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Minimum and recommended system requirements

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1. PURPOSE

This document provides technical information concerning hardware and software minimum and recommended requirements for workstations directly connected to the reference or additional devices, explained in detail in the chapters listed below.

2. SYSTEM REQUIREMENTS FOR X-RADIUS COMPACT (REF 708M-N-O)

2.1. REQUIREMENTS FOR 2D ACQUISITION WORKSTATIONS

Minimum requirements for the PC workstation directly connected to the X-ray acquisition device if it is dedicated to two-dimensional examinations only.

Characteristics lower than those specified could result in poor performance or impossible acquisition of X-ray examinations from this workstation.

Operating system	Windows 7 Professional 64 bit SP1 Windows 8.1 Professional 64 bit Windows 10 Pro 64 bit build v1607 / v1703 / v1709 / v1803 / v1809 / v1909 / v2004
Processor	Intel Core i3 family, series 4150 or next, 3.60 Ghz (or higher) ⁽¹⁾ Intel Core i5 family, series 3330 or next, 3.00 Ghz (or higher) ⁽¹⁾ Intel Core i7 family, series 2600 or next, 3.40 Ghz (or higher) ⁽¹⁾ Intel Core i9 family, 3.30 Ghz (or higher) ⁽¹⁾ Intel Xeon E3 Sandy Bridge series or next, 3.10 Ghz (or higher) ⁽¹⁾ With at least 2 physical cores (4 recommended) for a total of at least 4 logical cores.
Hard Disk	Capacity: 256 GB or higher Type: Solid State Drive (SSD) ⁽²⁾ Interface: recommended M.2 connector on PCIe bus with NVMe interface
System memory	8GB or higher ⁽³⁾
Video card	3D Video Card, discrete or integrated graphics ⁽³⁾
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel Wide Monitor 1344 x 768 pixel
Power supply	Use a power supply suitable for the power required by the video card being used
Additional devices	2 x Network card 1Gbps (1 x Intel Pro 1000 / Gigabit CT) 1 DVD-ROM

¹ The correct operation of the software is not guaranteed when using processors with lower technical features.

² With a standard HDD disk (that is, non-SSD), a satisfactory user experience of any other installed applications is not guaranteed.

³ For previously adopted workstation models with only 4GB RAM, it is necessary to combine a discrete 3D video card (that is, not integrated with the motherboard) with its own physical memory of at least 1GB GDD3.

2.2. REQUIREMENTS FOR 3D ACQUISITION WORKSTATIONS (MAIN WORKSTATION)

Requirements for PC workstation directly connected to the X-ray acquisition device and intended for CBCT primary reconstruction.

Characteristics lower than those specified could result in poor performance or impossible acquisition of X-ray examinations from this workstation.

Operating system	Windows 7 Professional 64 bit SP1 Windows 8.1 Professional 64 bit Windows 10 Pro 64 bit build v1607 / v1703 / v1709 / v1803 / v1809 / v1909 / v2004
Processor	Intel Core i7 family, series 3770 or next, 3.40 Ghz (or higher) ⁽¹⁾ Intel XEON family, series E5-2630 or next, 2.30 Ghz (or higher) ⁽¹⁾ Intel XEON family, series E3-1270 or next, 3.50 Ghz (or higher) ⁽¹⁾ Intel XEON family, series E5-1620 or next, 3.60 Ghz (or higher) ⁽¹⁾
Hard Disk	500 GB 10KRPM
System memory	8 GB
Video card	3D VideoCard 1 GB physical RAM ⁽²⁾⁽³⁾⁽⁴⁾ (recommended 4 GB physical RAM)
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel Wide Monitor 1344 x 768 pixel
Power supply	Use a power supply suitable for the power required by the video card being used ⁽⁵⁾
Additional devices	2 x Network card 1Gbps (1 x Intel Pro 1000 / Gigabit CT) 1 DVD-ROM

¹ The correct operation of the software is not guaranteed when using processors with lower technical features.

² It is necessary to use one of the validated video cards listed in Chapter 13 to ensure the correct operation of rear projection (Primary Reconstruction).

³ It is necessary to use one of the validated video cards listed in Chapter 13 to ensure the correct operation of MAR option.

⁴ Some 3D functions may have low performance or not be supported due to a limited amount of video memory.

⁵ For the exact power value, refer to Chapter 13.

