

# MUSE cardiology information system

Heart of the new MUSE generation

It's a new vision.

The MUSE® cardiology information system has been completely redesigned with a new software platform that is poised for the future, ready to support future technology developments – and the future needs of your facility.

Extensive customer research and product development have led to the latest version of the widely-respected MUSE system, one that builds on the strengths of the previous versions to incorporate significant enhancements in information technology, ECG workflow, cardiology management processes and clinical report editing.

The powerful MUSE system delivers far-reaching workflow improvements for your enterprise, and innovative technology that leads to more accurate cardiac assessments for you and your patients.

- **Windows® Server 2003** operating system utilizes a robust .net development infrastructure and an optional software-only product configuration.
- **Microsoft SQL 2005 database** provides database query options and operational flexibility.
- **Serial presentation and waveform format** options provide full-grid display of all legacy ECGs.
- **Exclusive “on-demand” serial comparison analysis** option for proper data synchronization.
- **Innovative diagnosis editing** options, including statement tree and “matching mode” applications to expedite physicians’ ECG confirmation.
- **Enhanced measurement capabilities**, including zoom magnification tools and high-resolution calipers.
- **Seamless stress reporting** with greater data integration between the MUSE system and GE’s CASE® exercise testing system, including support for the configured final report from the CASE system.
- **Enhanced database search and management reports.**



## Streamlining cardiology assessments

An abundance of cardiology data management improvements streamline ECG overreviewing, editing and reporting.

A completely redesigned graphical user interface paves the way for new functionality and improvements – significantly enhancing the online reading experience. Streamlining clinical workflow. And, facilitating better patient care.

Now, in addition to an improved standard ECG editor, the enhanced ECG editor delivers greater functionality for physician editing. Its magnification tools provide data detail at significantly higher resolutions. And measurement tools, with linked and expanded calipers, help with quick assessments of rhythm abnormalities.

- **Gold-standard Marquette® 12SL™ ECG analysis program** – tested and proven against clinically-correlated data-bases – expedite and simplify the diagnosis process.
- **Access to all legacy ECGs in a tabular format** augments the comparative display of serial ECG presentation.
- **“On-demand” serial comparison** synchronizes serial analysis for ECGs received out of sequence or with incorrect or incomplete patient demographics.
- **Two ECG Editor versions** – Standard and Enhanced – with intuitive navigational tools, enhanced measurement tools, and statement editing options that support easy-to-use mouse, keyboard, keyboard “hot keys” and stylus tool navigation.
- **Enhanced measurement capabilities**, including zoom magnification tools and high-resolution calipers.
- **Diagnosis statement editing** with “matching mode” option to link acronym and free text together for faster reporting.

- **Statement Tree** option, provides diagnosis statements in a hierarchical presentation, which allows for rapid selection or replacement of statements, without the use of a keyboard.
- **Workflow dashboard** with single screen display that combines Edit List, Patient Retrieval and Select Patient screens.
- **User-configurable presentation choices**, such as Edit List preset options, navigational icon configurations and data format displays.
- **MobileLink™ option expedites ECG availability and order download** via wireless transmission of data between the MAC® 3500/5000/5500 electrocardiographs and the MUSE system.
- **MobileLink™ Messaging option** supports manual or automated e-mail routing of test results, even to a wireless Pocket PC.
- **MUSE EveryWARE option** provides the MUSE system with remote editing capabilities via a thin client solution implemented in a Web environment.
- **Full integration** with GE’s CASE exercise testing, MAC® resting ECG, CardioSoft™ multi-parameter and MARS® ambulatory ECG systems.
- **Acquire pre-hospital 12-lead ECGs analyzed** with the Marquette 12SL ECG analysis programs from leading defibrillator manufacturers.
- **Transfer 12-lead ECGs from bedside patient monitors**, including GE’s Dash® and Solar® monitors.
- **Communicate with multiple diagnostic cardiology device manufacturers** via published XML specifications.



