

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

Preparing Passwords, Activating Components, and Staging Files

Before starting the VIX installation process on a standalone server, do the following:

1. Verify that .NET 3.5 features and .NET 4.5 features are enabled. If Windows needs to download files, accept.

elect features			DESTINATION SERVER 1873/VSTWIN-T
Before You Begin Installation Type	Select one or more features to install on the selected serv Features	ver.	Description
Server Selection Server Roles	INET Framework 3.5 Features (1 of 3 installed)	^	.NET Framework 3.5 combines the power of the .NET Framework 2.0
Features Confirmation Results			APIs with new technologies for building applications that offer appealing user interfaces, protect your customers' personal identity information, enable seamless and secure communication, and provide the ability to model a range of business processes.
		~	

- 2. Prepare a password to be used for the Apache Tomcat administrator account that will be created as part of the VIX installation process.
 - This account will be rarely used; it only needs to be secured properly.
 - The password is case-sensitive and only alphanumeric characters are allowed.
- 3. Prepare a password for the Windows account that will be created as part of the VIX installation process.
 - This Windows account, which will be named "apachetomcat" when it is created by the VIX installer, is used 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 eight characters, and must contain at least one capital letter and one number.
- 4. Set up a service account in VistA for ROI periodic processing with the MAG DICOM VISA secondary menu option and the OR CPRS GUI CHART secondary menu option. The service account may be the same service account as the one the DICOM Gateway and the HDIG use. The credentials are required for the VIX to process ROI disclosure requests periodically, in the background and to purge completed requests.
- 5. Determine the email address or addresses for notification about invalid ROI periodic processing credentials. The VIX will send 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.

- 6. Copy the VIX security certificate to the primary drive (usually the C drive) of the server where the VIX will be installed.
- 7. To minimize downtime and speed up the P201 VIX installation, stop the following VIX services first: (if these are already present on new VIX server).

For Server 2012 R2 (Server Manager – Tools – Component Services – Services (Local), or Task Manager – Services – Open Services)

- Apache Tomcat
- SQL Server (SQLEXPRESS), SQL Server CEIP (SQLEXPRESS), SQL Server VSS Writer
- Listener Tool
- VIX Render Service
- VIX Viewer Service

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

Standalone Server Installation

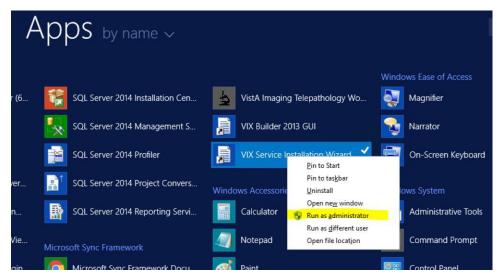
VIX installation involves running two processes back-to-back. The first short process installs the VIX Installation Wizard. The second, longer process involves using the VIX Installation Wizard to install the actual VIX.

Note: These steps presume that 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.

To install the VIX on a standalone server

- 1. Use an administrator-level account to log on to the standalone server where the VIX will be installed.
- Copy the latest VIX installer (MAG3_0P201_VIX_Setup.msi) and the VIXSqlInstaller folder SQLEXPRESS_X64-14_0_1000_169.ZIP) to a temporary folder on the desktop.
- 3. Do the following to prepare the VIX Installation Wizard:
 - a. Double-click the VIX set-up MAG3 OP<number> VIX Setup.msi file.
 - a. When the Welcome page displays, click Next.
 - b. When the Confirm Installation page displays, click Next.

- c. When the Installation Complete screen displays, click Close.
- 4. Choose Start | All Programs | VistA Imaging Programs | VIX Installation Service Wizard.
- 5. Run selected program as administrator.



- 6. When the Welcome page for the VIX installation wizard displays, click Next.
- 7. 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. Then, click **Lookup Server Addresses**.
- 8. Verify that the site-related information retrieved by the lookup is correct. Then, click **Next**.

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

- 9. When the Install the VIX Prerequisites page displays, verify that the icons for the first two items on the page are
 - <account> has Administrator role This line will indicate if an administrative account is being used. If not, cancel the installation and restart it using a Windows administrator account.
 - Current operating system This line will indicate if the proper operating system is present. If a non-supported operating system is identified, the installation cannot continue.
- 10. On the same page, check the line that indicates the state of the Java Runtime environment. If 🔛 is shown, do the following:

a. Click Install.

- **b.** Wait until the status icon the Java Runtime Environment changes to \bigcirc . (This install of Java will take longer than previous versions and may take several minutes to complete)
- 11. On the same page, check the line that indicates the state of the Apache Tomcat installation. If 🔛 is shown, do the following:
 - a. Click Install.
 - **b.** In the dialog box that displays, enter and confirm the Apache Tomcat password that you prepared as described in <u>Preparing Passwords</u>, <u>Activating Components</u>, <u>and Staging Files</u> previously. Then, click **OK**.
 - **c.** Wait until the status icon for Apache Tomcat changes to <a> . (This install of Tomcat will take longer than previous versions and may take several minutes to complete)
- 12. On the same page, check the line that indicates the state of the Laurel Bridge toolkit. If 🗱 is shown, do the following:
 - **a.** Click the **Install** button next to the Laurel Bridge item. After a brief delay, the Activate DCF License window will open.

Tip: The Network Activation tab will be selected automatically, and about half of the boxes in the window will be pre-populated.

b. Enter all of the following information in the Network Activation tab:

Note: The Activate button will be disabled if any of the following boxes are left blank.

- **Product Serial Number** the new Laurel Bridge DCF serial number (include dashes).
- Site the name of your site.
- **CPUs** the number of CPUs on the server hosting the VIX.
- **Contact name** and **Contact email** the administrator of your local VistA Imaging system.
- **c.** Near the bottom of the window, click **Activate**. After a brief delay, the **Status** box will display a green "Success" message.
- **d.** Click **Exit with success**. The Activate DCF License window will close and the updated Laurel Bridge toolkit will be installed (installation will only take a second or two).

- 13. On the same page, check the line that indicates the state of the service account. If 🔛 is shown, do the following:
 - a. Click Create.
 - **b.** In the dialog box that displays, enter the Windows service account password that you prepared <u>Preparing Passwords</u>, <u>Activating Components</u>, and <u>Staging Files</u> previously. Then, click **OK**.
 - c. Wait until the status icon for the service account changes to \heartsuit .
- 14. On the same page, check the line that indicates the state of VIX security certificate. If is shown, do the following:
 - a. Click Install.
 - **b.** In the dialog box that displays, click **Select**.
 - **c.** Specify the location of the security certificate setup file received from the national VistA Imaging team. Then, click **OK**.
- 15. Check the line that indicates VIX/Viewer Render Services. If 🔛 is shown, do the following.
 - a. Click Install

	VIX Service Installation Wizard 30.201.9.6250
Install th	e VIX Prerequisites.
Install Install Install Create Install	 VHA15\vhatopia has the Administrator role. Current operating system is Windows 2012. The Java Runtime Environment version 8.0_171 is installed. Apache Tomcat version 8.0.52 is installed. The Laurel Bridge DICOM toolkit is installed. The service account has been configured. The VIX security certificate is installed.
Install	The VIX Viewer/Render Services are not installed. Back Next > Cancel

.4	Viewer Service	[Port:343]	Save Configuration
	Port Number	343	Sere congeneors
	Use TLS	False	
	Trusted Client Port	De-1007	
	Compress Images	False	
	Override Hostname	1201000000	
4	Render Service	[Port:9901]	
	Port Number	9901	
	Use TLS	False	
4	Site Service	[http://localhost:8080]	
	Host Name	localhost	
	Port Number	8080	
	Use TLS	False	
A.	VIX Service	http://localhost:8080]	
	Host N ⁴ Storage Image Cache Directory	E\VIXRenderCache	
	Port N. Use TI		
d d	Buttone Image Cache Directory Instanc User Name Password Storage Image Cache Directory Purge Maximum Age (Days) Maximum Cache Size (MB) Purge Times Enabled Bige Cache Directory ge Cache Directory ge Cache Directory	Et VYDRenderCache 2 1024 00:00 True	

b. Click Configure Viewer/Render

- **c.** Verify the following settings:
 - (1) Verify the viewer port is set to 343.
 - (2) Verify Site Service host name is set to localhost.
 - (3) Verify Site Service port is set to 8080.
 - (4) Verify VIX Service host name is set to localhost.
 - (5) Verify instance name is .\ SQLEXPRESS
- **d.** Edit image cache directory drive to the dedicated VIX cache drive. (For example, "E:\VIXRenderCache")
- e. If setting values were modified click the Save Configuration button in the top right corner.
- f. Click OK

g. If prompted to install the SQL server, click **OK** and select the SQLEXPRESS_X64-14_0_1000_169.ZIP file from the "VIXSqlInstaller" folder in the temporary folder on the desktop. (Depending on your system, this step may take up to twenty minutes)

l 💽 🛄 = l	VixS	qlInstaller			-	
File Home Shar	re View					~
) 🕘 - 🕇 📕 🕨	VixSqlInstaller 🕨		~ C	Search Vix	Sqlinstaller	P
🔆 Favorites	Name	Date modified	Туре		Size	
Desktop	previoussqlserver	3/14/2018 8:41 AM	File folder			
🗼 Downloads	Je ver12	3/7/2018 2:52 PM	File folder			
Secent places	SQLExpress_x64-14.0.1000.169	2/27/2018 12:38 PM	Compresse	d (zipp	282,580 KB	
	SSMS-Setup-ENU	1/26/2018 12:04 PM	Application		821,371 KB	
This PC						
📭 Network						

	SQL Server 2017 Setup
Installation Progre	55
nstall Setup Files Installation Progress	Install_sql_tools_Cpu64_Action : Write_NativeImage_64. Generating Native Images
	Next > Cancel Help

- 16. In the Install the VIX Prerequisites page, confirm that all the icons are 🥝 . Then, click **Next**.
- 17. In the Specify the location page, select the drive where you want the VIX configuration files to reside. Then, click **Create**.
 - In most cases, you should use the same drive for the VIX configuration files and for the VIX cache.