3. SYSTEM REQUIREMENTS FOR X-RADIUS COMPACT (REF 70BG-H-I)

3.1. REQUIREMENTS FOR 2D ACQUISITION WORKSTATIONS

Minimum requirements for the PC workstation directly connected to the X-ray acquisition device if it is dedicated to two-dimensional examinations only.

Characteristics lower than those specified could result in poor performance or impossible acquisition of X-ray examinations from this workstation.

Operating system	Windows 10 Pro 64 bit build v1809 / v1909 / v2004
Processor	Intel Core i3 family, series 4150 or next, 3.60 Ghz (or higher) ⁽¹⁾ Intel Core i5 family, series 3330 or next, 3.00 Ghz (or higher) ⁽¹⁾ Intel Core i7 family, series 2600 or next, 3.40 Ghz (or higher) ⁽¹⁾ Intel Core i9 family, 3.30 Ghz (or higher) ⁽¹⁾ Intel Xeon E3 Sandy Bridge series or next, 3.10 Ghz (or higher) ⁽¹⁾ With at least 2 physical cores (4 recommended) for a total of at least 4 logical cores.
Hard Disk	Capacity: 256 GB or higher Type: Solid State Drive (SSD) ⁽²⁾ Interface: recommended M.2 connector on PCIe bus with NVMe interface
System memory	8 GB or higher ⁽³⁾
Video card	3D Video Card, discrete or integrated graphics ⁽³⁾
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel Wide Monitor 1344 x 768 pixel
Power supply	Use a power supply suitable for the power required by the video card being used
Additional devices	2 x Network card 1Gbps (1 x Intel Pro 1000 / Gigabit CT) 1 DVD-ROM

¹ The correct operation of the software is not guaranteed when using processors with lower technical features.

² With a standard HDD disk (that is, non-SSD), a satisfactory user experience of any other installed applications is not guaranteed.

³ For previously adopted workstation models with only 4GB RAM, it is necessary to combine a discrete 3D video card (that is, not integrated with the motherboard) with its own physical memory of at least 1GB GDD3.

3.2. REQUIREMENTS FOR 3D ACQUISITION WORKSTATIONS (MAIN WORKSTATION)

Requirements for PC workstation directly connected to the X-ray acquisition device and intended for CBCT primary reconstruction.

Characteristics lower than those specified could result in poor performance or impossible acquisition of X-ray examinations from this workstation.

Operating system	Windows 10 Pro 64 bit build v1809 / v1909 / v2004
Processor	Intel Core i7 family, series 3770 or next, 3.40 Ghz (or higher) ⁽¹⁾ Intel XEON family, series E5-2630 or next, 2.30 Ghz (or higher) ⁽¹⁾ Intel XEON family, series E3-1270 or next, 3.50 Ghz (or higher) ⁽¹⁾ Intel XEON family, series E5-1620 or next, 3.60 Ghz (or higher) ⁽¹⁾
Hard Disk	500 GB 10KRPM
System memory	8 GB
Video card	3D VideoCard 1 GB physical RAM ⁽²⁾ ⁽³⁾ ⁽⁴⁾ (recommended 4 GB physical RAM)
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel Wide Monitor 1344 x 768 pixel
Power supply	Use a power supply suitable for the power required by the video card being used ⁽⁵⁾
Additional devices	2 x Network card 1Gbps (1 x Intel Pro 1000 / Gigabit CT) 1 DVD-ROM

¹ The correct operation of the software is not guaranteed when using processors with lower technical features.

² It is necessary to use one of the validated video cards listed in Chapter 13 to ensure the correct operation of rear projection (Primary Reconstruction).

³ It is necessary to use one of the validated video cards listed in Chapter 13 to ensure the correct operation of MAR option.

⁴ Some 3D functions may have low performance or not be supported due to a limited amount of video memory.

⁵ For the exact power value, refer to Chapter 13.

4. SYSTEM REQUIREMENTS FOR X-RADIUS TRIO

4.1. REQUIREMENTS FOR 2D ACQUISITION WORKSTATIONS

Requirements for the PC workstation directly connected to the X-ray acquisition device if it is dedicated to two-dimensional examinations only.

Characteristics lower than those specified could result in poor performance or impossible acquisition of X-ray examinations from this workstation.

