

**VA NEW ENGLAND HEALTHCARE SYSTEM
STATEMENT OF WORK
EYE PICTURE ARCHIVING AND COMMUNICATION
SYSTEM(PACS)**



MARCH 2017

VA NEW ENGLAND HEALTHCARE SYSTEM

1. BACKGROUND

The Department of Veterans Affairs (VA), VA New England Healthcare System (hence forth VISN 1) requires a picture archiving and communication system (hence forth PACS system) for its eye clinics. All VISN 1 eye clinics are currently using Merge Healthcare's (formerly OIS) image management database as a legacy system. The new eye PACS system, in general, will automatically send images, reports, and other information from veterans' eye exams, to Veterans Health Information Systems and Technology Architecture (VistA) Computerized Patient Record System (CPRS), helping to provide a seamless continuity of care for our Nation's Veterans.

2. OBJECTIVE

This statement of work highlights the requirements that are both clinical and technical specifications, along with services being requested by VISN 1 for consideration towards the purchase of an eye PACS system. Offerors under this proposal shall provide a turnkey solution that incorporates all labor, material, parts, tools, software, hardware, and project management necessary to furnish and install a fully functional eye PACS system. This system must be able to operate under the current workload for the VISN 1 eye clinics listed in Table 1 and also integrate with the equipment listed in Attachment B.

Table 1: VISN 1 Eye Clinics Workload	
VISN 1 Site	2016 Patient Workload
Maine	22,635
White River Junction	20,445
Bedford	11,087
Boston	46,710
Manchester	17,734
Central Western Massachusetts	15,251
Providence	24,909
Connecticut	53,323
VISN Total	212,094

The Offeror shall provide a solution for the VA medical centers in Boston, Providence, Main and Manchester, with the potential of providing services for VA medical centers in Bedford, Central Western Massachusetts, Connecticut, and White River Junction, as needed, in accordance with the Statement of Work and all contract clauses.

3. REQUIREMENTS

The following list outlines the clinical, technical, support service requirements for a VISN 1 eye PACS. The Offeror shall note in their proposals how they meet or exceed each requirement listed.

a. Clinical Requirements

- i. In general, the eye picture archiving and communication system (PACS) should allow for post-image processing, dynamic review, and raw data manipulation at every clinical work station in the eye clinic.
- ii. A minimum requirement is the ability to manipulate the raw data from ocular coherence tomography (OCT) images of the optic nerve, retina and macula. This should include images from different instrument companies with proprietary capture software, as listed in Attachment B. Of note, PDF images from any source are not sufficient enough for clinical analysis or medical documentation, especially when progression or regression analysis is desired. Hence, an Offeror providing only PDF imaging capabilities will not meet VISN 1 eye PACS requirements.
- iii. Another requirement is the ability to perform raw data analysis of visual field results from one or multiple instruments from one or multiple sites. The eye PACS system should provide capabilities to manipulate data according to original software progression or regression algorithms. The platform should allow for continuous (ongoing) data assimilation into any image set data previously acquired.
- iv. The eye PACS should allow for point of care (viewing station) manipulation of images and image sets. For example, a clinic team should be able to remove technically inaccurate or poor test results from the PACS acquired data or images.
- v. The eye PACS should have capability to receive raw data from intraocular lens biometers and operating scopes for intraoperative toric marking overlay during cataract surgery.
- vi. The eye PACS should be capable of receiving biometry and IOL lens calculation data directly from instruments (see Attachment B) to avoid duplicate data entry efforts and potential data entry error.
- vii. The eye PACS must be able to receive third party DICOM images from other currently operating PACS server systems in VISN , such as Merge Healthcare's OIS, our legacy system.
- viii. All images and raw data collected in the eye PACS system should be stored on the eye PACS server. The system must be able to serve as a raw data back up in case of end instrument failure, loss or obsolescence. This is particularly important for the back-up of raw data associated with guided progression analysis.
- ix. The eye PACS must be DICOM compliant and one should be able to create Consults or Orders from CPRS or VistA and transfer the patient demographic data into its system with VA VistA being specified as the Issuer of Patient ID. PACS system must be able to send the Consult or Order to the instrument's DICOM modality worklist.
- x. The eye PACS must connect to any brand of non-DICOM capable diagnostic instrument with an export capability, and label the device type and laterality in the PACS system.
- xi. The eye PACS must be able to automatically send images and reports from the instrument to its system via a DICOM gateway.

