Centricity™ Universal Viewer ZFP v6.0

Deeper Insights Faster

Introduction

Centricity Universal Viewer Zero Footprint (ZFP) puts clinical insights within reach to deliver patient results efficiently. It provides clinicians, radiologists and specialists enterprise-wide and community-wide access to images and reports from anywhere[1] on the user's device of choice[2]. Centricity Universal Viewer ZFP provides access directly or through connectivity with your institution's Electronic Medical Record (EMR), HIS, RIS or physician portal applications.

Centricity Universal Viewer ZFP is a validated for diagnostic use[3] and helps physicians view the clinical content available for a patient across the longitudinal care continuum. Both DICOM data and XDS (Cross–Enterprise Document Sharing) content can be viewed in a single solution.

Radiologists and clinicians benefit from:

- Access to patient imaging history and other clinical content on the users device of choice with broad web browser support

- User friendly multimodality viewing including Reformat[4] and 3D capabilities and viewing of reports and key images

- Ability to view other clinical content in multiple formats, these include and are not limited to audio, video and visible light

- A similar user experience for clinician and radiologists between Universal Viewer ZFP and Universal Viewer Web client

- Consolidated views of the patient's image data for comparison across multiple patient identifiers[5]

IT staff and leadership benefit from:

- Zero installation and no software download needed on the user's device, no administrative rights required to access the software, and no patient data left behind on the device—helping to decrease reliance on IT staff and to provide more efficient patient care.

- The ability to leverage a single viewing solution on your VNA—from single department DICOM to enterprise wide multi-ology systems with DICOM and XDS content

- Capabilities that enable secure access to images with your Electronic Medical Record, HIS and RIS as well as stand-alone access

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Overview

DICOM Viewing Capabilities
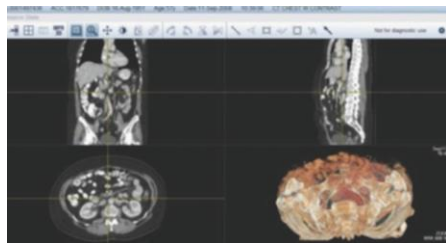
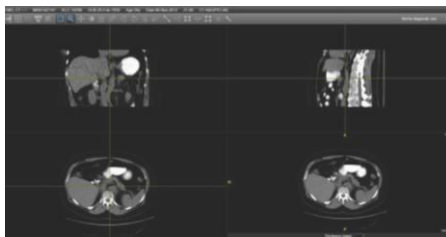2x2 MPR and volume rendered image

Image cross-reference capability

Centricity Universal Viewer ZFP offers radiologists and clinicians enterprise-wide and community-wide access to DICOM images and reports for review and interpretation[3]. They can choose from one of the pre-defined layouts, use advanced 3D reformatting tools such as MIP/MPR and volume rendering[4] and can display and automatically play up to 4-cine loops simultaneously with zoom and pan capabilities. Access to images is available through direct patient search or through the launch of ZFP from external applications such as the organization's Electronic Medical Record (EMR) or physician portal. When using the direct patient search, users can search for any exam by patient name, medical record number or accession number. Searches can be filtered by modality type and exam date.

Since images can be stored in a number of systems within your enterprise, Centricity Universal Viewer ZFP can access data in the Centricity PACS foundation and data created in other systems when stored in Centricity Clinical Archive.[6] It can access data from any DICOM compliant archive using the EA foundation for query retrieve and data moves. Multiple users can remotely access the images from any location. Additionally, a single Centricity Universal Viewer ZFP can display data across a Centricity PACS and vendor neutral archive at the same time.

Cross Enterprise Display
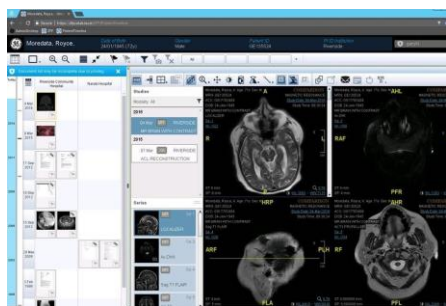
Centricity Universal Viewer ZFP provides the benefit of a consolidated view of the patient image data across multi-department DICOM archives irrespective of the patient identifier used on DICOM source systems. Cross Enterprise Display is available when ZFP is deployed with Centricity Clinical Archive solution as a multi-department DICOM archive (Level 2 deployment). In this environment, it acts as a Patient Identifier Cross-Reference consumer [as defined by the Integrated Health-care Enterprise (IHE) Patient Identifier Cross-Referencing (PIX) profile]. Centricity Universal Viewer ZFP retrieves all other patient ID's for each of the domains where patient information resides. This enables it to provide results and comparison studies for review even though the patient has data associated with different patient ID's.