Operating system	Windows 7 Pro 32 64 bit Windows 8 Pro 32 64 bit Windows 10 64bit build v1607 / v1703 / v1709 / v1803 / v1809 / v1909 / v2004
Processor	Intel Core2-Duo / AMD Athlon X2 (or higher) ⁽¹⁾
Hard Disk	100 GB 7200RPM
System memory	4 GB (Windows 8 32 64 bit –7 32 64 bit) 8 GB (Windows 10 64bit)
Video card	3D VideoCard 1 GB physical RAM
Slots	2 x PCI Express (1 x PCI Express x16 slot) 1 x USB 2.0
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel Wide Monitor 1344 x 768 pixel
Power supply	Use a power supply suitable for the power required by the video card being used
Additional devices	1 Network card 100Mbps 1 DVD-RW

¹ The correct operation of the software is not guaranteed when using processors with lower technical features.

4.2. REQUIREMENTS FOR 3D ACQUISITION WORKSTATIONS (MAIN WORKSTATION)

Requirements for PC workstation directly connected to the X-ray acquisition device and intended for CBCT primary reconstruction.

Characteristics lower than those specified could result in poor performance or impossible acquisition of X-ray examinations from this workstation.

Operating system	Windows 7 Professional 32 64 bit SP1 Windows 10 Pro 64 bit build v1607 / v1703 / v1709 / v1803 / v1809 / v1909 / v2004
Processor	Intel Core i7 family, series 3770 or next, 3.40 Ghz (or higher) ⁽¹⁾ Intel XEON family, series E5-2630 or next, 2.30 Ghz (or higher) ⁽¹⁾ Intel XEON family, series E3-1270 or next, 3.50 Ghz (or higher) ⁽¹⁾ Intel XEON family, series E5-1620 or next, 3.60 Ghz (or higher) ⁽¹⁾
Hard Disk	500 GB 10KRPM
System memory	8 GB
Video card	3D VideoCard 1 GB physical RAM ⁽²⁾ ⁽³⁾ ⁽⁴⁾ (recommended 4 GB physical RAM)
Slots	2 x PCI Express (1 x PCI Express x16 slot) 1 x USB 2.0
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel Wide Monitor 1344 x 768 pixel
Power supply	Use a power supply suitable for the power required by the video card being used ⁽⁵⁾
Additional devices	2 x Network card 1Gbps (1 x Intel Pro 1000 / Gigabit CT) 1 DVD-ROM

¹ The correct operation of the software is not guaranteed when using processors with lower technical features.

² It is necessary to use one of the validated video cards listed in Chapter 13 to ensure the correct operation of rear projection (Primary Reconstruction).

³ It is necessary to use one of the validated video cards listed in Chapter 13 to ensure the correct operation of MAR option.

⁴ Some 3D functions may have low performance or not be supported due to a limited amount of video memory.

⁵ For the exact power value, refer to Chapter 13.

5. SYSTEM REQUIREMENTS FOR X-RADIUS TRIO PLUS

5.1. REQUIREMENTS FOR 2D ACQUISITION WORKSTATIONS

Requirements for the PC workstation directly connected to the X-ray acquisition device if it is dedicated to two-dimensional examinations only.

Characteristics lower than those specified could result in poor performance or impossible acquisition of X-ray examinations from this workstation.

Operating system	Windows 10 Pro 64 bit build v1607 / v1703 / v1709 / v1803 / v1809 / v1909 / v2004
Processor	Intel Core i3 family, series 4150 or next, 3.60 Ghz (or higher) ⁽¹⁾ Intel Core i5 family, series 3330 or next, 3.00 Ghz (or higher) ⁽¹⁾ Intel Core i7 family, series 2600 or next, 3.40 Ghz (or higher) ⁽¹⁾ Intel Core i9 family, 3.30 Ghz (or higher) ⁽¹⁾ Intel Xeon E3 Sandy Bridge series or next, 3.10 Ghz (or higher) ⁽¹⁾ With at least 2 physical cores (4 recommended) for a total of at least 4 logical cores.
Hard Disk	Capacity: 256 GB or higher Type: Solid State Drive (SSD) ⁽²⁾ Interface: recommended M.2 connector on PCIe bus with NVMe interface
System memory	8GB or higher ⁽³⁾
Video card	3D Video Card, discrete or integrated graphics ⁽³⁾
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel Wide Monitor 1344 x 768 pixel
Power supply	Use a power supply suitable for the power required by the video card being used
Additional devices	2 x Network card 1Gbps (1 x Intel Pro 1000 / Gigabit CT) 1 DVD-ROM

¹ The correct operation of the software is not guaranteed when using processors with lower technical features.

² With a standard HDD disk (that is, non-SSD), a satisfactory user experience of any other installed applications is not guaranteed.

