

Matrix System Requirements

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This document describes MDI Achieve's configuration recommendations for client networks running the Matrix application. As the Matrix application continues to mature, the recommendations provided are subject to change without notice. Please contact MDI Achieve Support before purchasing new equipment to ensure that you have the most current version of this document.

Note: *The recommendations contained in this document are intended for general system usage and do not cover periods such as training. Training increases the number of concurrent users and can potentially result in temporary performance issues. If this is a concern for your organization, (for example, if you provide on-going internal training for your employees), then you may want to consider purchasing a training environment that is separate from your production Matrix environment.*

Technical Description

Matrix is a hosted, Web-based application that is intended for use by Long Term Care facilities. Matrix is accessed via the Internet using Microsoft Internet Explorer. The hosted environment consists of several application servers, report servers, and database servers, that run on Windows Server 2003 or Windows Server 2008 in a SAS70 compliant data center.

When a Matrix user logs into the application, they establish a connection between the application server and a Microsoft SQL 2005 or Microsoft SQL 2008 database server, where all resident data is stored. When a report is requested in Matrix, the application server passes the request to a cluster of load-balanced report servers that generate the report and saves a PDF file to the user's computer. All resident-related user activity is tracked in a separate HIPAA database that Matrix facility administrators use to monitor user activity.

Client Hardware Requirements

Minimum – Hardware

- Pentium 4 or AMD Athlon XP
- 1 GB memory
- 10/100MB network interface card
- 15" monitor
- 800 x 600 desktop resolution
- Windows compatible laser printer

Recommended – Hardware

- Intel Core2Duo or AMD Athlon X2
- 2 GB memory (preferably more)
- 10/100/1000MB network interface card
- 17" monitor (or larger)
- 1024 x 768 desktop resolution (or higher)
- Windows compatible laser printer

Client Software Requirements

Minimum Software

- Windows XP SP3
- Internet Explorer 7.0 (32-bit)
- Adobe Reader 9.0 (32-bit)

Recommended Software

- Windows XP SP3 or Windows 7 (32-bit or 64-bit)
- Internet Explorer 7.0 or 8.0 (32-bit)
- Microsoft Excel 2003 SP2

Tablet devices can be used with the POC and eMAR modules in Matrix. A Windows workstation operating system must be installed on the device, unless you connect to a Microsoft Windows Terminal Server or Citrix server to provide required access to Internet Explorer.

Client Network Requirements

Matrix operates successfully on most network. However, MDI Achieve recommends that your network hardware consist of routers, switches, and firewalls intended for business use (not home office use). Cisco® network equipment is recommended, but not required.

- **Routers:** Dedicated hardware routers should be used to direct traffic across your network, and to increase the priority of Matrix network traffic if possible.
- **Firewalls:** Dedicated hardware firewalls should be installed between your Internet connection and your internal network.

***Note:** Firewall settings can potentially block Matrix functionality. Ensure any firewalls are configured correctly.*

- **Ports:** Ports 80 and 443 must be open to outbound connections to ensure full Matrix functionality.

Internet Connection

Using a reputable Internet Service Provider and dual Internet connections ensures that Matrix is tightly integrated into your organization's processes. Although Matrix runs effectively on a single Internet connection, MDI Achieve recommends that you purchase a second Internet connection from a different service provider, (*which may be slower*), to ensure that your staff has access to Matrix even if your primary Internet connection is down.

Bandwidth

MDI Achieve strongly recommends that your organization take steps to prevent users from wasting bandwidth. This can be accomplished using several methods, such as, Websense®, Barracuda®, firewall rules, internally mandated policies, and so on. When users access streaming audio or video, or surf the web incessantly, then your facility's bandwidth is unavailable to users who are working in Matrix, (*be sure to allow Matrix traffic and assign it a higher priority (if possible) when configuring your content filtering software or appliance and/or other network equipment*). As with any web-based application, if bandwidth is not available, then users will experience slowness.

The following table contains minimum bandwidth recommendations for facilities of various sizes. The information contained in the table below applies to Matrix and does not account for other Internet activity at your facility. If the Internet connection at your facility is not dedicated to Matrix, then you may need to increase the speed of your connection, (depending on usage patterns). Please keep that in mind when evaluating your organization’s bandwidth needs.

Number of Concurrent Matrix Users	Minimum Upload and Download Speed
1-5 concurrent Matrix users	At least 512 Kbps (upload and download)
6-10 concurrent Matrix users	At least 1 Mbps (upload and download)
11-20 concurrent Matrix users	At least 2 Mbps (upload and download)
21-30 concurrent Matrix users	At least 3 Mbps (upload and download)
31 concurrent Matrix users or more	At least 4 Mbps (upload and download)
Whenever possible, minimum bandwidth recommendations should be exceeded.	

