Minimum Imaging Requirements

Dolphin Imaging & Management Solutions
a Patterson Technology

www.dolphinimaging.com • info@dolphinimaging.com • 800.548.7241 • +1.818.435.1368

This is a detailed technical document designed to assist with your Dolphin system implementation. If you are computer-literate and able to research, purchase, configure and setup your own equipment, this document will help you. If you are not familiar with the terminology in this document, we recommend that you contact either Dolphin or a local certified technician to assist with your implementation. Dolphin is proud to offer the most effective imaging solutions in the industry. Unlike practice management or financial applications, imaging and diagnostics demand computer resources. For example, the disk space used for an imaging application is at least 100-times that of financial programs. Therefore, it is imperative that the computer and its peripherals are properly selected and configured for optimum performance. The Dolphin Imaging program WILL run on most existing PCs. However, you want the system to perform as efficiently as possible. We want to assist in upgrading your practice with cutting-edge imaging technology.

For more information, please contact one of our sales consultants at sales@dolphinimaging.com or visit us on-line at www.dolphinimaging.com

Local PC Workstation Requirements:

Component	Minimum	Recommended	Notes
Computer	PC or Mac	PC or Mac	For Macintosh, we require either Bootcamp, Parallels or VMware Fusion, configured such that Windows environment meets all the requirements below. For details, see http://www.dolphinimaging.com/mac.html.
Operating System	Windows 7 SP1	Windows 7 SP1, Windows 8, Windows 8.1, or Windows 10	For all supported operating system generations, Dolphin Imaging supports both the 32 and 64-bit versions, and supports the Business/Professional, Enterprise, and Ultimate Editions.
Processor (CPU)	Intel® Core™ 2	Intel® Core™ i7	High resolution images requires faster CPU for processing.
Hard Drive	20GB of free space	500GB or higher	Hard Drive requirements will vary, depending upon how many patients you store, how many timepoints you capture per patient, how many images you capture per timepoint, and whether you store 3D DICOM data or only 2D data. Typical 2D photos are 1MB to 2MB each. Typical conebeam scans are 100MB to 200MB. Plus, the Dolphin program itself can take up to 3GB to install. Fortunately, 1TB to 4TB hard drives are now the mainstream, and are very inexpensive.
Memory (RAM)	2GB (4GB for Dolphin 3D)	4GB or higher	This memory is used for rapid access to commonly used programs, the more RAM the more programs you can have open at the same time.
Video/Graphics	Resolution: 1280x1024 at 24-bit color	Resolution: 1920x1080	
Accelerated Video/ Graphics	None	**3D only:** 512MB video card, based on one of these DirectX 9.0 graphics engines or better: NVIDIA 8400 GS, ATI HD 5450, or Intel HD 4600	Accelerated card is only used if you are viewing or editing 3D ConeBeam or 3D photo images. Our 3D software can run without such a card, but some of the advanced rendering modes will be disabled. Faster Cards, such as GeForce GTX560 or Radeon HD6770 will run Dolphin 3D significantly faster. When purchasing a video card, ensure that it matches your bus interface (AGP, PCI Express, etc.). Contact a local tech for assistance.
Camera Card Reader	Depending on camera	Depending on camera	SD or CF card reader, as appropriate for your camera. Most new cameras also use USB port to transfer images, so card reader may not be necessary. Many laptops and desktop have built-in SD card readers. Additionally, Dolphin supports Eyefi wireless SD cards.
Internet Connection	Broadband connection	Broadband connection of 5Mbps or faster	Needed for remote access (for Dolphin Imaging technical support), and for automatic Dolphin updates. Network must be configured by local tech.
Antivirus	Virus protection coverage	Virus protection coverage	Antivirus software is required. Frequent updates to virus subscription are manadatory.
Sound	None	Recommended	Our voice-prompt digitizing guide walks you through each landmark. This is very useful in staff training and speeds up the digitizing process.
Archive/Backup	Required	Required	Recommended devices: External hard drives, large capacity tape drives, or online backup. Consult your local tech for advice.