³ For previously adopted workstation models with only 4GB RAM, it is necessary to combine a discrete 3D video card (that is, not integrated with the motherboard) with its own physical memory of at least 1GB GDD3.

5.2. REQUIREMENTS FOR 3D ACQUISITION WORKSTATIONS (MAIN WORKSTATION)

Requirements for PC workstation directly connected to the X-ray acquisition device and intended for CBCT primary reconstruction.

Characteristics lower than those specified could result in poor performance or impossible acquisition of X-ray examinations from this workstation.

Operating system	Windows 10 Pro 64 bit build v1607 / v1703 / v1709 / v1803 / v1809 / v1909 / v2004
Processor	Intel Xeon E3-1270 v5 (3.6 Ghz) ⁽¹⁾
Hard Disk	500 GB SSD
System memory	8 GB ECC
Video card	3D VideoCard 4 GB physical RAM ^{(2) (3) (4)}
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel Wide Monitor 1344 x 768 pixel
Power supply	Use a power supply suitable for the power required by the video card being used ⁽⁵⁾
Additional devices	2 x Network card 1Gbps (1 x Intel Pro 1000 / Gigabit CT) 1 DVD-ROM

¹ The correct operation of the software is not guaranteed when using processors with lower technical features.

² It is necessary to use one of the validated video cards listed in Chapter 13 to ensure the correct operation of rear projection (Primary Reconstruction).

³ It is necessary to use one of the validated video cards listed in Chapter 13 to ensure the correct operation of MAR option.

⁴ Some 3D functions may have low performance or not be supported due to a limited amount of video memory.

⁵ For the exact power value, refer to Chapter 13.

6. SYSTEM REQUIREMENTS FOR 2D SECONDARY STATIONS (IRYS STATION / IRYS VIEWER)

The tables below indicate the minimum requirements for the workstations not directly connected to the X-ray acquisition device, and where the program will be installed or the corresponding Viewer version that will be used.

6.1. MINIMUM REQUIREMENTS FOR 2D SECONDARY STATIONS

	Minimum requirements
Operating system	Windows 7 Professional 32 / 64 bit SP1 Windows 8.1 Professional 32 / 64 bit Update 3 Windows 10 Pro 64 bit build v1607 / v1703 / v1709 / v1803 / v1809 / v1909 / v2004
Processor	Intel Core i3 family, series 4150 or next, 3.60 Ghz (or higher) ⁽¹⁾ Intel Core i5 family, series 3330 or next, 3.00 Ghz (or higher) ⁽¹⁾ Intel Core i7 family, series 2600 or next, 3.40 Ghz (or higher) ⁽¹⁾ Intel Core i9 family, 3.30 Ghz (or higher) ⁽¹⁾ Intel Xeon E3 Sandy Bridge series or next, 3.10 Ghz (or higher) ⁽¹⁾ (4 or more logic cores are recommended if the workstation is used also for any purpose other than using the software)
Hard Disk	100 GB 7200 RPM
System memory	4 GB (8 GB are recommended if the workstation is used also for any purpose other than using the software)
Video card	3D VideoCard 1 GB physical RAM DirectX 11 support
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel Wide Monitor 1344 x 768 pixel
Power supply	Use a power supply suitable for the power required by the video card being used
Additional devices	1 Network card 1Gbps 1 DVD-ROM

¹ The correct operation of the software is not guaranteed when using processors with lower technical features.

6.2. SUGGESTED REQUIREMENTS FOR 2D SECONDARY STATIONS

	Suggested requirements
Operating system	Windows 10 Pro 64 bit build v1909 / v2004
Processor	Intel Xeon E-2276G (3.8 Ghz)
Hard Disk	500 GB SSD
System memory	16 GB ECC
Video card	3D VideoCard 1 GB physical RAM
Slots	3 x PCI Express (1 x PCI Express x16 slot) 1 x USB 2.0
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel (or higher) Wide Monitor 1344 x 768 pixel (or higher)
Power supply	Use a power supply suitable for the power required by the video card being used
Additional devices	1 Network card 1Gbps 1 DVD-RW

7. SYSTEM REQUIREMENTS FOR 3D SECONDARY STATIONS (IRYS STATION / IRYS VIEWER)

The tables below indicate the minimum requirements for the workstations not directly connected to the CBCT acquisition device, and where the program will be installed or the corresponding Viewer version that will be used.

