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System Requirements for CS Imaging 8 Suite

Carestream adheres to compliance with Microsoft Windows operating systems and hardware compatibility (HCL), which can be found at http://www.microsoft.com/whdc/hcl/default.mspx. Only operating systems and hardware listed below have been fully tested and certified on CS Imaging Suite.

System Requirements are updated regularly. Before purchasing any equipment, review the latest requirements at http://www.carestreamdental.com/us/en/support/SupportInfo#Documentation.

Item	Recommended	Minimum Required	Notes
Dedicated Image Server	**Hardware** Intel® Xeon® E31220 Processor or better 16 GB system RAM 1 TB available disk space RAID setup DVD drive Ethernet 100/1000 NIC 1024 x 768 32-bit video card and supporting monitor Gigabit Ethernet switched network **Operating System** 64-bit only Windows 2012 Server R2 Windows 2008 Server R2	**Hardware** Intel Core2 Duo Processor 3.0 GHz or faster CPU 8 GB system RAM 1 TB available disk space DVD drive Ethernet 100/1000 NIC 1024 x 768 32-bit video card and supporting monitor **Operating System** 64-bit only Windows 2012 Server R2 Windows 2008 Server R2	Dedicated Imaging Server requirements should be uses when Images are not managed by the practice management software, but are managed by the Carestream standalone patient browser. No imaging software or driver can be installed on the server. For storage purposes only. If the server computer will also be used as a workstation the requirements for Imaging Server and Imaging Workstation should be reviewed. Use whichever is better for each component. If the server will be used to view 3D Volumes it must also meet the requirements for the CS 3D Imaging Viewing Workstation
CS Imaging Viewing Workstation	**Hardware** Intel® Xeon® E31220 Processor or better 16 GB system RAM 250 GB free disk space DVD RW drive Ethernet 100/1000 NIC Graphic-based board supporting Open GL 1.2 with 512 MB of video RAM on AGP x8 video bus 17" Monitor supporting 1280 x 1024, 32-bit color **Operating System** 32 or 64-bit Windows 7: Professional, Ultimate, Enterprise 64-bit only Windows 8 and 8.1: Professional, Enterprise (no touch screen desktop) Windows 10: Professional, Enterprise	**Hardware** Intel Core2 Duo Processor 3.0 GHz or faster CPU 8 GB system RAM 80 GB free disk space DVD RW drive Ethernet 100/1000 NIC Graphic-based board supporting Open GL 1.2 with 512 MB of video RAM on AGP x8 video bus 17" Monitor supporting 1280 x 1024, 32-bit color **Operating System** 32 or 64-bit Windows 7: Professional, Ultimate, Enterprise 64-bit only Windows 8 and 8.1: Professional, Enterprise (no touch screen desktop) Windows 10: Professional, Enterprise	No image acquisition - If imaging hardware is connected, refer to the minimum requirement for the hardware below.
CS 3D Imaging Viewing Workstation	**Hardware** Intel Core i7-2600 16 GB system RAM 300 GB free disk space DVD RW drive Ethernet 100/1000 NIC Graphic-based board supporting Open GL 3.3 with 512 MB of video RAM on AGP x8 video bus (not Cloud) 17" Monitor supporting 1280 x 1024, 32-bit color **Operating System** 64-bit only Windows 7: Professional, Ultimate, Enterprise Windows 8 and 8.1: Professional, Enterprise (no touch screen desktop) Windows 10: Professional, Enterprise	**Hardware** Intel Core i7-2600 8 GB system RAM 300 GB free disk space DVD RW drive Ethernet 100/1000 NIC Graphic-based board supporting Open GL 3.3 with 512 MB of video RAM on AGP x8 video bus (not Cloud) 17" Monitor supporting 1280 x 1024, 32-bit color **Operating System** 64-bit only Windows 7: Professional, Ultimate, Enterprise Windows 8 and 8.1: Professional, Enterprise (no touch screen desktop) Windows 10: Professional, Enterprise	No image acquisition - If imaging hardware is connected, refer to the minimum requirement for the hardware below.