VA NEW ENGLAND HEALTHCARE SYSTEM

- xii. The eye PACS must not require the use of an external PC or import computer for a DICOM capable instrument modalities.
- xiii. The eye PACS must be able to store and access raw instrument data from equipment listed in Attachment B and also must be able to download all past raw data from that same equipment.
- xiv. The eye PACS must create in its viewer all past visual field test reports in color from one or more visual field analyzers located in the main eye clinics and all satellite clinics at the time of installation.
- xv. The eye PACS must be able to display Glaucoma Progression Analysis (GPA) and enable the clinician to manipulate data and store baseline changes at the workstation.
- xvi. The eye PACS must be able to present VFI Index, Mean Deviation, Pattern Standard Deviation and Global Indices at a glance summary of all past and present tests.
- xvii. The eye PACS must be able to display all OCT past and present test data from one or more OCT instruments located in one or more VA clinics. This data must be accessible to enable viewing and manipulation at the workstation.
- xviii. The eye PACS must be able to display and allow the clinician to scroll through the various B-scan ultrasound slices .
- xix. The eye PACS must be able to automatically label images and reports coming from the instruments to enable the clinician to sort test data by visit date(s), modality type(s), right eye, left eye or both eyes.
- xx. The eye PACS must be able to display images in pre-formatted clinical display groupings for Glaucoma, Retina and Cataract cases.
- xxi. The eye PACS viewer must be able to display images in a right eye / left eye display format.
- xxii. The eye PACS must be able to tag individual test reports/images as "Favorites" to enable easy access on future patient visits.
- xxiii. The eye PACS should afford clinicians the ability to view images from exam rooms/offices without returning to the instrument.
- xxiv. The eye PACS shall provide a user experience capable of satisfying multiple user roles within the department, at various examination rooms and surgery suites, configurable by an individual's scope of practice. It shall provide functionality to sort and filter studies, configurable by fields such as originating location, study date/time, modality, and ordering provider. The system shall be able to provide preconfigured ophthalmic displays. The system shall permit remote viewing, manipulation of data elements, and application of scientifically validated analytical algorithms to the data from any networked PC in the department or the VISN.

b. Technical Requirements

i. Hardware

VA NEW ENGLAND HEALTHCARE SYSTEM

1. All servers, racks, cabling, etc. that are required to perform the operations of using the eye PACS to its full potential at all facilities will be provided by the Offeror.
 2. All servers provided must operate using a fully supported operating system. For example if the server is Microsoft Windows-based, the operating system must be Microsoft Windows Server 2012 or newer.
 3. The Offeror must specify the size, power, and networking specifications of all servers and racks being supplied.
 4. The Offeror shall have a MOU/ISA with the VA to provide remote access to configure the servers or provide on site installation services.
 5. All images and raw data collected in the eye PACS system should be stored on the eye PACS server and a data backup solution be offered.
- ii. Software
1. All viewing software must function on VA OIT exam room workstations which will be running Microsoft Windows 7 or newer. Current VA exam room computer specifications are listed in Attachment B.
 2. All viewing software must be on VA TRM approved list at: <http://trm.oit.va.gov/>.
 3. Viewing software must not require a separate workstation to run the software due to space requirements in exam rooms.
 4. Software licensing can be floating(shared among workstations) or static(one license per workstation). A non-web based software client is preferred but not required.
- iii. Networking
1. The eye PACS shall have the ability to receive HL7 ADT and ORM messages for patient demographic data from VA VISTA CPRS or VA Clinical Procedures.
 2. All studies shall be stored in Digital Imaging and Communications in Medicine (DICOM) format and adhere to DICOM conformance standards. The eye PACS shall provide a DICOM Modality Worklist (DMWL) for all modalities listed in Attachment B . The system shall be capable of sending to a Vendor Neutral Archive (VNA) and have the VNA act as the eye PACS long term archive for storage and retrieval.
 3. The eye PAC shall integrate with the VA (CPRS) Health Record. Data and images shall automatically be purged from short-term storage on a first-in-first-out basis to create space for additional studies. This feature shall be site configurable. Privileged users shall be able to selectively protect studies and reports from such automatic deletion. The system shall have a mechanism in place (e.g. DICOM storage commitment) to ensure only studies stored on the VNA are processed for deletion in the PACS.
 4. The offereor must include a networking diagram with minimum bandwidth requirements listed for main sites and their satellite clinics(CBOCs).