7.1. MINIMUM REQUIREMENTS FOR 3D SECONDARY STATIONS

	Minimum requirements
Operating system	Windows 7 Professional 32 / 64 bit SP1 Windows 8.1 Professional 32 / 64 bit Update 3 Windows 10 Pro 64 bit build v1607 / v1703 / v1709 / v1803 / v1809 / v1909 / v2004
Processor	Intel Core i7 series 2600 3.40 Ghz ⁽¹⁾ / Intel Xeon series E5530 2.40 Ghz ⁽¹⁾
Hard Disk	100 Gb 7200RPM
System memory	4 GB (32-bit operating systems) 8 GB (64-bit operating systems)
Video card	3D VideoCard 1 GB physical RAM ⁽²⁾ ⁽³⁾ ⁽⁴⁾
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel (or higher) Wide Monitor 1344 x 768 pixel (or higher)
Power supply	Use a power supply suitable for the power required by the video card being used ⁽⁵⁾
Additional devices	1 Network card 1Gbps 1 DVD-ROM

¹ The correct operation of the software is not guaranteed when using processors with lower technical features.

² It is necessary to use one of the validated video cards listed in Chapter 13 to ensure the correct operation of rear projection (Primary Reconstruction).

³ It is necessary to use one of the validated video cards listed in Chapter 13 to ensure the correct operation of MAR option.

⁴ Some 3D functions may have low performance or not be supported due to a limited amount of video memory.

⁵ For the exact power value, refer to Chapter 13.

7.2. SUGGESTED REQUIREMENTS FOR 3D SECONDARY STATIONS

	Suggested requirements
Operating system	Windows 10 Pro 64 bit build v1909 / v2004
Processor	Intel Xeon E-2276G (3.8 Ghz)
Hard Disk	500 GB SSD
System memory	16 GB ECC
Video card	3D VideoCard 4 GB physical RAM ⁽¹⁾ ⁽²⁾
Slots	3 x PCI Express (1 x PCI Express x16 slot) 1 x USB 2.0
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel (or higher) Wide Monitor 1344 x 768 pixel (or higher)
Power supply	Use a power supply suitable for the power required by the video card being used ⁽³⁾
Additional devices	1 Network card 1Gbps 1 DVD-RW

¹ It is necessary to use one of the validated video cards listed in Chapter 13 to ensure the correct operation of rear projection (Primary Reconstruction).

² It is necessary to use one of the validated video cards listed in Chapter 13 to ensure the correct operation of MAR option.

³ For the exact power value, refer to Chapter 13.

8. SYSTEM REQUIREMENTS FOR INTRAORAL DEVICES

The tables below indicate the requirements for the workstations connected to the intraoral devices.

8.1. SYSTEM REQUIREMENTS FOR X-VS SENSOR

	Minimum requirements
Operating system	Windows 7 Professional 32 / 64 bit Windows 8 Professional 32 / 64 bit Windows 8.1 Professional 32 / 64 bit Windows 10 Pro 64 bit build v1607 / v1703 / v1709 / v1803 / v1809 / v1909 / v2004
Processor	Intel Core i3 ⁽¹⁾ or next
Hard Disk	100 GB 7200RPM
System memory	4 GB
Video card	3D VideoCard 1 GB physical RAM (OpenCL v1.2 or higher support)
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel Wide Monitor 1344 x 768 pixel
Power supply	Use a power supply suitable for the power required by the video card being used
Additional devices	1 Network card 1Gbps 1 DVD-ROM (recommended) USB@2.0@ HiSpeed@ port ⁽²⁾

¹ The correct operation of the software is not guaranteed when using processors with lower technical features.

² USB@ 1.1 port not recommended.

8.2. SYSTEM REQUIREMENTS FOR X-VISUS SENSOR

	Minimum requirements
Operating system	Windows 7 Professional 32 / 64 bit Windows 8 Professional 32 / 64 bit Windows 8.1 Professional 32 / 64 bit Windows 10 Pro 64 bit build v1607 / v1703 / v1709 / v1803 / v1809 / v1909 / v2004
Processor	Intel Core i3 ⁽¹⁾ or next
Hard Disk	100 Gb 7200RPM
System memory	4 GB
Video card	3D VideoCard 1 GB physical RAM (OpenCL v1.2 or higher support)
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel Wide Monitor 1344 x 768 pixel
Power supply	Use a power supply suitable for the power required by the video card being used
Additional devices	1 Network card 1Gbps 1 DVD-ROM (recommended) USB [®] 2.0 [®] HiSpeed [®] port ⁽²⁾

¹ The correct operation of the software is not guaranteed when using processors with lower technical features.

² USB[®] 1.1 port not recommended.

