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Periodic Review

There are no signatures or routes related to this business object.

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AW VolumeShare 7

Improved department productivity.
Increased diagnostic confidence.
Reduced operating costs.
And that's just the beginning...

Today's diagnostic imaging technology provides an amazing breadth of information in a wide variety of ways. However, analyzing it, compiling what's relevant, and reporting your findings can put a serious crimp in your workflow, causing your operating costs to soar, and possibly even affecting your diagnostic confidence. AW VolumeShare 7 offers an elegant solution to your workflow challenges.

Overview

AW VolumeShare 7 is a multi-modality image review, comparison, and processing workstation with simplicity and power at its core. This workstation features 64-bit technology that allows processing of today's increased slice count studies. With significant improvements in workflow processes and clinical features that may help increase your productivity, AW VolumeShare 7 can elevate your practice to a whole new level.

Highlights

- Contemporary, simplified 2D Viewer user interface is harmonized with new Volume Viewer application. new hardware and operating system with expanded memory.
- Supports new applications in CT, MR and Vascular specialties.
- The Postfetch tool retrieves historical exams for comparison.
- Preference Sharing enables exchange of settings and protocols among users.
- The Key Images feature allows you to flag images and create key objects.
- Usage monitoring dashboard tracks and displays exportable analytics per application.
- Supports Chinese, Japanese, Korean and Russian languages for certain applications
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Features

- Simple drag and drop action for networking, media interchange, and filming.
- Multi-tasking capabilities.
- Active directory integration allows enterprise level user authentication. Directories supported include Microsoft® Active Directory® (MSAD) and other LDAP authentication services
- Patient list to manage images from local workstation or remote systems.
- Postfetch feature, designed to optimize your reading workflow by automatically gathering a patient's prior exams according to your pre-set criteria.
- Connectivity with RIS
- Support for Key Images.
- End Review automates routine filming and networking tasks with just one click.
- Search Advantage for fast and easy search of a patient's exam history on PACS or any other DICOM®-compliant device.
- Enhanced Quick Filters of the Patient List filters studies by Modality, Date, End Review status or Exam Description.
- DICOM CD/DVD/USB Creation Tool.
- High-performance database management system.
- 2D Viewer for image display, manipulation, annotation, review.
- Integrated Filmer with enhanced flexibility to perform all filming and data exporting tasks.
- Access to a wide variety of applications for greater diagnostic flexibility.

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AW VolumeShare 7 is a review workstation, which allows easy selection, review, processing and filming of multi-modality DICOM images from a variety of diagnostic imaging systems. When interpreted by a trained physician, filmed or displayed images on the AW monitor may be used as a basis for diagnosis, except in the case of mammography images.

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Rx Only

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This product or its features may not be available in all regions. Please contact your sales associate.



GE imagination at work

AW VolumeShare 7



The AW VolumeShare 7 workstation gives you powerful capabilities aimed at increasing your diagnostic confidence, reducing your operating costs, and improving your departmental productivity.

Available Configurations:

VolumeShare is a multi-modality advanced visualization workflow solution that helps to enhance diagnostic confidence and productivity. The AW VolumeShare 7 workstation features software that is optimized for 64-bit technology and multicore processor hardware to provide leading edge performance. It includes AW's premier 3D image analysis package, Volume Viewer, with a suite of volumetric visualization and analysis tools for CT, MR, 3D X-ray and PET. In addition, this package includes the multi-modality 2D Viewer with dedicated functions for review of CT, MR, X-Ray, Angio, DX, U/S and PET images. It also includes the Filmer, a multimedia export tool for creating electronic films, filming and exporting to an internal web server, CD, or DVD.

AW VolumeShare 7 is also available for purchase without Volume Viewer for users who require only 2D image applications. Volume Viewer dependent features will not be supported on this configuration.

Modalities

Supported DICOM modalities include:

- Computed tomography (CT),
- Magnetic resonance imaging (MR),
- Radiofluoroscopy (RF),
- Xray angiography (XA),
- Computed radiography (CR),
- Digital radiography (DX),
- Mammography (MG),
- Nuclear medicine (NM),
- Positron emission tomography (PET),
- Ultrasound (US)
- Structured Reporting (SR),
- Key Objects (KO)

Volume Viewer Application

- VolumeShare 7's 3D image analysis package with a broad range of multimodality image analysis tools including multiplanar reformat, curvilinear reformatting, volume rendering and lumen navigation.

- For detailed description of Volume Viewer features, please refer to the Volume Viewer Product Data Sheet.

License Management

- Application Usage Monitor tracks how often a particular license was used, when, and by whom. You can compile and view usage reports for a specific period of time. This helps you understand how your systems contribute to departmental productivity and to plan for future license requirements based on actual usage data.
- For floating licenses, a secondary license server can be assigned for redundancy. If the primary license server becomes unavailable, the secondary can be contacted so that work can continue.

User interface

- Displays on one or two 1280x1024 monitors with scroll or optical mouse.
- Simple drag-and-drop mechanism for networking, media interchange, filming and data export options.
- Automatic help message display briefly describes function currently under the mouse pointer.
- Shortcut keys and programmable window/level function keys for accelerated control.
- Multi-tasking capabilities that allow Patient List, 2D Viewer, Filmer and Volume Viewer to run simultaneously with Fast Switch capabilities between applications.