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Item	Recommended	Minimum Required	Notes
CS 3D Imaging + PDIP* Viewing Workstation	**Hardware** Intel Core i7-2600 16 GB system RAM 300 GB free disk space DVD RW drive Ethernet 100/1000 NIC Graphic card: 1GB dedicated memory with open GL v3.2 support (AMD/ATI and Intel graphics chipset are NOT SUPPORTED) 17" Monitor supporting 1280 x 1024, 32-bit color Storage: 7200 rpm hard drive with SATA interface **Operating System** <u>64-bit only</u> Windows 7: Professional, Ultimate, Enterprise Windows 8 and 8.1: Professional, Enterprise Windows 10: Professional, Enterprise	**Hardware** Intel Core i7-2600 8 GB system RAM 300 GB free disk space DVD RW drive Ethernet 100/1000 NIC Graphic card: 1GB dedicated memory with open GL v3.2 support (AMD/ATI and Intel graphics chipset are NOT SUPPORTED) 17" Monitor supporting 1280 x 1024, 32-bit color Storage: 7200 rpm hard drive with SATA interface **Operating System** <u>64-bit only</u> Windows 7: Professional, Ultimate, Enterprise Windows 8 and 8.1: Professional, Enterprise Windows 10: Professional, Enterprise	No image acquisition - If imaging hardware is connected, refer to the minimum requirement for the hardware below. *Prosthetic Driven Implant Planning module
RVG Connect, RVG 5x00/6x00 Sensors or CS1500/CS1600/CS1200 Intraoral Cameras	**Hardware** Intel® Xeon® E31220 Processor or better 16 GB system RAM 250 GB free disk space DVD drive Ethernet 100/1000 NIC Available high-speed USB 2.0 port 256 MB video card Supporting DirectX 9.0c **Operating System** <u>32 or 64-bit</u> Windows 7: Professional, Ultimate, Enterprise <u>64-bit only</u> Windows 8.1: Professional, Enterprise Windows 10: Professional, Enterprise	**Hardware** Intel Core2 Duo Processor 3.0 GHz or faster CPU 8 GB system RAM 80 GB free disk space DVD drive Ethernet 100/1000 NIC Available high-speed USB 2.0 port 256 MB video card Supporting DirectX 9.0c **Operating System** <u>32 or 64-bit</u> Windows 7: Professional, Ultimate, Enterprise <u>64-bit only</u> Windows 8.1: Professional, Enterprise Windows 10: Professional, Enterprise	When used via CS Imaging Review the Imaging Viewing Workstation requirements. Use the better requirement for each component For RVG 6500, see the Installation Guide (SM728).
CS 9000 Panoramic/ Cephalometric Acquisition Station	**Hardware** Intel® Xeon® E31220 Processor or better 16 GB system RAM 250 GB free disk space DVD drive Two Ethernet 100/1000 NIC's 1024 x 768 32-bit 256 MB video card and supporting monitor **Operating System** <u>32 or 64-bit</u> Windows 7: Professional, Ultimate, Enterprise <u>64-bit only</u> Windows 8.1: Professional, Enterprise Windows 10: Professional, Enterprise	**Hardware** Intel Core2 Duo Processor 3.0 GHz or faster CPU 8 GB system RAM 40 GB free disk space DVD drive Two Ethernet 100/1000 NIC's 1024 x 768 32-bit 128 MB video card and supporting monitor **Operating System** <u>32 or 64-bit</u> Windows 7: Professional, Ultimate, Enterprise <u>64-bit only</u> Windows 8.1: Professional, Enterprise Windows 10: Professional, Enterprise	When used via CS Imaging Review the Imaging Viewing Workstation requirements. Use the better requirement for each component

