System Requirements for ABELMed EHR-EMR/PM Clinical and Administrative Software

Computers running ABELMed EHR-EMR/PM MUST meet or exceed the recommended specifications. There are two configuration options for ABELMed:

- Thick client, where ABELMed is installed on the server and every client workstation. This is suitable for small practices using a peer-peer network.
- Thin client, using Microsoft Remote Desktop Services (RDS) formerly terminal services. With this approach, ABELMed runs on a Windows server(s) running RDS, Client workstations run the ABELMed application on the server, not locally. Such "thin" client workstations can be Windows Terminal appliances, low end computers, or even older PC's. There are exra licensing fees for RDS and other software required for scanning but potential savings in ongoing hardware and administration. This approach is suitable for larger practices with existing hardware. This approach is the only suitable approach for multi-site or hosted implementations.

Important Warning: In order to avoid purchasing inadequate hardware, always refer to the current System Requirements on the ABEL Web site. Printed copies can become out of date.

Component	Recommended for ABELMed v9 or greater	Details
Server for 1-2 Physicians/Healthcare Providers (Approximately 2-8 workstations)	Intel Xeon E3 series or better (quad core 8MB cache), 8 GB RAM, 2x 500 GB HD (RAID1), DVD Microsoft Windows Server 2016, 2012/R2, 2008R2 Foundation, or Standard Edition with appropriate number of CALs If using thin client approach: Windows Remote Desktop Services with CALs for each workstation. **Server Essentials is not supported as Essentials does not support RDS**	Desktop operating systems such as Windows Pro 10/8.1/8/7 can function as servers for small thick client implementations. Above 5 workstations a server operating system is more appropriate. Home editions are not supported. XP, Vista and Windows Server 2003 are not supported. Faster processors generally give better performance. Faster models are released every few months. The fastest processors are usually higher priced however are recommended for better performance. Intel Xeon E3 series processors (with 8 or 12MB of L2 cache) are a good value for small practices. Larger hard drives are released every few months and in general the more storage capacity the better. If you are loading several software packages, or are storing digital images or x-rays on the system, larger drives with storage capacities in the range of 500-1000 GB are recommended.
Server for 3-5 Physicians/Healthcare Providers (Approximately 9-19 workstations)	Intel Xeon E5 series (E5-1607 or better, min 8MB cache), 12-16 GB RAM (or more depending on number of users), 2x 500 GB HD w/RAID1, DVD Microsoft Windows Server 2016, 2012 /R2, 2008R2 Standard Edition with appropriate number of CALs for each workstation If using thin client approach: Windows Remote Desktop Services with CALs for each workstation. **Server Essentials is not supported as Essentials does not support RDS**	See above. Intel Xeon or AMD Opteron are both appropriate processors for larger servers. Intel Xeon E5 series processors with at least 8MB of cache are a good choice. Additional separate hard drives for SQL data and transaction logs can improve database performance. When the Terminal Server/Application server roles are combined with the Database Server on a single physical server then larger drives with storage capacities in the range of 1-2 TB may be more appropriate. **Adequate RAM for the number of users is imperative. Allow at least 500MB per instance of the application for good performance.**
Additional Application / Terminal Server(s) for 6 or more Physicians/Healthcare Providers (>20 workstations)	Server with dual or quad core processor(s), 120GB HD (RAID 1). For RAM requirements please see the details column. Windows Server 2016, 2012/R2, 2008R2 with Remote Desktop Service and appropriate number of RDS and Windows CAL's	At about 6 physicians it is recommended that additional server(s) be introduced, separating the database and application/terminal server roles. ABEL typically recommends one database server meeting the specs above, and one or more application/terminal servers hosting the ABELMed application. When DB/File server and Terminal server(s) are separate physical servers then disk space on the terminal server is not as critical, even 120GB of storage will be adequate. We recommend that you mirror the disk for redundancy to mitigate the risk of disk failure. **Adequate RAM for the number of users is imperative. Allow at least 500MB per instance of the application for good performance.**
Thick Client workstations or Stand Alone System	Intel i3, i5, or i7 processor, 4GB RAM, 250 GB HD. Windows 10/8.1/7 Pro or Ultimate. See Details column.	Disk size is not critical for client workstations, smaller than 250GB would be acceptable as ABELMed does not store data on client workstations. Solid state disks (SSD) will perform better than spinning disks.
Thin client / terminal	Intel i3, i5, or i7 processor, 4GB RAM, 120 GB HD. Windows 10/8.1/8/7 Pro PC with remote desktop client or Winterminal appliance. See Details column.	Several options are available for thin client workstations: • Many older network enabled Windows PC's using Windows can act as dumb terminals by running the Remote Desktop Client • New PC's, notebooks, or tablets even those running consumer/home operating systems or PCs that don't meet ABELMed requirements can act as dumb terminals by running the Remote Desktop Client • Windows terminal appliances can be used as clients instead of using full PC's
Tablets & Notebooks	(Intel Atom, i3, i5, or i7 mobile), 4GB RAM, 120 GB HD. Windows 10/8.1/8 (not RT), Windows 7 Pro, Vista Business or Ultimate	For those who wish to use wireless networks 802.11ac, g or n are appropriate standards. **WPA2 is the minimum standard acceptable for wireless security**. Wireless tablets/notebooks/laptops should only be used as thin clients. MS Surface Pro 2/3/4, Lenovo Helix have been tested.
Display	19" LCD with 1280x1024x16 bit color	
Backup Unit (on server)	Online offsite backup services or External hard disks (USB or SATA).	Remote backups via the Internet are recommended. External hard drives can also be used, but we recommend a drive for each day of the week as a minimum so that recent backups are not overwritten. At least some backups should be stored offsite. **All external media, whether for backup or other purpose, should be encrypted before copying confidential information to it. BitLocker is recommended for encrypting backup disks.**

