

# GE HEALTHCARE

## IMAGE VAULT, VERSION 4.2

SERVICE TOOLS AND TROUBLESHOOTING MANUAL

GE HEALTHCARE NUMBER 5183865-100 REVISION 1



imagination at work

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# 1 Service Tools Overview

**For your notes**



## Welcome to Service Tools

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## Overview of Service Tools

The **Service Tools** interface is supplied by GE to provide the ability to perform remote support and troubleshooting. While this interface is primarily designed for use by GE remote support center engineers, the functionality of the tools can also be accessed through standalone commands or Windows tools.

See **Image Vault 4.2 User and Service Manual** (PN 5183655-100) for more information on using these alternate methods).

The interface allows ease in locating key information, as well as quick links to perform troubleshooting tasks. In addition, one of the key features of this interface is the PM Log option. This preventive maintenance logging device provides a consistent, thorough approach to checking the stability of the Image Vault system.

**For your notes**

# 2 Home Tab

**For your notes**

## Home Tab Overview

The **Home** tab displays a snapshot of the most essential system information for this server. With this page, you can quickly determine what services are running, the number of pending tasks and the current uptime. In addition, you can easily link to additional web-based troubleshooting tools.

To refresh the status of this screen, either:

1. Select the **Auto Update** checkbox and select a time frame from the **Frequency** list. The screen is then refreshed periodically, based on the time selected.
2. Click the **Update** link to immediately refresh the screen.

## System Information Pane

The **System Information** pane displays the essential server information needed for troubleshooting. This information includes the following:

- **Facility** - the name of the institution where this server is located
- **System Type** - the GE application installed on this server
- **System ID** - the internal server name
- **Service ID** - the logon ID currently being used to access this system
- **IP Address** - the IP address assigned to this server
- **Netmask** - the netmask address assigned to this server
- **Gateway** - the gateway address assigned to this server (if applicable)
- **Hostname** - the internal hostname assigned to this server
- **Access Level** - the security level assigned to the login name; also displays how long this user has been logged in
- **Service Connectivity** - displays whether this system was ever checked for remote connectivity access and if the system had its initial checkout process completed
- **Version IIP/SvcPform** - the software version of the service platform application
- **Software Installation Date** - the date the Image Vault software was initially installed
- **Operating System** - the currently installed operating system

## Options Installed Pane

The **Options Installed** pane displays all the currently installed software options, such as web access, and their current status.

This pane will only display these options if the Image Vault interface is currently active. If the interface is not active, a "failed to attach" message appears in this pane.

## Current System Status Pane

The **Current System Status** pane displays the following information:

- **System Date** - Confirm that this is the actual current date. If not, the server's date may need to be changed.
- **System Time** - Confirm that this is the actual current time (appropriate for the server/hospital location). If not, the server's time may need to be changed.
- **Application Software** - Displays the currently loaded software version.
- **User Interface** - Displays if the Image Vault application interface is currently running.
- **Last PM Log** - Displays the last date/time a preventive maintenance was performed; if no preventive maintenance has been performed on the system yet, the field states NONE.

## Pending Tasks Pane

The **Pending Tasks** pane displays a snapshot of the pending tasks listed on the **Tasks** tab of the user interface.

This snapshot displays a total number of pending tasks, as well as the number pending for the Archiver, Router, Web, Store Commit and Cleanup Tasks services.

## Service Status Pane

The **Service Status** pane displays, in a snapshot form, the status of the current Image Vault services. This does **NOT** include the Windows 2003 services.

Each service is listed, as well as it's current status, such as **Running**, **Stopped** or **Unknown**.

### NOTE

Note that if a service is shown as Unknown, the service should be investigated as to why it is appearing on this system.

Also see [Service Manager](#) for additional information.

## System Uptime Pane

The **System Uptime** pane displays how long the system has been running since the last reboot.

## Interface Links Pane

The **Interface Links** pane allows you to link directly to additional troubleshooting web pages.

These web pages include the following:

- **HP Tools** - links to the System Management web page, which provides access to HP status and troubleshooting tools. **Note that this link will only work if the server is a Hewlett Packard DL380.** If you click this link and receive an error message, check first what type of server is being used.
- **HP UPS** - links to the UPS status web page, which provides access to HP status and troubleshooting tools. **Note that this link only works if the power supply is an HP model.** If you click this link and receive an error message, check first what type of power supply is being used.
- **Plasmon Library** - links to the Plasmon UDO library configuration page. **Note that this link only works if the system has an attached Plasmon UDO library.** If you click this link and receive an error message, confirm if there is a library attached and the library type.
- **ViewPoint Service Manager** - links to the ViewPoint services screen. Note that this link only works if the system is integrated with the ViewPoint HIS application. If you click this link and receive an error message, confirm that there is an integration with the ViewPoint application.

Click the **Local** link if you are using the Service Tools desktop directly at the server location.

**For your notes**



# 3 PM (Preventive Maintenance) Tab

**For your notes**

## Enter PM Logs

### Preventive Maintenance Log Overview

The **Preventive Maintenance** log has two purposes:

- to provide a systematic method of evaluating the system, using the checklist items as a guide
- to provide a history of system checks, verifying that the system was evaluated on a periodic basis

Some tasks must be performed before the log can be filled out, since these tasks require exiting the PM log screen in order to complete them. These tasks are:

- Collect System Data (checking error logs, DiskXtender logs, etc.)
- Validate Database Integrity
- Perform Disk Defragmentation
- Test SNMP Alert
- Check Version Level

### PM Log - Basic Information

The **PM Log** is saved in the **Enter PM Logs** section, based on the date the form was filled in.

When the **PM Log** pane initially appears, fill in the following information:

- **Service Engineer** - Name of the person performing the PM and filling in the form.
- **Institution Name** - Name of the customer site
- **Date PM Performed** - Use the calendar icon to select the current date.

