

VIX Health Monitor User Guide

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Revision History

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1 Purpose

The purpose of this document is to describe the functionality provided by the VIX Health Monitor.

2 Acronyms and Definitions

CVIX	Centralized VistA Imaging Exchange Service
VIX	VistA Imaging Exchange

3 Overview

The VIX Health Monitor is a utility that monitors the status of the VIX and CVIX servers. The monitor displays current information from VIX and CVIX servers and analyzes the information to alert the user of problems with a server

4 Current Version

This document is based on version **2.0.0.22** of the VIX Health Monitor which can be downloaded from <http://vhacvixclu1a.r04.med.va.gov:8080/wiki/Wiki.jsp?page=VIXHealthMonitor>

5 What's New

This section describes what is new in the most recent version of the VIX Health Monitor.

New Feature	Feature Description Section
Checksums	See Checksums
Site Service data source version	See Site Service
Test Sites	See Test Sites Tab

6 General Usage

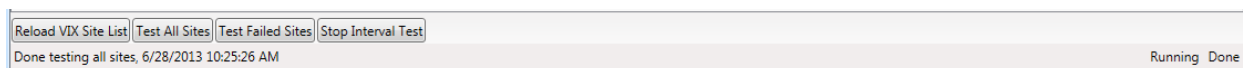
The VIX Health is intended to be used by support personnel so they can monitor the VIX and CVIX services to ensure they are functioning properly. This VIX Health Monitor is not intended to be used by site support.

When the VIX Health Monitor loads it will automatically load the list of VIX and CVIX servers from the site service. This may take a few seconds to load. Once loaded the list of all VIX and CVIX servers will be displayed. If for some reason the application cannot communicate with the site service an error will be displayed at the bottom of the application. The user can manually reload the site service information by clicking on the *Reload VIX Site List* button.

6.1 Loading Health Information

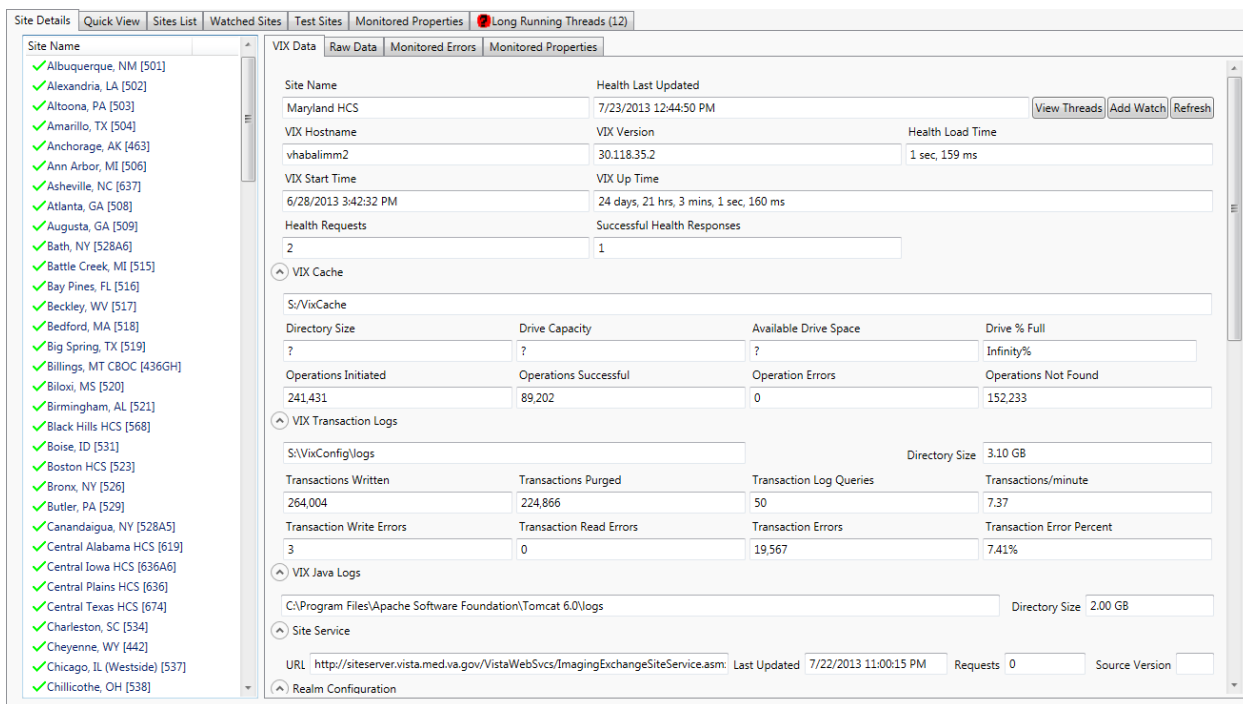
Health information from a server can be loaded in two ways. It can be manually loaded by double clicking on a site or health information can be loaded periodically by the Health Monitor. Loading information about a single site is done synchronously and the user must wait for the information to load. Loading all site information is done asynchronously and when a site is loaded it can be viewed immediately.

Pressing the *Test All Sites* button at the bottom will load information for all sites asynchronously. Pressing the *Start Interval Test* button at the bottom will load information for all sites asynchronously and refresh the data automatically based on the refresh time in the settings. While the interval test is running the status at the bottom right will say *Running* and the *Start Interval Test* button will change to say *Stop Interval Test*.



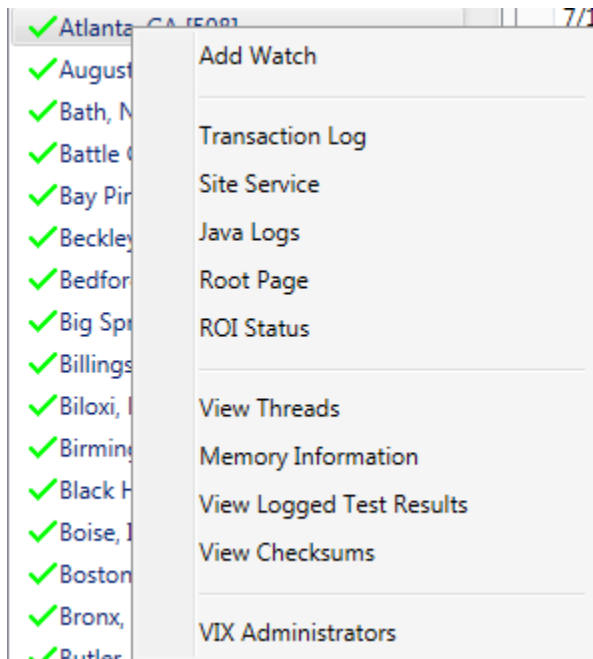
7 Site Details Tab

The Site Details tab shows the list of all VIX and CVIX servers and details about each individual site.



7.1 Sites List

The list shows all sites that have a VIX and the CVIX servers. The icon next to the site indicates the status of the health of the VIX/CVIX. Right clicking on the site provides a list of options for viewing information



Add Watch	Add the selected site to the list of watched sites. See Watched Sites Tab
Transaction Log	Open a web browser to the transaction log for the selected site
Site Service	Open a web browser to the site service page for the selected site
Java Logs	Opens a web browser to the Java logs page for the selected site
Root Page	Opens a web browser to the root page of the selected site. If the selected VIX/CVIX has at least Patch 119 installed then the page will display the current version of the VIX/CVIX. If the VIX is a version prior to Patch 119 then the Tomcat status page will be displayed.
ROI Status	Opens a web browser page to the ROI status page of the selected site. This option requires the site have at least a Patch 130 VIX installed. If a 130 VIX is not installed, an error will be displayed at the bottom of the Health Monitor. This is not available for CVIX servers.
View Threads	View the list of active threads on the VIX/CVIX. See Active Threads
Memory Information	View current memory information for the VIX/CVIX. See Memory Information
View Logged Test Results	View Logged Test Results. See Logged Test Results
View Checksums	View checksums from the site. See Checksums
VIX Administrators	View VIX Administrators for the site. See VIX Administrators

7.2 VIX Data Tab

The VIX Data tab shows the greatest detail about a site but only one site at a time.