18. In the same page, select the drive where the VIX cache will be located. Then, click **Create**.

19. Click Next.

• Select the "C:\" drive for VixConfig folder and the appropriate VIXCache drive for your site (E: is shown in the example below). Click each **Create** button to create the folders.

VIX Service Installation Wizard 30.201.9.625	0
Specify the location of the VIX cache and configuration folders.	
The VIX cache and configuration drives have been configured. Click Next to con	ntinue.
Specify the local drive for the VIX Configuration files	
C:\-Windows 2012R2 C:\VixConfig	Create
Specify the local drive for the VIX Cache	
E:\-VIX_CACHE V E:\VixCache	Create
Space Available on selected drive (GB) 485	- <u></u> g
< Back Nex	t > Cancel

- Click Next.
- In the Specify the Release of Information (ROI) Configuration, do the following:
 - Specify the access and verify codes for the account with the ROI periodic processing credentials. The VIX uses this account for periodic processing of ROI disclosure requests. The account must be valid VistA credentials with the DICOM VISA [MAG DICOM VISA] secondary menu option and the CPRSChart version 1.0.31.116 [OR CPRS GUI CHART] secondary menu option. The credentials can be the credentials of the same service account that the DICOM Gateway and the HDIG use.

 Specify the email address that gets notifications for invalid ROI periodic processing 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.

VIX	X Service Installation Wizard 30.201.9.6250
Specify the Re	lease of Information (ROI) configuration.
The ROI configura	ation has been specified. Click Next to continue.
Specify the VIX R Access:	OI service account
Verify:	•••••
Confirm Verify:	•••••
In case of error,	send email notifications to (comma separated):
user2@va.gov	
For example: us	ver1@va.gov, user2@va.gov Validate
	< Back Next > Cancel

• Click Validate.

The VIX installation program checks the information. If it detects an error, it displays a tooltip with information about the error. When it validates the configuration, **Next** becomes available.

- In the Configure Local DoD connection page, do one of the following:
 - If your site has no local network connection to a DoD facility, click Next (this will be the case at most VA sites)
 - If your site has a local network connection to a DoD facility, enter connection information for the DoD's PACS Integrator server. After entering the connection information, click **Validate** to test the connection. Then, click **Next**.

30.201.9.6250			
Configure local DoD connection for images			
Validate			
Back Next Cancel			

• On the Install the VIX page, click Install. (The information in this page is saved in C:\Program Files (x86)\VistA\Imaging\VixInstaller for future reference or troubleshooting.) This will start the installation process. It will also start the Tomcat and Viewer/Render services.

VIX Service Installation Wizard 30.201.9.6250	
Install the VIX. Click Install to begin.	
Unregister file C:/VixConfig\ROI\exe\igDISPLAY16a.ocx : Success Unregister file C:/VixConfig\ROI\exe\igDLGS16a.ocx : Success Unregister file C:/VixConfig\ROI\exe\igEFFECTS16a.ocx : Success Unregister file C:/VixConfig\ROI\exe\igFDRMATS16a.ocx : Success Unregister file C:/VixConfig\ROI\exe\igGuidIg16a.dll : Success Unregister file C:/VixConfig\ROI\exe\igGuiwin16a.dll : Success Unregister file C:/VixConfig\ROI\exe\igGuiwin16a.dll : Success Unregister file C:/VixConfig\ROI\exe\igJPEG2K16a.ocx : Success Unregister file C:/VixConfig\ROI\exe\igLZW16a.ocx : Success Unregister file C:/VixConfig\ROI\exe\igMED16a.ocx : Success Unregister file C:/VixConfig\ROI\exe\igMULTIMEDIA16a.ocx : Success	
Install	
< Back Next > Canc	el

VIX Service Installation Wi	izard 30.201.9.6250	
Install the VIX. Click Install to begin.		
-Dlog4j.configurationFile=file:/C:/VixConfig/log4j2.xml -Daxis.ClientConfigFile=C:/VixConfig/client-config.wsdd Starting the Tomcat8 service. The Tomcat8 service has been started. Starting Image Viewer service. The Image Viewer service is Running Starting Image Render service. The Image Render service. The Image Render service. The Image Render service. The Listener Tool service is Running		*
	Install < Back	
		`

- When installation is complete, click **Finish** to exit the wizard.
- The VIX will start automatically, but cannot be used until it is activated and registered with the VistA Site Service. See the next section for details.

Verifying Installation Is Complete

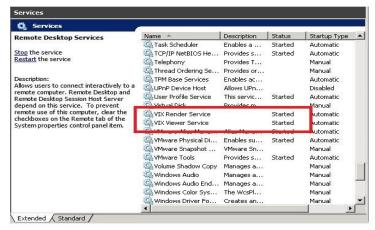
After you have run the VIX Installation Wizard, verify that your installation is complete. Follow these steps:

- 1. Go to the VIX homepage: http://<FQDN of VIX server>:8080/
- 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 and do not change. 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.



3. Verify VIX viewer and VIX render services are running.



4. Verify the listener tool is running.

Services (Local)					
listenerTool	Name	Description	Status	Startup Type	Log On As
	🔅 Hyper-V Remote Desktop Vi	Provides a pl		Manual (Trigg	Local System
Stop the service	🖏 Hyper-V Time Synchronizati	Synchronize		Manual (Trigg	Local Service
Restart the service	Arrow Hyper-V Volume Shadow Co	Coordinates		Manual (Trigg	Local System
	iKE and AuthIP IPsec Keying	The IKEEXT s		Manual (Trigg	Local System
	Infrared monitor service	Detects othe		Manual	Local System
	🖏 Interactive Services Detection	Enables user		Manual	Local System
	🖏 Internet Connection Sharing	Provides net		Disabled	Local System
	Intuit QuickBooks FCS			Manual	Local System
	🖏 IP Helper	Provides tun	Running	Automatic	Local System
	🖏 IP Translation Configuration	Configures a		Manual (Trigg	Local System
	🖏 IPsec Policy Agent	Internet Prot	Running	Manual (Trigg	Network Se
	🖏 ISCAgent	InterSystems		Manual	Local System
	KtmRm for Distributed Trans	Coordinates		Manual (Trigg	Network Se
	🖏 Link-Layer Topology Discove	Creates a Ne		Manual	Local Service
	CistenerTool		Running	Automatic	Local System
	🖾 Local Session Manager	Core Windo	Running	Automatic	Local System
	LPA Service	This service		Manual (Trigg	Local Service
	A MemeoBackgroundService	Manages ba	Running	Automatic	Local System
	A Message Queuing	Provides a m	Running	Automatic	Network Se
	MessagingService_67e74	Service supp		Manual (Trigg	Local System
	🧠 Microsoft (R) Diagnostics Hu	Diagnostics		Manual	Local System
	🖾 Microsoft Account Sign-in A	Enables user		Manual (Trigg	Local System

5. Verify that you have 10 Hydra IX and 10 Hydra VistA Worker threads running:

🚰 🛛 Task Manager 📃 🗖 🗙					
File Options View					
Processes Performance Users Details Services					
_		44%	88%		
Name	Status	CPU	Memory		
Host Process for Win	dows Tasks	0%	5.3 MB	^	
Hydra.IX.Processor		0%	21.9 MB		
Hydra.IX.Processor	Monitor for 1		32.4 MB		
Hydra.IX.Processor	Hydra.IX.Processor	threads	28.2 MB		
Hydra.IX.Processor		0%	42.7 MB	=	
Hydra.IX.Processor		0%	33.3 MB		
Hydra.IX.Processor		0%	39.6 MB		
Hydra.IX.Processor		0%	116.3 MB		
Hydra.IX.Processor		0%	25.8 MB		
Hydra.IX.Processor		0%	31.6 MB		
Hydra.IX.Processor		0%	24.6 MB		
Hydra.VistA.Worker		0%	5.6 MB		
Hydra.VistA.Worker	Monitor for 10	0%	5.6 MB		
Hydra.VistA.Worker	Hydra.VistA.Work threads	er 0%	7.3 MB		
Hydra.VistA.Worker	threads	0%	7.9 MB		
Hydra.VistA.Worker		0%	7.1 MB		
Hydra.VistA.Worker		0%	7.5 MB		
Hydra.VistA.Worker		0%	8.2 MB		
Hydra.VistA.Worker		0%	7.3 MB		
Hydra.VistA.Worker		0%	7.6 MB		
Hydra.VistA.Worker		0%	5.6 MB		
IBM BigFix Agent (32)	bit)	0.5%	11.0 MB	~	
Fewer details				End task	
				LITUILDSK	

Activating a New VIX

After the VIX is installed, it will be 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 will begin to be actively used, both by clinicians at your site as well as by 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 will cause errors and timeout issues for Clinical Display users.