### PM Log - Review Error Logs

Click the **Error Log** link to display the **SCLogWindow**.

Scan the log for Fatal and Error messages. If any exist, take the appropriate actions.

- On the **PM Log** screen, check the **Reviewed Error Log** checkbox to confirm that the log was selected and checked.
- If necessary, enter any additional comments about the findings in the **Comments** box.

## PM Log - Check System Health

Check that there is an acceptable number of pending tasks, for the Archiver, Router and Web services. In addition, check that there is an acceptable number of pending actions, based on the related tasks (there should be a smaller percentage of actions in comparison to the tasks).

An acceptable number of tasks is dependent on workflow and the determination is based on site-specific information and common sense. For example, the following factors should be considered when determining if a task level seems appropriate:

- Number of images being sent in a day
  - Has the offline sync utility run and found files to synchronize?
  - Compression schedule - is the system waiting for compression to complete before other tasks can complete?
  - Retry levels? Determine why retries are failing? Are the retries succeeding upon retry? Are the retry dates current? or from previous dates?
1. Click the [Archives](#) link to display pending archive-related tasks. Based on the current system activity, determine if there is an acceptable number of pending tasks. Select the [Yes/No](#) radio buttons appropriately.
  2. Click the [Router](#) link to display the pending router-related tasks. Based on the current system activity, determine if there is an acceptable number of pending tasks. Select the [Yes/No](#) radio buttons appropriately.
  3. Click the [Web](#) link to display the pending web-related tasks. Based on the current system activity, determine if there is an acceptable number of pending tasks. Select the [Yes/No](#) radio buttons appropriately.
  4. Click the [Actions](#) link to display the pending actions in the system. Based on the current number of pending tasks, determine if there is an acceptable number of pending actions. Select the [Yes/No](#) radio buttons appropriately.
  5. When all of the above tasks are complete, select the [Checked System Health](#) checkbox.
  6. If necessary, add any additional information in the [Comments](#) box.

## PM Log - Disk Space Management

Click the [Disk Space Management](#) link to run the [Disk Space Management Status](#) utility.

The [Disk Space Management Status](#) (DSM) utility provides a graphical, real-time snapshot of the disk space management status. Statistics for the managed disk spaces are calculated.

1. Click the [Calculate DSM](#) button to display the DSM status.
2. When the calculation is complete, each section displays how much space has been used in the [Total Used Space](#), [Configured Max Size](#), [High Watermark](#) and [Low Watermark](#) categories:

In addition, the directory path for each managed disk space is shown. Also, a usage bar shows the values in a graphical format. Note that this utility may take several minutes to process all the information on a large system.

Check that the used disk space falls between the high and low watermark for the Staging, Short-Term Storage and Web locations.

- If the used disk space is below the low watermark, it is very possible that the system simply hasn't reached low watermark level yet.
- If the used disk space is above the high watermark, the Disk Space Management services may have failed and the system is not being properly monitored. Check error logs for Disk Space Management issues.
  - ◆ Based on the information shown by the utility, enter the used space for each category and select the appropriate [Yes/No](#) radio button based on whether the space falls between the watermarks.
  - ◆ Based on the trends shown by the utility, select the appropriate [Yes/No](#) radio button based on whether it appears that the Archiver and Web services are performing correctly.
  - ◆ Click the [Number of Files](#) link to display the various long-term storage locations. Based on the information shown by this link, select the appropriate [Yes/No](#) radio button based on whether it appears that the number of files not being migrated is acceptable.
  - ◆ If necessary, enter any additional comments in the [Comments](#) field.

## PM Log - Image Vault Services

Click the **Image Vault Services** link to display the **Service Manager** utility.

When the utility screen appears, each service is listed, as well as its current status, such as **Running**, **Stopped** or **Unknown**.

- If the services are stopped, check the system logs to determine if the service stopped normally or abnormally.
  - ◆ If the service stopped abnormally, attempt to restart the service and restore the functionality.
  - ◆ If the service stopped normally, it was likely stopped by a user for a specific reason - attempt to determine this user and the reason before restarting the service.
- If the services are shown as Unknown, determine if the associated functionality was installed or licensed.
  - ◆ If a service is shown as **Running**, you have the ability to stop the service by clicking the **Stop** button.
  - ◆ If a service is shown as **Stopped**, you have the ability to start the service by clicking the **Start** button.
  - ◆ If a service is shown as **Unknown**, the service should be investigated as to why it is appearing on this system.
  - ◆ If you attempt to change the status of a service by clicking the **Start/Stop** button, click the **Refresh** button to re-display the services and verify that the status is changed.
- On the **PM Log** screen, select the appropriate **Yes/No** radio button based on whether all the necessary Image Vault services are running.
- If necessary, enter any additional comments about the findings in the **Comments** box.

## PM Log - Collected System Data

To complete this section, you will need to gather information outside of the Service Tools interface. Therefore, obtain this information before attempting to complete the PM log, since if you exit the log to obtain the information, the log information is not saved.

- Check the application logs for errors.
- Check the DiskXtender logs (if applicable) for errors.
- Check the Plasmon logs (if applicable) for errors.
  - ◆ On the **PM Log** screen, select the **Collected System Data** checkbox when all the system data has been evaluated..
  - ◆ If necessary, enter any additional comments about the findings in the **Comments** box.

## PM Log - Validate Database Integrity

1. Click the [Run IVInteg Utility to check for integrity violation link](#) to display the IVInteg utility.

The *IVInteg Utility* screen opens, allowing you to run the utility and check the subsequent log. See “[IVInteg Utility](#)” on page 4-12 for more information on how to use this screen.

2. On the **PM Log** screen, select the **Validated Database Integrity** checkbox when all the utility has been run and the results evaluated..
3. If necessary, enter any additional comments about the findings in the **Comments** box.

