

Workflow Solutions

Data Collection, Data Review and Data Management



Workflow

Finding more efficient ways to support patient needs begins with better workflow management. MGC Diagnostics has developed a complete workflow system which combines healthcare industry standards and best practices with flexibility and support. MGC Diagnostics makes it easy to build and customize powerful workflow solutions to save time and effort – allowing the focus to be on the patient. MGC Diagnostics flexible workflow solutions are separated into 3 categories: Data Collection, Data Review and Data Management.



Data Collection

[BreezeSuite™ Cardiorespiratory Diagnostic Software]

The heart of MGC Diagnostics' workflow solutions package is BreezeSuite cardiorespiratory diagnostic software. This versatile software combines gas exchange and pulmonary function testing into one powerful application that sets a new standard for ease of use. The easy-to-use cardiorespiratory diagnostic software contains extensive options for predicted sets, customizable displays and reports, and integrated software options. BreezeSuite cardiorespiratory diagnostic software provides several technological advantages:

- Works on any computer meeting Microsoft Windows® operating system requirements.
- Compatible with commercial off-the-shelf (COTS) anti-virus and anti-malware software.
- Works over customer's network domain.
- No Administrator or power user rights needed for daily use.
- Full-Disk Encryption support.

Data Review

[BreezeReview™ Physician Review Software]

BreezeReview physician review software combines workstations with review stations. All workstations and review stations share the same database. A physician can review, interpret, change review status, and electronically sign results as the workflow dictates. Results can be posted through BreezeConnect HL7 interface software to the EMR system. BreezeReview physician review software can be installed on a Citrix server (Citrix BreezeReview™ physician review software option required).

[Citrix BreezeReview™ Physician Review Software]

With Citrix BreezeReview physician review software, diagnostic test results can be remotely reviewed, interpreted, electronically signed and review status changed from any internet connection. Results can be posted through BreezeConnect HL7 interface software to the EMR system.



[BreezeSuite MultiUser™ Networking Software]

BreezeSuite MultiUser networking software connects cardiorespiratory diagnostic systems and review stations so data can be shared and stored in a central Microsoft SQL Server® database. This networking software allows all workstations to share one database from either a local area network (LAN) or a wide area network (WAN). Reports, reference values, and statements can be standardized from each site. With an enterprise friendly approach, IT/IS departments can use their approved hardware without separate vendor hardware. BreezeSuite MultiUser networking software provides the following benefits:

- All diagnostic workstations, review stations and HL7 interface software connect to one database.
- All systems and review stations use the same software and software version.
- Diagnostic test results are immediately available for physician review.
- Use of Microsoft SQL Server for database management with no dedicated server requirement.
- Automated data backup reduces the risk of data loss and expense of retesting.
- Virtual Server Support.
- SQL Server Clustering Support
- ePHI is stored in customer’s Data Center with no data stored at rest.

[BreezeConnect™ HL7 Interface Software]

BreezeConnect HL7 interface software allows any number of networked systems to send and receive data from the facility’s electronic medical records (EMR) system. The interface software is compatible with most commercial and facility-developed hospital information systems (HIS), allowing access to patient information from any location tied to the facility’s EMR system.

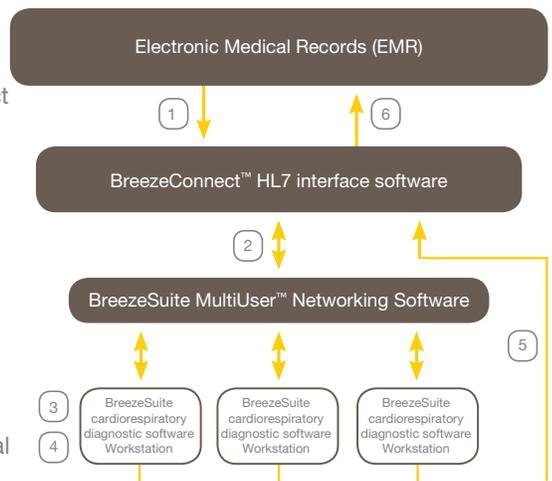
HERE’S HOW IT WORKS:

Patient orders or patient demographics (ADT) are received on a workstation. After the test is completed and interpreted, the test data, PDF report, text report or a combination of these is sent to the EMR system. BreezeConnect HL7 interface software also provides the following advantages:

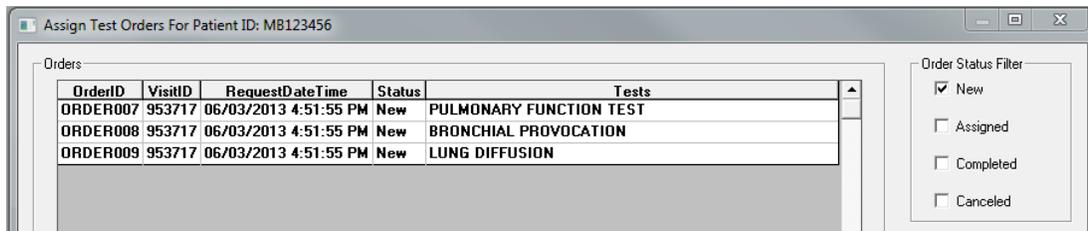
- Automatic data transfer and entry is time-efficient and reduces the unnecessary expense of errors and misplaced test retrieval.
- Eliminates the need to configure or customize programming to convert HL7 data.
- Patient identification numbers, demographics (ADT) and physician orders (ORM) can be downloaded to the MGC Diagnostics BreezeSuite cardiorespiratory diagnostic software database. Patient test results (ORU) and interpreted reports can be uploaded to the EMR system.
- Utilizes the HL7 2.x standard as well as TCP/IP and MLLP (minimal lower layer protocol) for data transfer.



1. Patient ADT (Demographics) or Orders are sent from the EMR to the BreezeConnect HL7 interface software.
2. The patient ADT or Orders are sent from the BreezeConnect HL7 interface software to BreezeSuite MultiUser SQL database.
3. The appropriate fields in BreezeSuite cardiorespiratory diagnostic software are populated with Patient Demographics and/or Orders.
4. Operator performs requested patient tests.
5. The preliminary or final test result is released by the operator or physician.
6. Results are converted to HL7 and sent to Electronic Medical Records (EMR). Additionally, reports containing graphics may be sent via PDF file in the HL7 message to the EMR.