To register the VIX

1. Gather the following information:

Primary contact name, phone, and email:

Backup contact name, phone, and email:

Site name:

STATION NUMBER (field #99) from INSTITUTION file (#4):

Network Name defined for Imaging Resources group:

- 2. Enter a National ticket to Clin 3 for site service update.
 - Paste the lines in the preceding step into the ticket.
 - Include "Add VIX server to Site Service database"
- 3. You will be notified, typically within five business days, when the site service registration is complete.
- 4. See <u>Verifying VIX Operations</u>

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 <u>Appendix A</u>, VIX Update Checklist.

Preparing for a VIX Update

Preparing for a VIX update involves:

- Acquiring Installation Files
 - o MAG3_0P201_VIX_Setup.msi and SQLEXPRESS_X64-14_0_1000_169.ZIP
 found in the VIXSqlInstaller folder should be copied to a temporary
 folder on the desktop.
 - Copy the MAG3_0P185_VIX_Setup.msi (or P177) for the backup plan if it is not already on the same VIX server.
 - Note: please ensure down time has been scheduled to install the VIX service. The installation may take 1-2 hours to complete.
- Verify the MAG*3.0*201 VistA KIDs package has been installed.
- Schedule 1 2 hours for the downtime and notify users of the impact of the VIX update.
- **Tip:** Aware licenses (used for DICOM-to-JPEG2000 conversion on the VIX) established for older VIX systems will automatically carry over to new VIX systems.
- **Tip:** VIX-specific account passwords and security key assignments established for older VIX systems will automatically carry over to new VIX systems.
- Port Setting
- Registry Update
- Uninstall Prior Version of SQL (If older than current patch version)
- Stop VIX Services (Apache Tomcat, VIXViewer, and VIXRender)
- Check Tomcat Permissions (Ensure the Apache Tomcat account is in the local users group. If it does not exist, add it.)

Hardware Requirements

Minimum VIX hardware requirements:

- Installation must be done on a 64bit OS machine.
- The VIX servers will run on a minimum configuration of 2 CPUs, 4 gigabytes of RAM, and 200 gigabytes of disk space. However, during previous field testing, VIX performance was found to be less than optimal with image retrieval taking several minutes. Because of the slow performance with the minimum configuration, the following specifications are strongly recommended. If using minimum configurations, see Figure 2 below.
- Strongly Recommended
 - 4 CPUs and 8 gigabytes of RAM
- A dedicated local drive for the VIX cache
 - Strongly Recommended
 - o 500 gigabytes of disk space
- A 1 gigabit Ethernet connection will need to be available for use by the VIX.

*	Hardware	Memory					1
	Madd Hardware	You can configure option	is for assigning an	d managing	memory for this vir	tual	1
	Boot from File	machine.					
	Memory	Specify the amount of m	emory that this vir	tual machin	ne will be started wi	th.	
143	8 192 MB Processor	Startup RAM:	8192	MB			
(R)	4 Virtual processors	Dynamic Memory					
	SCSI Controller Hard Drive whapugimmvvix2.vhdx	You can manage the a dynamically within the		assigned t	o this virtual machin	e	
	DVD Drive	Enable Dynamic M	lemory				
	None	Minimum RAM:	4096	MB			
•	VGC Public	Maximum RAM:	1048576	мв			
*	Management	Specify the percentac	e of memory that	Hyper-V sh	ould try to reserve	as a	
	I Name VHAPUGIMMVVIXI	buffer. Hyper-V uses determine an amount	the percentage an	d the curre			10
	Some services	Memory buffer:	20	%			
	Ct/ClusterStorage/Production_DIC	Memory weight					
	Smart Paging File Location C:\ClusterStorage\Production_DIC	Specify how to prioriti compared to other vir				nine	
	Automatic Start Action	Low			High		
	Automatic Stop Action	3 DO 8	s X se se s				
	Save	Specifying a lower starting when ot low.			ine might prevent it ing and available me		
		This virtual machine configured with a la benefit from non-ur Disable Dynamic Me	rge amount of men iform memory acc	mory or ma ess.	ny virtual processor		
		🔔 Some settings cann	ot be modified bec	ause the v	irtual machine was r	running	1
			OK		Cancel	Apply	

Figure 3: STRONGLY RECOMMENDED VIX Settings

VIX TEST 👻	4 Þ G
* Hardware	Memory
Madd Hardware	
Firmware	You can configure options for assigning and managing memory for this virtual machine
Boot from File	Specify the amount of memory that this virtual machine will be started with.
Memory 4096 MB	Startup RAM: 4096 MB
🗄 🛄 Processor	Dynamic Memory
2 Virtual processors	You can manage the amount of memory assigned to this virtual machine
SCSI Controller	dynamically within the specified range.
Hard Drive vistest.vhdx	Enable Dynamic Memory
DVD Drive	Minimum RAM: 512 MB
None	
Network Adapter VGC Public	Maximum RAM: 1048576 MB
* Management	Specify the percentage of memory that Hyper-V should try to reserve as a buffer.
I Name VIX TEST	Hyper-V uses the percentage and the current demand for memory to determine an amount of memory for the buffer.
Some services	Memory buffer: 20 😴 %
C:\ClusterStorage\Production_DIC	Memory weight
Smart Paging File Location C: \ClusterStorage\Production_DIC	Specify how to prioritize the availability of memory for this virtual machine compared to other virtual machines on this computer.
Automatic Start Action	Low High
Automatic Stop Action Save	Operation of the setting for this virtual machine might prevent it from starting when other virtual machines are running and available memory is low
	This virtual machine is configured with uniform memory access. Virtual machines configured with a large amount of memory or many virtual processors can often benefit from non-uniform memory access. Disable Dynamic Memory to allow non-uniform memory access.

Figure 4: MINIMUM VIX Settings

VistA Software Dependencies

The VIX server software requires that a compatible Imaging KIDS package be installed on VistA. For details about the compatible KIDS package and installing it, see the patch description of the specific patch.

Scheduling Downtime and Impact of a VIX Update

You will need to schedule downtime with appropriate personnel for the duration of the VIX installation.

Note: If a VIX is installed on a standalone (dedicated) server, the DICOM image acquisition is not impacted and can continue.

While the VIX server is being updated, VIX assisted functions will not be available. The following table summarizes how a VIX outage will affect clinicians:

Clinical Group	Impact
Local Clinical Display users	DoD images will not be accessible for the duration of the VIX shutdown.
	Remote VA images may be temporarily inaccessible. Clinical Display will attempt 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 make sure that Clinical Display is no longer using pre-VIX remote image views for remote sites.
Local VistARad users	Remote exam data and monitored exam lists will not be available. For additional information, refer to the documentation for VistARad.
Remote VA or DoD clinicians requesting your site's images	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 will not be able to retrieve locally stored images for the duration of the VIX shutdown.
Local DICOM Importer users	The DICOM importer client will be unable to log into VistA and process imports for the duration that the VIX is down.
VIX image viewer/JLV users	Clinical users of JLV will not be able to access images or artifacts using the VIX image viewer.

Java Version

Before beginning the install, validate the specific patch description document for the current version of Java. If the server has a different version of Java than the required version specified in patch description, please uninstall the application.

For example: P201 is using Java 8 Update: 1.80 171

Uninstall or change a program				
To uninstall a program, select it from the list and then	n click Uninstall, Change, or Repair.			
Organize 👻				= - @
Name 🔺	Publisher	Installed On	Size	Version
🔁 1E NomadBranch x64	1E	11/30/2017	32.4 MB	6.1.100
Active Directory Authentication Library for SQL Server	Microsoft Corporation	10/16/2018	1.78 MB	14.0.1000.169
😹 Apache Tomcat 8.0 Tomcat8 (remove only)	The Apache Software Foundation	11/18/2018		8.0.52
Browser for SQL Server 2017	Microsoft Corporation	11/15/2018	15.9 MB	14.0.1000.169
IBM BigFix Client	IBM Corp.	6/5/2018	28.2 MB	9.5.9.62
🕌 Java 8 Update 171 (64-bit)	Oracle Corporation	11/17/2018	115 MB	8.0.1710.11
Local Administrator Password Solution	Microsoft Corporation	10/13/2016	129 KB	6.2.0.0

Port Setting

Before beginning the install, the port range needs to be set. Follow the steps below:

- 1. Start | Search CMD | Open Command Prompt
- 2. Run the following command: NetSh INT IPV4 SET DynamicPort TCP Start=1025 num=64511
- 3. Verify the command successfully went through by running the following command: NetSh INT IPV4 Show DynamicPort TCP
- 4. If step 2 was successful, results from step 3 should look like:

Protocol tcp Dynamic Port Range Start Port: 1025 Number of Ports: 64511

- 5. If results do not look like this, repeat step 2 to ensure there are no typing errors.
 - This step is for enabling MUSE which is not currently supported in JLV (future capability).