## PM Log - Perform Cleanup Tasks

Click the [Cleaned](#) link to display the **Clean Temporary Space** utility.

The **Clean Temporary Space** utility is used to clean (delete) the temporary files location used by the Image Vault services. Note that this utility is also a scheduled task, configured to run on a weekly basis. Before running this utility on an ad hoc basis, consider the time remaining until the next scheduled run of this utility.

The current contents of the location are shown in the **Current Directory Contents** pane when this utility option is first selected.

- The default file path for the temporary files location is pre-entered in the **Temp File Path** field. If necessary, change this location. You may then need to click [Refresh](#) to display the most current contents of the directory.
- Enter a numeric value in the **Days** field to delete temporary files that have not been accessed in that many days.
- Click the **Clean Temp Files** button (above the Output Log pane).
- When the utility finishes, the output from the utility is then shown in the **Output Log** pane.

This utility only deletes temporary files with the correct file prefixes (files created by the Image Vault services).

- When the temporary file space is cleaned, select the **Performed Cleanup Tasks** checkbox, as well as the **Cleaned temporary file space** checkbox.
- If necessary, enter any additional comments in the **Comments** field.

## PM Log - Verify Scheduled Tasks

- Click the **Scheduled Tasks** link to display the **Windows Scheduled Tasks** screen.
- Scroll through the list of tasks to confirm that all of the following scheduled tasks ran completely and at the appropriate scheduled time.
  - Clean Temp Space - IV Service**
  - Clean Temp Space - Windows Temp**
  - Database State Update**
  - IV4 Daily Backup**
  - Offline Sync**
- Click the associated checkbox for each scheduled task after its execution is confirmed.
  - ◆ When the scheduled tasks are confirmed, select the **Verified scheduled tasks running as scheduled** checkbox, as well as the associated task checkboxes.
  - ◆ If necessary, enter any additional comments in the **Comments** field.

## PM Log - Perform Disk Defragmentation

To complete this section, you must run the **Disk Defragmenter** utility outside the Service Tools interface. Therefore, this utility must be run before attempting to complete the PM log, since if you exit the log to run the utility, the log information is not saved.

The **Disk Defragmenter** option displays the **Windows Disk Defragmenter** screen. Only perform the Defragment portion of this procedure when it appears that system performance is compromised by fragmented space.

- Select the **Disk Defragmenter** utility in the **Windows 2003 Utilities** section.
- When the **Disk Defragmenter** screen appears, select the appropriate volume (C or D) and click **Analyze**.
- When the analysis is complete, and it is determined that a defrag should be performed, select the volume and click **Defragment**.
  - ◆ When the disk analyze or defragment is complete, select the **Performed Hard Drive defragmentation** checkbox, as well as the associated drive radio buttons.
  - ◆ If necessary, enter any additional comments in the **Comments** field.



## PM Log - Verify Backups

There are two types of backups to verify for this section.

The database backup is performed by copying the current database to an secondary location. This location is configured in the system backup parameters, so the system backup will not run properly if the database is not copied into the location.

The system data backup is a media backup (usually tape) of all data within the User Data directory.

- To check the database backup, confirm that there is a file with the current date in the **D:\gehc\Image Vault\User Data\Backup\Current Backup** directory.
- To check the system data backup, open the file with the most recent date in the **C:\Documents and Settings\IVService\Local Settings\Application Data\Microsoft\Windows NT\NT Backup\Data** directory. Confirm that the log states that the backup completed and no errors are listed.
  - ◆ After the backups are verified, select the **Verified backups are being performed** checkbox.
  - ◆ In addition, select the checkboxes for each of the backup types and use the calendar icons to enter the date for these backups.
  - ◆ If necessary, enter any additional comments in the **Comments** field.

## PM Log - Test SNMP Alert

- After the SNMP alert is tested, select the **Tested SNMP Alerts mechanism** checkbox.
- In addition, select the **Trap sent and received on the RAP** checkbox.
- If necessary, enter any additional comments in the **Comments** field.

## PM Log - Check OS Patches

- Click the **Operating System** link to display a list of the currently installed Windows operating system security patches.
- After the patches are confirmed against the list of patches that should be installed, select the **Operating System patched to latest approved level** checkbox.
- If necessary, enter any additional comments in the **Comments** field.

Check the ***[Image Vault 4.2 Pre-Installation Manual](#)*** (5183693-100) for information on what patches should be installed on the system.

## PM Log - Check Version Level

To complete this section, the version level must be checked before starting the PM log. This is necessary, because if you exit the log to run the utility, the log information is not saved.

On the **Home** tab, **Current System Status** pane, confirm that the application software is at the appropriate release level.

- After the version is verified, select the **Application software at the latest approved version** checkbox.
- If necessary, enter any additional comments in the **Comments** field.

## PM Log - Check Media Status for Plasmon Library

Click the **Media Status** link to connect to the Plasmon interface and check the status of the media.

When the interface appears, confirm that no media is in an unreliable or unusable state.

- After the media is verified, select the **Checked Media Status for Plasmon library if it exists** checkbox.
- If necessary, enter any additional comments in the **Comments** field.

## PM Log - Run Streams Utility for Macintosh Stubs

The Image Vault sites that contain current or historical image data from Macintosh-based clients (Vivid 5 scanners) or MODs that contain Macintosh data and are utilizing the DiskXtender application to manage a direct-attached library may need to run the Streams utility periodically to delete the alternate data streams created by the Macintosh systems.

Note that only systems containing this combination are affected.

The user will notice that the extended drive, managed by the DiskXtender application, runs out of available space. Macintosh systems create alternate streams of data on the extended drive managed by DiskXtender. However, DiskXtender does not support alternate streams of data. The alternate data streams are not purged by DiskXtender and use library space.

