

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

This sheet is for existing customers trying to reuse existing hardware. If you are purchasing new hardware for a major upgrade we recommend that you look at the recommended server specs for new ABELMed customers. Computers running ABELMed EHR-EMR/PM MUST meet or exceed the recommended specifications. In order to reduce total cost of ownership, and allow maximum life and re-use of older hardware, ABEL strongly recommends a thin client (RDP/Terminal Services) approach. In such an approach ABELMed runs on a server(s) running Microsoft terminal services. Client machines can be either dumb Windows Terminals or even older PC's.

| Component  | Recommended (for v9.03 or greater CMS/EMR, Admin, Physio)  | Details  |
|--|--|--|
| File Server for 2-6 workstations *                       | <p>Intel Core 2 Duo 3.0 GHz or better or Core 2 Quad (or AMD equivalent), 4.0 GB RAM, 500GB Hard disk, 52X CD ROM or DVD, 1.4MB floppy drive.</p> <p>Windows 2012 R2/2008 R2 Server (64 bit)<br/>or<br/>Windows 7/8/10 Professional (64 bit)<br/>or<br/>Vista Business or Ultimate with SP1 (32 bit)</p> <p><b>Note that only 64 bit operating systems are supported from Windows Server 2008R2 and Windows 7 on. On older operating systems only 32 bit is supported.</b></p> | <p><b>Windows 10/8.1/8/7 Home, Vista Home and Windows XP are NOT supported. Windows Server 2003 is not supported.</b></p> <p>Faster processors generally give better performance. Faster models are released every few months. The fastest processors are usually disproportionately higher priced. The best performance for the dollar is usually found a couple steps down from the fastest processors available. The newer Dual and Quad core processors will perform well. These include Core 2 Duo, Core 2 Quad, i5, i7 from Intel and equivalent from AMD</p> <p>Larger hard drives are released every few months and in general the more space the better. Although even a 120GB may be sufficient for those who use their system primarily for ABEL software, 250GB will soon become the smallest drive that is readily available for purchase. If you are loading several software packages, or are storing digital images or x-rays on the system, a 1TB hard drive or better is recommended</p> <p>Windows Server 2012 R2 Remote Desktop Services is strongly recommended if remote sites are to connect to a common server. Windows Server 2008 (32 bit) and XP Pro (32 bit) are still supported</p> |
| File / Database Server for Greater than 6 workstations * | <p>Intel Core 2 Duo 3.0 GHz or better, or Intel Core 2 Quad or AMD equivalent, 8GB RAM, 320 GB Hard disk, 52X CD ROM, 1.4MB floppy</p> <p>Windows Server 2012 R2/2008R2 (64 bit) with client access licenses for each workstation</p> <p><b>Note that only 64 bit operating systems are supported from Windows Server 2008R2 on. On older operating systems only 32 bit is supported.</b></p>  | <p>See above.</p> <p>Intel Xeon or AMD Opteron are both excellent and appropriate processors for larger servers. Windows Server 2003 &amp; 2008 (32 bit) are still supported but can not address as much RAM as Windows Server 2008R2 or Windows Server 2012 R2 (64 bit)</p> <p>Additional hard drives for SQL data and transaction logs can improve database performance.</p>   |
| Application / Terminal Server                            | <p>Server with dual or quad core processor(s), 4GB+ of RAM, 120GB HD (RAID)</p> <p>Windows Server 2012 R2/2008R2 with Remote Desktop Services and appropriate number of RDS and Windows CAL's</p> <p><b>Note that only 64 bit operating systems are supported from Windows Server 2008R2 on. On older operating systems only 32 bit is supported.</b></p>  | <p>Notes in above cells apply to terminal server too.</p> <p>If File/DB server and Remote Desktop Server are separate physical servers then disk space on the Remote Desktop Server is not as critical, 40GB of storage will be plenty. You may still want to mirror the disk for redundancy.</p> <p>If the Remote Desktop Server/ Application server roles are combined into a single server with the DB/File server then 500GB, 1TB or larger drives will be more appropriate.</p> <p>An additional 2GB of RAM should be added for every 4 terminal services users</p> <p>Windows Server 2008 (32 bit) is still supported</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>When using a thin client approach several options are available for client workstations:</p> <ul style="list-style-type: none"> <li>Many older network enabled Windows PC's can act as dumb terminals by running the Remote Desktop Client</li> <li>New PC's 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>  |
| Client machines or Stand Alone System **                 | <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.</p>   |
| 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 802.11g or n is the appropriate standard. <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

\*\* ASP customers do not have to meet these requirements. Thin clients (Win Terminals) or older computers will suffice.

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| Component                          | Recommended ( v9.03 or greater CMS/EMR, Admin, Physio)   | Details  |
|------------------------------------|--|--|
| 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 2012 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;<br>-Workgroup Edition (2008R2/2005) – Not recommended due to 4GB RAM limitation<br>-Standard Edition (2014/2012/2008R2/2005) – <b>Recommended for most practices</b><br>-Enterprise Edition (2014/2012/2008R2/2005) – Requires MS Windows 20xx Server<br><b>Portal requires SQL 2008R2 or greater.</b> |
| Office Productivity                | MS Word 2013 / 2010<br>MS Access 2010 – see Details  | Word is required for Prescriptions, Referral letters & Word Processing(Word 2007 min)<br>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<br>US Robotics / 3COM Sportster 56 Kbps<br>(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                 | Any 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.  |
| 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 or Hub                      | 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<br>(See Details column)   | Ethernet cable is required in your office running from each computer to a switch or hub. 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. May also be used 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<br>(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><br><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<br>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.<br>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.  |
| Vital Signs device                 | Optional, Welch Allyn Spot Vital Signs LXi   | For BP, pulse, temperature (height & weight are manual entry into Spot LXi device)   |