EHR and Other Connectivity Support
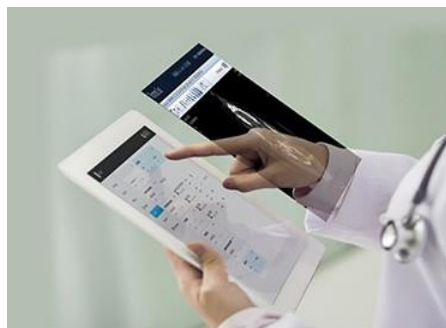
The XDS viewer supports multiple launch modes. In one mode, it is launched in context from within the primary review application (Electronic Medical Record or physician portal). This provides a unified view of patient clinical information to the care provider. Alternatively, users can launch the viewer as a standalone application to review patients' clinical information. This uses IHE PDQ profile (Patient Demographic Query) and requires the availability of a PDQ compliant system.

The XDS viewer can be configured to enable users to launch external applications based on the attributes in the XDS metadata. Different viewing applications can be associated with different XDS metadata combinations. See the Technical Information section for additional details.

Collaboration

Foster Informed Collaboration

ZFP not only promotes anywhere, anytime access[1] of patients' clinical information, it also provides connectivity through the enterprise EMR system, providing a combined view of DICOM and non-DICOM (pdf, videos, images) data to the physician. This access helps care providers make more informed decisions.

Users have two options for sharing studies with other care team members:

Share Study URL: This creates a URL that can be copied/pasted into an email and sent to another user who had access to the same ZFP Environment.

Share Case: Centricity 360, securely takes datasets from an on-prem deployment and uploads DICOM or Non-DICOM files to the cloud. Utilizing this option, users can create cases in the cloud which can then be shared. Users whom the case is shared will receive an email notification with a link to access the case and see the data- sets using ZFP's DICOM viewing capabilities. (Requires Centricity 360).

Centricity 360 (optional)

Utilizing Centricity Universal Viewer Zero Footprint with Centricity 360, organizations can securely and efficiently share and view relevant patient images and data among distributed care teams, supporting the building of collaborative care networks. Centricity 360 brings together four imaging collaboration apps helping make it easy for clinicians to share patient images, collaborate on clinical workflows, and communicate results.

Centricity Zero Footprint supports the following Centricity 360 applications:

Centricity Case Exchange

Easily upload, view, reply to, forward or download patient cases from your browser or mobile device.

Centricity Case Exchange is designed to offer advanced clinician collaboration, seamless device connectivity, and access to embedded analytics tools – all with comprehensive end user controls and data management. It has easy-to-use case inbox and automation features for handling image request, sending and receiving responses, notifications and receipt confirmations.

Centricity Case Exchange helps providers streamline clinical collaboration with unaffiliated clinicians to help reduce duplicate imaging, avoid unnecessary patient transfers, lower CD distribution costs and enhance referral relationships—all with lowered capital investment. It liberates affiliated and non-affiliated physicians from silos of care by fostering a clinical community where they can quickly confer on patient cases, simultaneously access patients' images and reports and collaborate on diagnosis and treatment plans.

Centricity Multi-Disciplinary Meeting

Run efficient multi-disciplinary team meetings.

Schedule team meetings, customize the order of cases within the meeting, and send invitations to clinicians, all from within Centricity 360. Centricity Multi-Disciplinary Team Meeting helps both clinicians and meeting administrators realize time savings, improve communications, and reduce costs associated with meeting preparation.

Run efficient clinical team meetings and easily confer in tumor boards, educational sessions, or other multi-disciplinary meetings to save meeting costs per patient. All the images and reports you need are in one place. Easy-to-navigate case lists, and connectivity to your organization's PACS. All notes are captured, making post-meeting follow up a breeze. Not just for MDT sessions, this app can be used by any care team that needs to collaborate and share images and notes with colleagues.

Centricity Physician Access

Easy distribution of patients' results (images and reports) to remote clinician.

Provide non-affiliated physicians with a longitudinal record of their patients' imaging data and reports through an ability to find and view patient imaging data. With role-based access, remote clinicians can immediately see studies and reports as the radiologist completes them, helping to improve turnaround times and strengthen referral relationships.

