



Edison™ Datalogue™

Data Sheet

A robust, patient-centric solution for seamless image and document consolidation and access.



Introduction

Edison Datalogue¹ is an open solution that unifies and intelligently manages patient data, images and enterprise content. It provides healthcare teams with efficient access to data whenever and wherever needed². By Leveraging IHE and DICOM-complaint industry standards, Edison Datalogue provides a vendor neutral archive (VNA) platform that enables you to connect disparate systems from multiple vendors across multiple specialty departments and multiple facilities.

Edison Datalogue helps healthcare providers:

- Unify and manage patient images and clinical content from multiple imaging specialties in multiple facilities, including RIS, PACS, CVIT and acquisition devices including iPhones.
- Build a single longitudinal patient record across multiple departments and multiple facilities.
- Provide clinician access to the patient's longitudinal history from anywhere² whenever it is needed.



Designed to scale and support business continuity

Edison Datalogue can scale to support sites from small clinics with low volume to large regional health organizations or entire countries with millions of exams stored. It can be installed as a single departmental DICOM archive or an XDS only document storage and sharing solution. As your needs grow, it can be expanded to a full enterprise or community-wide image and document repository. The proven, scalable architecture allows you to connect multiple systems from different vendors across your enterprise or region.

High availability and load-balancing supports business continuity allowing your organization to perform system upgrades independently and with minimal disruption to operations. Virtual Archives allow the creation of departmental or facility-specific archives to enable sharing of the archive between multiple institutions or departments, with the ability to aggregate the virtual archives into a single view.

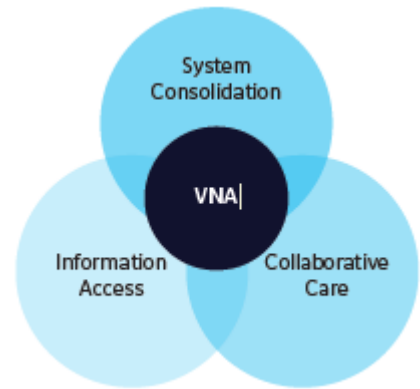
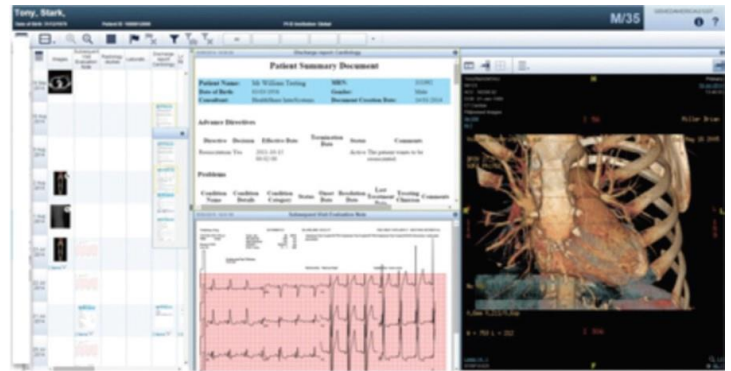


Image-enable your EMR, HIS, RIS and physician portals

Centricity™ Universal Viewer Zero Footprint (ZFP) works seamlessly with Edison Datalogue to put clinical insights within reach of the entire organization in order to deliver patient results efficiently. It provides clinicians and other health care providers throughout the enterprise and the community with secure access to images and reports. Access is available from anywhere, on the user's device of choice.

Centricity Universal Viewer ZFP provides access directly via a web browser or through secure connectivity with your institution's Electronic Medical Record (EMR), Hospital Information System (HIS), Radiology Information System (RIS) or physician and patient portals. Centricity Universal Viewer ZFP provides a diagnostic use zero footprint client which helps physicians view the clinical content that is available across the patient's longitudinal record. Both DICOM data and XDS (Cross-Enterprise Document Sharing) content can be viewed in a single solution.



Centricity Universal Viewer ZFP is equipped with flexible access privileges and image sharing capabilities. The Break Glass feature allows for enhanced flexibility to clinicians' access privileges during situations of emergency. In addition, the DICOM Send feature enables convenient and speedy sharing of images across the hospital network, directly from the ZFP application.

Centricity Universal Viewer ZFP Optimized study access and viewing features include:

- Group studies tied to a single accession number for quick and easy identification
- Set preferred image download options – either lossy, lossless or progressive



Open, standards-based architecture

Edison Datalogue 6.0 delivers a single repository for both DICOM and non-DICOM XDS clinical data across the enterprise with lifecycle management tools and a management console that can be used to configure the system.