Run the following utility at least once a month, or whenever it is noticed that the space available on the extended drive or library performance is severely impacted. Note that if alternate data streams are deleted, they are restored by DiskXtender when the file is fetched; therefore, no data is lost through the use of this utility.

1. Verify the DiskXtender application reports "zero files pending move".
  - ◆ Locate and open the ...\transaction log for DiskXtender.
  - ◆ Stop the DiskXtender application.
  - ◆ Delete all files currently in the ...\transaction log for DiskXtender.

- ◆ Start the DiskXtender application.
- 2. Open a command prompt.
- 3. Type **Streams -D [extended drive path]** and press **Enter**.
- 4. Close the command prompt screen when the utility finishes.
  - After the version is verified, select the **If necessary, run the streams utility to clean up Macintosh stubs...** checkbox.
  - If necessary, enter any additional comments in the **Comments** field.

## PM Log - Additional Notes

There are three free-format text boxes that allow you to enter additional maintenance information.

- In the **Hardware Components (FRU) replaced or modified** box, enter any pertinent information about hardware replacements performed since the last PM log was entered.
- In the **Software Updates** box, enter pertinent information about any software upgrades or patches that were installed since the last PM log was entered.
- In the **Additional Notes** box, enter any other information that could prove useful to the next service engineer or the customer.
  - ◆ After all checks are complete in the PM log, review this information with the customer if possible. When the customer acknowledges that the maintenance log is complete and accurate, select the **Reviewed with Customer** checkbox.
  - ◆ Enter the site name in the **Customer Name** field and the current date in the **Date** field.
  - ◆ Click the **Save** button to save the PM log.

## View PM Logs

Click **View PM Logs** to display a list of all PM logs entered for this system.

Click any of the logs to display the contents of the log. Note, however, that you cannot edit or change these logs in any way.

**For your notes**

# 4 Utilities Tab

**For your notes**

## Windows 2003 Utilities

### Disk Usage

The **Disk Usage** option displays the following information for each drive on the system:

- **Drive Type** (such as system or user)
- **Total space on drive**
- **Currently used space on drive**
- **Currently available space on drive**
- **Percentage of available space is currently used**
- **Mount location**

### Disk Defragmenter

The **Disk Defragmenter** option displays the **Windows Disk Defragmenter** screen. Only perform this procedure when it appears that system performance is compromised by fragmented space.

1. Select the **Disk Defragmenter** utility
2. When the **Disk Defragmenter** screen appears, select the appropriate volume (C or D) and click **Analyze**.
3. When the analysis is complete, and it is determined that a defrag should be performed, select the volume and click **Defragment**.

### IP Configuration

The **IP Configuration** option displays:

- ◆ **Windows IP Configuration** for this system, including
  - ◆ Host Name
  - ◆ Primary DNS Suffix
  - ◆ Node Type
  - ◆ IP Routing Enabled
  - ◆ WINS Proxy Enabled
- ◆ **Ethernet LAN 3 Connection** information, including
  - ◆ Connection-specific DNS Suffix
  - ◆ Description
  - ◆ Physical Address
  - ◆ DHCP Enabled
  - ◆ IP Address
  - ◆ Subnet Mask
  - ◆ Default Gateway

## Network Status

The **Network Status** option displays all current active network connections to the Image Vault system. In other words, it displays which applications are listening on which ports. In a troubleshooting scenario, be sure to check if port 3100 (the Image Vault system) is listed.

The display includes the following information:

- **Protocol**
- **Local Address**
- **Foreign Address**
- **State** (such as Listening)

## Scheduled Tasks

The **Scheduled Tasks** option displays the configuration details about all scheduled tasks for this system. The following scheduled tasks should be listed:

- **Clean Temp Space - IV Service**
- **Clean Temp Space - Windows Temp**
- **Database State Update**
- **IV4 Daily Backup**
- **Offline Sync**

All scheduled tasks should be examined to determine that they are running at their appropriate scheduled time and that each task has completed successfully in the last run.

If you click **Summary**, the following essential information is displayed:

- **Task Name**
- **Date of Next Scheduled Run**
- **Status**

If you click **Verbose**, the following additional information is displayed:

- **Host Name** (such as IMGVAULT001)
- **Task Name**
- **Next Run Time** (the next time the task is scheduled to run)
- **Status**
- **Logon Mode** (describes if the task can be run in interactive or background mode)
- **Last Run Time**
- **Last Result** (such as zero errors)
- **Creator** (the application that created the task)
- **Schedule** (the times and dates)
- **Task to Run** (displays the location of the executable file for the task)
- **Start in**
- **Comment** (system- or user-generated comments)
- **Scheduled Task State** (Enabled or disabled)



- **Scheduled Type** (daily, weekly, monthly, etc.)
- **Start Time** (when the task is scheduled to start)
- **Start Date** (the first date the task should have run)
- **End Date** (the last date the task should run)
- **Days** (the days of the week when the task should run)
- **Months**
- **Run as User**
- **Delete Task if not Rescheduled** (enabled or disabled)
- **Stop Task if Runs x Hours and x Mins** (a default execution cutoff time)
- **Repeat Every**
- **Repeat Until Time**
- **Repeat Until Duration**

## Shared Resources

The **Shared Resources** option shows how all drives and directories are shared on the Image Vault system. Each resource is listed by both its share name and actual directory location. The remarks section describes the sharing relationship.