Centricity Patient Access

Provide patients access to their imaging data

Provide patients access to their images and report in a user friendly and secure web portal via an access code login which is generated by the hospital or physician for the patient. Patients can log on and create another access code and share with other specialists for second opinions.

Centricity Cloud Visualization

Provide the ability to share full fidelity 3-D images, anytime, from anywhere[1].

Leverage the power of the cloud for image post-processing to provide anytime, any-where viewing[1] and advanced 3-D reading. Gives non-diagnostic clinicians access to post-processed images via most browsers, allowing them to navigate findings and measurements, and collaborate on 3-D images. As a result, clinical coordination will be fast, easy, and cost-effective.

Together with Centricity Universal Viewer Zero Footprint, Centricity 360 helps distributed care teams collaborate efficiently on patient cases: helping reduce the handling costs of foreign studies and time preparing for multi-disciplinary meetings.

DICOM Viewing Features
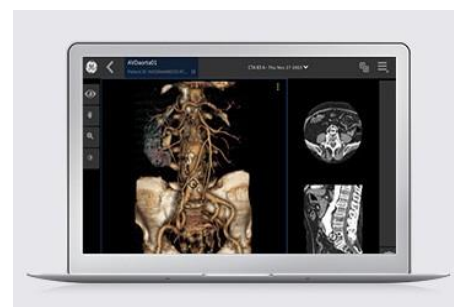
- **Enable collaborative care networks** by providing enterprise-wide image access to clinicians and referring physicians directly or through your EMR, HIS, RIS or physician portal

- Help to **increase user satisfaction** by allowing clinicians to use the device of their choice; Validated for use on multiple devices including Windows[®]-based PCs, Apple[®] Mac,[®] Apple iPad,[®] and Samsung Galaxy[®] tablet devices[3]

- Display and review radiology, cardiology and other medical images on the same device

- Limit viewing of "VIP" or Confidential Patients' imaging to users with this privilege

- Provides clinicians with a **consolidated view** of the patient's image data across multiple multi-department DICOM archives irrespective of the patient identifier[8]

- **No installation of software** on the user's device

- No administration rights are required to install and use the application

- **No data stored** on the local device – helps to support data security and privacy

- Secure access controls

- **Supports low bandwidth environments** by displaying lossy compressed images and automatically disabling the lossless progression of images based on network bandwidth

- **Fast navigation of large data sets** allowing users to quickly skim through a stack of images by providing ability to skip images during scrolling

- Enterprise ready with configurable session time-out based on user group

- Use advanced reformatting tools while viewing images : for CT and MR, server side rendered MIP, MinIP, Average, MPR Multi oblique, Volume Rendering. User friendly reformatting with pre indicated compatibility mark, Triangulation cross hair, seamless between 2D and 3D views

- **Smart Layouts** to enable 1 click auto-comparison of current and prior relevant study. Relevancy of prior exams is determined automatically based on Study description and contained body part

- Optimized study access and viewing features include:

    - Group studies tied to a single accession number for quick and easy identification (for CPACS foundation)

    - Set preferred image download options - either lossy, lossless or progressive

- Promote **rapid sharing** of images across the enterprise, directly from the ZFP application

DICOM Viewing Features

- Native ECG viewing

- Viewport Image Snapshot for pasting image and measurements into other applications

- Multi-region ultrasound measurements

- Modality -based image overlays

- Supports mixed mode environments with multiple back ends (or connection types) including CPACS, 1 or multiple Enterprise Archives, and including XDS foundation

- Sheet view displays multiple images from the same series or study in a film-like view

- Save and share any presentation state information such as measurements, annotations, zoom, pan, flip or any GSPS

- Supports mammo markers to recognize the image position correctly in mammography images

- Support for Apple iOS ® 13 and Android mobile phones

- Series Selector support on all ZFP-supported mobile devices

- Web application for ZFP WebSocket Health Monitoring

- 2-D viewing with ability to zoom, window/level, perform measurements and annotate

- Supports 3-D viewing with MPR/MIP/MinIP/Avergage and Volumetric Rendering

- 3-D viewing on tablet devices

- Display and apply different presentation states during the viewing session

- Multiple image viewport layouts

- User domain selection through PIX

- Displays Key Image Notes

- View reports

- Display .MOV, DICOM and encapsulated PDF objects

- Specific labeling when lossy images are viewed

- Automatic cine on up to 4 multi-frame objects with ability to change speed, window/level and pan during cine