Security

- Full support of Enterprise Authentication with Microsoft® Active Directory® and Novell® eDirectory™. Users can access their AW Workstation with existing Single Sign On credentials. This may streamline HIPAA compliance.
- If Enterprise Authentication is not used, an administrator-defined UNIX login and password is required per workstation. A lock screen feature enables you to lock the workstation display when leaving it momentarily, preventing unauthorized access to patient data.
- Main actions performed on the AW (save, film, network, export) are flagged and saved to an audit trail which includes username, ID, exam ID, date, and time.
- Multiple users can have different local UNIX logins, use the same AW workstation, and yet keep their user preferences unique.

- AW VolumeShare 7 is secured by Product Network Filters (PNF), which keeps unauthorized users from accessing open ports over the network. You can configure this feature to provide only specific remote devices access to AW ports.
- While not recommended, AW VolumeShare 7 does support ClamAV® anti-virus protection. This program is not activated by default in order to guarantee optimal performance of the AW workstation. If needed, your GE Healthcare field engineer can activate the program. However, it is the customer's responsibility to provide a safe internet connection from the workstation and to keep virus definitions current.
- AW VolumeShare 7 provides de-identification and encryption capabilities to limit privacy risks to sensitive information. The patient data exported during clinical workflow may be encrypted in flight by using either the SFTP or DICOM TLS protocol depending on the required dataflow.

Workflow management

AW VolumeShare 7 provides features designed to optimize your reading workflow:

- The Patient List provides tools that enable, you to sort and filter imaging studies stored on the local workstation or on remote systems.
- Postfetch allows you to retrieve a patient's prior related DICOM exams from a remote DICOM host. Retrieval can be triggered by the arrival of a new patient study on the workstation from the network or supported media.
- Optional integration with RIS systems (Windows® OS only) through command line synchronization interface. This allows your RIS system to automatically select an exam on the AW by passing the patient ID, study UID, or accession number. Together with Softswitch, which allows remote RIS system control from the AW, this feature allows a RIS-driven workflow to be used on the workstation.
- Support for IHE Key Image Notes profile, allowing you to mark certain images in the 2D or 3D viewer as key images. Key images are displayed as a separate series in the exam list and accessed or sent to an IHE KIN-supporting PACS. Specific tags and Key Image Notes may be created using the 2D Viewer application.
- Support for external USB disks to serve as DICOM storage media. The USB disk can be accessed for reading and writing via the media button, the same way you would access a CD or DVD. The maximum number of images that can be stored on a USB device is restricted to 300,000 across all exams. USB media must be formatted using the

FAT32 file system. See the AW VolumeShare 7 Basic Display/Viewer/Filmer User Manual for more details on USB storage.

- Preference sharing among users. Sharable preferences include: Filmer layouts, Volume Viewer custom protocols, and viewer preferences. A standard USB flash drive may also be used to share preferences between workstations.
- One-Touch protocols enable you to define an application or preset protocol to launch automatically based on DICOM elements.
- DICOM Query/Retrieve Storage Class User (SCU) and Storage Class Provider (SCP) provide seamless network integration.
- DICOM Storage Commitment SCU lets you know when exams have been archived successfully on DICOM devices, such as PACS, that support Storage Commitment SCP.

End Review

End Review automates the routine tasks required at the end of reviewing each exam. The "End Review" flag in the patient list allows you to mark exams as "Done" after post-processing has been completed. End Review allows you to automatically perform one or several of these actions:

- Print pages prepared in the Filmer to the default printer (DICOM or Postscript filmers supported), with the option to automatically clear the Filmer after printing.
- Save electronic films in the workstation's attached DICOM database.
- Automatically push the entire exam or only the series created on the AW to one or more remote hosts.

Remote Network Host Management

- AW VolumeShare 7 Patient List provides a control panel to select a remote host or destination for network transfer. Icons signify different device types (acquisition, post processing, PACS, etc.) that are accessible to the workstation via the network.
- You can initiate a network transfer simply by dragging an exam, patient, series, or image(s) to the remote host icon. You can activate a remote browser to display detailed exam information from the remote host, including filtering information if supported.

Search Advantage

- This advanced search engine lets you search a patient's exam history on PACS or other DICOM device with a few mouse clicks. Workflow is improved if the remote device is Direct Connected to



the AW so you can launch applications without having to DICOM transfer the exam.

Worklists and Filters

- You can filter the patient list by modality, date, end review status, or exam description. Most filters are available on the remote host patient list as well.
- You can filter the patient list further by choosing one or any of these parameters:
 - Modality.
 - Patient name or patient ID.
 - Exam location (hospital name) and exam description.
 - Series description
 - Date and time of day: today, or specified date or date ranges with a specified time or time ranges.
 - Radiologist's or referring physician's name.
 - Accession number.
- Quick Sort (ascending or descending) and Quick Access (entry field) are available for any of the fields displayed at exam level (patient name, patient ID, exam location and description, radiologist's and referring physician's name, date and time).

Queues

- AW VolumeShare 7 manages three queues: network transfer; media interchange, filming. A menu on the patient list gives you easy access to queue status, and an animated icon gives you continuous network queue status information.