The following directories should be shared on the Image Vault system:

- **\GEHC\STS**
- **\GEHC\ImageVault\UserData\Backup**
- **\GEHC\ImageVault\Archive**

## System Information

The **System Information** option displays the information about the server and the operating software. It does not include information about the Image Vault application. The following information is displayed:

- **Host Name** (such as IMGVAULT001)
- **OS Name** (operating system resident on the server)
- **OS Version** (operating system version)
- **OS Manufacturer** (operating system manufacturer)
- **OS Configuration** (operating system configuration, such as a standalone server)
- **OS Build Type** (such as multiprocessor)
- **Registered Owner** (the organization, such as the hospital, that owns the server)
- **Registered Organization** (the organization, such as the hospital, that owns the server)
- **Product ID** (the serial number assigned to the server)
- **Original Install Date** (the date the server was originally configured)
- **System Up Time** (the current consecutive uptime for the server)
- **System Manufacturer** (the hardware manufacturer name)
- **System Model** (the hardware model)
- **System Type** (the server type, such as X86-based PC)
- **Processors** (the number and type of processors)
- **BIOS Version**

- **Windows Directory** (the location of the primary Windows directory)
- **System Directory** (the location of the System directory)
- **Boot Device** (the location of the boot directory)
- **System Locale** (the geographical location of the server, such as United States)
- **Input Locale** (the geographical location of the server, such as United States)
- **Time Zone** (the time zone that is currently set in the system configuration)
- **Total Physical Memory**
- **Available Physical Memory**
- **Page File: Max Size**
- **Page File: Available**
- **Page File: In Use**
- **Page File Locations**
- **Domain**
- **Logon Server**
- **Hotfix(es)** (a listing of all Windows patches that have been installed)
- **Network Cards** (the number and description of the available network cards)

## System Shutdown

The **System Shutdown** option allows you to remotely shut down or restart the Image Vault server.

1. Select either the **Restart System** or **Shutdown System** radio button.
2. If you want to maintain disruptive mode, select the **Retain Disruptive Mode** checkbox. (Disruptive mode means that you can make changes to the system through remote access).
3. Click **Submit**.

## Uptime

The **Uptime** option shows the system uptime history for the server. Each time the server was shutdown and then rebooted appears on the displayed log. In addition, the prior uptime or downtime total time is shown.

## User Accounts

The **User Accounts** option displays all login names (or accounts) available on this system. The following user accounts should be available on every normally configured system:

- **Administrator**
- **geService**
- **Guest**
- **ITAdmin**
- **EchoClient**
- **IVService**

## Windows 2003 Services

The **Windows 2003 Services** option displays all currently running services. Compare the list of services with the list below to confirm that all applicable services are running. If not, a service may need to be restarted to recover the functionality provided by that service.

- Adaptive Server Anywhere
- COM+ Event System
- COM+ System Application
- Compaq Remote Monitor Service
- Computer Browser
- Cryptographic Services
- Distributed File System
- Distributed Link Tracking Client
- Distributed Transaction Coordinator
- DNS Client
- EPMac Connection Server
- Error Reporting Service
- Event Log
- File Server for Macintosh (Vivid 5 systems only)
- Help and Support
- HP Insight Diagnostics/ Foundation Agent, NIC Agent, Server Agents, Storage Agents, Web Agent
- HP Power Manager 3.1, ProLiant System Shutdown Service, Version Control Agent
- IPSEC Services
- Logical Disk Manager
- Network Connections
- Network Location Awareness (NLA)
- Plug and Play
- Print Spooler
- Protected Storage
- Remote Access Connection Manager
- Remote Procedure Call (RPC)
- Secondary Logon
- Security Accounts Manager
- Server
- Shell Hardware Detection
- Simple TCP/IP Services
- SNMP Service
- System Event Notification
- Task Scheduler
- TCP/IP NetBIOS Helper
- Telephony
- Windows Audio, Management Instrumentation
- Workstation

## Image Vault Utilities

### Active Database Connections

The **Active Database Connections** utility allows you to display the current active connections to the Image Vault database. This is the same list that can be obtained by displaying the active connections through the Image Vault interface.

- A list of all currently connected users displays in the lower pane.
- This pane also displays the user ID, the last request time, how the user is connected and the node address.

Use this utility to determine if a necessary connection, such as a specific Ultrasound lab, is currently seen as connected to the Image Vault system. If a system is expected to be connected and is not, further investigation into other issues, such as IP addressing, may be necessary.

Click **Refresh** to update the display pane and obtain the most current listing.

### Audit Log

The **View Audit Log** utility allows you to view database events, filtered by user-defined parameters.

The Audit log shows all user interactions with the database and displays these interactions in an user/action/details/timestamp format. The filter capability of the log allows you to search for specific events, based on the situation creating the error. For example, if the user is requesting information on a patient record that appears to be missing, you can search on the Patient ID to determine if the database contains information on the patient.

Enter any or all of the following filters to display specified logging events:

- **Begin Date** - use the calendar icon to select the beginning date for the search
- **End Date** - use the calendar icon to select the ending date for the search
- **Event** - enter free-form text to search for a particular event type
- **Created by** - enter free-form text to search for a particular service that generated the event
- **Patient ID** - enter a patient ID to be located in the logs
- **Last Name** - enter a patient's last name to be located in the logs

Click **Clear** if you want to erase all the entered parameters.

Click **Refresh** to re-display the audit logging.

## Backup Logs

The **Backup Logs** utility displays the log files in the following directory:

**C:\Documents and Settings\IVService\Local Settings\Application Data\Microsoft\Windows NT\NT Backup\Data**

Logs from the last 10 backups are saved in this directory. Open the latest backup log file and confirm that the backup was processed correctly and no errors are listed.

## Clean Userdefs

The **Clean Userdefs** utility restores the default system settings, deleting the user-defined settings. This means that all configuration settings established through the interface, as well as settings like custom user accounts, will be erased.

During the initial installation of the Image Vault application, the service engineer is requested to document all site-specific configuration settings. In the extreme situation where the user definitions are deleted in error, and the settings need to be re-configured, the initial settings should be available in this workbook.

### CAUTION

This is a very serious action, and should only be taken if you are **ABSOLUTELY** certain that you want to delete all user settings. Be sure that the user definitions are saved to a current backup before using this utility.