Based on industry standards, it delivers an open architecture for seamless interoperability. Centricity Clinical Archive 6.0:

- Enables standards-based archiving for image and other clinical content across radiology, cardiology, pathology, dermatology, surgery and other departments.
- Delivers an application for the acquisition, classification and storage of visible light images captured on mobile devices at the point of care.
- Supports many non-DICOM XDS objects including JPEG, PDF, and TIFF documents. All objects are stored in their native format.
- Manages other DICOM objects such as Structured Reports, Presentation States, and Key Image Notes.
- Interfaces with an Enterprise Master Patient Index (EMPI) to consolidate patient data across multiple facilities or departments with different patient IDs.
- Supports receiving content in a shared folder and ingesting into Edison Datalogue as a back end process without requiring any user intervention.



Optimize storage with Image Lifecycle Management

Edison Datalogue 6.0 is neutral to the underlying storage infrastructure and can manage a large variety of storage systems: NAS (Network Attached Storage), SAN (Storage Area Network), CAS (Content Addressable Storage), and web-service based storage (cloud storage).

Through a variety of rules-based policies such as delete, move and compress, the Edison Datalogue 6.0 helps administrators to set retention policies to respond to regulatory requirements and effectively manage the image data throughout the lifecycle:

- Configure rules for virtual archives, storage libraries, modalities, study descriptions, etc.
- Select Lossless and Lossy Compression rates of data (JPEG, JPEG2000, RLE).
- Rules-driven workflow engine for creation, approval, and audit of rules.
- Rules-driven work list to view studies eligible for movement, compression, deletion.
- Quarantine features to place selected studies and patients on hold.
- DICOM tags: Institution Name, Station Name, Department, Modality, Study Description, Study Age, and Patient Age for a total of 128 different rule combinations.
- Move and delete capabilities for Non-DICOM content stored in the XDS Repository libraries of Centricity Enterprise Archive.
- Data transfer tool enables administrators to migrate DICOM data from external archives to the central Enterprise Archive repository.



Enhanced image sharing with tag morphing

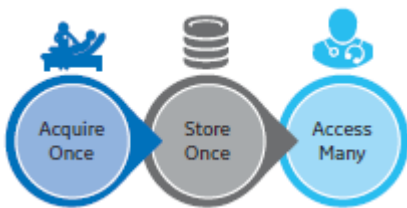
Edison Datalogue 6.0 offers tag morphing capabilities to manipulate the content of DICOM tags within a study during archiving or retrieval. This helps overcome the limitations, inconsistencies and variances in the implementation of the DICOM standard across multi-vendor PACS systems and enhances standards-based sharing of images and data across the enterprise.

- Configure tag morphing rules and actions for inbound and outbound DICOM associations independently for each virtual archive.
- Select from a list of static morphing actions: add, prefix, postfix, replace, truncate, clear, and remove DICOM tags.
- Create complex dynamic morphing rules with a powerful scripting engine.
- Revert morph actions, if required.

Edison Datalogue offers a multi-tenant user interface for ILM and Tag Morphing. This provides the administrator the flexibility to extend access controls to users and user groups – for specific functionality and for specific virtual archives.



Capture patient documentation in real time with Media Manager



Edison Datalogue 6.0 with Media Manager provides the tools to support the acquisition, classification and storage of visible light images, videos and notes using mobile devices at the bedside and other patient care locations. Media Manager users can also upload network files of images, videos and documents through a web browser ingestion browser. Captured images along with robust relevant clinical meta data are available electronically upon submission to the Edison Datalogue.

Media Manager allows you to positively identify the patient prior to content capture. This can be done by scanning a bar-coded wristband or document, creating a link between the patient and their image. The patient ID can be based upon the medical record number or an episode/visit ID associated with the specific episode of care.

After an image or a video is captured, users select a care point area. This selection drives the care point specific workflow associated with the image capture process. Up to five images and/or videos can be stored under a single submission by the mobile device. Multiple images can be captured prior to the assignment of clinical attributes to images so users can stay focused on what matters most; the patient.

Previously captured information can be viewed on mobile and browser devices as recent submissions across the enterprise. Authorized users have the ability to edit previous submissions with full audit tracking of changes and user information. No patient data or PHI is left on the device or browser. Images and patient data is streamed to the device from the VNA upon request, helping organizations support HIPAA and patient data privacy requirements.