- Show or hide DICOM overlays

- Allows image viewing with progressive and adaptive streaming No user intervention needed

- Toolbar and right click option to access viewer functions

- Incorporates series navigator with drag and drop functionality

- Study search function — search for any exam by patient name, medical record number, NHS number (Centricity PACS foundation only) or accession number. Filter by modality or date range

- Worklist viewing restrictions that provide a method to restrict user access to studies when implemented in a stand-alone mod (not opened by another system)

- Display historical images from 3rd party archives

- User authentication through Active Directory enables added security and decreased user maintenance

- Incorporates audit logging via ATNA and optionally to Windows Server Event Log

- Multi- monitor support (up to 3 monitors) with the ability to fix the display position and allow consistent display when used with an EMR, and with the ability to fix the study list position on the far right or far left screen

- ROI statistics in average Hounsfield units along with a standard deviation (CT studies)

- Cardio Thoracic Ratio (CTR) measurements

- Display Pathology Region of Interest (ROI) part, block and stain information

- Shutter (DICOM and manual)

- Global stack i.e., ability to scroll through all data

- Cross referencing

- Synchronization per relative image number or per bed position

- Group mutliple studies tied to a single accession for quick and easy identification (CPACS foundation)

- Transfer DICOM objects from Centricity Enterprise Archive or Centricity PACS to most PACS systems directly from the ZFP application

- Read cardiology series in the order it was scanned

- Ability to review Mammo & Tomo images as lossy compressed images

- Side-by-side comparison allows access to comparison exams. Smart Layouts for automatic comparisons of current and relevant priors

- Outbound URL launch of 3rd party systems with the ability to launch by accession number or medical record number/patient ID. This enables connectivity with products such as Orthoview™ Orthopaedic Digital Imaging, Centricity Cardiology DMS, MUSE™ Cardiology Information System and Voyant Health™ Traumacad®

- Native gestures on phone and tablet devices

- Ability to copy and print reports, save and print images

- Magnify a specific area of an image with the use of the magnifying glass

- Ability to view DICOM Header information on the currently displayed image

- Ability to send email link to ZFP users

- System wide configuration for the result page on the worklist: ability to order and show/hide columns

- System wide configuration to optimize image viewing by setting download options: Lossy only, Lossless only, or progressive

Patient timeline and clinical content viewing (XDS)

Patient timeline

Physicians need access to the patient's history to help make more informed decisions about future courses of action. Today, this information resides in several different information systems within a hospital enterprise or within departmental systems that are siloed and not connected. This makes it difficult for physicians to have access to the information at the point of care. Effective tools to solve this problem may not be available within the enterprise.

Centricity Universal Viewer ZFP's XDS viewing capabilities are designed to serve this need. It supports the IHE-XDS[7] profile as a consumer and provides a single view of the DICOM and non-DICOM clinical information stored in Centricity Clinical Archive Solution[6], GE Healthcare's vendor neutral archive solution. With this solution, physicians have access to the patient's clinical information from multiple departments or multiple sources at the point of care.

Since patient information generated by disparate departmental systems may vary in format, XDS viewing supports a variety of document and image formats.

In addition to DICOM, a variety of document and image formats including JPEG, PDF, MPEG-2, and HL7-CDA can be viewed. Industry standards are leveraged to enable access to the patient health records stored in Centricity Clinical Archive Solution.

Key Benefits (XDS)

Primarily targeted towards physicians and specialists, XDS viewing can be used by clinicians to quickly review the patient's clinical data and information. In addition to the benefits of DICOM viewing, ZFP provides the following benefits in XDS enabled environments:

- Helps to **enable efficient workflow** – with access from anywhere[1] and an enhanced user interface design, the viewer makes it easy to search and access relevant information, helping to improve provider productivity.

- Helps to **lower the cost of IT management** and interfacing—ZFP only requires an internet browser to run. It does not require administrative rights on the client system and does not install additional plug-ins or special software.

- Provides a **single point of connectivity** for an EMR to launch clinical content stored in Centricity Clinical Archive, including DICOM images and non-DICOM data.

- Helps to **foster informed collaboration** – ZFP not only promotes anywhere, anytime access[1] of patients' clinical information, it also provides connectivity through the enterprise EMR system, providing a combined view of DICOM and non- DICOM (pdf, videos, images) data to the physician. This access helps care providers make more informed decisions.