Item	Recommended	Minimum Required	Notes
8000 Panoramic/ Cephalometric Ethernet Acquisition Station	**Hardware** Intel® Xeon® E31220 Processor or better 16 GB system RAM 250 GB free disk space DVD drive 1024 x 768 32-bit 256 MB video card and supporting monitor **Ethernet version additional requirements** Two Ethernet 100/1000 NIC's **PCI version additional requirements** One 100/1000 Ethernet NIC Available full height PCI slot and RS232 serial port Windows 32-bit OS **Operating System** **8000 Ethernet version:** <u>32 or 64-bit</u> Windows 7: Professional, Ultimate, Enterprise <u>64-bit only</u> Windows 8 and 8.1: Professional, Enterprise **8000 PCI version <u>limited</u> to 32-bit OS:** Windows 7: Professional, Ultimate, Enterprise	**Hardware** Intel Core2 Duo Processor 3.0 GHz or faster CPU 8 GB system RAM 80 GB free disk space DVD drive 1024 x 768 32-bit 128 MB video card and supporting monitor **Ethernet version additional requirements** Two Ethernet 100/1000 NIC's **PCI version additional requirements** One 100/1000 Ethernet NIC Available full height PCI slot and RS232 serial port Windows 32-bit OS **Operating System** **8000 Ethernet version:** <u>32 or 64-bit</u> Windows 7: Professional, Ultimate, Enterprise <u>64-bit only</u> Windows 8 and 8.1: Professional, Enterprise **8000 PCI version <u>limited</u> to 32-bit OS:** Windows 7: Professional, Ultimate, Enterprise	When used via CS Imaging Review the Imaging Viewing Workstation requirements. Use the better requirement for each component

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Item	Recommended	Minimum Required	Notes
CS 8100/ CS 8100SC/ CS 8100SC Access Panoramic/Ceph Acquisition Station	**Hardware** Intel® Xeon® E31220 Processor or better 16 GB system RAM 250 GB Hard drive with 4 GB for software installation Graphics-based board on PCI Express video bus with minimum of 512 MB of video RAM DVD Drive One Ethernet 100/1000 NIC for connecting to network One Gigabit Ethernet for connection for the CS 8100 **Operating System** <u>64-bit only</u> Windows 7: Professional, Ultimate, Enterprise Windows 8.1: Professional, Enterprise Windows 10: Professional, Enterprise	**Hardware** I Intel Core2 Duo Processor 3.0 GHz or faster CPU 8 GB system RAM 250 GB Hard drive with 4 GB for software installation Graphics-based board on PCI Express video bus with minimum of 512 MB of video RAM DVD Drive One Ethernet 100/1000 NIC for connecting to network One Gigabit Ethernet for connection for the CS 8100 **Operating System** <u>64-bit only</u> Windows 7: Professional, Ultimate, Enterprise Windows 8.1: Professional, Enterprise Windows 10: Professional, Enterprise	When used via CS Imaging Review the Imaging Viewing Workstation requirements. Use the better requirement for each component
CR 7400 System Acquisition Station	**Hardware** Intel® Xeon® E31220 Processor or better 16 GB system RAM 250 GB free disk space DVD drive Ethernet 100/1000 network card Video card 128-256 MB Available USB 2.0 port Windows 32-bit OS **Operating System** <u>32 or 64 bit</u> Windows 7: Professional, Ultimate, Enterprise	**Hardware** Intel Core2 Duo Processor 3.0 GHz or faster CPU 8 GB system RAM 80 GB free disk space DVD drive Ethernet 100/1000 network card Video card 64 MB Available USB 2.0 port Windows 32-bit OS **Operating System** <u>32 or 64 bit</u> Windows 7: Professional, Ultimate, Enterprise	When used via CS Imaging Review the Imaging Viewing Workstation requirements. Use the better requirement for each component