VA NEW ENGLAND HEALTHCARE SYSTEM

5. The eye PACS must be able to support CBOCs with bandwidth issues connecting to main site. CBOCs may be using a smaller bandwidth and may require a cache server as a solution.
 6. The eye PACS shall have the capability of operating in both a stand-alone or client-server mode. In other words, if the network connectivity goes down the Veteran's images can still be stored and analyzed, then sent at a later time.
- iv. Interface
1. The Offerer shall provide as an option, a VISN-centric solution which will allow clinicians to view images across all VISN 1 sites
 2. The eye PACS must be able to interface with 3rd party vendor equipment as listed in Attachment B.
 3. The eye PACS must send data/images to patient record-VISTA/CPRS/VISTA Imaging.
 4. The eye PACS must be approved for VISTA Imaging/DICOM, see list at: <http://vaww.oed.portal.va.gov/applications/VistAImaging/Lists/Device%20Validation%20Database%20%20SharePoint%202003%20Archiv/User%20View.aspx>
- v. Data Migration
1. The Offerer must provide a data migration plan to move data from existing modalities and legacy eye PACS(Merge-OIS) to the new eye PACS.
 2. The Offerer must include project support hours to assist in data migration efforts.
- vi. Expansion
1. The eye PACS must be a scalable solution that will allow for expansion of equipment, exam rooms, or data.
 2. The Offerer shall provide a plan for sites to add more software licenses when needed.
- c. **Support Service Requirements**
- i. Project/Implementation Support
1. It is preferred that the Offerer provide project managers that are assigned to VISN 1 during the eye PACS installation and for continuing support after implementation.
 2. It is preferred that the Offerer provide project managers that have obtained VA security clearance and have active PIV cards.
 3. The Offerer shall provide an overall schedule for implementation and establish recurring meetings with point of contacts at each site.
- ii. Tech support
1. The Offerer shall provide clinical & technical support (phone and/or remote access) during normal business hours (M-F, 8am-5pm EST) and after hours support , seven days a week, 365 day a year.

VA NEW ENGLAND HEALTHCARE SYSTEM

2. The Offeror shall provide a verbal response within 1 hour of notification of an emergency service issue and/or request by VISN 1.
 3. The Offeror shall provide a verbal response within 24 hours of notification of a nonemergency service issue and/or request by VISN 1.
 4. The Offeror must have an existing national MOU/ISA with VA for remote connection approvals.
 5. The Offeror shall utilize the VA's national Site-to-Site Virtual Private Network (VPN) or shall work with the Office of Cyber and Information Security and the VISN 1 Information Security Office to establish a client-based VPN.
 6. The Offeror shall provide two copies of the operator's instruction manual per facility identified.
 7. The Offeror shall provide two copies of complete technical service manuals including detailed troubleshooting guides, necessary diagnostic software, service, keys, schematic drawings, and part lists per facility identified.
 8. The Offeror shall provide two copies of a systems manager's manual outlining backup procedures, managing privilege group limits, routine tasks, etc.
- iii. Continuing Maintenance & Support
1. The Offeror shall provide as an option, a service Contract or extended warranty available for at least 1 year after implementation.
 2. The Offeror shall specify the warranty period for all software and hardware provide to the VA by the Offeror.
 3. The Offeror shall provide, at no additional charge, any and all equipment service programs, such as remote diagnostics and equipment replacement, during the warranty period.
 4. The Offeror shall provide post-warranty remote diagnostic service program as an "Add Option" with their proposal.
 5. The Offeror shall discuss any annual licensing fees or maintenance fees that are associated with the eye PACS.
- iv. Education & Training
1. The Offeror must provide education to clinical personnel in the operation of the eye PACS to provide meaningful patient data to be used in reporting and decision making. 2-3 days of onsite training per site for clinicians is preferred.
 2. The Offeror must provide system administration training to at least one VA Biomedical Equipment Support Specialist (technician) per site, who will be supporting the eye PACS. Training should at a minimum address server maintenance, server backup, and troubleshooting connectivity issues. If applicable, the Offeror should include travel and accommodations.
 3. The Offeror must provide options for additional and/or refresher training after implementation. 2 days of additional training per site is preferred.

4. **ADDITIONAL DOCUMENTATION**

The Offeror is required to complete VA Directive 6550 Pre-Procurement Assessment, Appendix A Form Attachment (See Attachment A) as part of their proposal. This attachment shall be completed by the Offeror for each type of device that will be provided and connected to the VA OIT network (i.e. server and workstations).

**ATTACHMENT A:
VA DIRECTIVE 6550 PRE_PROCUREMENT ASSESSMENT, APPENDIX A FORM ATTACHMENT**

The Offeror shall provide an answer to each of the questions below, providing the reason why where noted for each device in the system. The Offeror shall provide the answers in either a separate Microsoft Word or Adobe .pdf as part of their proposal. The Offeror shall also provide the configuration guide that supports all answers on this attachment in a separate file as part of their proposal.

- 1) Is there an installation guide for this project? If yes, attach a copy to this 6550.

Page A-1

- 1) Vendor: Vendor's Entire Name
- 2) Model: Name of the specific piece of equipment being assessed, if this is a system, state the system name and then the device as you will have to provide a 6550 per device within the system.
- 3) Vendor Contact: Name, email, and contact number
- 4) If Server based, specify rack space and power requirements if applicable?
- 5) Equipment Description: Describe what this device does and how it act in the system of devices

Page A-2:

Medical Device /System Configuration

- 1) What OS and version/Service Pack does the system utilize (e.g., Win7- SP1, Win Svr 2008, Linux)? What is the bit (32 or 64) what is the service pack? What is the exact software version?
- 2) Does the system use a database application to operate (yes or no)? Specify the exact application and version.
- 3) Membership in the facility's Windows Domain is: Required, Recommended, Not Recommended or Not Applicable? Will this device be a member of the facility's Windows Domain?
- 4) Is a desktop web browser required to access the medical system/application? Why or why not?