XDS Features

- Single sign on through SAML when the XDS viewer is launched from external systems such as an electronic medical record

- Automatic time out on the client for added security

- Multiple IHE profiles supported
  - XDS.b Document Consumer
  - XDS-I.b Imaging Document Consumer
  - PIX Patient Identifier Cross-Reference Consumer
  - PDQ Patient Demographics Consumer
  - ATNA Secure Application
  - CT Time Client
  - Document Administrator
  - Cross-Enterprise User Assertion (XUA) profile X–service user

- Displays multiple file type
  - ASCII Text
  - RTF
  - HL7 CDA
  - TIFF
  - CDA-SD and CDA-R2
  - PDF
  - BMP
  - MPEG2

- Patient Timeline – Presents a date range to navigate the Matrix View or List View. Allows users to filter, flag, and open clinical content for viewing
  - Matrix view displays thumbnails of the clinical content grouped by available XDS metadata
  - List view displays in a tabular list description of the clinical content
  - Timeline displays a "link" indicator for documents that are linked, providing clinicians easier access to related radiology reports and images. Clicking on the link opens the radiology image and report side-by-side. The link between related documents is persisted in the XDS registry as part of the Reference ID list. Currently supported Reference IDs are accession number, order number, referral number and unique Identifier
  - Timeline bar to display and access a patient's historical data in a single click. The application uses icons to represent existence of clinical data at different times in the patient's clinical history. The timeline bar helps users quickly review episodes of patient's clinical data and helps to provide a high-level view of the patient's imaging history
  - Customizable site-specific style sheets for use with documents in the Clinical Document Architecture (CDA) format

Key XDS Features continued

- Clinical data review

  - Document Review —The user can select documents from either the matrix or compact view and display them in the document view area for review. The application provides basic tools like rotate, flip, and zoom to review the documents

  - Document versioning—Provides users with the ability to view the prior versions of a document from an XDS repository

  - DICOM Image review – provides DICOM image display through WADO (Web Access to DICOM Objects) and native DICOM image review

  - Filtering – the application leverages IHE-XDS standards to help users create personal filters to restrict the clinical content displayed based on specific conditions. Users can create filters using IHE-XDS metadata information and save them for future use. The filters can be very simple like "display clinical data that is only three months old," or they can be complex like "display only radiology images and reports for last three months". Filters can be applied to restrict the view to the selected items only or the filters can be applied to highlight the selected items while displaying the full patient history

  - Quick Filtering— when in Matrix View, users can quickly filter the documents based on column heading. This action automatically creates filter conditions

- Flagging – helps users organize data by allowing them to tag a document/image as important. This can help improve physician

productivity by making it easier to access relevant information faster. Flags can also be used to quickly filter for important documents

  - Document Download—users can download original documents from the application to their local PC for review. This feature helps users to review the patient data offline using the most relevant applications on their PC

- Provides the capabilities to implement patient data viewing restrictions based on the user's role. This feature requires IHE-XDS registry to support role-based access control. ZFP XDS-enabled supports IHE-ITI-18 as Document Consumer and now supplies role information obtained from either the EMR application or from the active directory. This enables the registry to restrict documents and only provide information that is relevant for the role

- Break glass—Supports the ability to override access restrictions temporarily in case of an emergency. Role based access control is required

- DICOM Send—Allows users to transfer DICOM objects from Centricity Enterprise Archive or Centricity PACS to any PACS system directly from the ZFP application. This enables rapid sharing of images across the hospital network

- 'Soft-deletion'—User can quickly identify information to temporarily remove from study

- Shared filter—Allows site administrators to create shared filters for clinicians

Technical Information for Centricity Universal Viewer ZFP

Desktop versus iPad® Applications

Capability	Desktop	iPad and Samsung tablet devices
Manual Cine	Yes	Yes
3D (MIP/MPR/Volume Rendering)	Yes	Yes
Layouts	1up, 2up, View_H, View_V, View_1+2, View_2+1, 2x2, 4x4, 1x3, 3x1	Full, View_H, View_V, 2x2
Smart Layouts	Yes	**Yes**
Cross-reference	Yes	Yes
Synchronize	Yes	No
Global Stack	Yes	Available using Navigate to next series gesture
Image Export	Yes	No
Annotations	Distance, Angle Measurement, Elliptical Region, Ellipse, Freehand, Rectangle, Text, & Arrow	Distance & Freehand
Cardio Thoracic Ratio (CTR)	Yes	Yes
Elliptical Region	Yes	No
Annotation Delete	Toolbar, Right Click Menu	Toolbar icon
Delete All	Right Click Menu	No
Gesture Help	N/A	Yes
Mouse Hot Keys	Yes	N/A
Ambient Light Test	N/A	Yes