Other benefits include:

- Help improve coordination among care providers through seamless and timely sharing of clinical information.
- Provides a consistent, auditable method for image and video capture.
- Creates alerts in the Electronic Medical Record (EMR) that nurses can take action against.
- Web browser ingestion of relative patient documentation from outside sources into the Edison Datalogue, enriched with robust clinical meta data.



Supported Media Manager workflows

Media Manager supports the following care area workflows:

- Emergency department assessments
- Skin/wound care
- Pressure ulcers
- Burn assessment
- Skin Donor assessment
- Plastic surgery
- General Care

In addition, Media Manager also supports ad-hoc image capture and documentation of information that needs to be appended to the patient record. Custom Care Groups can be built to match specific Customer workflow needs.



Efficient management of patient consents

Edison Datalogue offers Patient Consent Manager – a web-based application that enables creation and update of patient consent documents. This enables physician practices, hospitals and other healthcare providers to document patient consent decisions, as well as their revocation for efficient document and image exchange. Patient Consent Manager helps:

- Streamline the administrative process of consent lifecycle management via easy to use web interface.
- Enforce Patients' consent decisions using structured consent documents in CDA format.
- Enhance cross-enterprise and community health records management.
- Cost effective integration with other products using Standards-based interfaces.



Help to minimize IT staff

By implementing Edison Datologue, organization's IT staff and leadership benefit from:

- The use of industry standards to unify clinical IT infrastructure, preserving existing investments and helping lower costs of information management.
- Leveraging a single viewing solution that is easily accessed via a web browser and requires zero installation with no download of any software on the user's device, no administrative rights needed to access the software and no patient data left behind on the device.
- Providing secure access to images from the EMR, helping to support Meaningful Use criteria and enabling collaborative care networks.
- Accessing control to sensitive patient information that is role based and active directory supported.
- Deployment within high availability, disaster recovery, and cloud ready infrastructures to help ensure service continuity.



Volume-Based Licensing

Our volume-based license model provides unlimited licensing, making it easy for organizations to provide access to all end users. It provides all users with secure access to the same tool sets and information, with the ability to grant specific privileges and functions to each user. Users are able to access the system regardless of their location².

Volume-based licensing allows your organization to acquire and expand as the organization grows, helping maximize the value of your investment without sacrificing access or functionality.



Edison Datalogue 6.0 solution components

Depending on the implementation chosen for your organization, Edison Datalogue uses a suite of products to provide a complete end-to-end solution. Product offerings may consist of the following:

Component	Function	Required	Supplied by
Centricity Enterprise Archive	The foundation for Edison Datalogue, it is a multi-ology, multi-site information repository for managing images and documents using DICOM and IHE-XDS formats.	Required for all Edison Datalogue deployments	GE Healthcare
Centricity Universal Viewer ZFP _s	A true zero footprint viewer that provides access to content in the archive either directly or as an embedded link within the EMR, HIS or RIS systems.	Optional based on configuration	GE Healthcare
Media Manager	An application that enables the acquisition of visible light images for documentation of patient conditions.	Included as optional, requires an XDS-compliant solution	GE Healthcare
XDS Registry	An IHE-XDS registry that allows external systems to access patient record in a standards compliant manner.	Required for all XDS capable installations	GE Healthcare
Audit Trail Repository	Receives audit messages from other components of the solution via IHE-compliant interfaces based on the IHE profile ATNA (Audit Trail and Node Authentication)	Required for all XDS capable installations	GE Healthcare or customer
ICW Master Patient Index (MPI)	A master patient index (MPI) that links patient records from disparate databases across network boundaries.	Required for multi-site installations where duplication in patient identification schemas is possible	GE Healthcare or customer
Lexmark PACS Scan™	Enables document scanning, electronic forms creation, importing JPEG, PDF, TIF, GIF, AVI, and MPEG files from any department as well as converting and sending Word® files, emails or other images to the DICOM or XDS document repository.	Optional based on configuration	GE Healthcare or customer
Patient Consent Manager	Supports the creation of electronic patient consent documents. Documents are stored in the XDS Document Repository and can be used to control access to all of the patient's documents known to the XDS Document Registry.	Included as optional, requires an XDS-compliant solution	GE Healthcare



Component specifications

A brief description of the technical specifications and requirements for select solution components is provided below. Your GE Healthcare product sales specialist will provide a detailed configuration to meet the needs of your specific implementation. For additional information on each component, please request copies of each product datasheet.

Technical Specification for Centricity Enterprise Archive 4.0

For detailed information on Centricity Enterprise Archive, please contact your product sales specialist for a copy of the Centricity Enterprise Archive 4.0 product datasheet.