If browser, will it be intranet access only?

VA NEW ENGLAND HEALTHCARE SYSTEM

If yes, specify which browser and version supported:

If yes, does it require the use of https: and the VA SSL certificates – explain why?

If a browser is required, does it require a specific version of JAVA?

- 5) Does active X required for client operation? If yes, specify the configuration requirement.
- 6) If Windows based, can the system use the National Medical Device Update Server for OS patches? If not, why not? Who will configure this? Can it be automated? If not, when will the updates occur?
- 7) Will Critical and Routine OS and system security patches be applied as they become available without prior vendor approval? If no, why not and specify how approval notification to VA will be accomplished? Is how this will be handled in writing (must be- installation guide)?

Page A-3

- 1) Will this device utilize McAfee Anti-Virus (AV) software? Is the VA going to load the McAfee Anti-Virus (AV) software? Does Clinical Engineering have the licenses, will it be automated, and how will it be managed?
 - a. If McAfee is not supported, what AV packages and versions are supported and describe the mechanism to provide updates?
- 2) Can USB ports be logically disabled on the device without compromising operation? Will the vendor or CE disabled the unused ports? Will this be done logically or physically? If they aren't disabled logically will there be port locks applied to the device? What is the purpose of not logically disabling the ports if applicable? Who will disable these?
- 3) Can auto run be disabled for portable media?
 - a. If not, why can't it be disabled?
 - b. If so, will it be disabled? Will it be disabled at install?
- 4) Can VA install host-based security components such as a firewall, host intrusion prevention (HIPS), anti-malware software, and/or any other security suite software required to operate on the VA production network? Will Encase and Sanctuary software be installed? If no, Why can't we install this software?

VA NEW ENGLAND HEALTHCARE SYSTEM

Authentication and User Account

- 1) Is an administrator or power user account required to operate the device? If yes, explain need and duties of admin or power user?
- 2) Will the device be made to require individual user authentication? How will authentication be configured(LDAP)?
- 3) Will the device be configured to support password aging and strong user password accounts? If yes, How will it be done (AD?)?
- 4) Will the device be configured to support auto logoff and session lock? If not why (Example: We don't want to it to log off during patient care)?
- 5) Does the system support use of active directory for user authentication? If yes, What is LDAP being used if it's being used and what are the configuration requirements?
- 6) Does the system support the use of PIV/SMART Card only authentication? Will it be utilized? Why?

Page A-4

Data Handling

- 1) Specify in detail which Electronic Protected Health Information ePHI data elements are stored on the device (e.g. last name, SSN, DOB, Medical record number, account number, telephone number, fax number, email address, certificate/license number, Biometric identifiers, including finger or voice prints, Full-face photographic images, Other).
- 2) How many records with sensitive information can be stored on the device?
- 3) How long will they be retained on the device?
- 4) Is ePHI encrypted prior to transmission? Yes or no.
 - a. If yes, what is the encryption mechanism(s)?
- 5) What is the media used for long term storage (write out acronyms)?

VA NEW ENGLAND HEALTHCARE SYSTEM

- 6) How is data transmitted to the storage repository (e.g. LAN, DVD, USB, etc.)?
- 7) Is ePHI stored only on a drive partition or a separate drive to assist with end-of-line media sanitization, Yes or No? If no, Does the VA retain the hard drives?
- 8) Will the medical device require data backups? If Yes, Specify how the system and data are backed up and what media is used in detail and who will do the backups.
- 9) Where will backups be stored and secured?
- 10) Does the device have the ability to assign unique ID numbers (accession numbers) instead of using patient identifying information (e.g. Social Security Number)?
- 11) If yes, how is it generated?
- 6) Does the device utilize a laptop for system operation? If yes, can it be encrypted without impacting clinical functionality? What encryption software will be used?

Page A-5

Networking

- 1) What are the LAN bandwidth requirements for full connectivity/performance?
- 2) What are the WAN bandwidth requirements for full connectivity/performance?
- 3) Provide a comprehensive list of all TCP and UDP ports that are required for operation? How often will each port be used? Note: Inactivity on ports suggests no need for them. Specify direction flow.
- 4) How many fixed IP addresses does the device require? List names of devices if applicable. Will it be configured as a cluster? Does the cluster have an IP?
- 5) Is the device compatible with IP V6?
- 6) Vendors' products should be designed such that only services required for the intended operation of the device are active. Are unused ports disabled? If not, have the vendor provide this in writing on an official document?
- 7) Can this be accomplished without impacting system operation?
- 8) Vendors' products should be designed such that only services required for the intended operation of the device are active. Are unused services (e.g., Telnet, IIS, etc.) disabled?