Continues on next page

Minimum Imaging Requirements

Component	Minimum	Recommended	Notes
DVD-ROM Drive	Required	Required	Dolphin software comes on DVDs. A DVD-RW may be used for patient transfer purposes only; not recommended for long-term backup.
Network	None	100/1000 network card (gigabit for Dolphin 3D)	Your network will run at the speed of the lowest component, which includes: Switches, routers, hubs, NIC's. Consult your network technician for more details.
Digital Camera	A minimum 3 mega pixel (MP)	A minimum 3 mega pixel (MP)	Due to the large number of acceptable cameras available, Dolphin does not endorse any specific model or vendor. Practitioners should research the market and choose a camera appropriate to the needs of the practice. Cameras should be set to no higher than 5 megapixel. *Since computer monitors have approx. 2 megapixels, and since monitors must downsize images to display them, there is absolutely nothing to be gained by taking your images at very high resolution. Doing so simply makes the software run more slowly and takes more hard drive space, without providing any better images. We strongly recommend setting your camera to a maximum of 5 megapixels.*
Printer/Output	720dpi color inkjet printer	1440dpi color inkjet, or Dye sublimation	For high volume practices a dye sublimation printer is preferred for speed and quality.
Scanner	150dpi for x-rays, 300dpi for photos	1,600dpi if slides will be scanned	A transparency adapter (TA) is required for scanning x-rays or slides. Note: that not all scanners offer this option and not all TA's can scan full-size x-rays.
Word Processor	MS-Word 2007 or higher	MS-Word 2007 or higher	Microsoft (MS) Word is required if you use the Dolphin Letters System (DLS). We are compatible with MS Office 2016, 2013, 2010, and 2007 (32-bit version) in the Home and Business, or Professional editions. If you are running a 64-bit edition of the Windows Operating System you may still use Office 32-bit edition. NOTES: *Office 365 subscriptions require desktop versions of MS Word installed. Installation of Office in a Terminal Server configuration may require volume licensing. See Microsoft for details.*
3rd party software	N/A	Only antivirus, and applications that integrate with Dolphin	Since Dolphin can not know how various other software might interfere with Windows, with your network, or with Dolphin, we recommend that you only install applications that integrate with Dolphin onto your Dolphin stations. For example, we recommend against installing video games.

File Server / SQL Server Requirements:

Component	Minimum	Recommended	Notes
Operating System	Windows Server 2008 R2 or Windows 7 SP1 (Stand alone, for 5 concurrent users or less)	Windows Server 2012R2 or 2016	Refer to your local IT tech for a server appropriate for your environment. Dolphin supports both 32Bit and 64Bit Server Operating Systems.

Continues on next page

Minimum Imaging Requirements

<table>
<tr><th>Component</th><th>Minimum</th><th>Recommended</th><th>Notes</th></tr>
<tr><td>Database</td><td>Microsoft SQL Server 2008/Express (for offices with 5 concurrent users or less)</td><td>Microsoft SQL Server 2014 or 2016</td><td>We are compatible with Microsoft SQL 2008, 2012, 2014 and 2016.

Microsoft SQL Server 2014 Express is acceptable for up to 10 concurrent users or less. All appropriate Service Packs should be loaded.

The performance of Dolphin software may be impacted if SQL Server Express is installed due to the SQL Server limitations of only dedicating 1GB of RAM and 1 processor to SQL Server processing.