DICOM Support

- CT, MR, Enhanced CT, Enhanced MR, US, PT, XA, RF, SC, CR, DX, MG, Breast Tomosynthesis, IO, SC, VL, NM, EKG, Endoscopic, Microscopic and Photographic Image

- Presentation States

- Key Image Notes

- Basic Text SR, DOSE SR

- Multi-Frame Grayscale Byte SC Image

- Multi-Frame True Color SC Image

- RT Image

- Encapsulated PDF

Complete support information can be found in the product DICOM conformance statement.

IHE Profiles

- Consistent Presentation of Images (partial support)

- Key Image Notes as Image Display Actor

- Access to Radiology Information as Image Display Actor

- Consistent Time Profile as Time Client Actor

- ATNA—Audit Trail and Node Authentication as Secure Application Actor

Complete support information can be found in the product IHE integration statement.

Interface and connectivity options

Centricity Universal Viewer ZFP can be launched by other applications such as an EMR or patient portal using the Open Desktop integration tools. Centricity Universal Viewer ZFP can also launch other GE Healthcare products and 3rd party applications with these tools. The Open Desktop Integration is built using JavaScript,™ enabling the interface to provide tighter integration with other applications.
See the Technical Information section below for additional details.

The following GE Healthcare and 3rd party applications can be launched using the Outbound Open API.

GE Healthcare Products	
Advanced Visualization powered by AW Server™ 3 embedded applications	N
Advanced Visualization powered by AW Server 2 non-embedded applications	N
AW Suite	N
Breast Imaging with or without tomo powered by IDI	N
MUSE Cardiology (EKG, Report)	Y
DMS Report	Y

3rd Party Products	
Traumacad by VoyantHEALTH version 2.3	Y
Orthoview	Y
TeraRecon version 4.4.1.4	N
Vitrea by TOSHIBA	N
Nuance™ Powerscribe™ 360 via IDR	N
Nuance Powerscribe™ 360 via TCP	N

Implementation Options

Centricity Universal Viewer ZFP can be implemented with Centricity Clinical Archive or the Centricity PACS foundation. It can be implemented with other DICOM compliant archives when using the EA foundation. The table below provides a summary of the features available with the Centricity PACS foundation and the EA foundation. Please contact your GE Healthcare representative to discuss implementation options for your enterprise.

Capability	Centricity PACS foundation	EA foundation
Windows Authentication	Yes	Yes
Centricity PACS-IMS user authentication	Yes	No
LDAP support	Yes	Yes
Referring Service worklist	Yes	No
Referring Physician worklist	Yes (uses referring physician in Centricity PACS IMS)	Yes (uses Referring Physician in DICOM header)
Limiting worklist to AE Title	No	Yes
RPPS support	Yes	Requires all RPPS to be converted to GSPS and sent to EA
FCE support	Requires all FCE to be converted to GSPS and sent to EA	Requires all FCE to be converted to GSPS and sent to EA
GSPS support	Yes	Yes
Significant Images	Yes	No
Key Images	Yes	Yes
Exam Notes	Yes	No
Reports	Accessed directly from Centricity PACS database	Requires HL7 connection to EA, reports converted to DICOM-SR for display on ZFP
Reading directly from Centricity PACS STS	Yes	No
Reading directly from EA – Centera and NAS	Yes	Yes
Support for multiple EA	Yes	Yes
Support for multiple patient identifiers	Yes utilizing Centricity PACS PIX	Yes (requires one patient ID domain per archive)
DICOM send to configured nodes – Centricity PACS	Yes	Yes

Authentication Modes

Centricity Universal Viewer ZFP supports authentication against Windows Active Directory, LDAP repository or SAML (Single Sign-On) identity server. Moreover, when implemented with the Centricity PACS foundation, ZFP also supports authentication against the Centricity PACS user repository. Integrated Windows authentication is also available on Windows clients.

Centricity Universal Viewer ZFP also utilizes a dynamic token for secure launch. This provides more secure connectivity when ZFP is opened from an EMR. When utilized, the ZFP URL payload is encrypted and has a "time to live", after which it will expire, helping to prevent anyone from accessing images. For added security, when launched from an external application with a Patient or Study in context, PHI information is removed from the web browser address bar.