DICOM CD/DVD/USB creation tool

- The DICOM media creation tool offers you the flexibility to save and retrieve from supported CD, DVD, or USB storage devices.
- Add selected exam, series, or images by dragging and dropping to the pre-mastering window.
- CD and DVD usage percent is shown before you launch the writing process.
- You can optionally down sample certain 1024²x512² X-ray angiographic images during CD creation.
- CD/DVD composer lets you manage large amounts of data. If data size is larger than medium capacity, you are prompted to supply additional media storage space.
- You can specify the number of copies created during a CD/DVD save session.
- You can embed a DICOM viewer on DICOM CD/DVD so data can be reviewed on a PC running a Windows operating system.
- You get lossless JPEG reading of any DICOM CD/DVD media. Lossless writing is available for X-ray exams.
- CD/DVD drives operate at 16x write speeds and read speeds up to 48x depending on choice of media.
- For limitations on USB storage, refer to the AW VolumeShare 7 Basic Display/Viewer/Filmer User Manual.

Database management

- High-performance database management system classifies data according to patient folder description of the DICOM standard: Patient/Exam; Study/Series; Sequence/Images.
- Automatically deletes images on first-in first-out (FIFO) basis, which can be toggled on/off.
- Lock Exam feature protects specified exams from deletion.
- Permanent display of available disk space facilitates disk management.
- Study anonymization tool modifies DICOM elements to remove protected health information.

2D Viewer

The 2D Viewer is an application used to display, manipulate, annotate, and review 2D images by a trained physician for diagnostic interpretations. This tool has been designed to provide greater user efficiency, providing a set of intuitive, easy-to-use interface features.

Display customization

Display customization allows the user to manage layouts to display data. Key benefits include:

- Allows modification of number of exams or series displayed to facilitate either single or multi-exam reviews.
- Standard layouts give you flexibility to tailor the image display from 1x1 to 8x8. The current layout is retained if the images are from the same modality and orientation.
- Annotation levels allow selection of the image information fields to display.
- Toolbar customization puts you in control of which buttons are displayed to meet your needs.

Study Navigation

- The navigator lets you assign a series to a view on the fly.
- Cine mode also provides temporal, spatial, or manual playback loops.
- With two exams or series loaded, Cine mode supports a side-by-side display format with synchronized playback loops for more efficient comparisons.

Image Review

- The initial image window and level setting is based on the DICOM header. Once displayed, several methods of adjusting image window and level are provided.
- Provides routine image manipulation features:
 - Flip/Rotate, Zoom, Pan, Magnifying Glass

- Inverse Video: inverts grayscale color map.
- Display normal: lets you return the image to its default viewing parameters.

You can access the following features using a single mouse click directly on the image. Having these direct manipulation tools easily at hand gives you fast access with less distraction from your review task by eliminating the need to return to the graphical user interface controls: 2D distance, Angle, Report cursor, Box ROI, elliptical ROI and free-hand ROI

The program continuously updates statistics on the fly.

- The Annotation feature lets you highlight areas of interest by adding text and line/arrow pointers to any image feature.
- The Copy/Paste/Erase feature lets you copy/paste/remove any text or graphic placed on an image.
- Cross-reference indicates the position of the current slice over the scout or localizer or any other non-parallel series.
- Save lets you store a copy of the image as it appears on the screen for future review.
- The Key Images feature allows you to flag images and create key objects.

Batch Filming

The Print Series feature lets you automatically batch film an entire series with a single keystroke.

Advanced X-ray Analysis

- You can apply shutters to X-ray images to focus on specific areas within the image. Shutters are black, opaque overlays with elliptical or rectangular cutouts that you can size as desired. Once a shutter is applied, you can move the underlying image to shift the viewable area. Shutters can also be applied to CT and MR images with the Image Matte feature.
- You can apply several levels of edge enhancement filters to an image.
- **Image Subtraction:** A graphical user interface lets you select a mask and subtraction of all images in an associated sequence. Subtracted images may be saved as a sequence with one mouse click.
- **Landscape:** With this tool, you can introduce a percentage of the mask image into the subtracted image for anatomical reference. A graphical user interface lets you specify the percentage of mask to be reintroduced.
- **Pixel Shift:** Auto pixel shift optimizes a mask to image registration. You can also move a mask manually to optimize subtraction quality in a specific region of interest.
- **Split Pixel Shift:** You can split the screen horizontally or vertically for pixel shift.
- **Maximum/Minimum Opacifications:** You can integrate selected images to provide a resulting Max.

Op./Min. Op. image.

Filmer

The integrated Filmer enhances the efficiency of the review station and gives you greater filming and exporting flexibility.

This feature supports two modes: the Mini Filmer mode and Full-Screen mode, which provides the ability for full customization and film layout template creation.

Three key mechanisms give you exceptional flexibility:

1. Free Format Filming
2. DICOM Structured Reporting (SR)
3. Data Export (HTML/PDF and JPEG/PNG/MPEG/AVI/QTVR)

With the Filmer you can easily extract significant images from any AW application (2D Viewer, Volume Viewer, READY View, etc.).