Enhanced Waveform Layout

| Test Order | Patient ID   | Last Name | First Name | Date/Time | Test Type |
|------------|--------------|-----------|------------|-----------|-----------|
| 8525730    | SHAWKIN      | ROBERT    | 03-27-2002 | 16:23     | HCL       |
| 8165558    | MINVIL       | TRACY     | 04-18-2002 | 16:23     | HCL       |
| 8817393    | CHL, LAFRANC | DOANNE    | 04-18-2002 | 16:41     | HCL       |
| 8837381    | BROOKS       | SEBORAH   | 04-25-2002 | 22:10     | HCL       |
| 8821954    | ATCHLEY      | WAZEL     | 05-21-2002 | 02:10     | ECO       |
| 8817444    | HECHINGER    | MARY      | 05-21-2002 | 02:18     | ECO       |
| 88113547   | CHILDS       | CHRISTEN  | 05-21-2002 | 02:19     | ECO       |
| 88815368   | FARNT        | MARTHA    | 05-21-2002 | 12:05     | ECO       |
| 8128371    | TOOD         | JEAN      | 05-21-2002 | 12:50     | ECO       |
| 88324302   | POOLE        | KATHRYN   | 05-21-2002 | 16:43     | ECO       |
| 88213310   | DUPREE       | SPIRITIVA | 05-21-2002 | 16:20     | ECO       |
| 8835120    | KISTON       | MARVIN    | 05-22-2002 | 03:17     | ECO       |
| 88889327   | STEWART      | STEVENOR  | 05-22-2002 | 02:17     | ECO       |

Workflow Dashboard

## Making administrative work flow

The MUSE cardiology information system helps you manage your data with built-in workflow efficiencies. Workflow and system status dashboards provide the administrator with immediate access to critical system information.

- **Database search report templates** facilitate standard database queries with user programmable, one-time report setup.
- **Database search application** simplifies cross-correlative searches, outcomes analysis and user-defined searches.
- **Management reports** allow you to easily track key performance metrics, including data and referral patterns.
- **Simplified system management tools** include automatic backup function requiring minimal user interaction.
- **Status detail on in-process patient reports** streamline workflow productivity.
- **Patient name and ID number mismatches** are clearly identified to aid editing workflow.
- **Configurable user preferences** speed access to patient data based upon individual user login.

## Sharing and securing information

The balance between freely exchanging critical information and protecting secured data is maintained with safeguards that offer connectivity with enhanced security.

Access module support provides immediate access to data over secure Internet connections through Web, e-mail or server-based computing solutions. The MUSE system also provides additional security features to assist you in enabling HIPAA requirements.

- **HL7 Interface options** for ADT, orders, textual results, waveform results and billing transactions improve data consistency across all electronic records and speed billing cycles.
- **Web server** options provide enterprisewide, browser-based review of records stored in the MUSE system, including the ability to access data from multiple MUSE servers or sites.
- **Web API applications facilitate the visual integration** of cardiology data into customer-supplied Electronic Medical Record (EMR) systems, Clinical Data Repositories (CDR) and/or Hospital Information Systems (HIS).
- **MUSE XML import and export options** provide greater data communication capabilities between GE and non-GE acquisition systems and databases.
- **MUSE EveryWARE** option provides a true thin client approach to enable full editing capabilities on a variety of network infrastructures, including low bandwidth and Web environments.
- **Software-only solutions** for the File Server, HL7 Interface, MUSE EveryWARE and MUSE Clients minimize your investment by utilizing existing hardware platforms.
- **Validated with the two leading anti-virus detection software programs** to protect the integrity of your records and database, and allow users the flexibility to utilize their standard A-V software.
- **Transaction logs provide information to track communication** on the MUSE system, including data acquisition and transmission, editing changes, and URLs from the MUSE Web applications.
- **Windows authentication support** allows you to utilize existing user information and password expiration features for access to the MUSE system.
- **Auto log-off/lock-out** provides a more secure environment for your patient data.
- **User-level access controls** regulate who can sign, modify or access the reports.



Standard Serial Presentation

# ECG review and report editing

The MUSE® cardiology information system unveils a redesigned graphical user interface that's more familiar and easier to use. One that will enhance your ECG reading experience and facilitate better patient care.

The revamped ECG screen – which closely resembles paper ECGs – delivers an abundance of new and improved review tools to expedite your reporting capabilities. Streamline your workflow. Help you make cardiac assessments sooner. And increase your diagnostic comfort.