VA NEW ENGLAND HEALTHCARE SYSTEM

- 9) Can this be accomplished without impacting system operation?
- 10) Provide a comprehensive list of all services that are required for system operation? Who will configure unused services?
- 11) Can the device be secured remotely? Why is this function a necessity?
- 12) Does the vendor have an existing Site to Site (S2S) VPN tunnel or individual user VPN account(s)?
- 13) What remote access software does the system utilized? How is the vendor planning to remote into the servers, What's the exact process? i.e. CAG, SMC, PC Anywhere, Dameware etc.
- 14) What remote access software does the system utilize?
- 15) Does the device require connection to the internet to operate? If yes, please justify and provide connection info (IP, port, protocol and traffic direction).

Page A-6

Wireless

- 1) Does the device utilize wireless communication? If yes, what protocols are used?
- 2) The encryption module must have FIPS 140-2 certification. Provide certificate number.
- 3) Are any ePHI data elements transmitted via the wireless link? If yes, list each element (e.g. last name, DOB, SSN).

Integration with VA Healthcare Information Systems (If applicable)

- 1) Has the device been validated with VA's Clinical Procedures package?
- 2) Has the device been validated with VA's Vista Imaging?
- 3) Does the device have bi-directional HL7 interface?
- 4) List all other systems that the device will communicate with in order to operate properly e.g. Vista, domain controllers, vendor's support network etc.

ATTACHMENT B:

VISN 1 Equipment Listing

Site Name	Device Description	Manufacturer	Model	Software Version	File Size(GB)
Togus	OCT Camera	Heidelberg Engineering	Spectralis HRA	1.7.1.0	78GB storage space
Bangor	OCT/Fundus	Topcon	3D OCT 2000	8.37.003.01	143GB storage space
Lewiston	OCT/Fundus	Zeiss	OCT system 600	1.5.3.23749	143GB storage space
Togus	Fundus Camera	KOWA	VX10	VK-2E	65GB storage space
Togus	Visual Field Analyzer	Zeiss	750i	5.1.2	11MB/image
Bangor	Visual Field Analyzer	Zeiss	750i	5.1.1	11MB/image
Lewiston	Visual Field Analyzer	Zeiss	750i	5.1.2	11MB/image
Togus	IOL Master	Zeiss	500	5.5	12GB storage space
Togus	7 Slit lamp camera	Eye Cap	EC212	7.5	11MB/image
Bangor	2 Slitlamp Camera	Eye Cap	EC212	7.5	11MB/image
Lewiston	5 Slit lamp camera	Eye Cap	EC212	7.5	11MB/image
Togus	Corneal topographer	Zeiss	Atlas	1.0.65.0	6GB storage space
Togus	8 Auto ref/NCT	Nidek	Tonoref II	1.10.02	text
Bangor	2 Auto ref/NCT	Nidek	Tonoref II	1.10.02	text
Lewiston	3 Auto ref/NCT	Nidek	Tonoref II	1.10.02	text
Togus	4 Lensometer	Topcon	CL200	1.3	text
Bangor	4 Lensometer	Topcon	CL200	1.3	text
Lewiston	4 Lensometer	Topcon	CL200	1.3	text
Togus	6 Pachymeter	Accutome	Accupach VI	3.12	text
Bangor	3 Pachymeter	Accutome	Accupach VI	3.12	text
Lewiston	3 Pachymeter	Accutome	Accupach VI	3.12	text
TOGUS	A/B Scan	Future Modality	N/A	N/A	N/A
TOGUS	Retinal Camera	Future Modality	Optos Panoramic 2000	N/A	N/A
Bangor	A/B Scan	Future Modality	N/A	N/A	N/A
Lewiston	A/B Scan	Future Modality	N/A	N/A	N/A
Bangor	Corneal topographer	Future Modality	N/A	N/A	N/A

