System Requirements for ABELDent LS+ (Local Server) Clinical and Practice Management

Important Note: ABELDent will not perform at optimum levels on systems that meet only the minimum requirements. Minimum requirements are provided only for those attempting to extend the life of current hardware. **If you are purchasing new hardware, we recommend that you purchase hardware that meets or exceeds our recommended specifications so that you are ready as we add new functionality to ABELDent.** 64-bit platforms are recommended for ABELDent LS+.
**Don't rely entirely on paper copies of these specifications. Always check our web site for the most current requirements.

Component	Recommended	Minimum	Details
File Server for 2-8 workstations	Intel i5 2.5 GHz or better (or AMD equivalent) 8.0 GB RAM, 1TB Hard disk, DVD. Windows Server 2019 or Windows 10 Professional (64 bit) (English only)	Intel i5 or better (or AMD equivalent) 4 GB RAM, 240 GB hard Disk, DVD ROM Windows Server 2012R2 or 2016 or Windows 8.1 Pro (64 bit strongly recommended) (English only) CPU benchmark over 5,000	**Windows Home Edition is NOT supported. Windows versions older than Windows 8.1 or Windows Server 2012R2 are not supported by Microsoft or ABELDent LS+.** Faster processors are released every few months. Faster processors generally improve performance, but the fastest processors often have a disproportionately high price. The best performance for the dollar is usually a step or two down from the fastest processor available. Recent Dual or Quad core processors will perform well. These include, i5, i7 from Intel and AMD equivalents. Hard drives increase in capacity every few months. 120GB may be sufficient for basic ABELDent functions but the smallest drives now have several times that capacity. To store digital images, radiographs or scanned documents, 1 TB or more is recommended. In general, the more space the better. Redundant hard disks are strongly recommended (RAID 1 or better). Solid state drives (SSD) are optional and can perform significantly faster than spinning disks. Our cloud product ABELDent CS is the recommended solution for multi-site practices, however Windows Server 2019, 2016 or 2012R2 Remote Desktop Services is can be used to connect remote sites to a common server. Please contact ABEL technical support before using this approach if image capture or radiographic applications will be used at remote sites. Thin client appliances that only support 8-bit color are not supported as workstations that display images. **ABELDent is tested on standard edition for server operating systems. Other editions may work but are not officially supported.**
File Server for Greater than 8 workstations	Intel Xeon Silver 4110 or better (or AMD equivalent) 12GB RAM, 1 TB Hard disk, DVD. Windows Server 2019 with client access licenses for each workstation **(English only)**	Intel i5 or better (or AMD equivalent), 8.0 GB RAM, 240 GB Hard disk, DVD ROM Windows Server 2012R2 or 2016 with client access licenses for each workstation **(English only)** **CPU benchmark over 6,000**	See above. Intel Xeon and AMD Opteron are both excellent and appropriate processors for larger servers. Windows Server Foundation Edition is a great value for small practices that will not exceed 10-15 workstations (including access from offsite).
Client machines or Stand Alone System	Intel i5 2.5 GHz or better, 4GB RAM, 250 GB Hard disk, DVD **Windows 10 Pro** (English only) **Recommended in order to be able to utilize new functionality as it is added to ABELDent.**	Intel i3 or better (or AMD equivalent) 4 GB RAM, **80 GB Hard disk, CD ROM,** Windows 8.1 Pro (English only) CPU benchmark over 4,000	ABELDent is designed for use with Windows 10/8.1 Pro, Windows Server 2019/16/12R2 **(English only)**. **Windows Home Edition is NOT supported.** **Please check with your vendors (imaging, radiography, accounting, etc.) to make sure they will support their software/hardware on your operating system.** ABELDent LS+ **does not support** older operating systems. Use of unsupported operating systems can lead to failure of the software and/or damage to system data. Solid state drives (SSD) are recommended and can perform significantly faster than spinning disks. Recent Dual or Quad core processors will perform well. These include Core i3, i5, i7 from Intel and AMD equivalents. Apple Mac computers can be used using Boot Camp or Parallels emulation to run Windows. See your Mac expert for information on Parallels or Boot Camp.
Database (on server)	**MS SQL Server is the database platform for ABELDent LS+.** **MS SQL Server 2019, 2017, 2016, 2014, or 2012, with Client access licenses (CALs) for each workstation, is required. Older versions are not supported by ABEL or Microsoft.** ABELDent LS+ supports MS SQL Server Standard Edition. Standard Edition is strongly preferred as the older SQL's with Workgroup Edition have a RAM limitation that is likely to cause performance problems. As a Microsoft Gold Partner, ABEL can provide MS SQL Server Standard Edition Runtime licenses with ABELDent-SQL at an attractive price. Enterprise Edition also works but is not required for most practices.		
Browser	Internet Explorer (IE) 11	IE 9 or better	
.NET Framework	MS .NET Framework 4.7.2, 3.5	MS .NET Framework 4.7.2, 3.5	MS SQL Server still requires .NET 3.5
Office Suite (Optional)	Office 365	See note	ABELDent can integrate with Outlook and Word for email, mail merged letters, etc. Microsoft 365 is the most common way of purchasing Outlook and Word. The suite you choose depends on additional non-ABELDent functionality you may want.