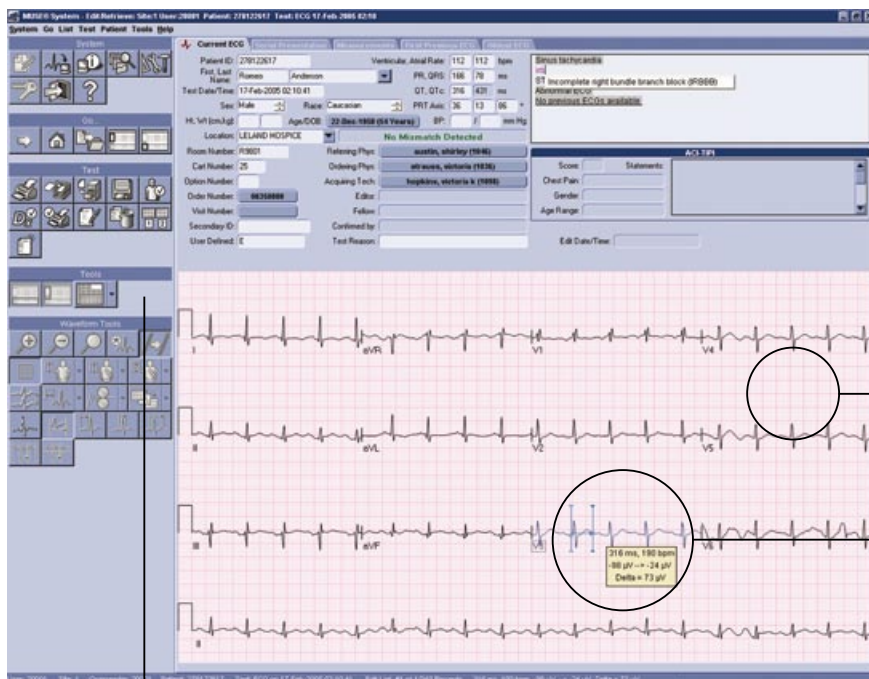
Configurable presentation options, such as an ECG worklist, intuitive navigational icons and data format displays, can be tailored to the individual user's workflow.

Side-by-side serial presentation goes beyond standard display of current, first-previous or oldest ECGs. Now, all legacy studies can be accessed quickly and easily.

In addition, algorithmic comparative analysis is now available on-demand with the Marquette® Serial Comparison program. This new option synchronizes the analysis of ECG studies received out of sequence or with incomplete or incorrect patient demographics.

What's more, the MUSE system now offers two editor versions – a Standard ECG Editor and a more clinically-adept Enhanced ECG Editor. Both offer a wealth of intuitive navigation, magnification, measurement and editing tools to help you better process diagnostic cardiac data.





Diagnostic statement editing supports user-defined statements with acronyms or free-text editing, and incorporates word processing tools.

1 mm grid lines prevent distortion or bias when magnified.

High-resolution calipers with dialog box prominently display measurement values.

Navigational tool bar with icon pane and tool tips aids navigation.

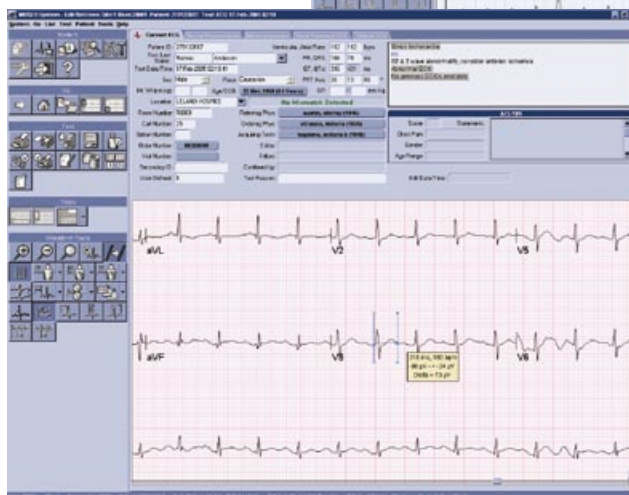
## Standard ECG Editor

The MUSE system's Standard ECG Editor has been enhanced with more innovation, such as new magnification and measurement functionality and a graphical user interface that closely resembles the look of paper ECGs.

ECG waveforms are displayed in three different presentations: 12- or 15-lead; median; and rhythm formats. The 12/15-lead format supports both adult and pediatric applications, and can present standard rhythm lead formats. A Clerical Editor format is also available to support technician-based workflow.

The Standard ECG Editor supports mouse, keyboard, keyboard "hot keys" and stylus tool navigation for ease of use.

Standard Serial Presentation layout displays current, first previous and oldest ECG.



Magnification tools include three incremental levels of zoom, with a single-click return to the default setting.

## Enhanced ECG Editor

The Enhanced Editor takes ECG editing to the next level – building on all the Standard Editor’s functional capabilities – to offer more tools and features to facilitate on-screen review by physicians.

New ECG displays include a serial presentation format and Large Waveform format presentation options that permit display of all historical ECGs – not just current, first previous and oldest – in tabular format.

High-resolution magnification tools can now highlight a particular ECG section and rapidly zoom in for better-detailed visibility.

Enhanced measurement tools include linked and expanded calipers. Waveform interval measurements can be updated in a single click, and caliper phantoms are available for refined measurement analysis.

And, diagnosis statement editing options include acronyms, free text, Matching Mode and Statement Tree capabilities that make reporting faster and easier than before.