- You can film images individually by dragging and dropping to the on-screen Filmer, or by using the F1 keystroke.
- Multiple Image formatting lets you film multiple images in a single page frame with the F2 keystroke.
- With Film MID you can send multiple images to a single filmer frame with the F3 keystroke.
- Batch Filming is supported from applications that provide that capability (Print Series in the Viewer, Batch Film Protocols in Volume Viewer).

Communication between applications and the Filmer is accomplished in the mini Filmer mode, which provides a minimized footprint. The mini Filmer mode provides the following:

- Compatibility with Batch Filming from Volume Viewer (may be optional in your configuration)
- Store and position images transferred from an application.
- Type of export (film, media, database).
- Rapid switching between Full-Screen Filmer and application.

The resultant electronic films become a quick summary of the patient study and radiological interpretation to be reviewed by clinicians and physicians. They can also be saved as independent files (DICOM SR and Secondary Captures) for teaching purposes.

The Filmer works on the WYSIWYG (What You See Is What You Get) approach, and the electronic film can contain one or several pages with specific layouts for each page or all pages.

A flexible Edit Mode provides the ability to easily add, manipulate, format, or delete images from the film. Images can contain text and graphics from measurements and your annotations, and may be window/leveled, magnified, flipped, rotated, or cine.



You can add additional annotation to the image in edit mode.

The Preview Mode displays the film as it will be printed or exported, taking into account the layout applied to each page and the compression level specified for non-DICOM exporting (JPEG/PNG and MPEG/AVI/QTVR).

Printing

AW VolumeShare 7 includes Network DICOM Print (B&W and color). For supported printers, AW VolumeShare 7 includes Network PostScript capability (B&W and color). For PostScript and DICOM printers, any printing format created in the Filmer is supported (e.g. non-square matrix formats for rectangular images such as CT run-offs).

- AW VolumeShare 7 postscript printing has been tested on the following devices: Codonics 1660M, 1660MD or Horizon, Lexmark Optra 1650N, 1855N, SC1275N, C710N, C720N, T612 or T614, Seiko 1720D, Kodak DMI3600, Quantum GL2101HD, declared with film/thick paper or with plain paper, Tally T8106, HP LaserJet and Xerox Phaser
- Digital cameras and analog cameras using a 3M-952 protocol (including DASM interface) are **not** supported on AW VolumeShare 7.

Exporting

Data export is integrated in the Filmer, thus providing all image processing tools needed for multimedia image export. The Filmer exports any electronic film to DICOM SR, PDF/HTML, JPEG, PNG, MPEG, AVI or QTVR format. AW VolumeShare 7 enhanced security of the export functionality with the use of SFTP connectivity. Non-DICOM data can also be saved on a multi-session CD/DVD. The Data Export capability is intended only for publishing and communication, not for diagnostic purposes. Its simplicity is reflected in the different export mechanisms available:

- CD/DVD removable media
- USB flash drive
- Network HTTP and FTP protocols

Cardiac Review and Export

Processing and review of CT, MR and PET cardiac exams with manual oblique reformatted protocols can be exported as a multi-phase Cine movie that allows referring physicians to review exams in a dynamic mode.

System Components

Workstation Configuration

- HP Z4 G4 Workstation
- HELiOS 6.10.2 operating system
- Intel® Xeon® W-2135 Six Core 3.7 GHz CPU with 8.25MB Shared Cache
- 2133 MHz Front Side Bus
- 32GB (2x16GB) DDR4 2666 MHz ECC Registered DIMM
- RAM upgradable to 64GB (8x8GB)
- NVIDIA Quadro NVS P620, 2GB Graphics card (optionally upgradable with certain applications)

- 1 x 256GB Solid State Drive for OS and Applications
- 2 x 512GB Solid State Drive in RAID-0 for image cache.
- Cache, which is subject to overhead can store approximately:
 - 8,300,000 256² uncompressed images OR
 - 1,900,000 512² uncompressed images OR
 - 475,000 1024² uncompressed images OR
 - 100,000 2048 x 2560 uncompressed images
- Internal DVD Writer drive for read/write of DICOM CD/DVD media, read/write of Data Export CD/DVD data and service use (DVD Install)
- Integrated dual Ethernet 10/100/1000 Mbit/s ports.
- 1 USB QWERTY (or regional) Keyboard and Mouse
- Optional serial port kit for Interventional applications

Footprint

- Height 38.60 cm (15.2 in.)
- Width 16.89 cm (6.65 in.)
- Depth 44.47 cm (17.5 in.)
- Approximate Weight 18 kg (40 lbs)

Operating Environment

- Temperature: +5°C to +35°C
- Humidity: 10% to 85% (relative non-condensing)
- Altitude: 0 to 5000m (16,404 ft.)
- Acoustics: LWAd less than 4.3 Bels
- Shock: 40 G peak, half-sine, 2-3 ms

Non-Operating Environment

- Temperature: -40°C to +60°C
- Humidity: 10% to 90% (relative, non-condensing)
- Altitude: 0 to 9100m (40,000 ft.)