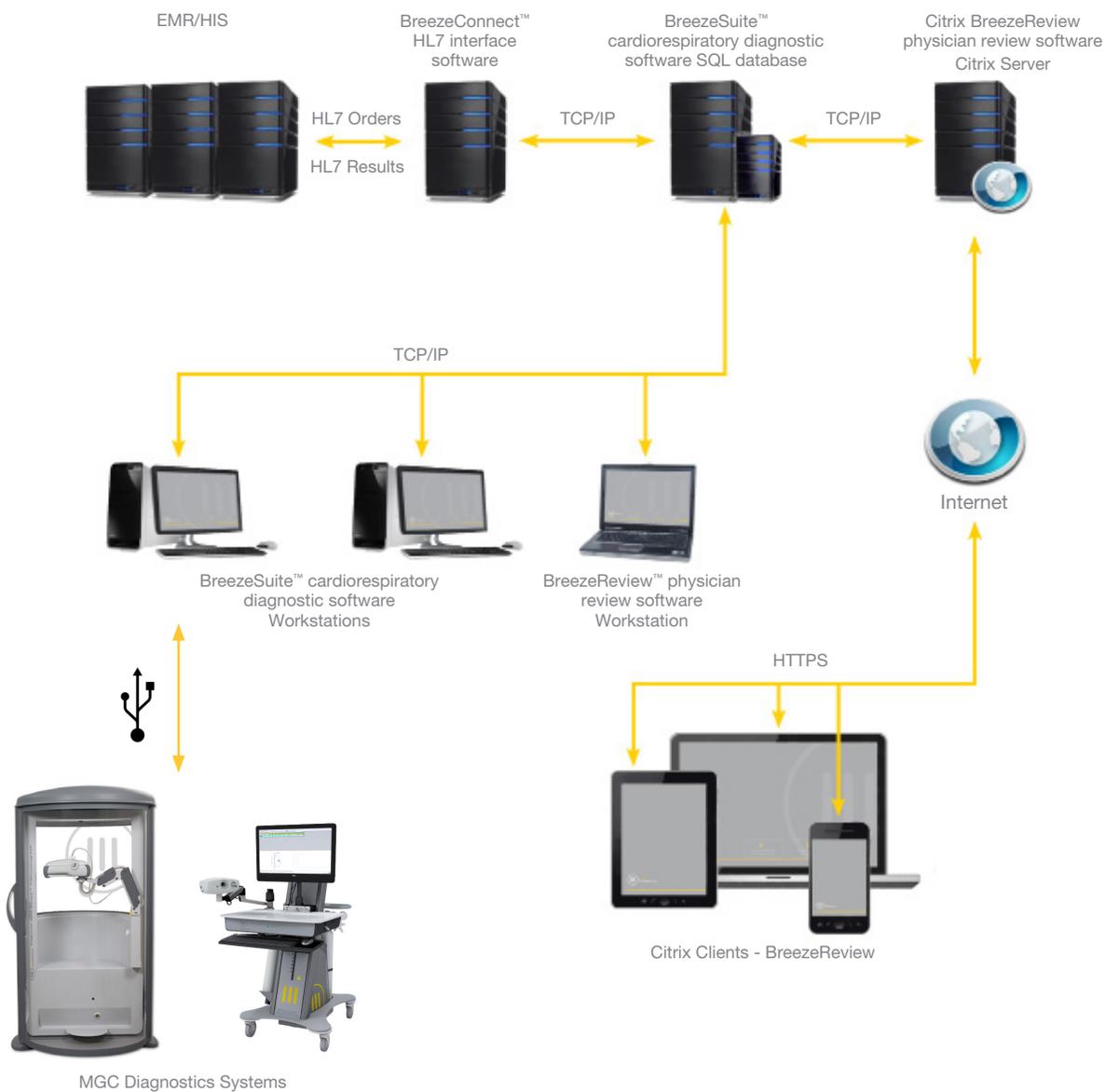


Electronic
Physician
Order Entry



BreezeSuite™ cardiorespiratory diagnostic software displays patient tests ordered by the clinician.

How it Works



Application

Rapid Access to Patient Data
 “We want to bring a patient into any testing room and pull up their historical test results or view spirometry data from the Pulmonary Lab when the patient arrives for a test in Cardiology.”



BreezeSuite MultiUser™ networking software Install networking software on MGC Diagnostics’ systems and connect to a centralized database located on a server. Patient data can now be retrieved and viewed on any testing system or department workstation connected to the network without interrupting workflow.

Faster Turnaround of Reviews and Interpretations “Our doctors want to review, interpret and save test data from their office or home.”



BreezeSuite MultiUser networking software
 BreezeReview physician review software
 Create a BreezeSuite MultiUser diagnostic system network and add BreezeReview physician review software to computers on the network. Physicians can now retrieve, interpret and trend patient results in their office, eliminating the need to manage paper reports. This accelerates completion of interpretations and makes the diagnosis available for rapid clinical follow up.

Wider Availability to Patient Test Results “We want to get our final reports into the EMR so they can be viewed from anywhere in the hospital.”



BreezeSuite MultiUser networking software with BreezeConnect HL7 interface software Using the BreezeConnect HL7 interface software, patient results can be sent from the BreezeSuite MultiUser network to the EMR for viewing on any EMR workstation.

Enhanced Workflow and Reduced Errors “We need to reduce entry errors and add the efficiency of entering new patient demographics by accessing the information electronically.”



BreezeSuite MultiUser networking software with BreezeConnect HL7 interface software
 With BreezeConnect HL7 interface software, patient demographic records and physician orders can be sent to the BreezeSuite MultiUser central database for access at the diagnostic workstation.

Specifications

[HL7 INTERFACE APPLICATION SERVER SPECIFICATION (IM v8.15)]

Operating System	<ul style="list-style-type: none"> ◦ Windows Server 2008 (R2) (Standard edition) (64-bit) ◦ Windows Server 2012 (R2) (64-bit) ◦ Windows Server 2016
Processor	◦ Dual Core or greater
Hard Disk	<ul style="list-style-type: none"> ◦ 80 GB <p><i>NOTE: Additional hard disk space is required based on the amount of data to retain and duration.</i></p>
Hard Disk Speed	<ul style="list-style-type: none"> ◦ 7200 RPM or higher <p><i>NOTE: Faster hard drive speeds correspond to improved performance</i></p>
Memory	◦ 4+ GB recommended
EMR/HIS Connectivity	◦ Options include: Client/Server connectivity via TCP/IP (Static IP address) or file exchange
Virtual Machine Support	◦ Yes

[DATABASE SERVER SPECIFICATION (BreezeSuite Software v8.5 or Higher)]