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Display	21" with 1920x1080 x16 bit color or greater	21" with 1920x1080 x16 bit color or greater	ABELDent LS+ requires a minimum resolution of 1920 x 1080.
Backup Unit (on server)	Online offsite backup service or External hard disks (USB or SATA).	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.
Network Interface Card	1 Gbps NIC	100 Mbps NIC	In all situations where computers share information on a network, each PC will require a network interface card.
Switch	1Gbps switch	100 Mbps switch	In a typical small business network, the cables converge at an Ethernet switch. Gigabit speed switches are recommended. A port is required for each PC. **Note: Wired connections are essential as wireless network connections are not supported. Wireless should only be used for "thin clients"**
Cable	Cat 7, 6a, 6 Ethernet (See Details column)	Ethernet Cat 5e (See Details column)	Ethernet cable will be 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. **Tested and certified** cable drops are strongly recommended.
Internet Connectivity	High speed Internet is required	High speed Internet is required	High speed Internet is required for updates (they are automatic), support, iTrans and messaging. Download: minimum 5Mbps (faster recommended for faster updates). Upload: minimum 1 Mbps per workstation or 5Mbps total whichever is lower.
Laser Printer	Any printer with appropriate Windows Drivers (32MB RAM recommended)	Any printer with appropriate Windows Drivers (min 8MB RAM)	All recent revisions of ABELDent support Windows GDI printing. HP P1606DN, 2000, 2015, 3005, and 4000 series printers are known to work with ABELDent.
Optional Color Inkjet Printer	Any color inkjet with appropriate Windows Drivers	Any color inkjet with appropriate Windows Drivers	For printing Charts & Images. Check the number of pages per minute the printer will print. Some are quite slow.
Uninterruptible Power Supply (UPS)	Any UPS matching the power required by your system. 1300-1500 VA is typical for a server.	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.
Imaging	USB Camera	Windows Driver Model (WDM) Video capture cards or USB cameras.	Most modern cameras plug into a USB port and do not require Video capture cards. Old cameras with only an RCA or S-Video connector typically connect via a video capture card.
Optional Scanner	TWAIN	TWAIN	Any TWAIN compliant scanner will work with ABELDent
Optional Signature Pads	ePad (VP9801) or ePad-ink (VP9805)	See Details column.	ABELDent LS+ only supports these two models. They can be ordered online from the ePadLink website at http://www.epadlink.com/
Sound Card & Speakers	See Details column.	See Details column.	A sound card and speakers or headphones are required for the ABELDent training videos, Optio Patient Education, and to view demo videos.
Headset	See Details column.	See Details column.	A USB headset is required for users who will be using Perio Charting. Any should work. The Microsoft Lifechat LX-3000 has been tested successfully.
Antivirus Software	See Details column.	See Details column.	AntiVirus Software, configured to automatically check for definition updates daily, is strongly recommended for every PC connected to the Internet.
Firewall / Router	See Details column.	See Details column.	A router or security appliance is strongly recommended for all Networks with a high-speed Internet connection and when running ABEL Portal Services. **Note: Wired connections are essential as wireless network connections are not supported. Wireless should only be used for "thin clients"**