Monitors

- (2) 19" color Flat Panel LCD monitors
- DICOM Part 14 factory calibrated
- Native resolution 1280 x 1024 (5:4 aspect ratio)
- Approximate Weight: 7.2 Kg (15.87 lbs)
- AC 100 - 120 V, 200 - 240 V : 50 / 60 Hz

Image Networking

- Standard 10/100/1000 Base-T Ethernet for DICOM
- 1000 Base-T dedicated network for optimal Direct Connect performance
- Protocols supported:
 - DICOM 3.0 Storage SCU/SCP and Query/Retrieve SCU/SCP
 - InSite
 - TCP/IP network layer
- SdCNet is no longer supported
- AW VolumeShare 7 does not support the AdvantageNET network protocol.
- AW VolumeShare 7 does not support DICOM images from GE Healthcare Signa™ version 5.x 1.5T MR systems
- AW VolumeShare 7 software is supported on the previous generation AW VolumeShare 5 HP Z800 and Z820 workstations.

About GE Healthcare

GE Healthcare provides transformational medical technologies and services that are shaping a new age of patient care. Our broad expertise in medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery, biopharmaceutical manufacturing technologies, performance improvement and performance solutions services help our customers to deliver better care to more people around the world at a lower cost. In addition, we partner with healthcare leaders, striving to leverage the global policy change necessary to implement a successful shift to sustainable healthcare systems. Our "healthymagination" vision for the future invites the world to join us on our journey as we continuously develop innovations focused on reducing costs, increasing access and improving quality around the world. Headquartered in the United Kingdom, GE Healthcare is a unit of General Electric Company (NYSE: GE). Worldwide, GE Healthcare employees are committed to serving healthcare professionals and their patients in more than 100 countries. For more information about GE Healthcare, visit our website at www.gehealthcare.com.

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Rx Only

This product complies with European Council Directive 93/42/EEC Medical Device Directive as amended by European Council Directive 2007/47/EC.

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AW VolumeShare 7



The AW VolumeShare 7 workstation gives you powerful capabilities aimed at increasing your diagnostic confidence, reducing your operating costs, and improving your departmental productivity.

Available Configurations:

VolumeShare is a multi-modality advanced visualization workflow solution that helps to enhance diagnostic confidence and productivity. The AW VolumeShare 7 workstation features software that is optimized for 64-bit technology and multicore processor hardware to provide leading edge performance. It includes AW's premier 3D image analysis package, Volume Viewer, with a suite of volumetric visualization and analysis tools for CT, MR, 3D X-ray and PET. In addition, this package includes the multi-modality 2D Viewer with dedicated functions for review of CT, MR, X-Ray, Angio, DX, U/S and PET images. It also includes the Filmer, a multimedia export tool for creating electronic films, filming and exporting to an internal web server, CD, or DVD.

AW VolumeShare 7 is also available for purchase without Volume Viewer for users who require only 2D image applications. Volume Viewer dependent features will not be supported on this configuration.

Modalities

Supported DICOM modalities include:

- Computed tomography (CT),
- Magnetic resonance imaging (MR),
- Radiofluoroscopy (RF),
- Xray angiography (XA),
- Computed radiography (CR),
- Digital radiography (DX),
- Mammography (MG),
- Nuclear medicine (NM),
- Positron emission tomography (PET),
- Ultrasound (US)
- Structured Reporting (SR),
- Key Objects (KO)

Volume Viewer Application

- VolumeShare 7's 3D image analysis package with a broad range of multimodality image analysis tools including multiplanar reformat, curvilinear

reformatting, volume rendering and lumen navigation.

- For detailed description of Volume Viewer features, please refer to the Volume Viewer Product Data Sheet.

License Management

- Application Usage Monitor tracks how often a particular license was used, when, and by whom. You can compile and view usage reports for a specific period of time. This helps you understand how your systems contribute to departmental productivity and to plan for future license requirements based on actual usage data.
- For floating licenses, a secondary license server can be assigned for redundancy. If the primary license server becomes unavailable, the secondary can be contacted so that work can continue.

User interface

- Displays on one or two 1280x1024 monitors with scroll or optical mouse.
- Simple drag-and-drop mechanism for networking, media interchange, filming and data export options.
- Automatic help message display briefly describes function currently under the mouse pointer.
- Shortcut keys and programmable window/level function keys for accelerated control.
- Multi-tasking capabilities that allow Patient List, 2D Viewer, Filmer and Volume Viewer to run simultaneously with Fast Switch capabilities between applications.

Security

- Full support of Enterprise Authentication with Microsoft® Active Directory® and Novell® eDirectory™. Users can access their AW Workstation with existing Single Sign On credentials. This may streamline HIPAA compliance.
- If Enterprise Authentication is not used, an administrator-defined UNIX login and password is required per workstation. A lock screen feature enables you to lock the workstation display when leaving it momentarily, preventing unauthorized access to patient data.
- Main actions performed on the AW (save, film, network, export) are flagged and saved to an audit trail which includes username, ID, exam ID, date, and time.



- Multiple users can have different local UNIX logins, use the same AW workstation, and yet keep their user preferences unique.
- AW VolumeShare 7 is secured by Product Network Filters (PNF), which keeps unauthorized users from accessing open ports over the network. You can configure this feature to provide only specific remote devices access to AW ports.
- While not recommended, AW VolumeShare 7 does support ClamAV® anti-virus protection. This program is not activated by default in order to guarantee optimal performance of the AW workstation. If needed, your GE Healthcare field engineer can activate the program. However, it is the customer's responsibility to provide a safe internet connection from the workstation and to keep virus definitions current.
- AW VolumeShare 7 provides de-identification and encryption capabilities to limit privacy risks to sensitive information. The patient data exported during clinical workflow may be encrypted in flight by using either the SFTP or DICOM TLS protocol depending on the required dataflow.