Event Auditing

As an IHE-XDS consumer, the XDS viewer posts event messages defined in the IHE IT framework to an ATNA server for auditing purposes. IHE compliant audit logs are therefore, available at the ATNA server.

Supported Security Protocol

TLS v1.0, v1.1, v1.2

Browsers Supported

The performance of Centricity Universal Viewer Zero Footprint is optimized when it is run in Google Chrome™, Mozilla Firefox™, Internet Explorer 11. These browsers are recommended.

Customers who use Microsoft Internet Explorer 8 and 9 as the browser of choice will need to implement a GE Active X control known as the Legacy Browser Component (LBC). In our internal testing, scrolling performance on Internet Explorer 9 without the use of LBC has not been found to be reasonable (ranges 6-9 images per second). You may request a copy of the Centricity Universal Viewer ZFP Performance Benchmarks white paper for additional details.

Supported Workstation Browsers

- Google Chrome™
- Mozilla Firefox
- Edge (Microsoft® Windows)
- IE 11 (Microsoft® Windows)
- Safari
- IE 8 (Microsoft® Windows)**WITH LBC
- IE 9 (Microsoft® Windows)**WITH LBC
- IE 10 (Microsoft® Windows)**WITH LBC

Supported Mobile Browsers (phone, tablet)

- Google Chrome™
- Mozilla Firefox
- Safari

Please note that customers must purchase SSL certificates from a Certificate Issuing Authority. Certain SSL and self-signed certificates are not supported the iOS trust store or by many web browsers, resulting in blocking access to Centricity Universal Viewer ZFP. Please refer to iOS documentation for specific information.

Client Specifications

	ZFP on PC or MAC within browser	Mobile, Tablet
Operating System	Windows 7 64 bit Windows 10 64 bit Mac OS X 10.13 Mac OS X 10.14	iOS® 12.X iOS® 13.X iPADOS 13.X Android 8.X Android 9.X
Recommended Memory*	8 GB RAM	1GB RAM
Recommended CPU	2.48 GHz, Dual Core	1.3 GHz, Dual core
Graphics Card*	High-performance GPU is required for full performance up to 60fps on multiple viewports. High speed CPU 2.7GHz and higher with 2GB of free fast memory available for ZFP application is recommended. GE recommends evaluating proposed graphic for sufficient performance to meet customer clinical needs for cine rate on clinically required monitor size and configuration.	N/A
Interface	On site: 1Gbps * 30 ms Latency Remote: 10 Mbps * 100 ms Latency	N/A
Display	Minimum Resolution of 1024 horizontal x 768 vertical pixels for resolution. The monitor should support 1024 grayscales (10/12) and contrast ratio of 850:1. The monitor should have color depth of 32 bit color. Min 70 Hz refresh rates	Minimum 1024 x 768 pixels

Citrix® Support

Centricity Universal Viewer ZFP can be launched in Citrix XenApp 7.X environment. Please review your organization's IT security policy and infrastructure needs with respect to Citrix deployment and necessary hardware requirements.

Version support

• Citrix XenApp® v7.x

Minimum Server Specifications

Note: An additional server is required if DICOM and XDS viewing are installed. Specifications will be provided by your GE Healthcare sales team.

Deployment consideration: Customers who deploy Centricity Universal Viewer ZFP with desktop virtualization technologies such as Citrix must validate Centricity Universal Viewer ZFP in their own environment to ensure that image quality meets clinical needs.

As a true HTML5 application with no administrative rights required and no download of anything to the end users device, users can access Centricity Universal Viewer Zero Footprint without the use of these technologies.

ZFP Server (see note) (includes XDS Viewing)	VM Environment
Server Operating System	Windows 2016 Standard, Enterprise, DataCenter
Microsoft SQL Server	MS SQL 2014, MS SQL2016 (required for XDS-node only, runs on Centricity Enterprise Archive SQL server or customer provided)
Compute power	16vCPU
RAM	16 GB minimum (32 GB recommended)
Storage	OS partition: 60 GB RAID 1+0 10K min RPM Data cache partition: 300 GB high performance cache drive. SSD or hybrid storage recommended
Interfaces	N/A
Concurrent users per server[9]	50

Interface and connectivity options

Centricity Universal Viewer ZFP can be launched by other applications such as an EMR or patient portal using the Open Desktop integration tools. Centricity Universal Viewer ZFP can also launch other GE Healthcare products and 3rd party applications. Details of the connectivity options are included below. For additional information, please contact your sales representative.