VA NEW ENGLAND HEALTHCARE SYSTEM

Lewiston	Corneal topographer	Future Modality	N/A	N/A	N/A
Bangor	Fundus Camera	Future Modality	N/A	N/A	N/A
Lewiston	Fundus Camera	Future Modality	N/A	N/A	N/A
Bangor	OCT	Future Modality	N/A	N/A	N/A
Lewiston	OCT	Future Modality	N/A	N/A	N/A
Jamaica Plain	OCT Camera	Heidelberg Engineering	Spectralis OCT	unknown	unknown
Jamaica Plain	OCT Camera	Heidelberg Engineering	Spectralis OCT	unknown	unknown
Jamaica Plain	Fundus Camera	Canon	Canon Digital Fundus Camera CR-2 Plus	unknown	unknown
Jamaica Plain	Fundus Camera	Topcon	Topcon TRC 50DX	unknown	unknown
Jamaica Plain	Pentacam	Oculus	Oculus Pentacam HR	unknown	unknown
Jamaica Plain	Visual Field	Zeiss	Humphrey Field Analyzer 750i	unknown	62MB available
Jamaica Plain	Visual Field	Zeiss	Humphrey Field Analyzer 750i	unknown	62MB available
Jamaica Plain	Visual Field	Zeiss	Humphrey Field Analyzer 750i	unknown	62MB available
Jamaica Plain	OCT Camera	Heidelberg Engineering	Spectralis OCT	unknown	62MB available
Jamaica Plain	OCT Camera	Heidelberg Engineering	Spectralis OCT	unknown	62MB available
Jamaica Plain	OCT Camera	Heidelberg Engineering	Spectralis OCT	unknown	62MB available
Jamaica Plain	OCT Camera	Heidelberg Engineering	Spectralis OCT	unknown	62MB available
Jamaica Plain	OCT Camera	Heidelberg Engineering	Spectralis OCT	unknown	62MB available
Jamaica Plain	Pentacam	Oculus	Oculus Pentacam HR	unknown	unknown
Jamaica Plain	Visual Field	Zeiss	Humphrey Field Analyzer 750i	unknown	62MB available

VA NEW ENGLAND HEALTHCARE SYSTEM

Jamaica Plain	Visual Field	Zeiss	Humphrey Field Analyzer 750i	unknown	62MB available
Jamaica Plain	Visual Field	Zeiss	Humphrey Field Analyzer 750i	unknown	62MB available
Jamaica Plain	OCT Camera	Zeiss	HD-OCT	unknown	unknown
Jamaica Plain	Fundus Camera	Optos	200TX	unknown	unknown
Jamaica Plain	Endothelial count	Topcon	SP2000P	unknown	unknown
Lowell	Visual Field	Zeiss	Humphrey Field Analyzer 750i	10.9.223.18	62MB available
Lowell	OCT Camera	Heidelberg Engineering	Spectralis HRA	1.7.1.0	62MB available
Jamaica Plain	Slit Lamp Camera	Haag-Streit	IM-900	7.1	unknown
Brockton	Retinal Camera	Topcon	TRC-NW8	1.2.11.2080	unknown
Brockton	OCT Camera	Heidelberg Engineering	Spectralis HRA	1.910.0	unknown
Brockton	OCT Camera	Heidelberg Engineering	Spectralis HRA	1.910.0	unknown
West Roxbury	OCT Camera	Heidelberg Engineering	Spectralis HRA	1.7.1.0	4 KB/image file
West Roxbury	Visual Field Machine	Zeiss	Humphrey 750i	0037f9f8	62MB available
Causeway CBOC	Visual Field Machine	Zeiss	Humphrey 750i	0037f9f8	62MB available
Causeway CBOC	OCT Camera	Heidelberg Engineering	Spectralis HRA	1.7.1.0	unknown
Brockton	Visual Field	Zeiss	Humphrey Field Analyzer 750i	unknown	62MB available
Jamaica Plain	Iol master	Zeiss	IOL Master	unknown	unknown
Jamaica Plain	ultrasound	Quantel	Aviso	unknown	unknown
Brockton	Visual Field	Zeiss	Humphrey Field Analyzer 750i	unknown	62MB available
Jamaica Plain	ultrasound	Sonomed	VMAx	unknown	unknown
Bedford	Retinal Camera	Topcon	TRC-50EX	unknown	unknown
Bedford	Retinal Camera	Optos	Panoramic 2000	unknown	unknown