Field	Description
Site Name	The name of the site
Health Last Updated	The time when the health displayed was last updated
View Threads	View all active threads on the VIX/CVIX. See Active Threads
Add Watch	Add this site to the watch list. See Watched Sites Tab
Refresh	Refresh the health information for this VIX/CVIX
VIX Hostname	The network hostname of the VIX/CVIX
VIX Version	The installed version of the VIX/CVIX
Health Load Time	The amount of time it took to load the health information from the VIX/CVIX
VIX Start Time	The time when the VIX/CVIX last started
VIX Up Time	The amount of time the VIX/CVIX has been running
Health Requests	Number of times the health information has been requested from this site since the Health Monitor started
Successful Health Requests	Number of successful requests for health information since the Health Monitor started

7.2.1 VIX Cache

The VIX Cache section describes information about the status of the cache on the VIX/CVIX.

Note: for performance reasons, some information from the VIX Cache is not loaded typically because it took too long for the VIX to calculate. For those fields you may see a “?” for the value indicating that value is missing

Field	Description
	VIX Cache directory
Directory Size	The size of the VIX/CVIX cache directory
Drive Capacity	The capacity of the drive the VIX/CVIX cache exists on
Available Drive Space	The amount of space available on the drive the VIX cache is on
Drive % Full	The percent of the cache drive that is full
Operations Initiated	The number of cache operations initiated by the VIX/CVIX
Operations Successful	The number of cache operations completed without an error
Operation Errors	The number of cache operations completed with an error
Operation Not Found	The number of cache operations where the requested information was not found in the cache

7.2.2 VIX Transaction Logs

The VIX Transaction Logs section describes information about the transactions that are written to the log on the VIX/CVIX.

Field	Description
	The directory where the VIX/CVIX transaction logs are stored
Directory Size	The size of the directory where the transaction logs are stored

Transactions Written	The number of transactions written
Transactions Purged	The number of transactions purged
Transaction Log Queries	The number of queries made to the transaction log
Transactions/minute	The number of transactions written to the log per minute
Transaction Write Errors	The number of errors that occurred writing entries to the transaction log. If the log is functioning properly this value should be 0.
Transaction Read Errors	The number of errors that occurred reading entries from the transaction log. If the log is functioning properly this value should be 0.
Transaction Errors	The number of transactions that have been written to the transaction log that are for error transactions. This value is not expected to be 0.
Transaction Error Percent	The percent of transactions written to the transaction log that were for an error transaction. This value is not expected to be 0%.

7.2.3 VIX Java Logs

The VIX Java Logs section describes information about the debug logs are written on the server.

Field	Description
	The directory where the VIX/CVIX Java logs are stored
Directory Size	The size of the directory where the Java logs are stored

7.2.4 Site Service

Field	Description
URL	The URL the VIX uses to retrieve the site service information. On the CVIX this will be a local path to a file containing the site service information
Last Updated	The date the site service information was last updated. This should occur nightly
Requests	The number of requests made for site service information to the VIX/CVIX. On the VIX this might be 0, on the CVIX this number should be much larger
Source Version	The version of the interface the VIX used to load site service information. Requires at least Patch 138 VIX

7.2.5 Realm Configuration

Field	Description
Real VistA Server	The VistA Server realm configuration the VIX is aware of. This should match the hostname of the VistA server at the site
Realm VistA Port	The VistA Server realm configuration the VIX is aware of. This should match the port of the VistA server at the site

7.2.6 Container Thread Details

Field	Description
HTTP-80 Thread Pool Size	The size of the pool of threads for the 80 pool used to view web pages (CVIX only)
HTTP-8080 Thread Pool Size	The size of the pool of threads for the 8080 pool used by Clinical Display and VistARad (VIX only)
HTTP-8443 Thread Pool	The size of the pool of threads for the 8443 pool used by VIX Federation (VIX

Size	to VIX/CVIX)
HTTP-443 Thread Pool Size	The size of the pool of threads for the 443 pool used for secure connections (CVIX only)
HTTP-80 Busy Threads	The number of active threads for the 80 pool (CVIX only)
HTTP-8080 Busy Threads	The number of active threads for the 8080 pool (VIX only)
HTTP-8443 Busy Threads	The number of active threads for the 8443 pool
HTTP-443 Busy Threads	The number of active threads for the 443 pool (CVIX only)
Long Running Threads	The number of threads that have been running long. Long running threads are threads that have been running longer than specified in the user settings. This is the total number of active threads from all pools

7.2.7 System Information

Field	Description
Operating System	Operating System name the VIX/CVIX is running on
OS Version	Version of the operating system the VIX/CVIX is running on
OS Architecture	x86 for 32-bit, amd64 for 64-bit
# of Processors	Number of processors, this counts cores as processors
Total Swap Space	Amount of swap space
Free Swap Space	Available swap space
Total Physical Memory	Total memory installed on the server
Free Physical Memory	Available memory on the server
Committed Virtual Memory	Virtual memory committed on the server

7.2.8 Request Counts

Field	VIX/CVIX	Description
AWIV Image	CVIX	The number of image requests by the AWIV (Patch 105)
AWIV Image V2	CVIX	The number of image requests by the AWIV (Patch 124)
AWIV Metadata	CVIX	The number of metadata requests by the AWIV (all patches)
AWIV Photo ID	CVIX	The number of photo ID image requests by the AWIV (Patch 105, 124)
AWIV Photo ID V2	CVIX	The number of photo ID image requests by the AWIV (not actually used)
Clinical Display Image V2	VIX	The number of image requests by Clinical Display Patch 72
Clinical Display Image V4	VIX	The number of image requests by Clinical Display Patch 93
Clinical Display Image V5	VIX	The number of image requests by Clinical Display Patch 94
Clinical Display Image V6	VIX	The number of image requests by Clinical Display Patch 117
Clinical Display Image V7	VIX	The number of image requests by Clinical Display Patch 122
Clinical Display Metadata	VIX	The number of metadata requests by Clinical Display (all patches)
Exchange Image	VIX/CVIX	The number of image requests by the DoD
Exchange Image V2	CVIX	The number of image requests by the DoD (Patch 104)
Exchange Metadata	VIX/CVIX	The number of metadata requests by the DoD
Federation Document V4	VIX/CVIX	Document requests from Patch 104 servers

Federation Document V5	VIX/CVIX	Document requests from newer servers
Federation Exam Image	VIX/CVIX	The number of VistARad image requests by a remote VIX (Patch 83)
Federation Exam Image V4	VIX/CVIX	The number of VistARad image requests by a remote VIX (Patch 104)
Federation Exam Image V5	VIX/CVIX	The number of VistARad image requests by a remote VIX (newer)
Federation Exam Image Text	VIX/CVIX	The number of VistARad image text file requests by a remote VIX (Patch 83)
Federation Exam Image Text V4	VIX/CVIX	The number of VistARad image text file requests by a remote VIX (Patch 104)
Federation Exam Image Text V5	VIX/CVIX	The number of VistARad image text file requests by a remote VIX (newer)
Federation Image	VIX/CVIX	The number of Clinical Display image requests by a remote VIX (Patch 83)
Federation Image V4	VIX/CVIX	The number of Clinical Display image requests by a remote VIX (Patch 104)
Federation Image V5	VIX/CVIX	The number of Clinical Display image requests by a remote VIX (newer)
Federation Metadata	VIX/CVIX	The number of metadata requests by a remote VIX (all applications, Patch 83)
Federation Metadata V4,V5	VIX/CVIX	The number of metadata requests by a remote VIX (all applications, newer)
VistARad Exam Image	VIX	The number of image requests by VistARad
VistARad Exam Image Text	VIX	The number of image text file requests by VistARad
VistARad Metadata	VIX	The number of metadata requests by VistARad
XCA	CVIX	The number of requests for metadata and artifacts made to the XCA interface (from HAIMS)

7.2.9 Thread Durations

This lists each thread on the VIX/CVIX and how long each thread has been active for. An active thread is currently processing a request. Double clicking on a thread will display the stack trace for that thread (see [Thread Stack Traces](#)).

