

MEDxConnect™ Product Features

Unparalleled Functionalities/ Capabilities

Medical Message Mediator & Virtual Worklist 3.0

Interoperability application providing access to pertinent patient demographic and imaging information from disparate IT systems

MEDxConnect's Virtual Worklist™ (VW) and Medical Message Mediator (M³) connects existing information systems and databases, creating a true interoperability environment and provides radiologists with a single, integrated worklist. Relevant patient information including current studies, historical studies and reports, notes, and scanned documents from disparate HIS, RIS, and PACS systems is easily accessible in real-time, regardless of multi-site, multi-system, multi-enterprise, and multi-vendor environments common in such settings. Instead of wasting time searching for studies, the user can focus on reading and be confident that all relevant information is present.

Technical Features

- Web based implementation, hardware independent Worklist
- Unix based for system stability
- Fail over capabilities available
- HTTP SSL encryption for secure communication over public networks
- LDAP/Active Directory user authentication support
- Service Oriented Architecture (SOA) for external application integration through web services
- HL7 and DICOM integration for order scheduling and worklist generation
- Ongoing integration with existing 3rd party viewers

Worklist Features

- Customizable workgroups for subspecialty
- Prioritization recognition and specific handling based on study status
- Study publishing enables multiple readers and eliminates double reads
- Associated Orders supports multiple patient exams to be queued and available for internal, other PACS and or PowerScribe association for dictation of reports once
- Attachments supported – scanned documents, requisition forms, checklists, questionnaires, etc.
- Electronic data exchange support (HIS, RIS, PACS) – study notes, technologist notes, clinical information
- Filter capability by modality, patient, procedure reason, institution, etc.
- Priority information exchange supported – attach notes for radiologists, technologists, assistants with pop-ups
- All patient prior exams available from worklist, with automated prefetching of relevant exams
- All prior reports available for any study from worklist
- Technologist or Assistant worklist for QA
- Editor worklist for transcription
- Ability to reserve an order from the worklist for later dictation
- Ability to view a finalized order without having to dictate an addendum
- Ability to track study status
- Self manageable addendums

Workflow Features

- Configurable facility specific workflows
 - Configurable study specific workflows
 - Configurable report specific workflows
 - Configurable notifications to be sent for orders with specific statuses to specific users
 - Configurable cleanup mechanism to clean orders and studies from the system according to specific criteria
 - Status specific workflow
 - Prior exam availability and accessibly to user based on status
 - Required documents workflow for filtering exams missing documentation
 - Ability to generate all reports on a single worklist from multiple reporting systems supported by multiple transcription entities.
 - Ability to approve and sign all reports on a single worklist from multiple reporting systems supported by multiple transcription entities.
 - Ability to capture scanned images from PACS gear for display as notes on worklist
 - Auto load next report for editor update or radiologist approval in unsigned queue
 - Self edit and transcription dictation workflows supported
 - Report delivery to RIS/HIS/EMR
 - User specific routing of exams from referring physicians, modality, workgroup, or facility
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Navigation Features

- Searchable worklist
- Configurable, saved worklist filters: by modality, priority, study status, facility, date
- Sortable worklist: by study description, patient name, exam date, accession number, referring physician, facility.
- Completed worklist allows addendum creation without administration intervention
- Dictated worklist shows exams currently in progress by other radiologists
- Signing queue worklist supports digital signing of reports within worklist
- Ordered worklist shows scheduled exams

Load Balancing

- Distribution algorithm for allocation of unread exams based on facility load, or turn around requirements
- Study distribution capabilities by site, radiologist reading speed, network support, time routing by status, status of study (STAT), by the modality and the number of physicians on-line.

Administrator Worklist Features

- Ability to view the progress of all exams from schedule to completion
- Searchable and sortable worklist
- Ability to view dictating radiologist
- Ability to manage exam studies – on hold, duplicate reports, associate exams
- Ability to hide and display incomplete exams from radiologist's worklist
- Ability to track completion status of exams: Ordered, Acquisition Complete, Claimed by user, In Transcription, Pending Signature, Dictated
- Ability to assign exam to single or multiple users and workgroups
- Ability to view and fetch additional prior exams
- Ability to view completed and prior reports
- Ability to view and edit info exchange notes and view associated scanned documents and study notes
- Ability to view study completion logs: Timestamps of order reception, prefetching completion, availability on worklist, reception of report from dictation system, completion of exam

Acquisition Mediator Module (AM²)

Generates worklists for the acquisition modality

The Acquisition Mediator Module provides the end user a consistent method for sharing patient information between the RIS and the imaging equipment. Enabling communication from modalities to the RIS using DICOM format, it queries for patient demographics and study details via the AM² using SCP.