Registry Update

Before beginning the install, the client TCP/IP socket connection timeout value must be adjusted to be between 30 and 240.

- 1. Start | Search regedit | Open Registry Editor
- 2. Browse to the following key in the registry and select:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters

3. Search for the following registry value: TcpTimedWaitDelay.

If this value is not there, click on the Edit menu, click New, DWORD Value, and then add "TcpTimedWaitDelay" to reduce the length of time that a connection stays in the TIME_WAIT state when the connection is being closed. While a connection is in the TIME_WAIT state, the socket pair cannot be reused:

- 4. Right click on the "TcpTimedWaitDelay" registry value and click "Modify". Then click "Decimal" and ensure the value is between 30 and 240.
- 5. Close Registry Editor.

Uninstall Prior Version of SQL (If older than current patch version)

- 1. Stop Apachetomcat Service (if already running).
- Uninstall all or any old MS-SQL programs (Control Panel Program Program and Feature – Uninstall)
- 3. Uninstall previous versions of Java.

For example:

- 4. Remove prior Tomcat software other than Tomcat 8.0 (i.e.: 6.0)
- 5. Remove/Delete the folder C:\Program Files\Microsoft SQL Server (include data files if it exists)
- 6. <u>RESTART the VIX server before proceeding (User MUST restart the server after uninstalling SOL software).</u>

	v C v C vultisher Microsoft Corporation Microsoft Corporation Microsoft Corporation	Installed On 11/3/2016 3/30/2018 3/30/2018	Size 214 MB 4.61 MB	• @ Versi 7.1.10 12.0.2
To uninstall a program, select it from the list and then ganize Microsoft Monitoring Agent Microsoft ODBC Driver 11 for SQL Server Microsoft Report Viewer 2014 Runtime Microsoft SQL Server 2008 R2 Management Objects	Publisher Microsoft Corporation Microsoft Corporation Microsoft Corporation	Installed On 11/3/2016 3/30/2018 3/30/2018	Size 214 MB 4.61 MB	Versi 7.1.10
ganize are	Publisher Microsoft Corporation Microsoft Corporation Microsoft Corporation	Installed On 11/3/2016 3/30/2018 3/30/2018	Size 214 MB 4.61 MB	Vers 7.1.1
A Microsoft Monitoring Agent Microsoft ODBC Driver 11 for SQL Server Microsoft Report Viewer 2014 Runtime Microsoft SQL Server 2008 R2 Management Objects	Microsoft Corporation Microsoft Corporation Microsoft Corporation	11/3/2016 3/30/2018 3/30/2018	Size 214 MB 4.61 MB	Vers 7.1.1
A Microsoft Monitoring Agent Microsoft ODBC Driver 11 for SQL Server Microsoft Report Viewer 2014 Runtime Microsoft SQL Server 2008 R2 Management Objects	Microsoft Corporation Microsoft Corporation Microsoft Corporation	11/3/2016 3/30/2018 3/30/2018	Size 214 MB 4.61 MB	Vers 7.1.1
Vicrosoft Monitoring Agent Vicrosoft ODBC Driver 11 for SQL Server Vicrosoft Report Viewer 2014 Runtime Vicrosoft SQL Server 2008 R2 Management Objects	Microsoft Corporation Microsoft Corporation Microsoft Corporation	11/3/2016 3/30/2018 3/30/2018	214 MB 4.61 MB	7.1.1
Vicrosoft ODBC Driver 11 for SQL Server Vicrosoft Report Viewer 2014 Runtime Vicrosoft SQL Server 2008 R2 Management Objects	Microsoft Corporation Microsoft Corporation	3/30/2018 3/30/2018	4.61 MB	
Vicrosoft Report Viewer 2014 Runtime Vicrosoft SQL Server 2008 R2 Management Objects	Microsoft Corporation	3/30/2018		12.0
Nicrosoft SQL Server 2008 R2 Management Objects			25 7 1 40	
	Microsoft Corporation		25.7 MB	12.0
Alexander COL Canvas 2009 Cature Support Files		3/30/2018	15.3 MB	10.5
vicrosoft SQL Server 2006 Setup Support Files	Microsoft Corporation	3/30/2018	38.9 MB	10.3
Microsoft SQL Server 2012 Native Client	Microsoft Corporation	3/30/2018	7.22 MB	11.0
Microsoft SQL Server 2014 (64-bit)	Microsoft Corporation	8/10/2018		
Microsoft SQL Server 2014 Policies	Microsoft Corporation	3/30/2018	1.00 MB	12.0
/licrosoft SQL Server 2014 Setup (English)	Microsoft Corporation	3/30/2018	50.7 MB	12.0
Microsoft SQL Server 2014 Transact-SQL Compiler Ser	. Microsoft Corporation	3/30/2018	141 MB	12.0
Microsoft SOL Server 2014 Transact-SOL ScriptDom	Microsoft Corporation	3/30/2018	6.18 MB	12.0
Microsoft SQL Server System CLR Types	Microsoft Corporation	3/30/2018	2.53 MB	10.5
Vicrosoft System CLR Types for SQL Server 2014	Microsoft Corporation	3/30/2018	6.80 MB	12.0
Vicrosoft Visual C++ 2005 Redistributable	Microsoft Corporation	9/27/2016	4.84 MB	8.0.
/licrosoft Visual C++ 2005 Redistributable (x64)	Microsoft Corporation	9/27/2016	7.10 MB	8.0.
/licrosoft Visual C++ 2005 Redistributable (x64)	Microsoft Corporation	9/27/2016	6.83 MB	8.0.
	1 ···· ··· ·			>
	Aicrosoft SQL Server 2014 (64-bit) Aicrosoft SQL Server 2014 Policies Aicrosoft SQL Server 2014 Setup (English) Aicrosoft SQL Server 2014 Transact-SQL Compiler Ser Aicrosoft SQL Server 2014 Transact-SQL ScriptDom Aicrosoft SQL Server 2014 Transact-SQL Server 2014 Aicrosoft System CLR Types for SQL Server 2014 Aicrosoft Visual C++ 2005 Redistributable Aicrosoft Visual C++ 2005 Redistributable (x64) Aicrosoft Visual C++ 2005 Redistributable (x64)	Aicrosoft SQL Server 2014 (64-bit) Microsoft Corporation Microsoft SQL Server 2014 Policies Microsoft Corporation Microsoft SQL Server 2014 Policies Microsoft Corporation Microsoft SQL Server 2014 Transact-SQL Compiler Ser Microsoft Corporation Microsoft SQL Server 2014 Transact-SQL Scripton Microsoft Corporation Microsoft SQL Server 2014 Transact-SQL Scripton Microsoft Corporation Microsoft SQL Server 2014 Transact-SQL Server 2014 Microsoft Corporation Microsoft SQL Server 2014 Transact-SQL Server 2014 Microsoft Corporation Microsoft System CLR Types for SQL Server 2014 Microsoft Corporation Microsoft Visual C++ 2005 Redistributable Microsoft Corporation Microsoft Visual C++ 2005 Redistributable (x64) Microsoft Corporation	Aicrosoft SQL Server 2014 (64-bit) Microsoft Corporation 8/10/2018 Microsoft SQL Server 2014 Policies Microsoft Corporation 3/30/2018 Microsoft SQL Server 2014 Policies Microsoft Corporation 3/30/2018 Microsoft SQL Server 2014 Transact-SQL Compiler Ser Microsoft Corporation 3/30/2018 Microsoft SQL Server 2014 Transact-SQL ScriptDom Microsoft Corporation 3/30/2018 Microsoft SQL Server 2014 Transact-SQL ScriptDom Microsoft Corporation 3/30/2018 Microsoft SQL Server 2014 Transact-SQL ScriptDom Microsoft Corporation 3/30/2018 Microsoft System CLR Types for SQL Server 2014 Microsoft Corporation 3/30/2018 Microsoft Visual C++ 2005 Redistributable Microsoft Corporation 9/27/2016 Microsoft Visual C++ 2005 Redistributable (x64) Microsoft Corporation 9/27/2016 Microsoft Visual C++ 2005 Redistributable (x64) Microsoft Corporation 9/27/2016 III	Aicrosoft SQL Server 2014 (64-bit) Microsoft Corporation 8/10/2018 Microsoft SQL Server 2014 Policies Microsoft Corporation 3/30/2018 1.00 MB Microsoft SQL Server 2014 Policies Microsoft Corporation 3/30/2018 50.7 MB Microsoft SQL Server 2014 Transact-SQL Compiler Ser Microsoft Corporation 3/30/2018 141 MB Microsoft SQL Server 2014 Transact-SQL Scripton Microsoft Corporation 3/30/2018 6.18 MB Microsoft SQL Server 2014 Transact-SQL Server 2014 Microsoft Corporation 3/30/2018 6.80 MB Microsoft System CLR Types for SQL Server 2014 Microsoft Corporation 3/30/2018 6.80 MB Microsoft Visual C++ 2005 Redistributable Microsoft Corporation 9/27/2016 4.84 MB Microsoft Visual C++ 2005 Redistributable (x64) Microsoft Corporation 9/27/2016 7.10 MB Microsoft Visual C++ 2005 Redistributable (x64) Microsoft Corporation 9/27/2016 6.83 MB