7.2.10 Request Processors

This information is only available on the CVIX and for VIX sites with at least Patch 122 installed. The request processors list each request pool and how much activity has been done on each pool

Request Pool	VIX/CVIX	Description
http-80	CVIX	Requests made by web browsers
http-8080	VIX	Requests made by client applications
http-443	VIX/CVIX	Secure requests
http-8443	VIX/CVIX	Requests made by VIX/CVIX

7.2.11 Release of Information (ROI) Statistics

This information will only appear if the VIX version is greater than Patch 130. This will not appear on the CVIX.

Field	Description
Periodic Processing Enabled	True/false to indicate if periodic processing is turned on
Completed Items Purge Enabled	True/false to indicate if completed item purging is turn on
Immediate Processing Enabled	True/false to indicate if immediate processing is enabled
Periodic Processing Error	Error message if periodic processing cannot function properly
Disclosure Processing Errors	Number of errors that have occurred in processing disclosures
Disclosure Requests	Number of requests made for disclosures
Disclosures Cancelled	Number of disclosures cancelled
Disclosures Completed	Number of disclosure requests completed successfully
ImageGear Burn Annotation Failures	Number of failures burning annotations into images
ImageGear Burn Annotation Image Requests	Number of requests to burn annotations into images
ImageGear Burn Annotation Image Success	Number of successful images that have had annotations burned
ImageGear PDF Failures	Number of failures generating PDF reports
ImageGear PDF Requests	Number of requests to generate PDF reports
ImageGear PDF Success	Number of successful PDF reports generated
Studies Sent to Export Queue	Number of studies sent to export queue (for DICOM studies)

7.2.12 View Transaction

This allows a quick way to display details about a specific transaction. This will open a web browser to display the transaction details.

7.3 Raw Data Tab

The Raw Data tab shows the properties the VIX Health Monitor receives from the VIX/CVIX. The VIX Health Monitor uses these values and converts them to be displayed on the VIX Data tab however not all fields are used. The values received from the VIX are based on the properties requested in the [Health Load Options Settings](#).

The values in the Raw Data can be used when configuring Monitored Properties (see [Monitored Properties Settings](#)).

VIX Data	Raw Data	Monitored Errors	Monitored Properties
Name	Value		
CatalinaSiteServiceRequestCount_4_JAX-RS REST Servlet_none_none_Servlet_//	0		
Vix/MXCacheOperationsError	0		
CatalinaGlobalRequestProcessingBytesSent_http-443_GlobalRequestProcessor	0		
CatalinaThreadPoolThreadsBusy_http-8080_ThreadPool	1		
Vix/MXCacheOperationsInstanceNotFound	22046		
CatalinaSiteServiceRequestCount_4_ExchangeSiteService_none_none_Servlet_//	0		
CatalinaThreadPoolThreadCount_http-8443_ThreadPool	17		
CatalinaFederationRequestCount_FederationExamImageTextServletV4_none_nk	0		
CatalinaSiteServiceRequestCount_1_default_none_none_Servlet_//508.med.va.g	0		
CatalinaSiteServiceRequestCount_3_default_none_none_Servlet_//508.med.va.g	0		
TransactionLogStatisticsTransactionsQueried	6		
CatalinaVistaRadRequestCount_AdminServlet_none_none_Servlet_//508.med.vi	0		
CatalinaFederationRequestCount_PhotoIdServlet_none_none_Servlet_//508.me	3		
CatalinaRequestProcessingTime_HttpRequest4_RequestProcessor_http-8080	0		
CatalinaRequestProcessingTime_HttpRequest9_RequestProcessor_http-8443	0		
CatalinaRequestProcessingTime_HttpRequest8_RequestProcessor_http-8443	0		
CatalinaClinicalDisplayRequestCount_SOAPMonitorService_none_none_Servlet	0		
TransactionLogStatisticsTransactionsWritten	30244		
CatalinaGlobalRequestProcessingRequestCount_http-8080_GlobalRequestProc	9768		
CatalinaRequestProcessingTime_HttpRequest10_RequestProcessor_http-8443	0		
CatalinaRequestProcessingTime_HttpRequest1_RequestProcessor_http-8080	0		
CatalinaRequestProcessingTime_HttpRequest3_RequestProcessor_http-8443	0		
VixTransactionLogsDirRootDriveTotal	3094514413568		
CatalinaGlobalRequestProcessingBytesSent_http-8080_GlobalRequestProcesso	210083627		
CatalinaClinicalDisplayRequestCount_jsp_none_none_Servlet_//508.med.va.gov	0		
CatalinaThreadPoolThreadCount_http-8080_ThreadPool	5		
CatalinaSiteServiceRequestCount_2_ExchangeSiteService_none_none_Servlet_//	0		

7.4 Monitored Errors Tab

VIX Data	Raw Data	Monitored Errors	Monitored Properties
Monitored errors are errors that the VIX detects when they occur and counts them. To view monitored errors be sure y the Settings.			
Error Contains	Count	Last Occurrence	
java.lang.NumberFormatException	0		

Monitored errors are errors that occur on the VIX/CVIX that the VIX/CVIX has been configured to track and count. This configuration is done on the VIX/CVIX and can be reported and displayed on the VIX Health Monitor. Be sure *monitoredError* is checked as a Health Load Option to view Monitored Errors (see [Health Load Options](#)). By default no site has any monitored errors enabled but they might be enabled by development or support.

7.5 Monitored Properties

VIX Data	Raw Data	Monitored Errors	Monitored Properties
Monitored properties are health values that when they change are logged.			
Name	Value	Date Updated	
JVMStartupTimeLong	5/16/2013 4:40:45 PM	5/17/2013 10:57:09 AM	
JVMStartupTimeLong	4/18/2013 9:31:25 AM	4/18/2013 9:47:20 AM	
JVMStartupTimeLong	3/22/2013 8:37:43 AM	3/22/2013 10:34:32 AM	
JVMStartupTimeLong	5/31/2013 4:22:24 PM	6/4/2013 9:17:08 AM	
JVMStartupTimeLong	6/27/2013 8:54:09 AM	6/28/2013 10:19:24 AM	
JVMStartupTimeLong	6/13/2013 3:14:25 PM	6/14/2013 7:13:46 AM	
JVMStartupTimeLong	6/12/2013 12:00:45 PM	6/12/2013 12:09:26 PM	
OperatingSystemName	Windows Server 2008 R2	3/22/2013 10:34:32 AM	
VixHostname	VH-101-2	6/14/2013 7:13:46 AM	
VixHostname	VH-101-2	3/22/2013 10:34:32 AM	
VixHostname	VH-101-1	3/21/2013 11:35:32 AM	
VixHostname	VH-101-1	4/18/2013 9:47:20 AM	
VixHostname	VH-101-1	6/4/2013 9:17:08 AM	
VixHostname	VH-101-2	5/17/2013 10:57:09 AM	
VixVersion	30.119.3.5	3/22/2013 10:34:32 AM	
VixVersion	30.122.15.2	3/21/2013 11:35:32 AM	
VixVersion	30.130.12.4722	6/12/2013 12:09:26 PM	
VixVersion	30.130.9.2	5/17/2013 10:57:09 AM	

This tab shows monitored properties for the selected VIX/CVIX. See [Monitored Properties](#) for more details.

8 Quick View Tab

The Quick View tab provides a subset of information about the sites that have an issue, the CVIX sites and statistics from all sites. It is meant as a single location to view all critical information.

VIX Test Details

Version	Count	Test Status	Count	Operating System	Count	O/S Architecture	Count	Monitored Error Contains	Count
30.104.5.4	11	OK	140	unknown	4	amd64	3		
30.118.33.2	2	Not Loaded	4	Windows 2003	118	unknown	4		
30.118.35.2	3			Windows Server 2008 R2	22	x86	137		
30.119.4.4520	3								

Site Name	Version	Uptime	Cache Size	Java Log	Trans Written	Trans/Min	Long Thread Active	8080/8443	Long Threads	CD: M/2/4/5/6/7
Albany, NY [528A8]	Unable to connect to th		?						?	
Grand Junction, CO [575]	The remote name could		?						?	
Syracuse, NY [528A7]	There are multiple root		?						?	
Upstate NY HCS [528]	Unable to connect to th		?						?	