Platform Requirements for ABELMed EHR-EMR/PM Clinical and Administrative Software

Component	Recommended for ABELMed v9.03 or greater	Details
Database (on server)	Microsoft SQL Server. See Details column.	**MS SQL Server** is required for ABELMed PM-EMR. This comes in several versions. ABEL can bundle RUNTIME licenses of MS SQL Server 2016 with ABELMed. You can also purchase MS SQL Server with your hardware from your IT vendor. MS SQL Server client access licenses (CALs) for each workstation. The supported editions are; -Standard Edition (**2016**/2014/2012/2008R2) – **Recommended for most practices** -Enterprise Edition (2016/2014/2012/2008R2) **ABELMed Portal software feature requires SQL 2008R2 or greater.** -Workgroup Edition (2008R2) – Not recommended due to 4GB RAM limitation
Office Productivity	Microsoft Word 2016/2013/2010 Microsoft Access 2010 – see Details	Word is required for Prescriptions, Referral letters & Word Processing(Word 2007 min) Access is optional and may be used for custom reports (Access 2007 min)
Browser	Internet Explorer 11	Google Chrome is recommended for MCEDT
.NET Framework	Microsoft .NET Framework 4.x , 3.5	MS SQL Server still requires .NET 3.5
Modems (on server)	Optional – see Details column US Robotics / 3COM Sportster 56 Kbps (External models are recommended)	The MOHLTC requires registration for Internet claims, modems have been phased out. Labs no longer use modems for new registrations. **Modems are still supported for faxing**. If using modems we recommend a dedicated modem line or a line shared with a secondary device like a fax (only if lightly used). Do not select your main line or any line that will interfere with regular office calls when the modem is in use.
Health Card Reader	2 stripe card reader	Three stripe card readers also work. The Magtech models that were used previously do not work consistently in Remote Desktop Services / Remote Desktop sessions. The Unitech MS246 - Magnetic card reader - USB has been tested and works well.
Adobe Reader	Current version	Adobe Reader (free download www.adobe.com) is required to read user manuals.
Network Interface Card	1 Gbps NIC	In all situations where computers share information on a network, each PC will require a network interface card. They are typically buit into the computer.
Switch	1 Gbps switch	In a typical small business network the cables converge at an Ethernet switch. Gigabyte speed switches are recommended. A port is required for each computer.
Cable	Cat 6a, 6 or 5e Ethernet (See Details column.)	Ethernet cable will be required in your office running from each computer to a switch. The switch is normally located centrally in your office, possibly in a wiring closet.
Internet Communication	A high speed Internet connection is required for support purposes and updates. It will also be used if applicable for EDT, Labs, HRM etc.	A high speed Internet connection is required for support purposes. ABEL provides support via the Internet using ABEL provided tools; the customer just requires high speed Internet access and the Internet Explorer browser.
Laser Printer	Any printer with appropriate Windows Drivers (laser printers with 32MB RAM or greater are recommended)	HP LaserJet or LaserJet Pro models are good choices. Inkjet printers are not recommended for various speed and compatibility reasons. If buying new, Network printers are recommended for ease of setup with Remote Desktop.
Label Printer	DYMO Labelwriter 450 Thermal Label Printer	A number of customers have had problems with some of the other label printers. The DYMO 400 series has worked with all revisions tested.
Scanner	Recommended for EMR	ABELMed works with TWAIN compliant scanners. The speed for scanning the first page is an important factor when choosing a scanner, possibly more important than the pages per minute (ppm) statistic. The Brother ADS-2400N, HP Scanjet 5000 s2, Fujitsu fi-6110 and the Canon DR-2050c have worked very well for us. **Remote Scan Enterprise TS/CX, TS Scan or similar software is required to scan from non-network scanners connected to RDS clients www.remotescan.com , http://www.terminalworks.com/remote-desktop-scanning**
Uninterruptible Power Supply (UPS)	Any UPS matching the power required by your system.	A good UPS is strongly recommended on your server to keep it running through short power outages, and allow time for a proper shutdown in the event of longer outages. Look for a UPS with good surge suppression and power regulation to protect your server from spikes and fluctuations in the power.
Audio	Optional – Sound card and speakers	Sound capability with speakers or headphones required for ABELMed training videos.
Voice Dictation	Microphone & Dragon Medical Practice Edition	Verion 2 or 1. Dragon v10 was also tested.
Antivirus Software	See Details column.	AntiVirus Software, configured to check for definition updates on a daily basis, is strongly recommended for every PC connected to the Internet.
Encryption / Compression Software	Bitlocker 7-Zip or equivalent See Details column.	Bitlocker is recommended for encrypting the drive(s) on your server. 7-zip is Open Source (free) software that can be used to compress and encrypt data to be transferred over the Internet. It offers strong AES-256 encryption. Symantec PGP encryption can also be used when exporting records. More informat can be found at https://www.myabel.com/MedicalCDN/DataEncryption
Firewall / Router	See Details column.	A router or security appliance is required for all Networks with an Internet connection.
Vital Signs device	Optional, Welch Allyn Spot Vital Signs LXi	For BP, pulse, temperature (height & weight are manual entry into Spot LXi device)