Stop VIX Services (Apache Tomcat, VIX Viewer, and VIXRender) before P201 VIX upgrade

To speed up the installation process, please stop the following services: For Server **2012 R2** (Server Manager – Tools – Component Services – Services (Local), or Task Manager – Services – Open Services)

• Apache Tomcat

- o Listener Tool
- o VIX Render
- o VIX Viewer

		Services			
Help					
🗟 🛛 🖬 🕨 🖬 🕪					
Services (Local)	<u></u>				
VIX Viewer Service	Name	Description	Status	Startup Type	Log On As
	Thread Ordering Server	Provides ordered executi	on	Manual	Local Service
Stop the service	🔍 UPnP Device Host	Allows UPnP devices to b	oe	Disabled	Local Service
Restart the service	🔍 User Access Logging Service	This service logs unique	cli Running	Automatic (D	Local Syste
	🔅 User Profile Service	This service is responsible	ef Running	Automatic	Local Syste
	🔍 VHA Site Service	VHA Site Service		Manual	Network S
	😪 Virtual Disk	Provides management se	erv	Manual	Local Syste
	🖏 VIX Render Service			Automatic	Local Syste
	👫 VIX Viewer Service		Start	matic	Local Syste
	🖓 VMware Alias Manager and	Alias Manager and T	10000	matic	Local Syste
	SWW ware CAF AMQP Comm	VMware Common A	Stop	ual	Local Syste
	🖓 VMware CAF Management	VMware Common A	Pause	matic (D	Local Syste
	Konstant State Sta	VMware Snapshot P	Resume	ual	Local Syste
	Whware Tools	Provides support for	Restart	matic	Local Syste
	G Volume Shadow Copy	Manages and implei	All Tasks	, ual	Local Syste
	Web Server for CACHE	Apache/2.4.2 (Win32		ual	Local Syste
	G WinCollect	The WinCollect serv	Refresh	matic	Local Syste
	Windows Audio	Manages audio for V	Properties	ual	Local Service
	G Windows Audio Endpoint B	Manages audio devi	Help	ual	Local Syste
	😪 Windows Color System	The WcsPlugInServi	ricip	ual	Local Service

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

For example: 'Details' tab of Task Manager shows all running services, e.g.: Hydra.VistA.Worker for VIX Viewer, Hydra.IX.Worker for VIX Render, ...etc. After stopping the service, they will be off the service details Running list.

	Task Ma	nager		_	
File Options View Processes Performance U	sers Details Services				
Performance 0	sers Details Services				
Name	Status	44% CPU	88% Memory		
Host Process for Wir		0%	5.3 MB		
Hydra.IX.Processor		0%	21.9 MB		
Hydra.IX.Processor	Verify 10 Hydra.IX.P	rocossor	32.4 MB		
Hydra.IX.Processor	threads (for VIX Rend	er service)	28.2 MB		
Hydra.IX.Processor		0%	42.7 MB		
Hydra.IX.Processor		0%	33.3 MB		
Hydra.IX.Processor		0%	39.6 MB		
Hydra.IX.Processor		0%	116.3 MB		
Hydra.IX.Processor		0%	25.8 MB		
Hydra.IX.Processor		0%	31.6 MB		
Hydra.IX.Processor		0%	24.6 MB		
Hydra.VistA.Worker	•	0%	5.6 MB		
Hydra.VistA.Worker	Verify 10 Hydra.Vist	A.Worker	5.6 MB		
Hydra.VistA.Worker	threads (for VIX View	er service)	7.3 MB		
Hydra.VistA.Worker		0%	7.9 MB		
Hydra.VistA.Worker		0%	7.1 MB		
Hydra.VistA.Worker		0%	7.5 MB		
Hydra.VistA.Worker		0%	8.2 MB		
Hydra.VistA.Worker		0%	7.3 MB		
Hydra.VistA.Worker		0%	7.6 MB		
Hydra.VistA.Worker	1	0%	5.6 MB		
IBM BiaFix Agent (32	(bit)	0.5%	11.0 MB		
 Fewer details 				1	End task

Check Tomcat Permissions (Ensure the Apache Tomcat account is in the local users group. If it does not exist, add it.)

Due to the VA group policy restriction or rules, there may be an issue found while the VIX installer wizard is setting file system access rules - i.e.... error denying access to apachetomcat account to c:\... (Ensure the Apache Tomcat account is in the local users group. If it does not exist, add it.)

If this occurs, please check/verify the Access control of VIX service account [apachetomcat] for the **following folders**, must have the **Modify & Write** access (Allow access must be checked) -

- * C:\Program Files\Apache Software Foundation\Tomcat 8.0\
- * C:\Program Files\java\Jre1.8.0_171
- * C:\DCF_Run Time_x64 (Check advanced special permissions in the C:\DCF_runtime x64\ folder with "delete subfolder and file")
- * C:\Vixconfig

Right-click on the Folder, select 'Properties' - 'Security' - 'Edit'

Performing a VIX Update – Standalone Server

Use the following steps to update a VIX on a standalone server.

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

- 1. Use an administrator-level account to log on to the standalone server where the VIX will be installed.
- Copy the VIX installation files (MAG3_0P201_VIX_Setup.msi and SQLEXPRESS_X64-14_0_1000_169.ZIP (if SQL 2017 is not already present on your VIX) found in the VIXSqlInstaller folder to a local folder on the server.
- 3. Go into Control Panel/Programs/Programs and Features and remove prior VIX Service Installation Wizard.
- 4. To Install the VIX Installation Wizard, perform the following steps:
 - a. Double-click the VIX installation file.
 - 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.
- 5. Choose Start | All Programs | VistA Imaging Programs | VIX Installation Service Wizard. (Right-click and run as administrator)
- 6. Run selected program as administrator.

ŀ	$Apps$ by name \sim		
			Windows Ease of Access
r (6	SQL Server 2014 Installation Cen	VistA Imaging Telepathology Wo	o 褽 Magnifier
	SQL Server 2014 Management S	VIX Builder 2013 GUI	Narrator
	SQL Server 2014 Profiler	VIX Service Installation Wizard	On-Screen Keyboard
/er	SQL Server 2014 Project Convers	Pin to tas <u>k</u> bar Windows Accessorie <u>U</u> ninstall	lows System
n	SQL Server 2014 Reporting Servi	Calculator Open new windo	ator Administrative Tools
√ie	Microsoft Sync Framework	Run as different to Notepad Open file location	100 August 1
ain	Microsoft Sync Framework Docu	Paint	Control Panel

- 7. When the Welcome page displays, click **Next**. Then, when you are prompted to do so, uninstall the pre-existing VIX software. (If it is not already stopped, the wizard will gracefully stop the VIX service before performing the uninstall.)
- 8. When the Uninstall is complete message displays near the top of the page, click Next.

Uninstall complete. Click Next to continue.	
PresentationStateWebApp All web applications have been uninstalled. GetLaurelBridgeVersion: Using DCF_ROOT=C!DCF_RunTime_x64 Installed DCF version is 3.3.40c GetLaurelBridgeVersion: Using DCF_ROOT=C!DCF_RunTime_x64 Installed DCF version is 3.3.40c IsDeprecatedLaurelBridgeInstalled False Installed Image ViewerRender Version is 2.2.6852.15051 Failed to purge existing Image Render Database. Please manually purge ViewRender database Cannot remove viewer render cache - (directory: not found) Press Next to continue.	~
	Uninstall version 30, 197

- In the Site Number field of the Specify the VA Site... page, verify that the Site Number box shows your STATION NUMBER (field #99) in the INSTITUTION file (#4).
- 10. Confirm the connection by clicking Lookup Server Address. Then click Next.
- 11. In the VIX Prerequisites page:
 - Check the line that indicates the state of the Java Runtime environment. If 🔛 is shown, do the following:
 - Click Install.
 - Wait until the status icon the Java Runtime Environment changes to
 (This install of Java will take longer than previous versions and may take several minutes to complete)
 - Check the line that indicates the state of the Apache Tomcat installation. If 🔛 is shown, do the following:
 - Click Install.
 - In the dialog box that displays, enter and confirm the Apache Tomcat password that you prepared as described in <u>Preparing Passwords</u>, <u>Activating Components</u>, and <u>Staging Files</u> previously. Then, click **OK**.
 - Wait until the status icon for Apache Tomcat changes to
 (This install of Tomcat will take longer than previous versions and may take several minutes to complete)
- 12. On the same page, check the line that indicates the state of the service account. If 🔛 is shown, do the following:
 - Click Assign.