CVIX Test Details

Site Name	Version	Uptime	Cache Size	Java Log	Trans Written	Trans/Min	Long Thread Active	80/8443/443	Long Threads	AWIV: M/1/P/12/P2	Fed: M
CVIX1 [2001.1]	30.119.4.4520	38 days, 23 hrs, 55 mins	?✓ 1.46 GB	331,038	5.90	34 sec, 149	1/3/0	0	✓	22,871/0/6,339/23,6	75,96
CVIX2 [2001.2]	30.119.4.4520	38 days, 23 hrs, 31 mins	?✓ 1.44 GB	327,015	5.83	19 sec, 305	1/1/0	0	✓	22,703/0/6,427/23,4	74,57
CVIX3 [2001.3]	30.119.4.4520	38 days, 22 hrs, 24 mins	?✓ 1.46 GB	328,884	5.87	54 sec, 280	1/4/0	0	✓	22,806/0/6,267/23,4	74,80
CVIX4 [2001.4]	30.119.4.4520	38 days, 22 hrs, 7 mins	?✓ 1.44 GB	324,792	5.79	19 sec, 571	1/2/0	0	✓	22,804/0/6,340/23,5	74,00
CVIX5 [2001.5]	30.124.9.2	39 days, 42 mins	?✓ 4.44 MB	0	.00		1/0/0	0	✓	0/0/0/0/0	0/0/0
CVIX6 [2001.6]	30.119.3.5	39 days, 1 hrs, 1 mins	?✓ 5.10 MB	0	.00		1/0/0	0	✓	0/0/0/0/0	0/0/0

CD Requests: 20,011,655

VR Requests: 5,320,271

Fed Requests: 16,774,113

AWIV Requests: 210,605

XCA Requests: 3,707

Exchange Requests: 686

Transactions: 60,410,410

Trans/min: 1,566.26

Trans/day: 1,822,674.08

80 Active: 0

8080 Active: 13

443 Active: 0

8443 Active: 298

Cache Operations: 46,491,952

CVIX Bytes: 58.45 GB

CVIX Bytes/day: 1.51 GB

Requests to DoD: 299,565

Non-Correlated: 73.10%

Site Service Requests: 9,315,977

8.1 Test Details Counts

This provides counts of specific properties of all the VIX and CVIX.

8.2 Failed VIX Sites

This list provides a subset of information about the sites that had an error in their health. The list contains the following information:

Column Header	Description
Site Name	The name of the site
Version	The installed version of the VIX
Uptime	The amount of time the VIX has been running
Cache Size	The size of the VIX cache directory
Java Log	The size of the Java debug logs directory
Trans Written	The number of transactions written
Trans/Min	The number of transactions written per minute
Long Thread	The amount of time the longest thread has been processing on the VIX
Active 8080/8443	The number of active threads for both 8080/8443
Long Threads	The number of threads that have been running long. Long running threads are threads that have been running longer than specified in the user settings. This is the total number of threads from both the 8080 active threads and the 8443 active threads
CD: M/2/4/5/6/7	The number of requests made by Clinical Display clients. M=Metadata requests by Clinical Display (all patches) 2= The number of image requests by Clinical Display (Patch 72) 4= The number of image requests by Clinical Display (Patch 93) 5= The number of image requests by Clinical Display (Patch 94) 6= The number of image requests by Clinical Display (Patch 117) 7=The number of image requests by Clinical Display (Patch 122)
VR: M/EI/ET	The number of requests made by VistARad clients M= The number of metadata requests by VistARad EI= The number of image requests by VistARad ET= The number of image text file requests by VistARad
Fed: M/I4/EI4/ET4/I5/EI5/ET5	The number of requests made by remote VIX servers M= The number of metadata requests by a remote VIX (all applications) I4= The number of Clinical Display image requests by a remote VIX (Patch 104) EI4= The number of VistARad image requests by a remote VIX (Patch 104) ET4= The number of VistARad image text file requests by a remote VIX (Patch 104) I5= The number of Clinical Display image requests by a remote VIX (Patch 122+) EI5= The number of VistARad image requests by a remote VIX (Patch 122+) ET5= The number of VistARad image text file requests by a remote VIX (Patch 12+)
Rad: M/I/I2	The number of radiology requests made by the DoD M= The number of metadata requests by the DoD

	I= The number of radiology image requests by the DoD (v1) I2= The number of radiology image requests by the DoD (v2)
Load Time (ms)	The amount of time (in milliseconds) it took to load the health information from the VIX
Server OS	The operating system of the VIX server
Last Update	Date/Time when the health was last updated
Health Requests	Number of times the VIX Health Monitor has requested health from this site
Successful Health Requests	Number of successful responses the VIX Health Monitor received from this site

8.3 CVIX Sites

This list provides a subset of information about the CVIX servers. The list contains the following information:

Column Header	Description
Site Name	The name of the site
Version	The installed version of the CVIX
Uptime	The amount of time the CVIX has been running
Cache Size	The size of the CVIX cache directory
Java Log	The size of the Java debug logs directory
Trans Written	The number of transactions written
Trans/Min	The number of transactions written per minute
Long Thread	The amount of time the longest thread has been processing on the CVIX
Active 80/8443/443	The number of active threads for both 80/8443/443
Long Threads	The number of threads that have been running long. Long running threads are threads that have been running longer than specified in the user settings. This is the total number of threads from both the 8080 active threads and the 8443 active threads
AWIV: M/I/P/I2/P2	The number of requests made by AWIV clients. M=Metadata requests by AWIV (all patches) I= The number of image requests by AWIV Clinical Display (Patch 105) P= The number of image requests by Clinical Display (Patch 105) I2= The number of image requests by Clinical Display (Patch 124) P2 The number of image requests by Clinical Display (Patch 124)
Fed: M/I4/EI4/ET4/I5/EI5/ET5	The number of requests made by remote VIX servers M= The number of metadata requests by a remote VIX (all applications) I4= The number of Clinical Display image requests by a remote VIX (Patch 104) EI4= The number of VistARad image requests by a remote VIX (Patch 104) ET4= The number of VistARad image text file requests by a remote VIX (Patch 104) I5= The number of Clinical Display image requests by a remote VIX (Patch 122+) EI5= The number of VistARad image requests by a remote VIX (Patch 122+) ET5= The number of VistARad image text file requests by a remote VIX (Patch 12+)
Rad: M/I/I2	The number of radiology requests made by the DoD

	M= The number of metadata requests by the DoD I= The number of radiology image requests by the DoD (v1) I2= The number of radiology image requests by the DoD (v2)
XCA	The number of first pass queries and second pass retrieves for artifacts from the DoD using the XCA interface
Site Service	The number of requests for information from the site service made to this server
Load Time (ms)	The amount of time (in milliseconds) it took to load the health information from the VIX
DoD Requests	The number of requests for DoD data made by VA clients to this server
Thread Count	The number of active threads on the server

8.4 Statistics

At the bottom of the tab lists statistics collected from all sites.

Field	Description
CD Requests	Total number of image and metadata requests made from Clinical Display
VR Requests	Total number of image and metadata requests made from VistARad
Fed Requests	Total number of image and metadata requests made from a VIX or CVIX
AWIV Requests	Total number of image and metadata requests made from the AWIV
XCA Requests	Total number of image and metadata requests made from HAIMS for artifacts
Exchange Requests	Total number of image and metadata requests made from the DoD for radiology data
Transactions	Total number of transactions
Trans/min	Total transactions per minute
Trans/day	Total transactions per day
80 Active	Total number of active requests on port 80
8080 Active	Total number of active requests on port 8080
443 Active	Total number of active requests on port 443
8443 Active	Total number of active requests on port 8443
Cache Operations	Total number of cache operations
CVIX Bytes	Total number of bytes processed by the CVIX
CVIX Bytes/day	Total number of bytes processed by the CVIX per day
Requests to DoD	Total number of metadata requests for DoD data made by VA clients to the CVIX
Non-Correlated	Percent of metadata requests from VA clients to the CVIX for DoD data for non-correlated patients
Site Service Requests	Total number of requests made to the CVIX nodes for site service information

