

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

Computers running ABELMed EHR-EMR/PM MUST meet or exceed the recommended specifications. **In order to reduce your total cost of ownership, and allow maximum life and re-use of older hardware, ABEL ONLY SUPPORTS THE THIN CLIENT APPROACH using Microsoft Terminal Services for both local server-based systems as well as ASP.** With this approach ABELMed runs on a server(s) running Microsoft Terminal Services. Client machines also run the ABELMed application on the server, not locally. Such "thin" client machines can be Windows Terminal appliances, low end computers, or even older PC's.

**Important Warning: In order to avoid purchasing inadequate hardware always refer to the current Platform 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 Printed copies can become out of date.**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 *	<p>Intel Xeon E3 series or better (quad core 8MB cache), 8 GB RAM, 2x 500 GB HD (RAID1), DVD</p> <p>Microsoft Windows Server 2012 /R2 / 2008 R2 (64 Bit) Foundation, or Standard Edition with appropriate number of CALs</p> <p>Windows Remote Desktop Services CALs</p> <p><b>(Server 2012 Essentials is not supported as Essentials does not support RDS)</b></p>	<p><b>Desktop operating systems such as XP, Vista and Windows 10/8.1/8/7 are inappropriate to use on servers and hence are NOT supported. Client machines may use any of the aforementioned operating systems.</b></p> <p>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. Slower processors are not recommended.</p> <p>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.</p>
Server for 3-5 Physicians/Healthcare Providers *	<p>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</p> <p>Microsoft Windows Server 2012 R2 / 2008 R2 (64 Bit) Standard Edition with appropriate number of CALs for each workstation</p> <p>Windows Remote Desktop Services CALs</p> <p><b>(Server 2012 Essentials is not supported as Essentials does not support RDS)</b></p>	<p>See above.</p> <p>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.</p> <p>Additional separate hard drives for SQL data and transaction logs can improve database performance.</p> <p>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.</p> <p><b>Adequate RAM for the number of users is imperative. Allow at least 500MB per instance of the application for good performance.</b></p>
Additional Application / Terminal Server(s) for 6 or more Physicians/Healthcare Providers *	<p>Server with dual or quad core processor(s), 120GB HD (RAID 1). For RAM requirements please see the details column.</p> <p>Windows Server 2012 R2 / 2008R2 with Remote Desktop Service and appropriate number of RDS and Windows CAL's</p>	<p>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 40GB of storage will be adequate. We recommend that you mirror the disk for redundancy to mitigate the risk of disk failure.</p> <p><b>Adequate RAM for the number of users is imperative. Allow at least 500MB per instance of the application for good performance.</b></p>
Thin client / terminal	<p>Windows 10,8.1/8/7 Pro PC with remote desktop client or Winterminal appliance (See Details column)</p>	<p>Several options are available for thin client workstations:</p> <ul style="list-style-type: none"> <li>Many older network enabled Windows PC's using Windows can act as dumb terminals by running the Remote Desktop Client</li> <li>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</li> <li>Windows terminal appliances can be used as clients instead of using full PC's</li> </ul>
Tablets & Notebooks	<p>(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</p>	<p>For those who wish to use wireless networks 802.11ac, g or n are appropriate standards. <b>WPA2 is the minimum standard acceptable for wireless security.</b> Wireless tablets should only be used as thin clients. MS Surface Pro /2/3, Lenovo Helix have been tested.</p>
Display	<p>19" LCD with 1280x1024x16 bit color</p>	
Backup Unit (on server)	<p>Online offsite backup services or External hard disks (USB or SATA).</p>	<p>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. <b>All external media, whether for backup or other purpose, should be encrypted before copying confidential information to it.</b></p>

\*ASP customers do not require a local file server

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Database (on 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 2014 with ABELMed. You can also purchase MS SQL Server with your hardware from your hardware vendor. You will also require MS SQL Server client access licenses (CALs) for each workstation. The supported editions of MS SQL Server are; -Workgroup Edition (2008R2/2005) – Not recommended due to 4GB RAM limitation -Standard Edition (2014/2012/2008R2/2005) – <b>Recommended for most practices</b> -Enterprise Edition (2014/2012/2008R2/2005) – Requires MS Windows 20xx Server <b>Portal requires SQL 2008R2 or greater.</b>
Office Productivity	MS Word 2013/2010 MS 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 or 10	Google Chrome is recommended for MCEDT
.NET Framework	MS .NET Framework 4,3,5	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. <b>Modems are still used for faxing.</b> 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 <a href="http://www.adobe.com">www.adobe.com</a> ) 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.
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 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 HP Scanjet 5000 s2, Fujitsu fi-6110 and the Canon DR-2050c have worked very well for us. <b>Remote Scan Enterprise TS/CX, TS Scan or similar software is required to scan from scanners connected to RDS clients</b> <a href="http://www.remotescan.com">www.remotescan.com</a> , , <a href="http://www.terminalworks.com/remote-desktop-scanning">http://www.terminalworks.com/remote-desktop-scanning</a>
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.
Sound Card & Speakers	Optional	A sound card with speakers or headphones is required for the ABELMed training videos and to view demo video clips.
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	7-Zip or equivalent See Details column.	7-zip is Open Source (free) software that can be used to compress and encrypt data if it has to be transferred electronically over the Internet. It offers strong AES-256 encryption in 7z and ZIP formats. Diskcryptor is recommended for practices that wish to encrypt entire server hard disk.
Firewall / Router	See Details column.	A router or security appliance is strongly recommended for all Networks with a high speed 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)