VIX Service Installation Wizard 30.201.9.6250					
Installing Apache Tomcat version 8.0.52					
This usua	ally takes under a minute to complete.				
	♥ VHA06\vhafncia has the Administrator role.				
	Current operating system is Windows 2012.				
Install	Install Stall The Java Runtime Environment version 8.0_171 is installed.				
Install	Install Apache Tomcat version 8.0.52 is installed.				
Install	Install Install The Laurel Bridge DICOM toolkit is installed.				
Assign	Assign The service account must be reassigned to the Apache Tomcat service.				
Install	Install Install The VIX security certificate is installed.				
Install	The VIX Viewer/Render Services are not installed.				
	< Back Next > Cancel				

- $\circ~$ If your service user did not change, click Yes. If you need to reassign the password, click No.
- If you answered No, in the dialog box that displays, enter the Windows service account password that you prepared <u>Preparing Passwords</u>, <u>Activating Components</u>, and <u>Staging Files</u> previously. Then, click OK.
- \circ Wait until the status icon for the service account changes to \heartsuit .

VIX Service Installation Wizard 30.201.9.6250				
Click Create to create and configure the Tomcat service account. You will be prompted to enter a password for the service account.				
HA06\vhafncia has the Administrator role.				
Current operating system is Windows 2012.				
Instal 📀 The Java Runtime Environment version 8.0_171 is installed.				
Install O Apache Tomcat version 8.0.52 is installed.				
Instal 🔮 The Laurel Bridge DICOM toolkit is installed.				
Assign 🖉 The service account has been configured.				
Instal O The VIX security certificate is installed.				
Instal The VIX Viewer/Render Services are not installed.				
< Back Next > Cancel				

- 13. Check the line that indicates VIX/Viewer Render Services.
 - a. If 🔀 is shown, click Install. If 🥥 is shown, click Reinstall.
 - b. Click Configure Viewer/Render

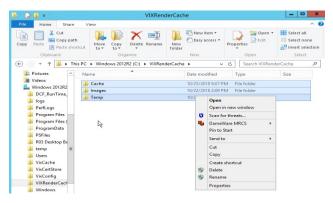
a Vewer Service	[Port:343]	Save Configuration
Port Number	343	
Use TLS	False	
Trusted Client Port		
Compress Images Overnde Hostname	False	
A Render Service	(Port:9901)	
Render Service Port Number	[Port:3901] 9901	
Use TLS	False	
J Ste Service	http:///ocalhost:8080]	
Host Name	localhost	
Pot Number	8080	
Use TLS	False	
# VIX Service	[http://localhost.8080]	
Host Name	localhost	
Pot Number	8080	
Use TLS	False	
A Database	[\SQLEXPRESS]	
Instance Name	ASQLEXPRESS	
User Name		
Password		
4 Storage		
Image Cache Drectory	El WDRenderCache	
# Purge		
Maxmum Age (Days)	2	
Maximum Cache Size (MB)	1024	
Purge Times	00:00	
Enabled	True	
Image Cache Directory		
Image Cache Directory		

- c. Verify the following settings:
 - 1) Verify the viewer port is set to 343.
 - 2) Verify Site Service host name is set to localhost.
 - 3) Verify Site Service port is set to 8080.
 - 4) Verify VIX Service host name is set to localhost.

- 5) Verify instance name is .\ SQLEXPRESS
- d. Edit image cache directory drive to the dedicated VIX cache drive. (For example, "E:\VIXRenderCache")
- e. If setting values were modified click the **Save Configuration** button in the top right corner. (The **Save Configuration** button will not activate unless configuration changes were actually made)
- f. Click OK
- g. If prompted to install the SQL server, click **OK** and select the SQLEXPRESS_X64-14_0_1000_169.ZIP found in the "VIXSqlInstaller" folder in the temporary folder on the desktop. (Depending on your system, this step may take up to twenty minutes)

		llnstaller		-	•
File Home Share					
🕘 – 🕆 볼 🕨	ixSqlInstaller 🕨		✓ C Search V	ixSqlInstaller	
🔶 Favorites	Name	Date modified	Туре	Size	
Desktop	previoussqlserver	3/14/2018 8:41 AM	File folder		
Downloads	🎍 ver12	3/7/2018 2:52 PM	File folder		
Recent places	BQLExpress_x64-14.0.1000.169		Compressed (zipp	282,580 KB	
This PC	SSMS-Setup-ENU	1/26/2018 12:04 PM	Application	821,371 KB	
This PC					
🗣 Network					
items	SQL Serve	r 2017 Setup			
Installation Pro	gress				
Install Setup Files					
Installation Progress	Install_sql_tools_Cpu64_Action : V	Vrite_NativeImage_64. Genera	ating Native Images		

 h. After SQL 2017 install and BEFORE initializing VIX, clean up the VIX Render Cache folders. For example: If VIX cache is on D: drive \VixCache, select all VIX cache folders [CTRL A] then Delete [CTRL D]. Do the same with D:\VIXRenderCache (or your site selected cache drive).



i. Click Next to continue.

j. Select the "C:\" drive for VixConfig folder and the dedicated VIX cache drive for VixCache folder. (For example, "E:\VIXCache") Click each **Create** button to confirm and create the folders.

In the Specify the Release of Information (ROI) Configuration, do the following:

- Specify the access and verify codes for the account with the ROI periodic processing credentials. The VIX uses this account for periodic processing of ROI disclosure requests. The account must be valid VistA credentials with the MAG DICOM VISA secondary menu option and the OR CPRS GUI CHART secondary menu option. The credentials can be the credentials of the same service account that the DICOM Gateway and the HDIG use.
- Specify the email address that gets notifications for invalid ROI periodic processing 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.

VIX Service Installation Wizard 30.201.9.6250						
Specify the Release of Information (ROI) configuration.						
The ROI configuration has been specified. Click Next to continue.						
Specify the VIX RO Access: Verify: Confirm Verify:	01 service account ••••••• ••••••					
	In case of error, send email notifications to (comma separated):					
user2@va.gov For example: use	er1@va.gov, user2@va.gov Validate					
	< Back Next > Cancel					

14. Click Validate.

The VIX installation program checks the information. If it detects an error, it displays a tooltip with information about the error. When it validates the configuration, **Next** becomes available.

15. In the Configure Local DoD connection page, do one of the following:

- If your site has no local network connection to a DoD facility, click Next (this will be the case at most VA sites)
- If your site has a local network connection to a DoD facility, enter connection information for the DoD's PACS Integrator server. After entering the connection information, click **Validate** to test the connection. Then, click **Next**.

VIX Service Installation Wizard 30.201.9.6250	
Configure local DoD connection for images	
No connection specified. Click the Next button to continue.	
Configure Local DoD connection DoD Server IP Address: DoD Server Port DoD Site Username: Password: Confirm Password:	Validate
< Back Next>	Cancel

16. On the Install the VIX page, click **Install**. (The information in this page is saved in C:\Program Files (x86)\VistA\Imaging\VixInstaller for future reference or troubleshooting.) This will start the installation process. It will also start the Tomcat and Viewer/Render services.

VIX Service Installation Wizard 30.201.9.6250		
Install the VIX.		
Click Install to begin.		
		<u> </u>
		V
		Install
	< Back Next >	Cancel

- 17. The VIX will start automatically when installation is complete.
- 18. Click Finish. The VIX Installation Wizard will close.