9 Sites List Tab

Site Name	Version	Uptime	Cache Size	Java Log	Trans Written	Trans/Min	Long Thread	Active 8080/8443	Long Threads	CD: M/2/4/5/1
✓ Augusta, GA [509]	30.122.15.2	12 hrs, 4 mins	✓ 6.38 GB	20,906	28.87	56 sec, 533	1/2	0	✓	3,771/0/0/0/0
✓ Bath, NY [528A6]	30.122.15.2	303 days, 23 hrs, 6 mins	✓ 265.50 MB	41,860	.10	1/0	0	✓	9,540/0/0/0/0	
✓ Battle Creek, MI [515]	30.130.12.4722	2 days, 5 hrs, 24 mins	✓ 2.15 GB	48,264	15.06	1/0	0	✓	28,894/0/0/1/0	
✓ Bay Pines, FL [516]	30.122.15.2	12 days, 18 hrs, 5 mins	✓ 4.98 GB	322,843	17.58	55 sec, 790	1/6	0	✓	128,682/0/0/0/0
✓ Beckley, WV [517]	30.122.15.2	9 days, 7 hrs, 31 mins	✓ 1.88 GB	102,930	7.68	21 sec, 32	1/1	0	✓	33,160/0/0/6/0
✓ Bedford, MA [518]	30.122.15.2	196 days, 16 hrs, 59 mins	✓ 1.50 GB	938,214	3.31	15 ms	1/0	0	✓	270,181/0/0/0/0
✓ Big Spring, TX [519]	30.122.15.2	198 days, 5 hrs, 2 mins	✓ 3.47 GB	2,908,167	10.19	7 sec, 746	1/1	0	✓	992,750/0/0/0/0
✓ Billings, MT CB0C [436GH]	30.122.15.2	22 days, 6 hrs, 22 mins	✓ 13.02 MB	992	.03	1/0	0	✓	604/0/0/0/0/0	
✓ Biloxi, MS [520]	30.118.35.2	16 days, 10 hrs, 41 mins	✓ 2.21 GB	201,181	8.50	56 sec, 971	2/2	0	✓	13,853/0/0/2/0
✓ Birmingham, AL [521]	30.122.15.2	65 days, 22 hrs, 56 mins	✓ 5.53 GB	1,500,364	15.80	53 sec, 84	1/3	0	✓	269,806/0/0/0/0
✓ Black Hills HCS [568]	30.122.15.2	8 days, 1 hrs, 29 mins	✓ 324.06 MB	50,201	4.32	32 sec, 269	1/1	0	✓	18,153/0/0/8/0
✓ Boise, ID [531]	30.122.15.2	3 days, 3 hrs, 26 mins	✓ 291.32 MB	43,119	9.53	59 sec, 546	1/2	0	✓	23,829/0/0/0/0
✓ Boston HCS [523]	30.122.15.2	16 days, 11 hrs, 31 mins	✓ 5.27 GB	596,867	25.15	54 sec, 885	1/3	0	✓	259,712/0/0/0/0
✓ Bronx, NY [526]	30.122.15.2	94 days, 13 hrs, 36 mins	✓ 1.74 GB	755,805	5.55	28 sec, 23	1/3	0	✓	346,115/0/0/0/0
✓ Butler, PA [529]	30.122.15.2	132 days, 20 hrs, 15 mins	✓ 1.53 GB	723,714	3.78	26 sec, 332	1/2	0	✓	342,317/0/0/0/0
✓ Canandaigua, NY [528A5]	30.122.15.2	60 days, 1 hrs, 52 mins	✓ 30.25 MB	4,711	.05	16 ms	1/0	0	✓	449/0/0/0/0/1
✓ Central Alabama HCS [619]	30.122.15.2	5 hrs, 8 mins	✓ 5.68 MB	0	.00	1/0	0	✓	7/7/7/7/7/7	
✓ Central Iowa HCS [636A6]	30.104.5.4	22 days, 2 hrs, 1 mins	✓ 670.45 MB	81,281	2.56	15 ms	1/0	0	✓	53,144/0/0/0/0
✓ Central Plains HCS [636]	30.122.15.2	3 days, 23 hrs, 36 mins	✓ 1.74 GB	64,994	11.33	45 sec, 471	1/2	0	✓	16,757/0/0/6/0
✓ Central Texas HCS [674]	30.122.15.2	57 days, 7 hrs, 19 mins	✓ 6.66 GB	1,804,405	21.87	58 sec, 494	1/7	0	✓	722,954/0/0/0/0
✓ Charleston, SC [534]	30.118.35.2	1 days, 1 hrs, 49 mins	✓ 2.28 GB	21,736	14.03	13 sec, 959	1/2	0	✓	2,452/0/0/0/0/0
✓ Cheyenne, WY [442]	30.122.15.2	9 days, 4 hrs, 44 mins	✓ 2.01 GB	96,170	7.26	1/0	0	✓	44,980/0/0/0/0	
✓ Chicago, IL (Westside) [537]	30.122.15.2	1 days, 7 hrs, 9 mins	✓ 2.26 GB	22,969	12.29	17 sec, 765	1/1	0	✓	6,293/0/0/0/0/0
✓ Chillicothe, OH [538]	30.122.15.2	13 days, 15 hrs, 2 mins	✓ 4.20 GB	274,872	14.01	31 ms	2/0	0	✓	112,456/0/0/0/0
✓ Cincinnati, OH [539]	30.122.15.2	3 days, 6 hrs, 32 mins	✓ 4.54 GB	115,731	24.56	45 sec, 963	2/3	0	✓	20,425/0/0/0/0
✓ Clarksburg, WV [540]	30.122.15.2	67 days, 1 hrs, 2 mins	✓ 1.13 GB	298,196	3.09	1/0	0	✓	144,587/0/0/0/0	

The Sites List tab provides a subset of information from all VIX sites. The information in the columns is sortable.

For details about the information in the columns, see [Failed VIX Sites](#). The columns in the Failed VIX Sites list are identical to these columns.

10 Watched Sites Tab

The watched sites tab provides a list of sites that are of interest to the user. The user can designate any site to be watched by right clicking on the site and selecting *Add Watch* from the *Site Details*, *Quick View*, or *Sites List* tabs. The list of sites to be watched is stored in a configuration file on the workstation.

To remove a site from the *Watched Sites* tab, right click on the site and select *Remove Watch*.

For details about the information in the columns, see [Failed VIX Sites](#). The columns in the Failed VIX Sites list are identical to these columns.

11 Test Sites Tab

The test sites tab provides a list of sites that are specified as test sites. These are sites not in the site service but that the user wishes to monitor. This can be used for monitoring test VIX/CVIX systems.


To add or remote a site to the Test Sites tab, go to the Test Sites tab in the Settings, see [Test Sites Settings](#).

For details about the information in the columns, see [Failed VIX Sites](#). The columns in the Failed VIX Sites list are identical to these columns.

12 Monitored Properties Tab

This tab shows a single day list of monitored properties from all VIX/CVIX servers. See [Monitored Properties](#) for more details.

13 Long Running Threads Tab

Site Details	Quick View	Sites List	Watched Sites	Test Sites	Monitored Properties	 Long Running Threads (11)
Site Name	Thread Name				Processing Time	
Detroit, MI [553]	HttpRequest19_RequestProcessor_http-8080				21 hrs, 16 mins, 43 sec, 703 ms	
Detroit, MI [553]	HttpRequest22_RequestProcessor_http-8080				21 hrs, 15 mins, 14 sec, 37 ms	
Detroit, MI [553]	HttpRequest21_RequestProcessor_http-8080				21 hrs, 16 mins, 359 ms	
Detroit, MI [553]	HttpRequest18_RequestProcessor_http-8080				21 hrs, 16 mins, 49 sec, 595 ms	
Detroit, MI [553]	HttpRequest14_RequestProcessor_http-8080				21 hrs, 18 mins, 45 sec, 570 ms	
Palo Alto HCS [640]	HttpRequest25_RequestProcessor_http-8443				27 mins, 22 sec, 790 ms	
Palo Alto HCS [640]	HttpRequest22_RequestProcessor_http-8443				23 mins, 32 sec, 178 ms	
Palo Alto HCS [640]	HttpRequest19_RequestProcessor_http-8443				23 mins, 31 sec, 554 ms	
Palo Alto HCS [640]	HttpRequest23_RequestProcessor_http-8443				27 mins, 55 sec, 391 ms	
Palo Alto HCS [640]	HttpRequest4_RequestProcessor_http-8443				30 mins, 47 sec, 452 ms	
Walla Walla, WA [687]	HttpRequest12_RequestProcessor_http-8443				1 hrs, 8 sec, 937 ms	

The Long Running Threads tab provides a list of the threads from all VIX/CVIX servers that have been running longer than expected. Double Clicking on a thread in the list will launch the Thread Viewer dialog that shows the stack trace for that thread. This provides a quick way to see each long running thread grouped together and to easily access information about the thread.