- Allows patient information to be sent directly from the RIS to relevant modalities
- Takes order information from the RIS and distributes it electronically
- Automates the entries of the patient information so it only has to be entered once
- Eliminates unnecessary manual patient demographic input by technicians
- Decreases chances for erroneous entries of patient information
- Facilitates faster processing of patient data entry thereby increasing daily scanning volumes and scheduled orders.

Communication Mediator Module (CM²)

Provides the communication between third party software applications to initiate and synchronize software

The CM² is the unilateral – bidirectional interface that exists between the MEDxConnect Virtual Worklist and existing 3rd party software applications. The interface shares pertinent patient information between the PACS review station and other software applications to allow synchronized communication between devices to occur. In the case of PACS image viewers – loading and display of the appropriate patient study is the basic communication link. Other data exchanges that can be passed between the system via the MEDxConnect API include: closing of the study, marking as read, dictated, saved and cancel reports. In addition, non-standard customized requirements can be addressed; such as sending secondary capture “snap shots”. These can be used to communicate annotations and other image manipulations in a standard DICOM communication protocol for optimization in proprietary systems.

- Launches of 3rd party application
 - Capability to utilize diagnostic viewer of choice
 - Communicates multiple commands between system i.e. open, closed, dictated
 - Shares required demographic information for synchronization
 - Single log-in for multiple applications
 - Resolves non-stand imaging and demographic protocols issues
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Document Mediator Module (DM²)

Captures and attaches relevant documents

The DM² provides the ability to input any hardcopy document into the MEDxConnect system for improved access. This includes patient notes, physician orders, historical reports, and any other pertinent patient information—even when no electronic order entry is available.

When an older RIS system has documents, such as patient reports that are not available online, the DM² can be used to input them into the system. By utilizing the print command on a RIS client or any scanning device, an electronic document is created that can be input into the MEDxConnect system. The DM² finds the corresponding patient data and assists you in locating the relevant study. The DM² utilizes key patient identifiers such as name, patient id, accession number and exam type. The documents can be attached to the study as DICOM objects for permanent archiving or as attached notes available on the worklist as read-only documents. When a facility does not have an electronic ordering system, or RIS installed the DM² can be used to input paper documents into the MEDxConnect system. As a fail-safe, if an electronic system is down or not available to the MEDxConnect system, any existing documents from that system can be input using the DM².

Technical Features

- Support for Windows NT/XP/Windows 7
- Standardized Windows printer driver installs onto any PC

Main Features

- DICOM and/or JPEG attachment support
- Attaches screen capture, gif, png, jpeg, bmp, tiff, txt, doc, pdf, etc
- Handles multiple page documents
- Provides user thumbnails to monitor image accuracy and quality
- Routes document as Secondary Capture to any DICOM appliance
- Attaches any printable document to patient exam on Virtual Worklist
- Patient order searchable by MRN, Accession Number, Patient Name, Procedure, and body part
- Support to attach document to one or many orders
- Ability to mandate required documents
- Workstation alerts for missing required documents
- Configurable document labeling
- Optimized search capability of document list

Editor Mediator Module (EM²)

Serves as a report editing platform for multiple vendor reporting systems with disparate databases

The EM² provides a vendor neutral platform for the manual edit of reports from multiple transcription and VR (voice recognition) systems. Upon completion of a report from separate systems with separate data bases, the voice or text files are prepared for the editor. An editor specific worklist provides the end user the ability to communicate with the radiologist, other editors and administrators - in addition to the other standard capabilities available on the MEDxConnect enterprise solution. The transcriptionist has the ability to perform standard transcription functions (access to templates, spell check, foot pedal controls, user short cuts, etc). When the edited report is completed, it is deposited in the radiologists unsigned queue on the radiologist's VW.