To use the utility, click the **Clean Userdefs** button.

## Clean Temp Space

The **Clean Temporary Space** utility is used to clean (delete) the temporary files location used by the Image Vault services. The current contents of the location are shown in the **Current Directory Contents** pane when this utility option is first selected.

1. The default file path for the temporary files location is pre-entered in the **Temp File Path** field. If necessary, change this location (if a non-standard default location was established during the initial installation of the application). You may then need to click **Refresh** to display the most current contents of the directory.
2. Enter a numeric value in the **Days** field to delete temporary files that have not been accessed in that many days.
3. Click the **Clean Temp Files** button (above the Output Log pane).
4. The output from the utility is then shown in the **Output Log** pane.

This utility only deletes temporary files with the correct file prefixes (files created by the Image Vault services).

## Database State Update

The **Database State Update** utility is used to synchronize the image file states between the short- and long-term storage locations. The utility searches the database records, checking for file existence in the both the short- and long-term storage locations. The database is then modified based on the file existence in each location.

Note that this utility is processor intensive and can take several hours to complete on a large database. Only run this utility during off-peak hours to minimize impact on users.

1. To run the utility, click the **Start** button.
2. As the utility locates files that must be updated, and then updates the database, log entries of this activity are displayed in the lower pane. To refresh this log entry list, either click the **Refresh** button periodically or select the **Auto Update** checkbox to have the system refresh the system at certain intervals.

## Disk Space Status (DSM)

The **Disk Space Management Status** (DSM) utility provides a graphical, real-time snapshot of the disk space management status. Statistics for the following managed disk spaces are calculated:

- **Staging Location Space**
- **Short-Term Storage Space**
- **Web Cache Space**

Click the **Calculate DSM** button to display the DSM status.

When the calculation is complete, each section displays how much space has been used in each of the following categories:

- **Total Used Space**
- **Configured Max Size**
- **High Watermark**
- **Low Watermark**

The directory path for each managed disk space is shown, and a usage bar shows the values in a graphical format. Also note that the values are shown in both MB and GB.

- Check that the used disk space falls between the high and low watermark for the Staging, Short-Term Storage and Web locations.
  - ◆ If the used disk space is below the low watermark, it is very possible that the system simply hasn't reached low watermark level yet.
  - ◆ If the used disk space is above the high watermark, the Disk Space Management services may have failed and the system is not being properly monitored. Check error logs for Disk Space Management issues.

Note that this utility may take several minutes to process all the information on a large system.

## Disruptive Mode

The **Disruptive Mode** utility allows you to turn off or on the disruptive mode. Disruptive mode means that you have the ability to disrupt normal processing by running certain utilities or processing certain commands.

The utility pane also displays the following system information:

- **Disruptive Mode Status** - Enabled or Disabled
- **Date of Last Modification** - The date when the current disruptive mode state was selected.

## Error Codes (IV)

The **Error Codes (IV)** utility displays all the currently available application error codes that could appear in the system error logs. The listing is instantly displayed when this utility is selected and includes the following error code types:

- **AEManage**
- **Archiver**
- **CMPI**
- **DAL**
- **DFC**
- **DICOM Server**
- **DICOM Wrap**
- **DIL**
- **DSL**
- **DSMINT**
- **ES7Upgrade**
- **eVM**
- **FileNameGen**
- **GUI\_CNFG**
- **GUI\_HELP**
- **GUI\_INFO**
- **GUI\_ROUTING**
- **GUI\_SPLIT\_MERGE**
- **IVConfig**
- **IVFS**
- **IVICON**
- **IVLOG**
- **IVUtility**
- **LTI**
- **MAIN**
- **Monitor**
- **NAS\_FS**
- **Prefetch**
- **RawDataInt**
- **Restore**
- **Router**
- **RRE**
- **SCL**
- **StateMgr**
- **UPD**
- **WebAccess**

## Expected System Services

The **Expected System Services** utility displays all services currently installed on the system. In addition, the following information is displayed:

- **Display Name** - the name of the service that is displayed on the Services screen
- **Service Name** - the executable name for the service
- **Status** - the current status of the service, either **Running** or **Stopped**.

While a service may be installed and is a valid service on the system, it may be set to a stopped status by the Image Vault application. See the list below for a list of all services that should be running on a fully functioning Image Vault system.

- **Expected Status** - If a service is expected to be on the system, whether it is running or not, it appears in the list. If the status is not in the expected state, meaning if it is expected to be running, but it is stopped (or vice versa), the service is highlighted in **orange**. **This service should be investigated as to how it came to be in an unexpected status.**
- However, if a service is not expected, but is installed on the system, the service is highlighted in **yellow**. The column will display **Unexpected Service**. **This service should be investigated to determine their source and how they came to be installed on this system.**

Click **Refresh** to display the most current status of the system services.

## IVInteg Utility

The IVInteg utility checks the contents of the database and checks the filesystem to confirm matching with the database tables to locate any existing data integrity issues in the database.

The analysis report created during this procedure, if issues are found, should be forwarded to the Image Vault engineering team for resolution.

On the **IVInteg Utility** page:

- The top half of the screen displays the current status of the utility (running, not running) and provides the ability to start the utility. Click **Start** in the **Control** section to run the "short log" version of the utility. The short log version only collects the issues statistics, without acquiring detailed information about the affected exams. If you want to run a full log version or want to evaluate the log more thoroughly, please refer to Image **Vault 4.2 Database Protection Mechanism Tools Manual** (5184652-100) - available on the **Image Vault 4.2 Standard Documentation CD**.
- The lower half of the screen displays the output log from the utility processing. Note that you can either select **Refresh** to get a more current snapshot as the utility runs, or select the **Auto Update** checkbox to have the system periodically refresh the log screen. Also note that only the first 10,000 lines of the log are shown in this window. If you need to see the entire log, follow the on-screen link to locate and open the full log file.