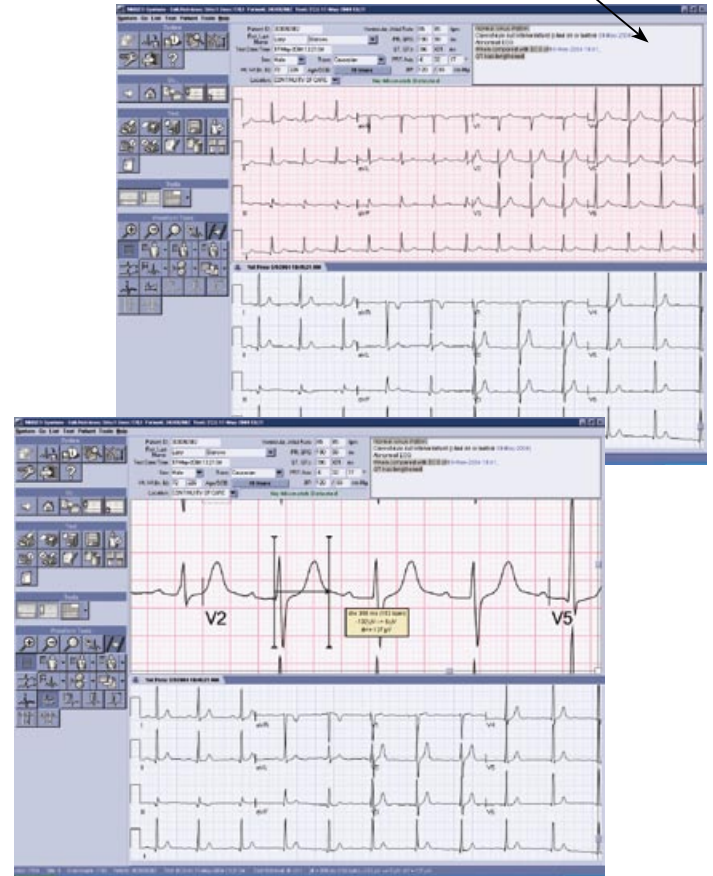
Serial ECG presentations are stacked in tabular format.



Statement Tree allows the rapid selection or replacement of statements without the use of a keyboard.

Matching Mode tool links acronym and free-text modes together.

Dialog box presentation allows you to efficiently identify desired diagnosis statement without memorizing the acronym.

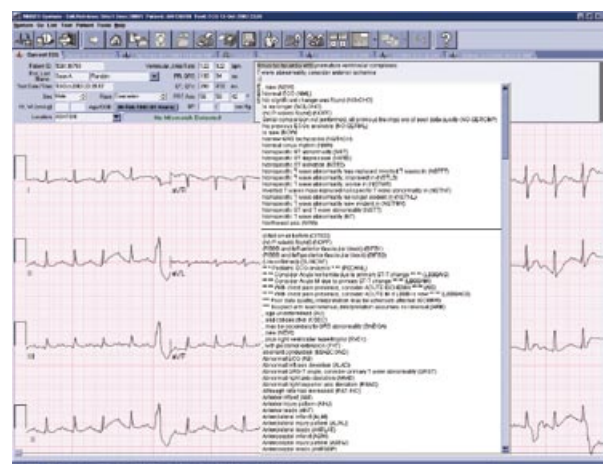


Marquette® 12SL™ Serial Comparison program detects significant change in QTc...

...visually confirmed via the high-resolution magnification tool.

Innovative Diagnosis Editing options, including Statement Tree and “Matching Mode” applications to expedite physicians’ ECG confirmation.

Use of acronyms or Statement Tree permits storage of information as discrete data, facilitating searches for administrative, research or outcome-analysis purposes.





Quickly magnify a specific ECG section, including raw rhythm data.

Linked and expanded calipers with measurement phantoms for quick assessment of rhythm or interval abnormalities.



Separate overlapping ECG waveforms with a single click, while maintaining proper aspect ratio.



Large Waveform format option offers full grid, maximum-sized screen display and on-demand rhythm lead changes.

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## Healthcare Re-imagined

GE is dedicated to helping you transform healthcare delivery by driving critical breakthroughs in biology and technology. Our expertise in medical imaging and information technologies, medical diagnostics, patient monitoring systems, drug discovery, and biopharmaceutical manufacturing technologies is enabling healthcare professionals around the world to discover new ways to predict, diagnose and treat disease earlier. We call this model of care “Early Health.” The goal: to help clinicians detect disease earlier, access more information and intervene earlier with more targeted treatments, so they can help their patients live their lives to the fullest. Re-think, Re-discover, Re-invent, Re-imagine.

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