For more information about thread stack traces, see [Thread Stack Traces](#).

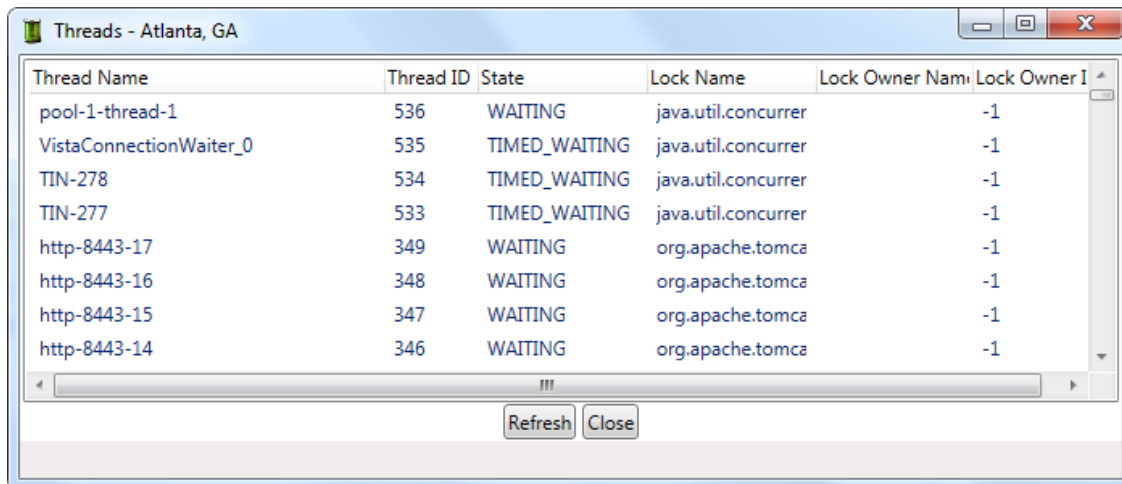
14 Monitored Properties

Monitored properties are properties the VIX Health Monitor looks at and if they have changed from the last time information was loaded from a VIX/CVIX then that change is logged. The first time information is loaded, no change will be indicated.

Monitored Properties should be used for properties that do not change frequently but when they change it would be useful to track. This could include the VIX Version or hostname. Monitored properties should not be used for properties that frequently change such as the uptime.

Configuring Monitored Properties can be done in the Settings dialog (see [Monitored Properties](#)).

15 Active Threads



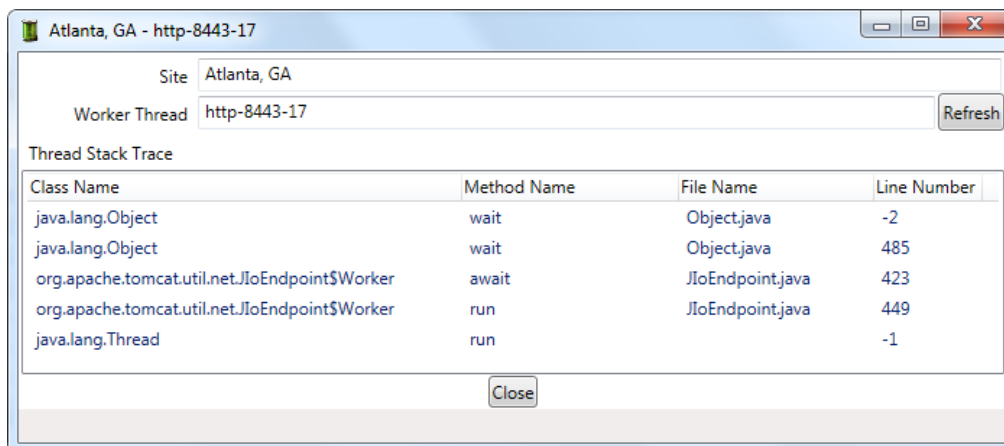
The screenshot shows a window titled "Threads - Atlanta, GA". It contains a table with the following columns: Thread Name, Thread ID, State, Lock Name, Lock Owner Name, and Lock Owner ID. The table lists several threads, including pool-1-thread-1, VistaConnectionWaiter_0, and several http-8443 threads. Most threads are in a WAITING state. Below the table are "Refresh" and "Close" buttons.

Thread Name	Thread ID	State	Lock Name	Lock Owner Name	Lock Owner ID
pool-1-thread-1	536	WAITING	java.util.concurrer	-1	
VistaConnectionWaiter_0	535	TIMED_WAITING	java.util.concurrer	-1	
TIN-278	534	TIMED_WAITING	java.util.concurrer	-1	
TIN-277	533	TIMED_WAITING	java.util.concurrer	-1	
http-8443-17	349	WAITING	org.apache.tomca	-1	
http-8443-16	348	WAITING	org.apache.tomca	-1	
http-8443-15	347	WAITING	org.apache.tomca	-1	
http-8443-14	346	WAITING	org.apache.tomca	-1	

The VIX Health Monitor can request the list of active threads from the VIX/CVIX to give an indicator of the work the VIX/CVIX is currently doing. This is useful if a VIX/CVIX is not working properly and a thread might be deadlocked waiting for another thread. This functionality requires at least the Patch 122 VIX be installed.

The user can double click on any thread to view the stack trace for that thread. See [Thread Stack Traces](#).

16 Thread Stack Traces

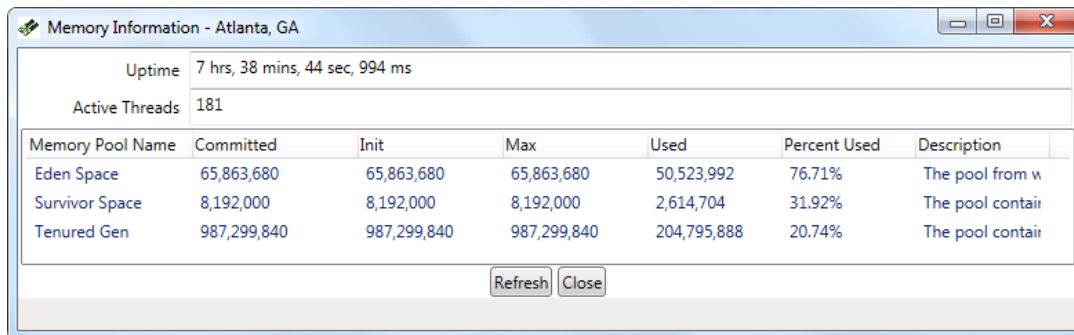


The screenshot shows a window titled "Atlanta, GA - http-8443-17". It has a "Site" field set to "Atlanta, GA" and a "Worker Thread" field set to "http-8443-17". Below these fields is a "Thread Stack Trace" table. The table has columns for Class Name, Method Name, File Name, and Line Number. The stack trace shows the thread is currently in the "run" method of "java.lang.Thread", and it has previously called "await" and "wait" methods. Below the table is a "Close" button.

Class Name	Method Name	File Name	Line Number
java.lang.Object	wait	Object.java	-2
java.lang.Object	wait	Object.java	485
org.apache.tomcat.util.net.JIoEndpoint\$Worker	await	JIoEndpoint.java	423
org.apache.tomcat.util.net.JIoEndpoint\$Worker	run	JIoEndpoint.java	449
java.lang.Thread	run		-1

The VIX Health Monitor can request the stack trace of any thread of the VIX/CVIX. This functionality requires at least the Patch 122 VIX be installed. If a thread has been processing for longer than expected, viewing the stack trace can help indicate what it is doing and if there is a problem. The stack trace indicates what method the thread is currently processing which can help determine the cause of an issue.