As organizations consolidate clinical content within an archive, the ability to launch a particular document and study from the EMR while being able to access other clinical content on the patient time line is needed. Centricity Universal Viewer ZFP supports two different URL arguments to launch a particular document or study with access to the patient time line.

Centricity Universal Viewer ZFP supports the ability to leverage two (2) factor authentication from certain 3rd party vendors in DICOM viewing only.

ZFP launch by other applications

URL Launch	ZFP (DICOM viewing)	ZFP (XDS viewing)
Launch exam based on accession number	Y	Y
Launch exam based on Study Instance UID	Y	Y
Launch clinical content based on Document UID	N	Y
Launch patient folder based on patient ID	Y	Y
Launch single image or series	N	N
Windows authentication	Y	Y
SAML SSO	Y	Y
Token authentication	Y	Y

Java Script Interface launch[10]	ZFP (DICOM viewing)	ZFP (XDS viewing)
Launch exam based on accession number	Y	N
Launch exam based on Study Instance UID	Y	N
Launch patient folder based on patient ID	Y	N
Launch single image or series	Y	N
Windows authentication	Y	N
Token authentication	Y	N

Comparison of URL and Java Script Interface Launch

	URL Launch	Inbound Java Script Interface
Usage scenario	External secure URL launch of ZFP	• Tight integration with third party application
		• Tight context synchronization
Configuration	URL	• JavaScript™ object
Authentication	Static/Dynamic token authentication	• Static token authentication
		• Active Directory user authentication
Initial launch	~6-8 seconds	• Faster display because the application is launched in the background
First image display	2-3 seconds upon reuse of browser instance	• 2-3 seconds upon reuse of browser instance
Browser Reuse	• Yes (controlled by calling application)	• Yes
	• Limited – depends on web browser configuration	

Languages Supported[11]

Centricity Universal Viewer ZFP supports the following languages.

- Brazilian Portuguese
- Danish
- Dutch
- English
- Finnish
- French
- German
- Hungarian
- Indonesian
- Italian
- Japanese

- Korean
- Norwegian
- Polish
- Portuguese
- Russian
- Simplified Chinese
- Spanish
- Swedish
- Traditional Chinese
- Turkish
- Vietnamese

Licensing Models

Our flexible licensing models provide each enterprise the ability to select a pricing structure that meets their individual needs and budgets.

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GE Healthcare provides transformational medical technologies and services to meet the demand for increased access, enhanced quality and more affordable healthcare around the world. GE (NYSE: GE) works on things that matter – great people and technologies taking on tough challenges. From medical imaging, software & IT, patient monitoring and diagnostics to drug discovery, biopharmaceutical manufacturing technologies and performance improvement solutions, GE Healthcare helps medical professionals deliver great healthcare to their patients.

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[1] Where an internet connection is available.

[2] A list of supported devices and browsers can be found in the technical information section of this datasheet.

[3] Centricity Universal Viewer ZFP client workstation has been validated for diagnostic use on Microsoft® Windows® and Apple® Mac® products. Centricity Universal Viewer ZFP mobile client has been validated for review only mode on tablet and smart phone devices and is not meant for primary diagnosis on these devices. The XDS based patient timeline is not intended for primary diagnosis.

[4] Available with desktop version only.

[5] When deployed with Centricity Clinical Archive solution level 2 multi-department archive.

[6] Centricity Clinical Archive includes the following product components: Centricity Enterprise Archive, Centricity Universal Viewer ZFP client, GE XDS Registry, Centricity Clinical Gateway, Audit Trail Repository, Media Manager, ICW Master Patient Index (MPI), and Lexmark PACS Scan. See the Centricity Clinical Archive Compatibility Matrix and product-specific documentation for requirements.

[7] Please refer to the IHE Integration Statement for complete information.

[8] Provides a patient-centric view of image (DICOM) and non-image (XDS) when data is stored in Centricity Clinical Archive Solution.

[9] Performance benchmarks show support for up to 600 studies per hour per web node. Recognizing there are high and low usage times, this indicates that one study is viewed approximately every 6 seconds. Performance may degrade with higher volumes.

[10] Represents the capabilities previously available with the Centricity Web Proxy API interface. Requires Centricity Clinical Archive solution.

[11] Excludes support for ideographic and phonetic names.

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