VIX Service Installation Wizard 30.201.9.6250			
Install the VIX. The VIX has been installed. Click Finish to exit the wizard.			
-Dnearline.retrycount=1 -XX:PermSize=128m -XX:MaxPermSize=256m -Djcifs.properties=C:/VixConfig/jcifs.properties -Dlog4j.configuration=file:/C:/VixConfig/log4j.properties -Daxis.ClientConfigFile=C:/VixConfig/client-config.wsdd Starting the Tomcat8 service. The Tomcat8 service has been started. Starting Listener Tool service. The Listener Tool service is Running			^
			Install
	< Back	Finish	Cancel

19. Confirm Hydra IX and Hydra VistA Worker threads (10 each):

🖓 📃 🗖 🗙							
File Options View							
Processes Performance Users Details Services							
44% 88%							
Name	Status	CPU	Memory				
Host Process for Win	dows Tasks	0%	5.3 MB	^			
Hydra.IX.Processor		0%	21.9 MB				
Hydra.IX.Processor	Monitor for 1	0	32.4 MB				
Hydra.IX.Processor	Hydra.IX.Processor	threads	28.2 MB				
Hydra.IX.Processor		0%	42.7 MB	=			
Hydra.IX.Processor		0%	33.3 MB				
Hydra.IX.Processor		0%	39.6 MB				
Hydra.IX.Processor		0%	116.3 MB				
Hydra.IX.Processor		0%	25.8 MB				
Hydra.IX.Processor		0%	31.6 MB				
Hydra.IX.Processor		0%	24.6 MB				
Hydra.VistA.Worker		0%	5.6 MB				
Hydra.VistA.Worker	Monitor for 10	0%	5.6 MB				
Hydra.VistA.Worker	Hydra.VistA.Work threads	er 0%	7.3 MB				
Hydra.VistA.Worker	threads	0%	7.9 MB				
Hydra.VistA.Worker		0%	7.1 MB				
Hydra.VistA.Worker		0%	7.5 MB				
Hydra.VistA.Worker		0%	8.2 MB				
Hydra.VistA.Worker		0%	7.3 MB				
Hydra.VistA.Worker		0%	7.6 MB				
Hydra.VistA.Worker		0%	5.6 MB				
▶ ■ IBM BigFix Agent (32	bit)	0.5%	11.0 MB	~			
Fewer details	Fewer details End task						
<i></i>							

20. Continue to Verifying VIX Operations

Post-installation

McAfee Exclusions

Exclude the following directories using McAfee On Access Scan Properties (Make sure to exclude subfolders as well):

- a. C:\Program Files\Apache Software Foundation\Tomcat 8.0\logs
- b. C:\Program Files\VistA\Imaging\VIX.Render.Service\log
- c. C:\Program Files\VistA\Imaging\VIX.Viewer.Service\log
- d. C:\VixConfig\logs
- e. <cache drive>:\VixCache
- <cache drive>:\VIXRenderCache f.
- g. Disable jar file scanning as per P197 instructions on folders -C:\Program Files\Apache Software Foundation\Tomcat 8.0\lib C:\Program Files\Java\jre1.8.0 171\lib

		Manager	-	•	x	Processing Status
Optioni Vie	W On-Access Scan P	roparties	×			Log (756)
		and a second	Baraton		-	
101	Processes Scan Itens Exclusion	a Actiona				
eretsi ofings	Specify what items to each What not to scan	lude from scarning.	-	F	4	
2	Exclude disks. files, and folders [2	8	Set Exclusio	ons	-	X
All		Select files, folders, and o	trives to be eac	ducted in	om scar	rring
		Item 🕞	Exclude Sul	rebloic	~	OK ·
		C:\Dicon\ C:\Piogran Files (x85)/Adaptiva\	Yes			Cancel
		C:/Ptogram Files (x86)///istA\ C:/Ptogram Files/Apache Softwall	Yes Yes		1	Add.
		C.VPiogram Files/Usiol/ C.VPiogram Files/WstA\	Yes Yes			Edt
		C:VhogranData\BigFoA	Yes			Renove
		C:WaCache\ C:WRRenderEache\	Yes		v	Clear
		C 80		1		Help
						durrion batallouroecoming
		usion Item				×
	What to exclude	4	from scarning			×
	What to exclude	de wildcards " or ?) Browne		ŪK	-	×
	What to exclude © By name/focation (can inclu E^ Also exclude subhilders	de veldcards * or ?) Browse			-	×]
	What to exclude	de wildcards * or ?) Broesse ? wildcardt		ŪK	al .	×]
	What to exclude ● By name/foce/on (can inclu E^ ■ Also exclude sublides: ○ By Re type (can include the	de wildcards * or ?) Broesse ? wildcardt		DK. Care	al .	×]]]

MAG*3.0*201 Deployment, Installation, Back-out, and Rollback Plan February 2019 44

When to exclude On read

NOP

Cin write

Heb

Cancel

Help

10.107.00.2423000

10 147 10 243 85384

Verifying VIX Operations

After a new VIX is installed and is registered with the Image Exchange Service, Clinical Display (MAG*3.0*93 or later) and VistARad (MAG*3.0*90 or later) workstations will automatically start using the VIX.

- Clinical Display will begin sending requests for remote data to the VIX immediately. No configuration changes are required for Clinical Display to start using the VIX.
- VistARad will need some local configuration changes to enable some of its VIXsupported capabilities; refer to the VistARad documentation for details.

Verifying Access to the VIX Transaction Log

VIX administrators can use the VIX transaction log to monitor VIX activities. If the transaction log can be accessed, the VIX is running.

To access the transaction log, you will need:

- A VistA account that has the MAG VIX ADMIN security key assigned to it (while the log is a Web page, the VIX uses a VistA account to secure the log).
- Access to http://<FQDN>:8080/Vix/secure/VixLog.jsp (Where <FQDN> is either the fully qualified domain name of the server the VIX is installed on.)

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 port 8080 on the VIX server is not blocked. Possible culprits of a blocked port include antivirus firewalls and modifications to ACLs (Access Control Lists).

For detailed information about the contents of the transaction log, refer to the <u>VIX Viewer</u> <u>Administrator's Guide</u>.

You can also spot-check individual remote images to see if they were delivered via the VIX as described in this section.

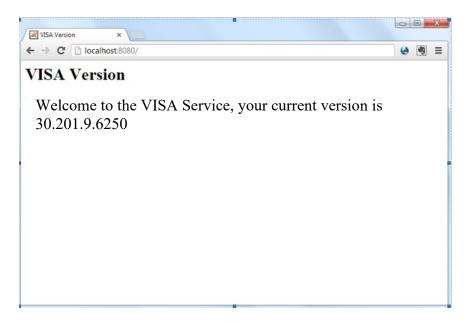
Spot-checking VIX Image Delivery

- 1. On the Clinical Display workstation, select a patient with remote images.
- 2. If it is not visible already, display the Abstracts area to display an abstract for one of the remote images.
- 3. Right-click the abstract for the remote image and open the Image Information window.

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

5. Go to the VIX homepage: http://<FQDN of VIX server>:8080/

6. 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 and do not change. 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.



7. Verify VIX Viewer and VIX Render services are running.

🔕 Services	<u>1</u> 2				
Remote Desktop Services	Name 🔺	Description	Status	Startup Type	
	Cask Scheduler	Enables a	Started	Automatic	
Stop the service	CP/IP NetBIOS He	Provides s	Started	Automatic	
Restart the service	🖏 Telephony	Provides T		Manual	
	🖏 Thread Ordering Se	Provides or		Manual	
Description:	CALC TPM Base Services	Enables ac		Automatic	
Allows users to connect interactively to a	🖾 UPnP Device Host	Allows UPn		Disabled	
remote computer. Remote Desktop and Remote Desktop Session Host Server	🕵 User Profile Service	This servic	Started	Automatic	
depend on this service. To prevent	O Vietual Dick	Providec m	5455295 A.F.M.	Manual	
remote use of this computer, clear the checkboxes on the Remote tab of the System properties control panel item.	WIX Render Service		Started	automatic	
	VIX Viewer Service		Started	automatic	
system propercies concroi panel item.			GL L	Automatic	
	Wware Physical Di	Enables su	Started	Automatic	
	🚳 VMware Snapshot	VMware Sn		Manual	
	🕵 VMware Tools	Provides s	Started	Automatic	
	🕵 Volume Shadow Copy	Manages a		Manual	
	Windows Audio	Manages a		Manual	
	Windows Audio End	Manages a		Manual	-
	Windows Color Sys	The WcsPl		Manual	
	Windows Driver Fo	Creates an		Manual	
	4				ſ

8. Verify listener tool is running.

listenerTool	Name	Description	Status	Startup Type	Log On As
	Avper-V Remote Desktop Vi	Provides a pl		Manual (Trigg_	Local System
Stop the service	Hyper-V Time Synchronizati	Synchronize		Manual (Trigg	Local Service
Restart the service	Hyper-V Volume Shadow Co	Coordinates		Manual (Trigg_	Local System
	🧟 IKE and AuthIP IPsec Keying	The IKEEXT s		Manual (Trigg	Local System
	A Infrared monitor service	A Infrared monitor service Detects othe		Manual	Local System
	Interactive Services Detection	Enables user		Manual	Local System
	Internet Connection Sharing	Provides net		Disabled	Local System
	Intuit QuickBooks FCS			Manual	Local System
	🙆 IP Helper	Provides tun	Running	Automatic	Local System
	P Translation Configuration	Configures a		Manual (Trigg_	Local System
	🖏 IPsec Policy Agent	Internet Prot	Running	Manual (Trigg_	Network Se
	🖓 ISCAgent	InterSystems		Manual	Local System
	🦓 KtmRm for Distributed Trans	Coordinates		Manual (Trigg	Network Se
	🖏 Link-Layer Topology Discove	Creates a Ne		Manual	Local Service
	ListenerTool		Running	Automatic	Local System
	Local Session Manager	Core Windo	Running	Automatic	Local System
	🔄 LPA Service	This service		Manual (Trigg_	Local Service
	ArmeoBackgroundService	Manages ba	Running	Automatic	Local System
	Message Queuing	Provides a m	Running	Automatic	Network Se
	MessagingService_67e74	Service supp		Manual (Trigg_	Local System
	Microsoft (R) Diagnostics Hu	Diagnostics		Manual	Local System
	🖾 Microsoft Account Sign-in A	Enables user		Manual (Trigg_	Local System

9. If this is a new installation of the VIX, please go back to Post-Installation Steps.

Using the VIX Installation Wizard to Reconfigure the VIX

You will need to re-execute the VIX Installation wizard if you need to:

- Change the drive where the VixCache or VixConfig folders are located. It is recommended that these folders reside on the same shared drive.
- Change the VIX configuration to use a different local VistA host name or port number.