VA NEW ENGLAND HEALTHCARE SYSTEM

Bedford	Anterior Seg Camera	Haag-Streit	BQ900-IM900	V7.xx	unknown
Bedford	OCT	Zeiss	Cirrus HD-OCT 4000	V10.6.53	unknown
Bedford	HVF3	Zeiss	860	1.2.2.42	unknown
Bedford	HVF3 (Being ordered)	Zeiss	860	1.2.2.42	unknown
Manchester	Fundus Camera	Topcon	TRC-50DX	Imagenet 5	unknown
Manchester	Retinal Camera	Topcon	TRC-NW8	EZ LITE 2	unknown
Manchester	Retinal Camera	Topcon	TRC-NW8	EZ LITE 2	unknown
Manchester	Retinal Camera	Topcon	TRC-NW8F	EZ LITE 2	unknown
Manchester	Retinal Camera	Topcon	TRC-NW8F	EZ LITE 2	unknown
Manchester	OCT Camera	Heidelberg Engineering	Spec-Cam/Spectralis	HRA2/Spectralis	unknown
Manchester	Slit Lamp Camera	Haag Streit	BX 900	Eye Cap V7	unknown
Manchester	Visual Field Analyzer	Carl Zeiss	750I	Vworks	unknown
Manchester	Visual Field Analyzer	Carl Zeiss	750I	Vworks	unknown
White River Junction	IOL	Haag-Streit	Lenstar	Haag-Streit Diagnostics Eye Suite i8.0.0.0	450 GB HDD
White River Junction	OCT Camera	Heidelberg	HRA+OCT	Heidelberg Eye Explorer ver 1.8.6.0	1.72 TB Data; 1.81 TB Archived
White River Junction	Retinal Tomograph	Heidelberg	LSC210	CURRENT OIS/PACS NETWORKED	5.3 TB SATA
White River Junction	OCT Camera	Zeiss	Cirrus HD-OCT 4000	Zeiss	100 GB Data, 1TB
White River Junction	Visual Field Analyzer	Zeiss	750i	Zeiss	5.3 TB SATA
White River Junction	Visual Field Analyzer	Zeiss	750i	CURRENT OIS/PACS NETWORKED	5.3 TB SATA
White River Junction	Fundus Camera	Topcon	SL-D7000 Camera	Imagenet 5 v1.02	100 GB Data, 230 GB Archived

VA NEW ENGLAND HEALTHCARE SYSTEM

White River Junction	Cam BLC	Topcon	Visucam Pro NM	Imagenet 5	100 GB Data, 230 GB Archived
White River Junction	A/B Scan Ultrasound	Ellex	Eye Cubed I3	Eye Cubed V 2.4.8.3	100 GB Data, 931.51 GB Image
White River Junction	Fundus Camera	Zeiss	FF 450+	VISUPAC 4.4.2	100 GB data, 230 GB Arch
White River Junction	Visual Field Analyzer	Roland Diag	Color Ganzfeld FAQ450C	RETI V6.13.1.1, SBC03.04	RETI 98 GB, Data 270 GB
White River Junction	Specular Microscope	Tomey	EM3000	Tomey "Data Transfer"	60 GB
Providence	OCT	Heidelberg Engineering	Spectralis HRA2	1.7.1.0	Data 1 TB
Providence	OCT	Heidelberg Engineering	Spectralis HRA2	1.7.1.0	other is data server
Providence	Retinal Camera	Canon	CX-1	4.0.1.0	500 gb
Providence	IOL Master	Haig streit	Lenstra	2014.082	300 gb
Providence	Corneal topo	Zeiss	Atlas	3.0.0.39	200 gb
Providence	B scan ultrasound	Sonomed	Master-Vu	unknown	200 gb
Providence	HFA 2	Zeiss	750i	up to date	100 gb
Providence	HFA 2	Zeiss	750i	up to date	100gb
Providence	slit lamp camera	Haig streit	IM-900	Eye Cap V7	500 gb
West Haven	Fundus Camera	Zeiss	FF450+	unknown	11MB/image
West Haven	Visual Field Analyzer	Zeiss	750I	unknown	11MB/image
Newington	Fundus Camera	Topcon	TRC-NW6S	unknown	11MB/image
Newington	Split-Lamp	Topcon	SL-7E	unknown	11MB/image
Newington	Visual Field Analyzer	Zeiss	Matrix	unknown	11MB/image
Newington	OCT Camera	Heidelberg Engineering	Spectralis HRA	unknown	11MB/image
West Haven	OCT Camera	Heidelberg Engineering	Spectralis HRA	unknown	11MB/image
Newington	Visual Field Analyzer	Zeiss	750I	unknown	11MB/image
Northampton	Visual Field Analyzer	Zeiss	860	1.2.2.42	435 GB total

VA NEW ENGLAND HEALTHCARE SYSTEM

Northampton	OCT Camera	Zeiss	Cirrus 4000	6.0.2.81	901GB total
Northampton	B scan ultrasound	Accutome	Bscan Plus	Win 7	unknown
Northampton	Retinal Camera	Topcon	TRC-NW8	Imagetnet 2000 Lite R-2	unknown
Worcester	OCT Camera	Zeiss	Cirrus 5000	9.0.0.281	1715.12GB free
Worcester	Visual Field Analyzer	Zeiss	HFA3 860	1.2.2.42	1715.12GB free
Worcester	Visual Field Analyzer	Zeiss	HFA3 860	1.2.2.42	1715.12GB free
Worcester	Retinal Camera	Topcon	TRC-NW8 Plus	Imagenet	unknown
Worcester	B scan ultrasound	Accutome	Bscan Plus	Win 7	unknown
Worcester	OCT Camera	Heidelberg Engineering	Spectralis HRA	Eye Explorer v1.7.1.0	1TB