Technical Features

- Simple web interface requires no third party application downloads
- Transcription front end accessible from any internet enabled browser
- HTTP SSL encryption for secure communication over public networks

Transcription Features

- Worklist for exams in transcription queue
 - Priority exams highlighted and sorted
 - Searchable and sortable queue
 - Replay captured radiologist session voice file
 - Foot pedal integration for fast forward and rewinding of voice file?
 - Spell checker integrated into web interface
 - Ability to update dictionary
 - Auto load next report option for 1-click continuous editing mode.
 - Canned reports shortcut (Powerscribe PowerNormals)
 - Ability to hold and forward to Administrative users
 - Ability to send communication (info exchange) to signing radiologist
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Information Mediator Module (IM²)

Collects RIS demographic data entries

The IM² is a demographic input page that addresses the management of patient information in the absence of a RIS. Pertinent information required for current and future data tracking is available. The IM² contains patient demographics, exam types, procedure codes, patient history and other pertinent patient information. Use of the IM² will allow the user the ability to attain available information prior to and at the time of exam and to automate many processes in the MEDxConnect solution, including the OM² and AM² features.

The IM² offers users the following benefits:

- Ability to pre-fetch prior studies
- Ability to send patient status for exams – stat, ASAP
- Ability to alert physician of study information

Order Mediator Module (OM²)

Generates orders from DICOM images in the absence of a RIS

The Order Mediator Module (OM²) provides order information for new studies when an order is not available to the MEDxConnect system from a RIS system. The OM² creates an order within the M³ server, which includes all the information necessary for the MEDxConnect system to route and process according to customer requirements. In other words the result is the same as an RIS created order. In environments where the HL7 interface is not present, the order is automatically created by M³ from the DICOM header information when it receives studies without a corresponding order.

The OM² offers the benefits of:

- The ability to track orders in environments lacking order entry functionality
- The ability to maintain consistent workflow when existing order entry systems are temporarily unavailable
- The ability to modify existing orders and add to pending orders in M³

The OM² increases efficiency for the Healthcare Enterprise and thereby has the ability to reduce cost.

Speech Mediator Module (SM²)

Optimizes the utilization of disparate transcription and voice recognition systems with multiple databases to improve radiologist efficiency and report turnaround time

The SM² interfaces with existing transcription and VR (voice recognition) systems for seamless and consistent report dictation for the interpreting physician. Gone are the days of finding the correct microphone and/or dialing phone numbers for multiple transcription services. The SM² interfaces with the existing on-site system and mediates where the data is to be sent and in what format. It translates, mediates and communicates various reporting formats and distributes them through the M³. Reporting configurations include report text, audio files, wave files and MP3 files.

- Maintains integrity of existing transcription/ VR system
- Eliminates the challenges of multiple transcription/ VR data bases
- Impacts radiologist efficiency and report accuracy and improves report turn-around time

The SM² in combination with the Compressus VW provides the radiologist the capability to sign-off on any report regardless of location origination or system utilized for report edits.

Voice Mediator Module (VM²)

Offers a versatile and superior voice dictation software based on the Nuance Dragon engine

The VM² is the integrated solution for fast, efficient diagnostic reporting on a MEDxConnect system. It provides the radiologist with the ability to generate diagnostic reports in cooperation with various third party diagnostic workstations. Radiologists create and submit reports from patient studies claimed on the MEDxConnect Virtual Worklist (VW) or create an addendum for previously submitted reports. As they dictate their reports, the VM² automatically converts the voice dictation to text, in real time. The VM² provides report processing, and the ability to create, edit, and share report macros.

The VM² offers users the following benefits:

- Coordinates with the Virtual Worklist (VW) for current and historical data
- Submits reports to the MEDxConnect M³ server, which routes the report to the appropriate radiology information system (RIS)
- Supports third-party workstations and auto-loads studies
- Uses the commercially available DragonNaturallySpeaking software to capture dictation and voice commands
- Supports a central voice file server so that voice profiles and report macros can be shared across multiple workstations

The Compressus Product, MEDxConnect is protected by U.S. Patent Nos. 7,836,081; 7,630,371; 7,801,382; and 7,653,252.

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