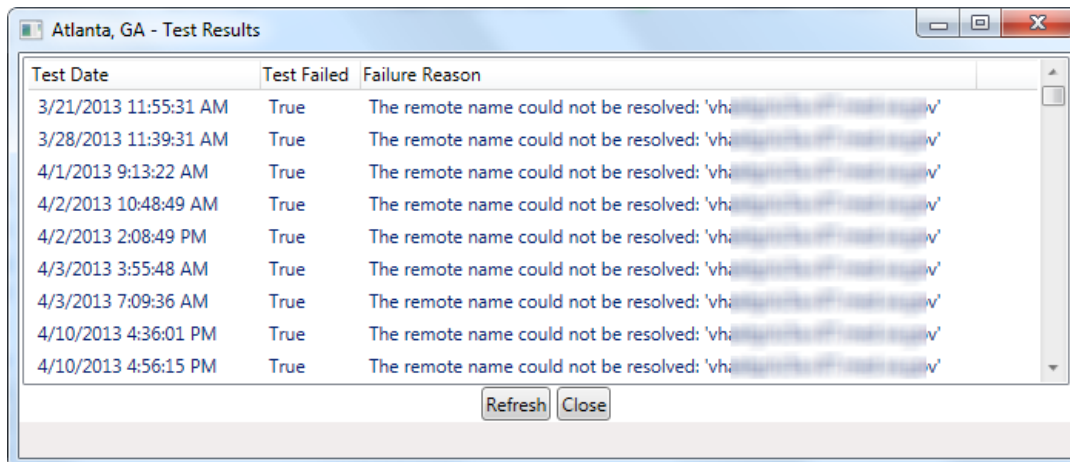
17 Memory Information



Uptime	7 hrs, 38 mins, 44 sec, 994 ms					
Active Threads	181					
Memory Pool Name	Committed	Init	Max	Used	Percent Used	Description
Eden Space	65,863,680	65,863,680	65,863,680	50,523,992	76.71%	The pool from w
Survivor Space	8,192,000	8,192,000	8,192,000	2,614,704	31.92%	The pool contain
Tenured Gen	987,299,840	987,299,840	987,299,840	204,795,888	20.74%	The pool contain

The VIX Health Monitor can request the memory information from the VIX/CVIX. This functionality requires at least the Patch 122 VIX be installed. The memory information can be useful to determine if a VIX/CVIX is using too much memory and might soon run out of memory.

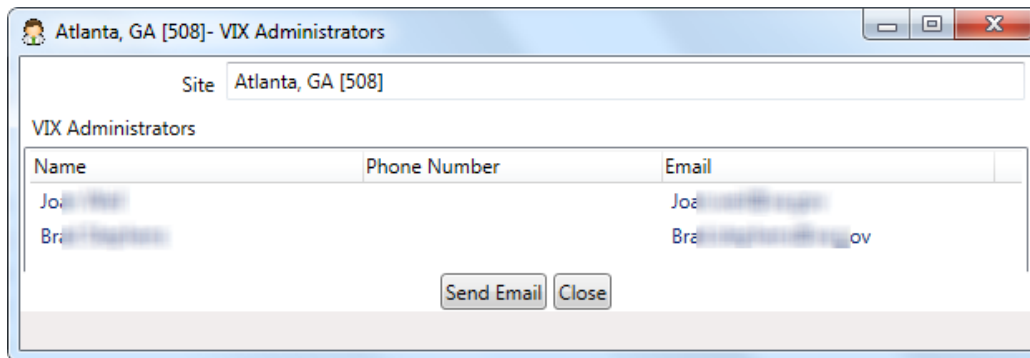
18 Logged Test Results



Test Date	Test Failed	Failure Reason
3/21/2013 11:55:31 AM	True	The remote name could not be resolved: 'vh: [redacted]'
3/28/2013 11:39:31 AM	True	The remote name could not be resolved: 'vh: [redacted]'
4/1/2013 9:13:22 AM	True	The remote name could not be resolved: 'vh: [redacted]'
4/2/2013 10:48:49 AM	True	The remote name could not be resolved: 'vh: [redacted]'
4/2/2013 2:08:49 PM	True	The remote name could not be resolved: 'vh: [redacted]'
4/3/2013 3:55:48 AM	True	The remote name could not be resolved: 'vh: [redacted]'
4/3/2013 7:09:36 AM	True	The remote name could not be resolved: 'vh: [redacted]'
4/10/2013 4:36:01 PM	True	The remote name could not be resolved: 'vh: [redacted]'
4/10/2013 4:56:15 PM	True	The remote name could not be resolved: 'vh: [redacted]'

If *Log Failed Health Requests* is enabled in settings (See [General](#)), the VIX Health Monitor will track when it tried to retrieve health from a VIX/CVIX and was unable or an issue was detected. This provides a history of the ability of the Health Monitor to load information from a site. This information is stored on the user workstation.

19 VIX Administrators

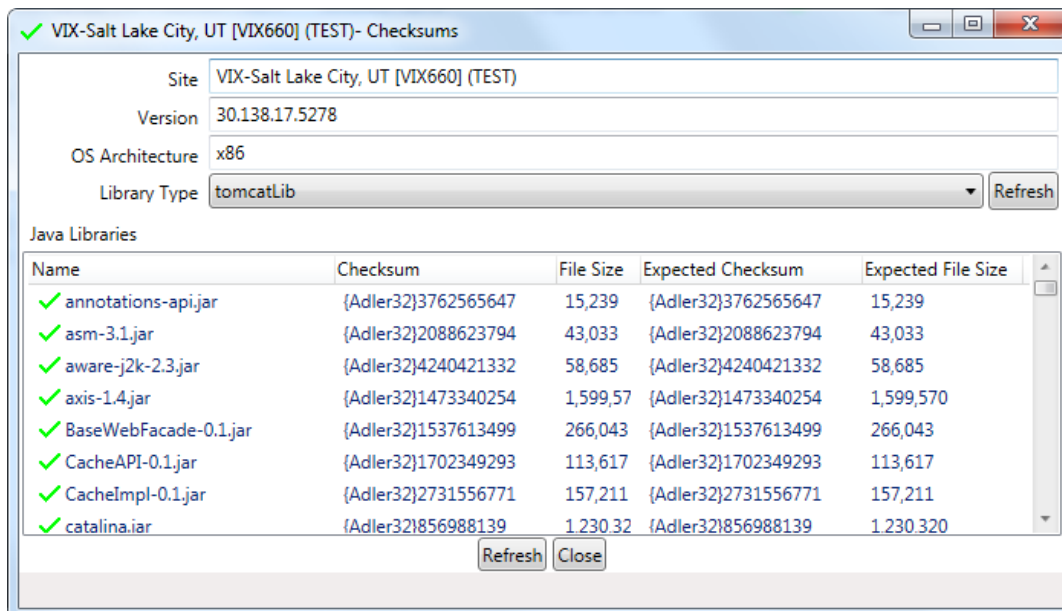


The VIX Administrators dialog shows the contact information for the people assigned to each VIX server. This information is stored in the VIX Wiki and is based on the requestors who configured the VIX. This contact information is useful if there is an issue with a VIX and the administrators at the site need to take action.

The Send Email button can be used to create an email template to send to contact the administrators.

20 Checksums

The VIX Health Monitor can retrieve the checksums from the VIX/CVIX and compare them to a known set of good checksums stored on the VIX Wiki. This allows the user to verify the installation of the VIX is correct and no old Java packages are installed. This functionality requires the site have the Patch 138 VIX/CVIX installed.



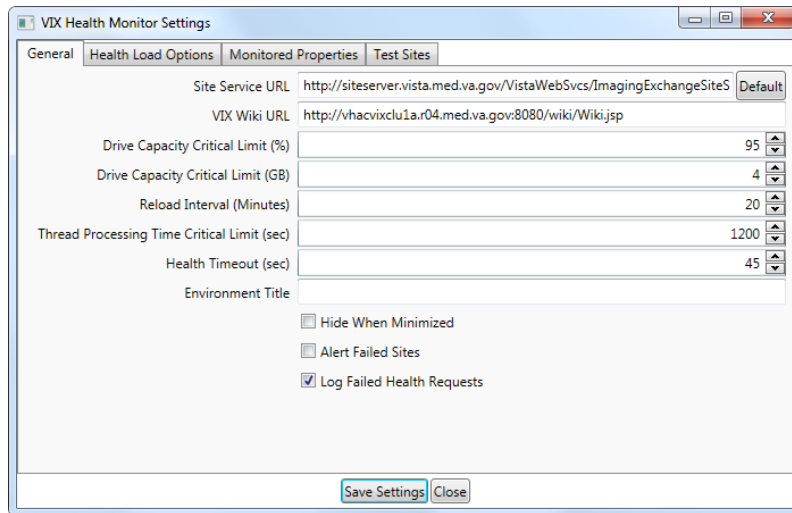
The Checksums dialog by default loads the Java packages from the Tomcat library directory and compares them to the expected values. The dialog can also retrieve the Java packages from the JRE\Lib\Ext directory and compare them to expected values.