IHE Profile Support

Centricity Enterprise Archive supports the following IHE profiles:

- Cross-Enterprise Document Sharing for Imaging (XDS-I.b)
- Cross-Enterprise Document Sharing (XDS.b)
- Audit Trail and Node Authentication (ATNA)
- Cardiology Evidence Documents (ED-CARD)
- Consistent Presentation of Images (CPI)
- Access to Radiology Information (ARI)
- Key Image Note (KIN)
- Simple Image and Numeric Report (SINR)
- Evidence Documents (ED)
- NM Image (NM)
- Enterprise User Authentication (EUA)
- Consistent Time (CT)
- Patient Identifier Access for Imaging (PIX)
- Cross-Community Access for Imaging (XCA-I)
- Image Object Change Management (IOCM)
- Multi-Patient Queries (MPQ)
- Digital Breast Tomosynthesis (DBT)
- XAD-PID Change Management (XPID) profile
- Web Image Capture (WIC) profile

For additional information on IHE and DICOM support, please visit these sites.

<http://www.ge.com/dicom>

<http://www.ge.com/ihe>

Minimum Hardware Specifications Management Console

Centricity Enterprise Archive includes a rich administrator console designed with Microsoft® Silverlight™ that can be used to configure the system. Administrator privileges can be managed at a variety of system levels, from enterprise to a virtual partition. Usage and performance reports are available on the console.

The console can be run from any device that supports Microsoft® Internet Explorer® version 9, 10, and 11 32-bit versions where Silverlight™ is supported.

Minimum Server Specifications – Application Server

The application server houses the Long-Term Storage Management middleware.

Application Server

VMWare® Vsphere for Servers	VMware® ESXi 5.5 and higher
Server Operating System	Microsoft® Windows® 2016 Standard Edition or 2016 Enterprise Microsoft® SQL Server 2014 or 2016 Standard or Enterprise Edition including support for Microsoft® SQL Server AlwaysOn Failover Cluster Instances and Availability Groups
Compute Power	1 x Intel 2.66GHz Quad-core or better
RAM	6 GB RAM
Storage	8 x 146 GB in a RAID5 configuration Centricity Enterprise Archive server supports fiber channel and network attached storage solutions. Centricity Enterprise Archive uses CIFS (Common Internet File System), iSCSI (Internet Small Computer System Interface) protocols to connect to network attached storage. Multiple storage systems can simultaneously be connected to one Enterprise Archive server

The application server can be deployed with external image cache for customers who plan to keep additional images online for fast access.



Technical Specifications for Centricity Universal Viewer ZFP

For detailed information on Centricity Universal Viewer ZFP, please contact your product sales specialist for a copy of the Centricity Universal Viewer ZFP product datasheet.

Supported Devices⁴

Centricity Universal Viewer ZFP has been validated for use on Windows® based PCs, Apple® Mac® products, Samsung Galaxy Note® 10.1, Samsung Galaxy Tab® 4, iPad® and iPad® Mini with Retina® display using the browsers and operating systems defined in the Centricity Universal Viewer ZFP product datasheet

Supported Browsers⁵

Centricity Universal Viewer ZFP supports browsers commonly used on workstation and other devices. These include Microsoft® Internet Explorer® versions 8, 9, 10 and 11, Mozilla Firefox®, Safari®, and Google Chrome™.

Recommended browsers are Microsoft® Internet Explorer® 10, Internet Explorer® 11, Mozilla Firefox™ or Google Chrome™. The performance of Centricity Universal Viewer ZFP is optimized when run in these environments

Authentication Modes⁵

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

Universal Viewer ZFP utilizes Windows® Authentication to authenticate users and support single sign-on when the user is logging in from the same Windows® domain as Zero Footprint Client.

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.

DICOM Support

- CT, MR, Enhanced CT, Enhanced MR, US, PT, XA, RF, SC, CR, DX, MG, Breast
- Tomosynthesis, IO, SC, VL, NM, 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
- XDS.b Document Consumer
- XDS-I.b Imaging Document Consumer
- PIX Patient Identifier Cross-Reference Consumer
- PDQ Patient Demographics Consumer
- CT Time Client
- Cross-Enterprise User Assertion (XUA) profile X-service user
- XDS.b Document Consumer

For additional information on IHE and DICOM support, please visit these sites.