Workflow management

AW VolumeShare 7 provides features designed to optimize your reading workflow:

- The Patient List provides tools that enable, you to sort and filter imaging studies stored on the local workstation or on remote systems.
- Postfetch allows you to retrieve a patient's prior related DICOM exams from a remote DICOM host. Retrieval can be triggered by the arrival of a new patient study on the workstation from the network or supported media.
- Optional integration with RIS systems (Windows® OS only) through command line synchronization interface. This allows your RIS system to automatically select an exam on the AW by passing the patient ID, study UID, or accession number. Together with Softswitch, which allows remote RIS system control from the AW, this feature allows a RIS-driven workflow to be used on the workstation.
- Support for IHE Key Image Notes profile, allowing you to mark certain images in the 2D or 3D viewer as key images. Key images are displayed as a separate series in the exam list and accessed or sent to an IHE KIN-supporting PACS. Specific tags and Key Image Notes may be created using the 2D Viewer application.
- Support for external USB disks to serve as DICOM storage media. The USB disk can be accessed for reading and writing via the media button, the same way you would access a CD or DVD. The maximum

number of images that can be stored on a USB device is restricted to 300,000 across all exams. USB media must be formatted using the FAT32 file system. See the AW VolumeShare 7 Basic Display/Viewer/Filmer User Manual for more details on USB storage.

- Preference sharing among users. Sharable preferences include: Filmer layouts, Volume Viewer custom protocols, and viewer preferences. A standard USB flash drive may also be used to share preferences between workstations.
- One-Touch protocols enable you to define an application or preset protocol to launch automatically based on DICOM elements.
- DICOM Query/Retrieve Storage Class User (SCU) and Storage Class Provider (SCP) provide seamless network integration.
- DICOM Storage Commitment SCU lets you know when exams have been archived successfully on DICOM devices, such as PACS, that support Storage Commitment SCP.

End Review

End Review automates the routine tasks required at the end of reviewing each exam. The "End Review" flag in the patient list allows you to mark exams as "Done" after post-processing has been completed. End Review allows you to automatically perform one or several of these actions:

- Print pages prepared in the Filmer to the default printer (DICOM or Postscript filmers supported), with the option to automatically clear the Filmer after printing.
- Save electronic films in the workstation's attached DICOM database.
- Automatically push the entire exam or only the series created on the AW to one or more remote hosts.

Remote Network Host Management

- AW VolumeShare 7 Patient List provides a control panel to select a remote host or destination for network transfer. Icons signify different device types (acquisition, post processing, PACS, etc.) that are accessible to the workstation via the network.
- You can initiate a network transfer simply by dragging an exam, patient, series, or image(s) to the remote host icon. You can activate a remote browser to display detailed exam information from the remote host, including filtering information if supported.

Search Advantage

- This advanced search engine lets you search a patient's exam history on PACS or other DICOM device with a few mouse clicks. Workflow is improved



if the remote device is Direct Connected to the AW so you can launch applications without having to DICOM transfer the exam.

Worklists and Filters

- You can filter the patient list by modality, date, end review status, or exam description. Most filters are available on the remote host patient list as well.
- You can filter the patient list further by choosing one or any of these parameters:
 - Modality.
 - Patient name or patient ID.
 - Exam location (hospital name) and exam description.
 - Series description
 - Date and time of day: today, or specified date or date ranges with a specified time or time ranges.
 - Radiologist's or referring physician's name.
 - Accession number.
- Quick Sort (ascending or descending) and Quick Access (entry field) are available for any of the fields displayed at exam level (patient name, patient ID, exam location and description, radiologist's and referring physician's name, date and time).

Queues

- AW VolumeShare 7 manages three queues: network transfer; media interchange, filming. A menu on the patient list gives you easy access to queue status, and an animated icon gives you continuous network queue status information.

DICOM CD/DVD/USB creation tool

- The DICOM media creation tool offers you the flexibility to save and retrieve from supported CD, DVD, or USB storage devices.
- Add selected exam, series, or images by dragging and dropping to the pre-mastering window.
- CD and DVD usage percent is shown before you launch the writing process.
- You can optionally down sample certain 1024²x512² X-ray angiographic images during CD creation.
- CD/DVD composer lets you manage large amounts of data. If data size is larger than medium capacity, you are prompted to supply additional media storage space.
- You can specify the number of copies created during a CD/DVD save session.
- You can embed a DICOM viewer on DICOM CD/DVD so data can be reviewed on a PC running a Windows operating system.
- You get lossless JPEG reading of any DICOM CD/DVD media. Lossless writing is available for X-ray exams.
- CD/DVD drives operate at 16x write speeds and read speeds up to 48x depending on choice of media.

- For limitations on USB storage, refer to the AW VolumeShare 7 Basic Display/Viewer/Filmer User Manual.