<table>
<tr><th>SQL 2008</th><th>Express</th><th>Workgroup</th><th>Standard</th></tr>
<tr><td>Number of CPUs</td><td>1</td><td>2</td><td>4</td></tr>
<tr><td>RAM</td><td>1GB</td><td>4GB</td><td>OS Maximum</td></tr>
<tr><td>Database Size</td><td>4GB</td><td>524TB</td><td>524PB</td></tr>
</table>
<table>
<tr><th>SQL 2012</th><th>Express</th><th>Standard</th><th>Enterprise</th></tr>
<tr><td>CPUs</td><td>Limited to lesser of 1 Socket or 4 cores</td><td>Limited to lesser of 4 Sockets or 16 cores</td><td>OS Max</td></tr>
<tr><td>RAM</td><td>N/A</td><td>64GB</td><td>OS Max</td></tr>
<tr><td>Database Size</td><td>10GB</td><td>524PB</td><td>524PB</td></tr>
</table>
<table>
<tr><th>SQL 2014</th><th>Express</th><th>Standard</th><th>Enterprise</th></tr>
<tr><td>CPUs</td><td>Limited to lesser of 1 Socket or 4 cores</td><td>Limited to lesser of 4 Sockets or 16 cores</td><td>OS Max</td></tr>
<tr><td>RAM</td><td>1GB</td><td>128GB</td><td>OS Max</td></tr>
<tr><td>Database Size</td><td>10GB</td><td>524PB</td><td>524PB</td></tr>
</table>
<table>
<tr><th>SQL 2016</th><th>Express</th><th>Standard</th><th>Enterprise</th></tr>
<tr><td>CPUs</td><td>Limited to lesser of 1 Socket or 4 cores</td><td>Limited to lesser of 4 Sockets or 24 cores</td><td>OS Max</td></tr>
<tr><td>RAM</td><td>N/A</td><td>128GB</td><td>OS Max</td></tr>
<tr><td>Database Size</td><td>10GB</td><td>524PB</td><td>524PB</td></tr>
</table>
https://docs.microsoft.com/en-us/sql/sql-server/editions-and-supported-features-for-sql-server-2016</td></tr>
<tr><td>Processor (CPU)</td><td>Intel i3 or equivalent</td><td>Intel i7 or higher</td><td>On a Terminal Server with 10 thin clients connecting or more, dual processor configuration is required.</td></tr>
<tr><td>Memory (RAM)</td><td>Minimum of 4 GB RAM</td><td>16 GB RAM or higher</td><td>Memory requirements depend on operating system configuration, database size and user load.</td></tr>
<tr><td>Hard Drive</td><td>40 GB free space on partition with Image files and SQL database</td><td>RAID controller disk highly recommended</td><td>Actual requirements will vary based on your system configuration and the applications and features you choose to install.</td></tr>
<tr><td>Video/Graphics</td><td>1280x1024</td><td>1920x1080</td><td></td></tr>
<tr><td>Monitor</td><td>15” monitor (1280x1024) or higher</td><td>17” monitor (1920x1080) or higher</td><td></td></tr>
<tr><td>Archive/Backup</td><td>Required</td><td>Required</td><td>Recommended devices: External hard drives, large capacity tape drives, or online backup. Consult your local tech for advice.</td></tr>
<tr><td>DVD-ROM Drive</td><td>Required</td><td>Required</td><td></td></tr>
<tr><td>Antivirus</td><td>Virus protection coverage</td><td>Virus protection coverage</td><td>Antivirus software is required. Frequent updates to virus subscription are manadatory.</td></tr>
<tr><td>Word Processor</td><td>MS-Word 2007 or higher</td><td>MS-Word 2007 or higher</td><td>Microsoft (MS) Word is required if you use the Dolphin Letters System (DLS). We are compatible with MS Office 2016, 2013, 2010, and 2007 (32-bit version) in the Home and Business, or Professional editions. If you are running a 64-bit edition of the Windows Operating System you may still use Office 32-bit edition.

NOTES:
Office 365 subscriptions require desktop versions of MS Word installed. Installation of Office in a Terminal Server configuration may require volume licensing. See Microsoft for details.</td></tr>
</table>

Minimum Imaging Requirements

Remote Connection	See Notes column	See Notes column	For support purposes, there may be times when we will need to connect to your system using our remote support tools.
Workgroup / Domain	Workgroup (non-server OS with 5 concurrent users or less)	Active Directory Domain	Contact your local IT professional for more information or see: http://download.microsoft.com/download/3/D/4/3D42BDC2-6725-4B29-B75A-A5B04179958B/Licensing_Core_CAL_and_Enterprise_Suite.pdf
Terminal Services (if needed)	Windows Server 2008R2	Windows Server 2012R2	If Terminal Services is needed for remote locations or thin clients, in a SBS network, a separate Server 2008 Standard R2 is required. NOTES: *Thin Client/ Remote Desktop Services is an acceptable alternative to using PCs as workstations. You can purchase thin client machines or use older PCs as terminal server clients.*

Other Requirements:

Prior to in-office training all software must be installed and broadband must be installed to connect the designated Dolphin Imaging workstation.

Please contact Dolphin Technical Support for details on configuring your system to use Thin Client technology or Remote Office Configuration.

Broadband Speeds

Single Office Broadband Speeds (for Dolphin Support) or faster Multi-Office Broadband Speeds

- We recommend 128KB of dedicated upload speed per user session at the main office.
- We recommend 128KB of dedicated download speed per user session at the remote office.

No Dial-up or satellite connections allowed.

	Minimum Download/Upload	Recommended Download/Upload
Main	1.5MB/768K	1.5MB/512K or faster
Remote (1-5 w/s)	768K/512K	768K/768K or faster
Remote (5-12 w/s)	1.5MB/1.5MB	2.0MB/2.0MB or faster