Check the summary statistics at the bottom of the log to determine if there are currently outstanding issues in the database and/or filesystem. If yes, contact the Image Vault engineering team. Be prepared to supply the output log from this utility.

## NAS Logs

The **NAS Logs** utility allows you to display the error logs from the Plasmon UDO archive appliance. You can also save and print these logs.

1. Click the **Refresh** button to retrieve the latest version of the logs from the appliance.
2. Enter the following:
  - ◆ **IP Address** - Enter the IP address for the Plasmon UDO archive appliance
  - ◆ **Port** - Enter port number associated with the Plasmon UDO archive appliance
3. Click **Fetch Logs**. When the logs display, you can save the file on the server or send the file to print.

## Offline Sync

The **Offline Synchronization** utility is used to regenerate Archiver tasks to move files to an Archived state.

The utility searches the database for files that are **not** in **Offline**, **Nearline**, or **Archived** state. If files are found, the task table is searched to determine if there is an outstanding task to move this file. If not, a task is generated to move the file to the Archived state.

While this utility can be run on an ad hoc basis, it is also a scheduled task that runs nightly. Since this utility is processor intensive, you may want to consider the next scheduled time for this utility before starting the utility from this interface.

### CAUTION

Note that this utility is processor intensive and can take several hours to complete on a large database. Only run this utility during off-peak hours to minimize the impact on the users.

- To run the utility, click the **Start** button. You can then exit the utility screen, as this does not stop the utility itself from running. When you re-enter the utility screen, the status field will display whether the utility is still running or not.
- As the utility locates files that must be moved, and then creates the Archiver tasks, log entries of this activity are displayed in the lower pane. To refresh this log entry list, either click the **Refresh** button periodically or select the **Auto Update** checkbox to have the system refresh the system at certain intervals.

## Resource File Utility

The **Resource File** utility allows you to display the target and test root of the resource files used in the Image Vault application.

Note that the target root file for each resource file is the target directory on the C drive, or the system default version. The following resource files are available:

- [globalconfig.res](#)
- [Phoenix.res](#)
- [Tasks.res](#)
- [icon.res](#)
- [logging.res](#)
- [dalldatabase.res](#)

The test root file is then the delta, or changes, to the target root file implemented by the user.

- To display either the target or test root files, click the appropriate link next to the desired resource file name. Note that this only allows you to display the file, not make changes or save the file.
- To make changes or save the target or test root files, click the **Save** link next to the desired resource file name. Select one of the following options:
  - ◆ **Open it with a default application** - selecting this option opens the resource file in Notepad.
  - ◆ **Open it with...** - Click Choose and select an alternate text file option.
  - ◆ **Save it to disk** - selecting this option allows you to save the resource file to a location on the server.
- Click **OK**.

## Service Manager

The **Service Manager** utility allows you to display, in a snapshot form, the status of the current Image Vault services. This does **NOT** include the Windows 2003 utilities.

- If the services are stopped, check the system logs to determine if the service stopped normally or abnormally.
  - ◆ If the service stopped abnormally, attempt to restart the service and restore the functionality.
  - ◆ If the service stopped normally, it was likely stopped by a user for a specific reason - attempt to determine this user and the reason before restarting the service.
- If the services are shown as Unknown, determine if the associated functionality was installed or licensed.

Each service is listed, as well as its current status, such as **Running**, **Stopped** or **Unknown**.

- If a service is shown as **Running**, you have the ability to stop the service by clicking the **Stop** button.
- If a service is shown as **Stopped**, you have the ability to start the service by clicking the **Start** button.
- If a service is shown as **Unknown**, the service should be investigated as to why it is appearing on this system.

If you attempt to change the status of a service by clicking the **Start/Stop** button, click the **Refresh** button to re-display the services and verify that the status is changed.

## Set Debug Utility

The **Set Debug** utility does not have a valid Image Vault debugging use.

## SQL Query Interface

The **SQL Query Interface** allows you to enter an SQL command without using the SQL application. However, you can only select database tables with this interface. If you need to delete or update database tables, you will need to use the actual SQL application.

1. Enter the desired SQL command in the text box.
2. Click **Execute** to process the command.

## Task View

The **Task View** utility allows you to display all the pending tasks in the system, as well as filter the tasks by service and task type.

Check that there is an acceptable number of pending tasks, for the Archiver, Router and Web services. In addition, check that there is an acceptable number of pending actions, based on the related tasks (there should be a smaller percentage of actions in comparison to the tasks).

An acceptable number of tasks is dependent on workflow and the determination is based on site-specific information and common sense. For example, the following factors should be considered when determining if a task level seems appropriate:

- Number of images being sent in a day
- Has the offline sync utility run and found files to synchronize?
- Compression schedule - is the system waiting for compression to complete before other tasks can complete?
- Retry levels? Determine why retries are failing? Are the retries succeeding upon retry? Are the retry dates current? or from previous dates?

The following information is displayed for each task:

- **Created Time**
- **Created By** - the service that created the task
- **Task Type**
- **Next Retry Time**

To filter by service, use the *Service* pull-down list to select either **All**, **Archiver**, **Router**, **Web** or **Store Commit**. Only the applicable tasks are then displayed.

To filter by type, select the **Task Type** pull-down list and select one of the following types. Only the applicable task types for the selected service then appear.