Database management

- High-performance database management system classifies data according to patient folder description of the DICOM standard: Patient/Exam; Study/Series; Sequence/Images.
- Automatically deletes images on first-in first-out (FIFO) basis, which can be toggled on/off.
- Lock Exam feature protects specified exams from deletion.
- Permanent display of available disk space facilitates disk management.
- Study anonymization tool modifies DICOM elements to remove protected health information.

2D Viewer

The 2D Viewer is an application used to display, manipulate, annotate, and review 2D images by a trained physician for diagnostic interpretations. This tool has been designed to provide greater user efficiency, providing a set of intuitive, easy-to-use interface features.

Display customization

Display customization allows the user to manage layouts to display data. Key benefits include:

- Allows modification of number of exams or series displayed to facilitate either single or multi-exam reviews.
- Standard layouts give you flexibility to tailor the image display from 1x1 to 8x8. The current layout is retained if the images are from the same modality and orientation.
- Annotation levels allow selection of the image information fields to display.
- Toolbar customization puts you in control of which buttons are displayed to meet your needs.

Study Navigation

- The navigator lets you assign a series to a view on the fly.
- Cine mode also provides temporal, spatial, or manual playback loops.
- With two exams or series loaded, Cine mode supports a side-by-side display format with synchronized playback loops for more efficient comparisons.

Image Review

- The initial image window and level setting is based on the DICOM header. Once displayed, several

methods of adjusting image window and level are provided.

- Provides routine image manipulation features:
 - Flip/Rotate, Zoom, Pan, Magnifying Glass
 - Inverse Video: inverts grayscale color map.
 - Display normal: lets you return the image to its default viewing parameters.

You can access the following features using a single mouse click directly on the image. Having these direct manipulation tools easily at hand gives you fast access with less distraction from your review task by eliminating the need to return to the graphical user interface controls: 2D distance, Angle, Report cursor, Box ROI, elliptical ROI and free-hand ROI

The program continuously updates statistics on the fly.

- The Annotation feature lets you highlight areas of interest by adding text and line/arrow pointers to any image feature.
- The Copy/Paste/Erase feature lets you copy/paste/remove any text or graphic placed on an image.
- Cross-reference indicates the position of the current slice over the scout or localizer or any other non-parallel series.
- Save lets you store a copy of the image as it appears on the screen for future review.
- The Key Images feature allows you to flag images and create key objects.

Batch Filming

The Print Series feature lets you automatically batch film an entire series with a single keystroke.

Advanced X-ray Analysis

- You can apply shutters to X-ray images to focus on specific areas within the image. Shutters are black, opaque overlays with elliptical or rectangular cutouts that you can size as desired. Once a shutter is applied, you can move the underlying image to shift the viewable area. Shutters can also be applied to CT and MR images with the Image Matte feature.
- You can apply several levels of edge enhancement filters to an image.
- **Image Subtraction:** A graphical user interface lets you select a mask and subtraction of all images in an associated sequence. Subtracted images may be saved as a sequence with one mouse click.
- **Landscape:** With this tool, you can introduce a percentage of the mask image into the subtracted image for anatomical reference. A graphical user interface lets you specify the percentage of mask to be reintroduced.
- **Pixel Shift:** Auto pixel shift optimizes a mask to image registration. You can also move a mask manually to optimize subtraction quality in a specific region of interest.

- **Split Pixel Shift:** You can split the screen horizontally or vertically for pixel shift.
- **Maximum/Minimum Opacifications:** You can integrate selected images to provide a resulting Max. Op./Min. Op. image.

Filmer

The integrated Filmer enhances the efficiency of the review station and gives you greater filming and exporting flexibility.

This feature supports two modes: the Mini Filmer mode and Full-Screen mode, which provides the ability for full customization and film layout template creation.

Three key mechanisms give you exceptional flexibility:

1. Free Format Filming
2. DICOM Structured Reporting (SR)
3. Data Export (HTML/PDF and JPEG/PNG/MPEG/AVI/QTVR)

With the Filmer you can easily extract significant images from any AW application (2D Viewer, Volume Viewer, READY View, etc.).

- You can film images individually by dragging and dropping to the on-screen Filmer, or by using the F1 keystroke.
- Multiple Image formatting lets you film multiple images in a single page frame with the F2 keystroke.
- With Film MID you can send multiple images to a single filmer frame with the F3 keystroke.
- Batch Filming is supported from applications that provide that capability (Print Series in the Viewer, Batch Film Protocols in Volume Viewer).

Communication between applications and the Filmer is accomplished in the mini Filmer mode, which provides a minimized footprint. The mini Filmer mode provides the following:

- Compatibility with Batch Filming from Volume Viewer (may be optional in your configuration)
- Store and position images transferred from an application.
- Type of export (film, media, database).
- Rapid switching between Full-Screen Filmer and application.

The resultant electronic films become a quick summary of the patient study and radiological interpretation to be reviewed by clinicians and physicians. They can also be saved as independent files (DICOM SR and Secondary Captures) for teaching purposes.

The Filmer works on the WYSIWYG (What You See Is What You Get) approach, and the electronic film can contain one or several pages with specific layouts for each page or all pages.

A flexible Edit Mode provides the ability to easily add, manipulate, format, or delete images from the film. Images can contain text and graphics from measurements and your annotations, and may be window/leveled, magnified, flipped, rotated, or cine. You can add additional annotation to the image in edit mode.