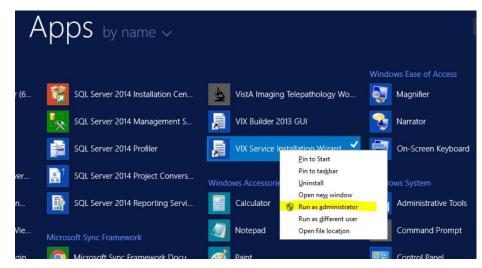
Using the VIX Installation wizard is broadly similar to the steps for updating a VIX, except the process is much faster since no actual software is being installed.

Note: The following steps that new cache location is set up and/or that the local VistA database connection change has already been made.

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

Reconfiguring a VIX – Standalone 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. Log in as an administrator on the server where the VIX is installed and choose Start | All Programs | VistA Imaging Programs | VIX Installation Service Wizard.



- 3. Click **Next** until the Specify the VA Site... page displays.
- 4. In this page, verify that the **Site Number** box shows your STATION NUMBER (field (#99) in the INSTITUTION file (#4)). Then, click **Lookup Server Address**.

- 5. Verify that the correct hostname and port number for the local VistA system is displayed. Then, click **Next**.
- 6. When the Install the VIX Prerequisites page displays, click **Next**. (All prerequisites are installed already).
- 7. In the Specify the location... page, do one of the following:
 - If you are changing the location of the VIX cache and configuration files, select the new drive for each (the same drive should be used). Then, click **Create**. Then, click **Next**.
 - If you are NOT changing the location of the VIX cache and configuration files, click **Next**.

8. In the Specify the Release of Information (ROI) Configuration, do the following:

- If you want to change any of the values, enter the new values. If you are changing the email address or addresses for invalid ROI periodic processing credentials notification, click **Validate**. If you do not want to change any of the values on this page, skip this step.
- Click Next.
- 9. In the Configure local DoD connection page, click Next.

10. In the Install the VIX page, click Install.

11. Wait until the installation is complete and click **Finish**. The VIX will restart automatically.

Troubleshooting

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_OP<number>_VIX_Setup.msi, you are repeating the installation of the VIX 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.

Resuming Installation (single server VIX)

- 1. Log onto the VIX server as an administrator.
- 2. Click Start | All Programs | VistA Imaging Programs | VIX Installation Wizard.

A	۱p	OS by name \sim					I
						Windo	ows Ease of Access
r (6		SQL Server 2014 Installation Cen	4	VistA Imagin	g Telepathology Wo		Magnifier
	*	SQL Server 2014 Management S		VIX Builder 2	013 GUI	2	Narrator
	×	SQL Server 2014 Profiler		VIX Service I	nstallation Wizard		On-Screen Keyboard
/er		SQL Server 2014 Project Convers	Windo	ws Accessorie	– Pin to tas <u>k</u> bar <u>U</u> ninstall	lo	ows System
n		SQL Server 2014 Reporting Servi		Calculator	Open ne <u>w</u> window S Run as <u>a</u> dministrator		Administrative Tools
Vie	Micro	soft Sync Framework		Notepad	Run as <u>d</u> ifferent user Open file locat <u>i</u> on		Command Prompt
		Minnerft Cone Frankright Dans		Deine			Cantral Danal

3. Follow the steps for a first-time standalone VIX installation or for updating a standalone VIX.

VIX Support

If you encounter problems installing the VIX please call the National Service Desk at 1-855-673-4357.

Back Out/Uninstall

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.

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 will 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_<u>REDACTED</u> when the VIX was set up.
- 2. Note: You will need to re-enter this serial number as a part of the VIX installation process.
- 3. Choose Start | All Programs | VistA Imaging Programs | VIX Installation Service Wizard.
- 4. When the Welcome page displays, verify that the screen displays "This wizard will guide you through the installation of the Vista Imaging Patch 201 VIX and click Next.
- 5. Then, when you are prompted to do so, click **Uninstall version 30.201.xxx**. (The wizard will gracefully stop the VIX service before performing the uninstall.)
- 6. Go to the Control Panel, choose Add/Remove Programs, and remove the MAG*3.0*201 VIX installer.
- 7. Re-execute the VIX installation as if for a new standalone VIX, see <u>New VIX</u> <u>Installation - Standalone Server</u> section.

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 will need to do the following:

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

- 2. Validate the new server where the VIX will be installed 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 standalone VIX, see <u>New VIX</u> <u>Installation – Standalone Server</u> section.

Decommissioning a VIX

If a VIX to be completely decommissioned and not replaced by another VIX, do the following:

- 1. Notify the **REDACTED** mail group that the Laurel Bridge license seats used by your site are no longer being used.
- 2. Contact **REDACTED** mail group to have the VIX security certificates 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.

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 will completely remove the VIX and permanently delete the VIX cache.

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

1) Stop the VIX service.

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.

Stopping the VIX service

The steps for stopping the VIX service vary based on operating system.

Remove VIX-related applications, accounts, directories, and variables

After stopping (and/or removing) the VIX service as described in the previous sections, you will 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 VIX Cache is located, and delete the following folders:

<shared drive letter>\VixCache <shared drive letter>\VixConfig

2. Use Windows Explorer to delete the following directories:

C:\DCF_RunTime C:\Program Files\Java\jre1.8.0_171

3. 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 will need to recreate the VIX configuration and request new VIX security certificates.

<shared drive letter>\VixConfig C:\VixCertStore

- 4. Open the window used to remove programs.
 - On Windows click Start | Control Panel. Under the Programs item, click Uninstall a program.
 - Remove these three programs (no reboot required):

Apache Tomcat 8.0.52 Java (TM) 1.8.0. Update 171 VIX Service Installation Wizard

- 5. In Windows Explorer, right-click the Local Disk (C:) folder, select **Properties**. Then, select the Security tab.
- 6. Select the apachetomcat user and click **Remove**.

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

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

- 8. Open the Computer Management/Server Manager window.
 - On Windows, right-click Computer on the desktop. Then, click Manage.
- 9. In the tree on the left side of the window, navigate to Users.
 - On Windows, go to Server Manager/Configuration/ Local Users and Groups/Users.
- 10. In the right side of the window, right-click the apachetomcat user, click **Delete**, and click **Yes** when you are asked for confirmation.
- 11. Open the System Properties dialog box.
 - On Windows, right-click Computer on the desktop. Then, click **Properties**. Then on the left side of the System window, click **Advanced system settings**.
- 12. In the Advanced tab, click Environment Variables.
- 13. 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	

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

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

C:\DCF (if present) C:\DCF_Runtime\bin C:\DCF_Runtime\lib C:\Program Files\Java\jre1.8.0 xx\bin

Note It is recommended that after deleting each substring you delete any extra semicolon characters.

- 16. After removing the substrings, click **OK**. Then click **OK** twice more to close the Environment Variables and System Properties dialog boxes.
- 17. If the VIX is installed on a standalone server, VIX removal is complete.

Appendix A: VIX Install Checklist

The checklist on this page summarizes the VIX installation process.

VIX Install Checklist

Requirement	Action
Install patch MAG*3.0*201 KIDS MAG3_0P201.KID in VistA	See Patch Description Document
Verify VIX server/VM meets minimum hardware specifications	Allocate more CPU cores/RAM as needed to meet minimum or recommended specifications
Verify Microsoft Visual C++ 2010 Redistributable Package (x64) is installed	Install Microsoft Visual C++ 2010 Redistributable Package (x64) if required. (Download from SFTP site)
Verify .NET 3.5 is installed and enabled	Install and enable .NET 3.5 if required
Verify .NET 4.5 is installed and enabled	Install and enable .NET 4.5 if required (Download from SFTP site)
Verify you have the VIXSqlInstaller folder or zip file SQLExpress_x64-14.0.1000.169 (for P177 VIX site skip P197 VIX)	Download from SFTP site if required
Initiate the installation of the VIX MAG3_0P201_VIX_Setup.msi	See Installation Guide
Verify if install is complete	See Installation Guide
Verify that VIX is running	See Installation Guide
Verify that VIX Viewer and VIX render services started	Verify in window services console
Verify Listener Tool service is running	Verify in window services console
Verify that McAfee Exclusions are updated	See Installation Guide
Request Site Service update to your facility if needed	Enter in national ticket requesting CLIN3 to update your site service entry to include the new viewer. (Port 343)

Verify that images can be viewed via zero-footprint Image	Verify JLV or other application utilizing zero
Viewer.	footprint viewer. If unable to view an
	image, enter a support ticket for
	assistance.