<http://www.ge.com/dicom>

<http://www.ge.com/ihe>

Interface and Connectivity Options⁵

Using the Open Desktop Integration tool, Centricity Universal Viewer ZFP can be launched by applications such as an EMR, HIS, RIS or physician portal. Users are able to launch external applications from GE Healthcare or third applications with this tool. The Open Desktop Integration tool is built using JavaScript™, enabling the interface to provide tighter integration with other applications.

For EMR connectivity, Centricity Universal Viewer supports a URL access or API level interface allowing the EMR system to launch the viewer. This enables clinicians to view specific images for exams that are part of a patient's electronic medical record. Access to the EMR URL interface is controlled by a user privilege and an interface license.

The XDS viewer supports multiple launch modes. In one mode, it is launched in context from within the primary review application (EMR or physician portal). This provides a unified view of patient clinical information to the care provider. Users can also access the viewer directly, as a standalone application. To view patients' clinical information the viewer uses IHE PDQ profile (Patient Demographic Query) of a PDQ complaint system.

The clinical content (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.

Minimum Server Specifications⁶ – Web Server Controller and Node for ZFP

Implementation of Centricity Universal Viewer ZFP requires a web server controller and may require additional nodes based on the number of concurrent users in your organization.

Controller	Physical Hardware	VM Environment
VMWare® Vsphere for Servers	N/A	ESXi 5.5 and higher
Server Operating System	Microsoft® Windows® 2008 R2 SP1 or 2012 R2 Microsoft® SQL® 2008 R2 SP2 Microsoft® SQL® 2012 SP1 Standard, Enterprise, DataCenter for Windows®	Microsoft® Windows® 2008 R2 SP1 or 2012 R2 Microsoft® SQL® 2008 R2 SP2 Microsoft® SQL® 2014 SP2 Standard, Enterprise, DataCenter for Windows®
Compute Power	8 cores, x64 compute CPU	8vCPU
RAM	12 GB minimum (32 GB recommended)	12 GB minimum (32 GB recommended)
Storage	60 GB OS partition 300 GB Data partition RAID 1 + 0 minimum RAID 5 – Data Partition 10Kmin	60 GB – OS 300 GB – Data Partition RAID 1+0 – OS Partition RAID 5 – Data Partition 10Kmin
Interfaces	Two 1 GB NICs DVD-RW Remote Access (Lights-out capability)	
Concurrent users per server	50	50

Citrix® Support

Centricity Universal Viewer ZFP can be launched in Citrix XenApp 6.5. 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® v6.5

Citrix Receiver™ for Windows v4.4, Mac v12.1, iOS® v6.1.4, Android v3.8.1

Minimum Specifications⁴ – Media Manager Supported devices

Media Manager has been validated for use on the Apple® mobile devices using the models and operating systems listed below.

- Apple® iPhones 5s / 6 / 6s / 6s+, iPad Air2, iPad mini; with IOS 9.3.5 and 10. x
- Google® LG Nexus 5, Samsung® Galaxy J700F, Samsung Tab A8 T355Y; with Android® Marshmallow 6.0.1 operating system
- Media Manager has been validated for desktop/web use on PCs and tablet devices with InternetExplorer® 11 and Chrome® 53 browsers.

Minimum Server Specifications

Integration Server

VMWare® Vsphere for Servers	VMware® ESXi 5.5 and higher
Server Operating System	Microsoft® Windows® 2012 R2 Standard Edition Microsoft® SQL® Server 2008 R2 Standard or Enterprise Edition, Microsoft® SQL® Server 2014 Standard or Enterprise Edition
Compute Power	4 cores, x64 compute CPU
RAM	8 GB
Storage	100 GB, RAID

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¹Edison Datalogue 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 Edison Datalogue Compatibility Matrix and Product-specific documentation for requirements.

²Wherever an internet connection is available.

³Refer to the list of supported devices in the technical information section of this datasheet.

⁴Centricity Universal Viewer ZFP client has been validated and cleared for diagnostic use by the US FDA on Microsoft® Windows® and Apple® Mac® Products. ZFP has also received CE Mark for diagnostic use. As regulatory clearance requirements differ by country and region, GE Healthcare must obtain clearance in countries where local specific regulatory approvals are required. Your sales representative can provide information on the status of availability in your area. ZFP can also be used on the Apple® iPad®, Samsung Galaxy Note® 10.1 and Galaxy Tab® 4 in a review only mode and is not meant for primary diagnosis on these devices. Please refer to the product datasheet for a list of operating systems and browsers supported on these devices.

⁵Please refer to the Centricity Universal Viewer ZFP product datasheet for more detailed information.

⁶Minimum specifications are provided for reference purposes. Actual configurations may differ depending on the specific implementation

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