The Preview Mode displays the film as it will be printed or exported, taking into account the layout applied to each page and the compression level specified for non-DICOM exporting (JPEG/PNG and MPEG/AVI/QTVR).

Printing

AW VolumeShare 7 includes Network DICOM Print (B&W and color). For supported printers, AW VolumeShare 7 includes Network PostScript capability (B&W and color). For PostScript and DICOM printers, any printing format created in the Filmer is supported (e.g. non-square matrix formats for rectangular images such as CT run-offs).

- AW VolumeShare 7 postscript printing has been tested on the following devices: Codonics 1660M, 1660MD or Horizon, Lexmark Optra 1650N, 1855N, SC1275N, C710N, C720N, T612 or T614, Seiko 1720D, Kodak DMI3600, Quantum GL2101HD, declared with film/thick paper or with plain paper, Tally T8106, HP LaserJet and Xerox Phaser
- Digital cameras and analog cameras using a 3M-952 protocol (including DASM interface) are **not** supported on AW VolumeShare 7.

Exporting

Data export is integrated in the Filmer, thus providing all image processing tools needed for multimedia image export. The Filmer exports any electronic film to DICOM SR, PDF/HTML, JPEG, PNG, MPEG, AVI or QTVR format. AW VolumeShare 7 enhanced security of the export functionality with the use of SFTP connectivity. Non-DICOM data can also be saved on a multi-session CD/DVD. The Data Export capability is intended only for publishing and communication, not for diagnostic purposes. Its simplicity is reflected in the different export mechanisms available:

- CD/DVD removable media
- USB flash drive
- Network HTTP and FTP protocols

Cardiac Review and Export

Processing and review of CT, MR and PET cardiac exams with manual oblique reformatted protocols can be exported as a multi-phase Cine movie that allows referring physicians to review exams in a dynamic mode.

System Components

Workstation Configuration

- HP Z4 G4 Workstation
- HELiOS 6.10.2 operating system
- Intel® Xeon® W-2135 Six Core 3.7 GHz CPU with 8.25MB Shared Cache

- 2133 MHz Front Side Bus
- 32GB (2x16GB) DDR4 2666 MHz ECC Registered DIMM
- RAM upgradable to 64GB (8x8GB)
- NVIDIA Quadro NVS P620, 2GB Graphics card (optionally upgradable with certain applications)
- 1 x 256GB Solid State Drive for OS and Applications
- 2 x 512GB Solid State Drive in RAID-0 for image cache.
- Cache, which is subject to overhead can store approximately:
 - 8,300,000 256² uncompressed images OR
 - 1,900,000 512² uncompressed images OR
 - 475,000 1024² uncompressed images OR
 - 100,000 2048 x 2560 uncompressed images
- Internal DVD Writer drive for read/write of DICOM CD/DVD media, read/write of Data Export CD/DVD data and service use (DVD Install)
- Integrated dual Ethernet 10/100/1000 Mbit/s ports.
- 1 USB QWERTY (or regional) Keyboard and Mouse
- Optional serial port kit for Interventional applications

Footprint

- Height 38.60 cm (15.2 in.)
- Width 16.89 cm (6.65 in.)
- Depth 44.47 cm (17.5 in.)
- Approximate Weight 18 kg (40 lbs)

Operating Environment

- Temperature: +5°C to +35°C
- Humidity: 10% to 85% (relative non-condensing)
- Altitude: 0 to 5000m (16,404 ft.)
- Acoustics: LWAd less than 4.3 Bels
- Shock: 40 G peak, half-sine, 2-3 ms

Non-Operating Environment

- Temperature: -40°C to +60°C
- Humidity: 10% to 90% (relative, non-condensing)
- Altitude: 0 to 9100m (40,000 ft.)

Monitors

- (2) 19" color Flat Panel LCD monitors
- DICOM Part 14 factory calibrated
- Native resolution 1280 x 1024 (5:4 aspect ratio)
- Approximate Weight: 7.2 Kg (15.87 lbs)
- AC 100 - 120 V, 200 - 240 V : 50 / 60 Hz

Image Networking

- Standard 10/100/1000 Base-T Ethernet for DICOM
- 1000 Base-T dedicated network for optimal Direct Connect performance
- Protocols supported:
 - DICOM 3.0 Storage SCU/SCP and Query/Retrieve SCU/SCP
 - InSite
 - TCP/IP network layer
- SdCNet is no longer supported
- AW VolumeShare 7 does not support the AdvantageNET network protocol.

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GE Healthcare provides transformational medical technologies and services that are shaping a new age of patient care. Our broad expertise in medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery, biopharmaceutical manufacturing technologies, performance improvement and performance solutions services help our customers to deliver better care to more people around the world at a lower cost. In addition, we partner with healthcare leaders, striving to leverage the global policy change necessary to implement a successful shift to sustainable healthcare systems. Our “healthymagination” vision for the future invites the world to join us on our journey as we continuously develop innovations focused on reducing costs, increasing access and improving quality around the world. Headquartered in the United Kingdom, GE Healthcare is a unit of General Electric Company (NYSE: GE). Worldwide, GE Healthcare employees are committed to serving healthcare professionals and their patients in more than 100 countries. For more information about GE Healthcare, visit our website at www.gehealthcare.com.

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