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Item	Recommended	Minimum Required	Notes
CS 7600, 7200 System Acquisition Station	**Hardware** Intel® Xeon® E31220 Processor or better 16 GB system RAM 250 GB free disk space DVD drive Ethernet 100/1000 network card Available USB 2.0 port 256MB nVidia or ATI video card supporting Glide 1.2 **Operating System** <u>64-bit only</u> Windows 8 and 8.1: Professional, Enterprise Windows 10: Professional, Enterprise <u>32 or 64-bit</u> Windows 7: Professional, Ultimate, Enterprise	**Hardware** Intel Core2 Duo Processor 3.0 GHz or faster CPU 8 GB system RAM 80 GB free disk space DVD drive Ethernet 100/1000 network card Available USB 2.0 port 256MB nVidia or ATI video card supporting Glide 1.2 **Operating System** <u>64-bit only</u> Windows 8 and 8.1: Professional, Enterprise Windows 10: Professional, Enterprise <u>32 or 64-bit</u> Windows 7: Professional, Ultimate, Enterprise	When used via CS Imaging Review the Imaging Viewing Workstation requirements. Use the better requirement for each component

CS 9000 3D, 9500, 9600, 9300 Select, 9300, 8100 3D or 8100 SC 3D Acquisition Station	• Intel® Xeon® E31220 Processor or better
	• 16 GB System RAM
	• Hard drive:
	  o 4 GB free for software installation
	  o 1 TB free for data storage
	o DVD Burner drive
	o Removable/portable, external hard disk drive for data backup
	o Video Card options:
	  o Cuda version 6.4
	  o Compute capibility 1.1
	  o Nvidia based board on PCI Express video bus with minimum 2 GB Video RAM
	o Ethernet:
	  o One GBit NIC for the X-ray unit
	  o One 100/1000 NIC for LAN connection
	o Mouse with 2 buttons and a scroll wheel
	<u>64-bit Only</u>
	Windows 7 Professional, Ultimate or Enterprise
	Windows 8 and 8.1 Professional
	Windows 10 Professional
		• Intel Core2 Duo Processor 3.0 GHz or faster CPU
		• 8 GB System RAM
		• Hard drive:
		  o 4 GB free for software installation
		  o 500 GB free for data storage
		o DVD Burner drive
		o Removable/portable, external hard disk drive for data backup
		o Video Card options:
		  o Cuda version 6.4
		  o Compute capibility 1.1
		  o Nvidia based board on PCI Express video bus with minimum 2 GB Video RAM
		o Ethernet:
		  o One GBit NIC for the X-ray unit
		  o One 100/1000 NIC for LAN connection
		o Mouse with 2 buttons and a scroll wheel
		<u>64-bit Only</u>
		Windows 7 Professional, Ultimate or Enterprise
		Windows 8 and 8.1 Professional
		Windows 10 Professional
			When used via CS Imaging
			
			Review the Imaging Viewing Workstation requirements. Use the better requirement for each component
			
			3D Acquisition PC is supplied by Carestream Dental in certain markets. Please check with your sales representative or dealer to verify if it is available in your region.
			
			Documented requirements are for computer replacement or markets where the unit does not include a computer
			
			*See Item 8 under **Notes and functional requirements** for more information on 3D acquisition PCs.