VA NEW ENGLAND HEALTHCARE SYSTEM

VISN 1 Quantity of Viewing PCs & Specifications

Site Name	QTY. of Viewing PCs	IT PC Operating System	Memory	Processor	NIC card
Northampton	8	WINDOWS 7, 64 BIT	4GB	intel core tm I5-4570 @3.20GHz	INTEL1217LM
Northampton	3	WINDOWS 7, 64 BIT	4GB	intel core tm I5-2400 @3.10GHz	Intel R82579 LM
Northampton Future Expansion	4	WINDOWS 7, 64 BIT	4GB	intel core tm I5-4570 @3.20GHz	INTEL1217LM
Worcester	12	WINDOWS 7, 64 BIT	4GB	INTEL CORE I5-4590S @3GHz	INTEL1217LM
Lewiston	9	WINDOWS 7, 64 BIT	4GB	intel core tm I5-3470 @3.20GHz	Intel R82579 LM
Bangor	8	WINDOWS 7, 64 BIT	4GB	intel core tm I5-3470 @3.20GHz	Intel R82579 LM
Togus	17	WINDOWS 7, 64 BIT	4GB	intel core tm I5-3470 @3.20GHz	Intel R82579 LM
Togus Future Expansion	8	WINDOWS 7, 64 BIT	4GB	intel core tm I5-3470 @3.20GHz	Intel R82579 LM
Bedford	11	WIN7-SP1, 64 BIT	4GB	Intel Core I5 @ 3.2GHZ	INTEL 82579LM
Bedford	1	WIN7-SP1, 64 BIT	8GB	Intel Core I5 @ 3.3GHZ	INTEL1217LM
PVD	28	WINDOWS 7, 64 BIT	4GB	INTEL CORE I5-4590S @3GHz	INTEL I217-LM
VACT	15	WINDOWS 7, 64 BIT	8GB	INTEL CORE I7-4790 @3.6GHZ	INTEL I217-LM
Newington	10	WINDOWS 7, 64 BIT	8GB	INTEL CORE I7-4790 @3.6GHZ	INTEL I217-LM
WRJ	15(est)	WINDOWS 7, 64 BIT	4GB	intel core tm I5-3470 @3.20GHz	Intel R82579 LM
MAN	10(est)	WINDOWS 7, 64 BIT	4GB	intel core tm I5-3470 @3.20GHz	Intel R82579 LM
West Roxbury	2	windows xp, sp3	1.93GB	intel core 2 duo cpu e7400 @2.8 ghz	intel R 82567lm-3 gb
JP	24	WINDOWS 7, 64 BIT	4GB	intel core tm I5-3470 @3.20GHz	Intel R82579 LM
Lowell	2	WINDOWS 7, 64 BIT	4GB	intel core tm I5-3470 @3.20GHz	Intel R82579 LM
Causeway clinic	2	WINDOWS 7, 64 BIT	4GB	intel core tm I5-3470 @3.20GHz	Intel R82579 LM
Brockton	4	WINDOWS 7, 64 BIT	4GB	intel core tm I5-3470 @3.20GHz	Intel R82579 LM

VA NEW ENGLAND HEALTHCARE SYSTEM

VISN 1 Networking Speeds

Main Site Name	CBOC /Site Name	Bandwidth Site to CBOC in MBps (Download/Upload)
CWM	WORCESTER	40 download/20 upload MBps
Togus	Bangor	40 download/20 upload MBps(est)
Togus	Lewiston	40 download/20 upload MBps(est)
Bedford	N/A	N/A
PVD	Eagle Square Offsite Clinic	40 download/20 upload MBps
VACT	Newington	WAN=5MB; LAN=100/1000MB
WRJ	N/A	40 download/20 upload MBps(est)
MAN	N/A	40 download/20 upload MBps(est)
West Roxbury	Jamaica Plain	1 gbps
West Roxbury	Causeway	1 gbps
West Roxbury	Brockton	1 gbps
West Roxbury	Lowell	1 gbps

VISN 1 Current Server Specifications

Site Name	Server OS	Storage Space (GB)
CWM	Windows Server 2003	322GB total
CWM	Windows 2012 R2 64 Bit	Not in use yet-8TB(FORUM)
CWM-Worcester	Windows 2012 R2 64 Bit	not in use yet-4TB(FORUM)
Togus	Windows Server 2003	322GB total
BEDFORD	WINDOWS XP	1TB total
PVD	Not in use	Not in use
VACT	Windows Server 2012	5.1TB total
WRJ	Windows Server 2003	322GB total
MAN	Windows XP	700GB total, 430GB used
BHS	Windows Server 2008 R2	D:\20.7GB free of 7.4GB; E:\215GB free of 2.72TB
BHS	Windows Server 2008 R2(NAS Server)	D:\138GB free; E:\6.18TB free of 6.36TB