Matrix Workstation Configuration

The Matrix Workstation Configuration document contains detailed instructions for setting up a Matrix workstation, including Internet Explorer settings, Adobe Reader settings and more. There are also several module-specific configuration addendums available:

- **EE** - Enterprise Edition
- **eMAR** - Electronic Medication Administration Record
- **POC** - Point of Care
- **PowerAccess** - previously known as DataAccess

Matrix POC Devices

Matrix POC (Point of Care) is an add-on module for Matrix that can be used for bedside charting. Many POC clients use wirelessly connected, cart-mounted laptops with extended-life batteries, but some clients prefer to use hard-wired, wall-mounted “kiosks”, or “All-In-One” touch-screen computers. In addition, some clients use wirelessly connected tablet devices, (tablets must be capable of **800 x 600** desktop resolution). Due to the wide variety of acceptable options available, MDI Achieve does not recommend specific computers for Matrix POC, but many clients have said that they are pleased with the performance of the HP units that they have purchased.

- **Minimum Desktop Resolution:** 800 x 600
- **Number of Devices:** Depends on the needs of the facility, but typically one device for every 10 beds.
- **Hardware and Software Requirements:** Same as Matrix, (above).
- **Device Location:** Wall mounted devices should not extend out more than 3.5 inches from the wall and should be mounted at least 60 inches above the floor. Mobile devices should be locked in a secure location and connected to a battery charger when they are not in use.
- **Additional Information:** Refer to the “Matrix Workstation Configuration – POC Addendum”.

Matrix eMAR Devices

Matrix eMAR (Electronic Medication Administration Record) is an add-on module for Matrix which can be used for medication administration. In order to successfully implement Matrix eMAR, you will need to use wirelessly connected, cart-mounted laptops with extended-life batteries, or modern tablet devices. (Tablet devices must be capable of 1024 x 768 desktop resolution). Due to the wide variety of acceptable options available, MDI Achieve does not recommend specific computers for Matrix eMAR. However, many clients have said that they are pleased with the performance of the HP units that they have purchased. Touch screen computers are recommended, but not required.

- **Minimum Desktop Resolution:** 1024 x 768
- **Number of Devices:** Depends on the needs of the facility.
- **Hardware and Software Requirements:** Same as Matrix, (above).
- **Device Location:** The eMAR cart should be *constantly* attended when it is not locked in a secure location, and the eMAR device should be connected to a battery charger when it is not in use.
- **Additional Information:** Refer to the “Matrix Workstation Configuration – eMAR Addendum”.

Resident Photo Uploads

Resident photos need to be cropped and/or re-sized before they are uploaded to Matrix.

- **Width:** 75 pixels
- **Height:** 100 pixels

Note: You can only upload .jpg files when you are uploading resident photos.

Provider Fax Machine Requirements

Matrix clients are required to send the information listed below to their Lab / Radiology Providers.

The following are requirements for uploading documents to Matrix from a provider:

Hardware

- Laser or laser quality fax machine with at least a 300DPI fax mode.

Function

- 300DPI required (600DPI preferred when faxing documents).
- Refrain from using the lowest fax quality setting.

Additional Notes

- **IP Restrictions:** MDI Achieve does not provide the service of restricting application access to a limited range of IP addresses. There are several reasons for this, but avoiding extended outages is foremost amongst them. For example, if your organization’s Matrix environment was only accessible from a specific IP address, (or range), and your IP address changed for some reason, then it could take up to 72 hours for the problem to be resolved.
- **Thin Clients and Terminal Servers:** Matrix is fully supported on Microsoft Windows *workstation* operating systems. If your organization will be using thin clients to access Matrix via Internet Explorer on a Microsoft Windows Terminal Server or Citrix server, then please note that support for Matrix on Microsoft Windows *server* operating systems is limited to application functionality, and does not cover the configuration of the terminal server, or printing problems that cannot be duplicated by Support, or performance problems that can’t be duplicated by Support.

- **SAS70 Compliance:** Matrix is hosted at multiple SAS70 compliant data centers. SAS70 is a widely recognized auditing standard developed by the American Institute of Certified Public Accountants (AICPA). Successful completion of a SAS70 audit confirms that an organization has been through an in-depth audit of their internal control objectives and activities. MDI Achieve data centers undergo a SAS70 audit annually. Proof of SAS70 compliance can be requested from MDI Achieve Support.
- **Performance Disclaimer:** Intermittent system slowdowns may occur during high volume facility activities, such as the month-end-close process or the creation of flow sheets. This is due to a combination of factors, including the amount of available bandwidth at your facility, and the workload that is being processed on the Matrix servers, (true of all client/server applications).
- **MDI Achieve Support:** If you have any questions, please contact MDI Achieve Support and ask to speak to a technical analyst: 1 (800) 869-1323 or email: support@mdiachieve.com.