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Item	Recommended	Minimum Required	Notes
CS 3500 Acquisition Station	**Hardware** Intel Core i7 3630QM 2.4Ghz processor RAM 16 GB 250GB of free disk space Video card nVidia GeForce GTX 660M /Quadro K2100M or better For Desktop Intel Core i7 3770QM 3.4Ghz processor Video card ATI HD 7850 or nVidia GeForce GTX 560Ti or better Video card driver must support DirectX 11, OpenGL 4.3, and OpenCL 1.1 DVD drive Standard CRT/LCD monitor supporting 1440x900 or higher resolution Available USB 2.0 port **Operating System** <u>64-bit only</u> Windows 7: Professional, Ultimate, Enterprise Windows 8 and 8.1: Professional, Enterprise Windows 10: Professional, Enterprise	**Hardware** Intel Core i7 3630QM 2.4Ghz processor RAM 8 GB 80GB of free disk space Video card nVidia GeForce GTX 660M /Quadro K2100M or better For Desktop Intel Quad CPU 3.1Ghz processor Video card ATI HD 7850 or nVidia GeForce GTX 560Ti or better Video card driver must support DirectX 11, OpenGL 4.3, and OpenCL 1.1 DVD drive Standard CRT/LCD monitor supporting 1440x900 or higher resolution Available USB 2.0 port **Operating System** <u>64-bit only</u> Windows 7: Professional, Ultimate, Enterprise Windows 8 and 8.1: Professional, Enterprise Windows 10: Professional, Enterprise	When used via CS Imaging Review the Imaging Viewing Workstation requirements. Use the better requirement for each component
CS 3600 CS 3700 Acquisition Station	**Hardware** <u>For Laptop</u> Intel Core i7 6820HQ 2.7GHz processor Video card nVidia GeForce GTX 970M or nVidia Quadro M3000M or better <u>For Desktop</u> Intel Core i7 3770 Quad 3.4Ghz processor Video card nVidia GeForce GTX 760 or better Video card driver must support OpenGL 4.3, and OpenCL 1.1 16 GB or higher RAM 250 GB of free disk space DVD drive Standard CRT/LCD monitor supporting 1440x900 or higher resolution Available USB 2.0 high speed port **Operating System** <u>64-bit only</u> Windows 7: Professional, Ultimate, Enterprise Windows 8 and 8.1: Professional, Enterprise Windows 10: Professional, Enterprise	**Hardware** <u>For Laptop</u> Intel Core i7 6820HQ 2.7GHz processor Video card nVidia GeForce GTX 970M or nVidia Quadro M3000M or better <u>For Desktop</u> Intel Core i7 3770 Quad 3.4Ghz processor Video card nVidia GeForce GTX 760 or better Video card driver must support OpenGL 4.3, and OpenCL 1.1 16 GB or higher RAM 80GB of free disk space DVD drive Standard CRT/LCD monitor supporting 1440x900 or higher resolution Available USB 2.0 high speed port **Operating System** <u>64-bit only</u> Windows 7: Professional, Ultimate, Enterprise Windows 8 and 8.1: Professional, Enterprise Windows 10: Professional, Enterprise	When used via CS Imaging Review the Imaging Viewing Workstation requirements. Use the better requirement for each component

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Item	Recommended	Minimum Required	Notes
CS Restore Design Station	**Hardware** Intel® Xeon® E31220 Processor or better 16 GB system RAM 30MB of free space for installation There must be free space available for data storage. nVidia or ATI based video card supporting Glide 1.2 with 512MB of dedicated video RAM DVD drive (DVD writing capability required for exporting to optical media) An Ethernet connection must be present for 3D models to be retrieved and sent to the milling device. **Operating System** <u>64-bit only</u> Windows 7: Professional, Ultimate, Enterprise Windows 8 and 8.1: Professional, Enterprise Windows 10: Professional, Enterprise	**Hardware** Intel Core2 Duo Processor 3.0 GHz or faster CPU 8 GB system RAM 30MB of free space for installation There must be free space available for data storage. nVidia or ATI based video card supporting Glide 1.2 with 512MB of dedicated video RAM DVD drive (DVD writing capability required for exporting to optical media) An Ethernet connection must be present for 3D models to be retrieved and sent to the milling device. **Operating System** <u>64-bit only</u> Windows 7: Professional, Ultimate, Enterprise Windows 8 and 8.1: Professional, Enterprise Windows 10: Professional, Enterprise	When used via CS Imaging Review the Imaging Viewing Workstation requirements. Use the better requirement for each component
CS 3000 Milling Station	**Hardware** Intel® Xeon® E31220 Processor or better 16 GB system RAM 2GB of free disk space for installation, 50GB or more free for data storage 1280x1024 minimum screen resolution DVD drive 1 Ethernet adapter if the CS 3000 is connected to the LAN. A DHCP server must be present on the LAN for proper functionality. If the CS 3000 is connected directly to the PC, it will need 2 Ethernet adapters and a crossover cable to connect to the CS 3000. **Operating System** <u>64-bit only</u> Windows 7: Professional, Ultimate, Enterprise Windows 8 and 8.1: Professional, Enterprise	**Hardware** Intel Core2 Duo Processor 3.0 GHz or faster CPU 8 GB system RAM 2GB of free disk space for installation, 50GB or more free for data storage 1280x1024 minimum screen resolution DVD drive 1 Ethernet adapter if the CS 3000 is connected to the LAN. A DHCP server must be present on the LAN for proper functionality. If the CS 3000 is connected directly to the PC, it will need 2 Ethernet adapters and a crossover cable to connect to the CS 3000. **Operating System** <u>64-bit only</u> Windows 7: Professional, Ultimate, Enterprise Windows 8 and 8.1: Professional, Enterprise	When used via CS Imaging Review the Imaging Viewing Workstation requirements. Use the better requirement for each component