Any packages that do not have the correct checksums will have a red icon next to them.

21 Settings

Settings can be modified by going to the Edit menu and selecting Settings

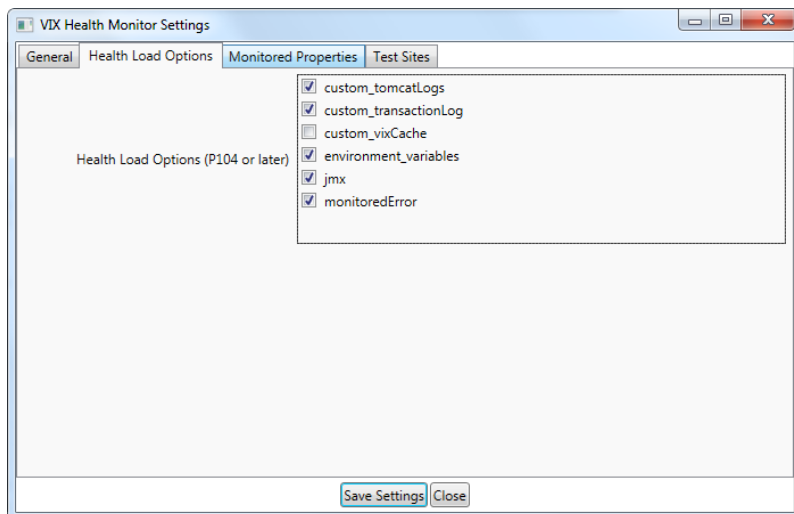
21.1 General Settings



Field	Description
Site Service URL	The URL to use to load the site service information from
VIX Wiki URL	Used to retrieve the list of VIX administrator information
Drive Capacity Critical Limit (%)	The percentage of the VIX cache must be full for the drive to be marked as critical
Drive Capacity Critical Limit (GB)	The amount of the drive that must remain for the drive to be marked as critical
Reload Interval (Minutes)	How often (in minutes) the application will query VIX/CVIX Servers for updated health information when the interval test is running
Thread Processing Time Critical Limit (sec)	How long a thread must be running for (in seconds) for it to be identified as a long running thread
Health Timeout (sec)	The amount of time (in seconds) the VIX Health Monitor will wait to get a response from a VIX/CVIX when requesting the health information
Hide When Minimized	When checked, the VIX Health Monitor will hide when minimized. Double clicking the icon in the task bar will restore the VIX Health Monitor
Alert Failed Sites	When checked, a balloon will appear in the tray indicating the number of sites that failed
Log Failed Health Requests	When checked, failed health requests will be logged on the workstation

21.2 Health Load Options Settings

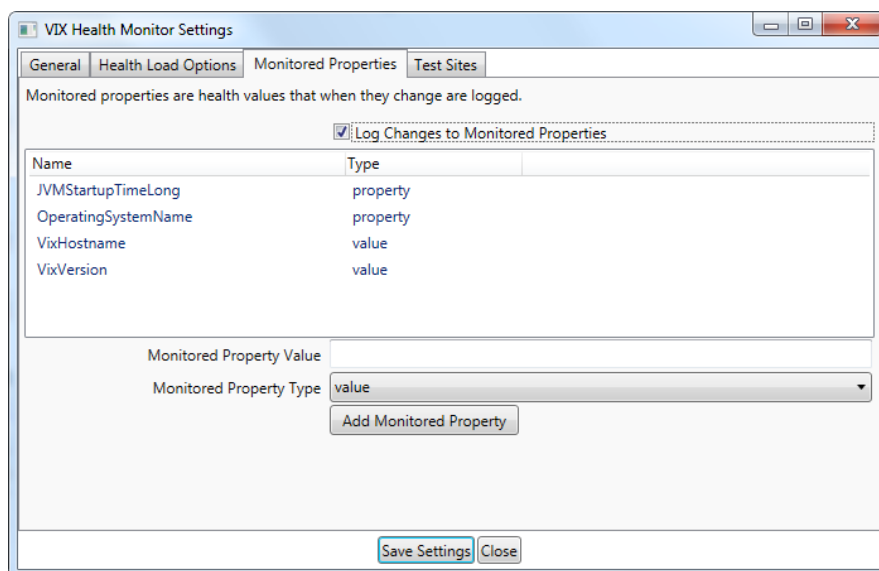
This lists the options used when requesting health information from the VIX/CVIX. Checked items will load that set of information from the VIX/CVIX.



Field	Description
custom_tomcatLogs	Information about the Java logs
custom_transactionLog	Information about the Transaction logs
custom_vixCache	Information about the cache (recommended to not include this because it greatly increases the amount of time it takes to retrieve health information)
environment_variables	Information that is stored in environment variables on the VIX/CVIX
jmx	Information stored in JMX on the VIX/CVIX (the majority of useful information)
monitoredError	Monitored error information from the VIX/CVIX

21.3 Monitored Properties Settings

See [Monitored Properties](#) for a description of monitored properties.

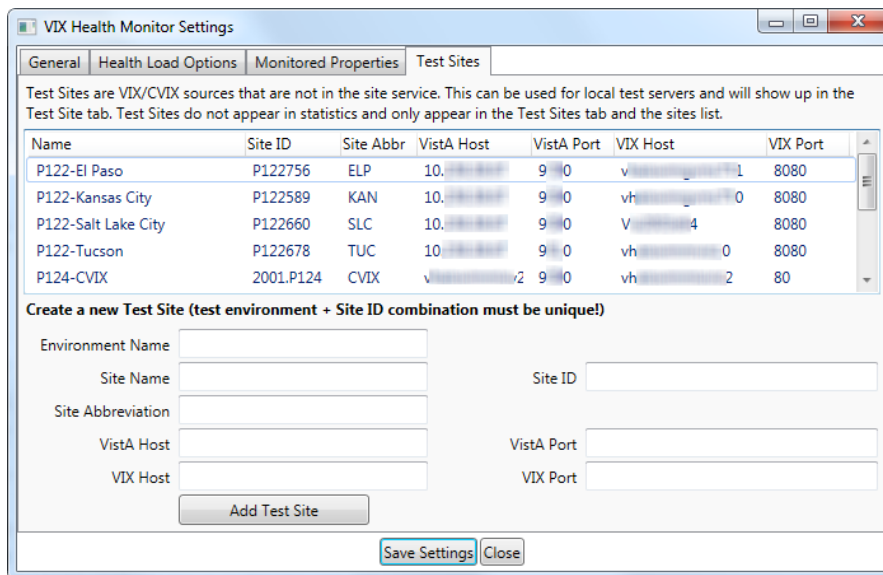


Field	Description
Log Changes to Monitored Properties	When checked, the monitored properties that are configured will be logged when they change

There are two types of properties that can be monitored, *property* and *value*. Properties are properties of the VIX Health object and require the developer to describe what properties can be added. Values are raw VIX Health values which are shown on the Raw Data tab.

21.4 Test Sites Settings

See [Test Sites Tab](#) for a description of test sites.



The list shows the existing test sites. Right clicking on a site provides an option to remove a test site.

Field	Description
Environment Name	A unique short description of the environment. This is used to group servers and to uniquely identify a server. This is prepended to the name of the site and appended to the Site ID value to create a unique Site ID
Site Name	The name of the site
Site ID	The site number for the site
Site Abbreviation	The abbreviation of the site
VistA Host	The hostname of the VistA database the site uses
VistA Port	The port of the VistA database the site uses
VIX Host	The hostname of the VIX/CVIX
VIX Port	The port of the VIX/CVIX (8080 for VIX, 80 for CVIX)