Operating System	<ul style="list-style-type: none"> ◦ Windows Server 2008/2008 (R2) ◦ Windows Server 2012/2012 (R2) ◦ Windows Server 2016
Processor	<ul style="list-style-type: none"> ◦ 2.0 GHz or faster recommended
Hard Disk	<ul style="list-style-type: none"> ◦ 80+ GB recommended
Memory	<ul style="list-style-type: none"> ◦ 8+ GB recommended
Network	<ul style="list-style-type: none"> ◦ TCP/IP networking installed ◦ DHCP or static IP Address
Virtual Machine Support	<ul style="list-style-type: none"> ◦ Yes
64-bit OS Support	<ul style="list-style-type: none"> ◦ Yes
SQL Server Versions Supported	<ul style="list-style-type: none"> ◦ SQL Server 2008 (Workgroup, Standard or Enterprise edition) ◦ SQL Server 2008 (R2) (Workgroup, Standard or Enterprise edition) ◦ SQL Server 2012 (Standard or Enterprise edition) ◦ SQL Server 2014 (Standard or Enterprise edition) ◦ SQL Server 2016 (Standard or Enterprise edition)
SQL Server Configuration	<ul style="list-style-type: none"> ◦ SQL Server is installed with SQL or Mixed Mode Authentication ◦ TCP/IP protocol enabled on Server Service and Native Client Service ◦ Named Pipes protocol enabled on Server Service and Native Client Service
BreezeSuite SQL Database	<ul style="list-style-type: none"> ◦ Software databases require approximately 50 MB disc space when empty ◦ Database size growth should be expected at approximately 1 GB per 5000 patient tests stored ◦ Total space requirements will depend on archived data size, testing volume and database maintenance ◦ MGC Diagnostics recommends allocating 40+ GB for software databases

[WORKSTATION SPECIFICATION (BreezeSuite Software v8.5 or Higher)]

Operating System	<ul style="list-style-type: none"> ◦ Windows 7 (Pro, Ultimate or Enterprise edition) SP1 ◦ Windows 8.1 (Pro or Enterprise) ◦ Windows 10 (Pro or Enterprise edition)
Processor	<ul style="list-style-type: none"> ◦ Dual Core or greater recommended
Hard Disk	<ul style="list-style-type: none"> ◦ 80+ GB recommended
Memory	<ul style="list-style-type: none"> ◦ 4+ GB recommended
Windows Display Properties	<ul style="list-style-type: none"> ◦ 1024 x 768 minimum resolution
Other Hardware	<ul style="list-style-type: none"> ◦ 3+ USB ports ◦ 8+ USB ports for Ultima Series™ cardiorespiratory diagnostic systems
Network	<ul style="list-style-type: none"> ◦ TCP/IP networking installed ◦ DHCP or static IP Address
System Type	<ul style="list-style-type: none"> ◦ x86 (32-bit) and x64 (64-bit) PC hardware and operating systems are supported <p><i>NOTE: Ultima™ CardiO₂® X-Scribe 3.x systems DO NOT support x64 (64-bit) or Windows 10 operating systems.</i></p>

[CITRIX SERVER SPECIFICATION (BreezeSuite Software v8.5 or Higher)]

Operating System	<ul style="list-style-type: none"> o Windows Server 2008/2008 (R2) o Windows Server 2012/2012 (R2) o Windows Server 2016
Processor	<ul style="list-style-type: none"> o 2.0 GHz or faster recommended
Hard Disk	<ul style="list-style-type: none"> o 40+ GB recommended
Memory	<ul style="list-style-type: none"> o 4 GB minimum o 8+ GB recommended
Windows Display Properties	<ul style="list-style-type: none"> o 1024 x 768 minimum resolution
Network	<ul style="list-style-type: none"> o TCP/IP networking installed o DHCP or static IP Address
Virtual Machine Support	<ul style="list-style-type: none"> o Yes
64-bit OS Support	<ul style="list-style-type: none"> o Yes
Virtual Machine Support	<ul style="list-style-type: none"> o Yes

[PERFORMANCE SPECIFICATIONS FOR CITRIX SERVER]

BreezeReview Process CPU Usage	<ul style="list-style-type: none"> o Minimum - 1.5 MHz o Average - 450 MHz o Maximum - 3500 MHz
BreezeReview Process Memory Usage	<ul style="list-style-type: none"> o Minimum - 75 Kb o Average - 140 Kb o Maximum - 600 Kb
BreezeReview Process Disk I/O	<ul style="list-style-type: none"> o Average - 50 B/sec Read o Maximum - 500 B/sec Read
Hard Disk Speed	<ul style="list-style-type: none"> o 7200 RPM



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Part# 060088-001 RevL