Notes and Recommendations:

Carestream Imaging software is tested for backward compatibility with the following hardware:

Intraoral Sensors
Trophy RVG UI USB
RVG 5x00/6x00

Intraoral Cameras
K1000, CS 1200, CS1500

* A note about minimum system requirements: this document lists the lowest functional specifications for our hardware and software. To assure optimal performance and future upgrade capability, more system RAM, higher end graphics cards, and faster CPUs are suggested.

1. Microsoft Word 2000- 2010, Outlook or Outlook Express installed and configured (AOL Communicator not recommended)
2. Installed and up to date Antivirus (some configuration may be needed for optimal performance: Heuristic and real time or office hours scanning disabled)
3. High speed Internet connection for remote support
4. Photo quality printer and or flat bed scanner with transparency adapter recommended
5. Backups and restore system in place: We suggest that you perform a nightly backup on removable media and keep that media in a fireproof safe off-site.
6. Uninterruptable Power Supply with shutdown software installed at the server machine is recommended.
7. Consult a qualified IT professional about a RAID system installation for your image server.
8. Acquisition PCs for large pan/ceph and 3D CBCT units are built for these units and should not have any additional peripherals installed or attached to them. Items include scanners, printers, RVG sensors, and intra oral cameras.
9. For optimal performance with the 3D Viewer application, the minimum recommended video card is the nVidia GeForce 450GTS or higher. If this or any other higher quality video board is unable to be used, it may be substituted with a 512MB Glide 1.2 compatible video card with reduced performance.
10. To install Carestream Dental software, one needs full administrator rights and be able to provide administrator credentials/privileges during interactions with Carestream Support. **Support does NOT maintain administrator information**.

Windows 7, Windows 8, and Windows 10 compatibility notes:

- Windows XP 32- or 64-bit is not supported for any Carestream hardware or software.
- Windows Vista 32- or 64-bit is not supported for Carestream hardware and imaging software.
- Windows 7, Windows 8, and Windows 10 are not server-class operating systems and must not be used as data servers.
- Dedicated data servers must not be used as working stations and must not host imaging applications or imaging hardware driver.
- We do not support touch screen desktop from Windows 8.
- When comparing minimum system requirements between Carestream hardware, Carestream software, or Windows, use the superior hardware specification.
- RVG Synchro Link works only with RVG UI-USB drivers using DIS 6.12.15 and cannot be installed or used in conjunction with any other RVG sensor.
- No Home versions of Microsoft Windows are tested or supported.
- Microsoft Small Business Server is not a supported operating system.
- Server and workstations should be kept current with all Windows service packs and critical updates.
- The following products are known not to be compatible with Microsoft Windows 7:
  - Hauppauge model 401 and Impact VCB Video Capture Cards
- The following products are known not to be compatible with Microsoft Windows Vista:
  - Trophy ISA cards that control sensors, cameras, or Digipan cassettes
  - Hauppauge model 401 and Impact VCB Video Capture Cards
- Microsoft Windows 10 is not currently supported on acquisition computers for CS 9300 series, 7200, 7600 and 7400 systems.
- Note that CS 9500, 8000 PCI, RVG UI, 5000, 6000, STV/1000 acquisition stations WILL NOT have Windows 10 compatibility.
- CS Imaging 8 is not supported on the hosted environment (cloud).