- 1 - Route Image
- 2 - Add Image
- 3 - Webify Image
- 4 - Delete Image (also task type 5 and 6)
- 7 - Route Report
- 8 - Add Report
- 9 - Webify Report
- 10 - Delete Report (also task type 11 and 12)
- 13 - Add Patient (also task type 14)
- 15 - Update Patient (also task type 16)
- 17 - Delete Patient (also task type 18)
- 19 - Delete Exam (also task type 20)
- 21 - Delete Study (also task type 22)
- 23 - Update Series (also task type 24)
- 25 - Update Study (also task type 26)
- 27 - Update Image
- 28 - Update Report
- 29 - Fetch Patient
- 30 - Convert Raw Data
- 31 - Route Excel
- 32 - Store Commit DICOM Server
- 33 - Store Commit Archiver
- 34 - Image Move to MOD Archiver
- 35 - Report Move to MOD Archiver
- 36 - Image Fetch Archiver
- 37 - Report Fetch Archiver
- 38 - Cancel Fetch Archiver
- 39 - Notify Integrity Violation
- 40 - HIS Export

## Virtual Console Observation

The **Virtual Console Observation** option allows the Online Center to set the server in a state so that remote connectivity can be established.

Click **Start** to place the system in a ready state. Click **Stop** when the system no longer needs to be accessed remotely.

### **WARNING**

If the Virtual Console Observation is disabled and then re-enabled through the Common Service Desktop, and the customer is enabled for remote access, a procedure needs to be run again to re-set the registry key. This procedure is documented in the Image Vault 4.2 Installation Guide.

## iLinq Configuration Utility

The **iLinq Configuration** utility allows you to configure the system to allow modem dial out capability.

If the system is not on a network, and needs a modem to dial out, select the checkbox on this utility screen.

## Switch Modem to OnNetwork

The **Switch Modem to OnNetwork** option allows the system to be connected through a modem. The option is only available if a modem is connected to the system.

## DICOM Verify

The **DICOM Verify** utility allows you perform a DICOM ping on any DICOM device in the network connected to the Image Vault server. This test performs a TCP/IP address ping, as well as confirming that the DICOM application is active on the device.

1. Enter the **AE title** or the **IP address** of the device to be pinged.
2. Click the **Verify** button.

If the verify results are negative, first determine if the device being pinged is actually a DICOM device.

If yes, then perform a standard network ping on the device (outside of the Service Tools interface). If the network ping shows that the TCP/IP address is available, the DICOM Verify probably failed because the DICOM application is inactive.

**For your notes**

# 5 Configuration Tab

**For your notes**



## Software Options Interface

The **Software Options Interface** allows you to add or delete software options, as well as display details about the currently installed options.

1. Select the appropriate option from the **Available Keys** list.
2. To add an option, click **Add**. To delete an option, click **Delete**.
3. Click **Refresh**. Confirm that the option either then appears (if added) or does not appear (if deleted) in the list in the lower pane.

**For your notes**

# 6 Error Logs

**For your notes**

## Display Application and Service Logs

The **Log Viewer** option allows you to display any current application and service logs.

1. Select the **Log Viewer** option.
2. When the pop-up window appears, select **Logs > Application & Services**.

The log information then appears in the lower part of the pane.

When the log information appears, you can generate a graphical display - allowing you to more easily see the most-generated message types/sources.

- ◆ Click **Plot Log** to generate a bar chart of all message types currently in the log.
- ◆ Click **Plot Page** to generate a bar chart of all message types currently displayed on the page.

You can also search for specific information in the log, allowing you to isolate the exact message needed.

- ◆ Click **Search** to perform a text search. On the *Search* screen, enter the word or phrase needed in the **Enter Search String** field and click **Go**.

## Display DICOM Logs

The **Log Viewer** option allows you to display any current DICOM logs.

1. Select the **Log Viewer** option.
2. When the pop-up window appears, select **Logs > DICOM**.

The log information then appears in the lower part of the pane.

When the log information appears, you can generate a graphical display - allowing you to more easily see the most-generated message types/sources.

- ◆ Click **Plot Log** to generate a bar chart of all message types currently in the log.
- ◆ Click **Plot Page** to generate a bar chart of all message types currently displayed on the page.

You can also search for specific information in the log, allowing you to isolate the exact message needed.

- ◆ Click **Search** to perform a text search. On the *Search* screen, enter the word or phrase needed in the **Enter Search String** field and click **Go**.

## Display Image Vault Error Codes

The Error Codes (IV) option allows you to view all available Image Vault error codes that could appear in the system error logs, listed by type, then number, followed by a description.

Select the **Error Codes (IV)** option.

The listing is instantly displayed when this option is selected and includes the following error code types:

- **AEManage**
- **Archiver**
- **CMPI**
- **DAL**
- **DFC**
- **DICOM Server**
- **DICOM Wrap**
- **DIL**
- **DSL**
- **DSMINT**
- **ES7Upgrade**
- **eVM**
- **FileNameGen**
- **GUI\_CNFG**
- **GUI\_HELP**
- **GUI\_INFO**
- **GUI\_ROUTING**
- **GUI\_SPLIT\_MERGE**
- **IVConfig**
- **IVFS**
- **IVICON**
- **IVLOG**
- **IVUtility**
- **LTI**
- **MAIN**
- **Monitor**
- **NAS\_FS**
- **Prefetch**
- **RawDataInt**
- **Restore**
- **Router**
- **RRE**
- **SCL**
- **StateMgr**
- **UPD**
- **WebAccess**

## Windows Event Viewer

The Windows Event Viewer option allows you to view Windows NT events, filtered by message type if desired.

Select the **Windows Event Viewer** option.

When the logging information appears, you can filter the display as follows:

- In the **Log** pull-down list, select **Application**, **Security** or **System** to only display those message types.
- In the **Type** pull-down list, select **All**, **Information**, **Warning**, **Error**, **Audit Success**, or **Audit Failure** to only display those message types.
- In the **Last** field, enter the number of messages that should be displayed.

When the desired message types are displayed, you can click **Details** on any message line to obtain additional information about that message.

- Click the **Refresh** button to display the latest messages.

**For your notes**







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