9. SYSTEM REQUIREMENTS FOR MAC OS STATIONS

The tables below indicate the requirements for the Apple™ stations based on Mac™ OS operating system.

The use of the iRYS software on these workstations is only permitted by installing a Windows operating system using the Virtual Machine (through Parallels Desktop).

9.1. PREREQUISITES

iRYS Software Version	12.x
Mac™ OS	Mojave (10.14)
Parallels Desktop™ for Mac	15.1.2
Microsoft Windows™ OS	Windows 10 Professional – build v2004 (64 bit)

9.2. NOTES ABOUT NOT SUPPORTED FEATURES

- **Workstation:** any use, connection and acquisition procedure with 2D or 3D devices is not supported
- **MAR (Metal Artifacts Reduction):** not supported
- **3D FM engine – level 4:** graphic engine not supported
- **iCapture:** not supported
- **GPU Primary Reconstruction:** non supported (only safe CPU mode available)
- **NNTBridge:** works only with application installed in the virtual machine
- **Fast report creation:** it is not possible to use the shortcut CTRL+SHIFT button to insert a single image, it is necessary to use the application's specific button

9.3. MINIMUM REQUIREMENTS FOR MAC OS STATIONS

	Minimum requirements
Processor	Intel core i7 family series 4771 (4th generation) 3.5Ghz
System memory	8 GB
Video card	3D VideoCard (no APU, no integrated), 1 GB physical RAM
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel Wide Monitor 1344 x 768 pixel

9.4. SUGGESTED REQUIREMENTS FOR MAC OS STATIONS

	Suggested requirements
Processor	Intel core i7 family series 7700K (7th generation) 4.2Ghz
Hard Disk	500 GB SSD
System memory	16 GB
Video card	3D VideoCard (no APU, no integrated), 4 GB physical RAM
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel (or higher) Wide Monitor 1344 x 768 pixel (or higher)
Additional devices	1 DVD-RW

10. SYSTEM REQUIREMENTS FOR NIP STATIONS

The tables below indicate the requirements for the stations the NIP software will be installed.

10.1. MINIMUM REQUIREMENTS FOR NIP STATIONS

	Minimum requirements
Operating system	Windows 7 Professional 64 bit Windows 10 Pro 64
Processor	Intel Core i5 family, series 3330 or next, 3.00 Ghz (or higher) ⁽¹⁾ Intel Core i7 family, series 2600 or next, 3.40 Ghz (or higher) ⁽¹⁾
Hard Disk	500 GB
System memory	3 GB
Video card	3D VideoCard 1 GB physical RAM
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel Wide Monitor 1344 x 768 pixel
Power supply	Use a power supply suitable for the power required by the video card being used

¹ The correct operation of the software is not guaranteed when using processors with lower technical features.

10.2.SUGGESTED REQUIREMENTS FOR NIP STATIONS

	Suggested requirements
Operating system	Windows 10 Pro 64 bit build v1909 / v2004
Processor	Intel Xeon E-2276G (3.8 Ghz)
Hard Disk	500 GB SSD
System memory	16 GB ECC
Video card	3D VideoCard 4 GB physical RAM
Slots	1 x PCI Express (1 x PCI Express x16 slot) 1 x USB 2.0 1 x USB 3.0
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel (or higher) Wide Monitor 1344 x 768 pixel (or higher)
Power supply	Use a power supply suitable for the power required by the video card being used

11. SYSTEM REQUIREMENTS FOR REALGUIDE STATIONS

The tables below indicate the requirements for the stations the RealGUIDE software will be installed.

11.1.MINIMUM REQUIREMENTS FOR REALGUIDE STATIONS

	Minimum requirements
Operating system	Windows 7 Professional 32 / 64 bit Windows 8.1 Professional 32 / 64 bit Windows 10 Pro 64
Processor	Intel Core i5 family, series 3330 or next, 3.00 Ghz (or higher) ⁽¹⁾ Intel Core i7 family, series 2600 or next, 3.40 Ghz (or higher) ⁽¹⁾
Hard Disk	500 GB
System memory	4 GB
Video card	3D VideoCard 1 GB physical RAM (2) (3) (4)
Slots	1 x PCI Express (1 x PCI Express x16 slot) 1 x USB 2.0 1 x USB 3.0
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel (or higher) Wide Monitor 1344 x 768 pixel (or higher)
Power supply	Use a power supply suitable for the power required by the video card being used

¹ The correct operation of the software is not guaranteed when using processors with lower technical features.

² "RealBODY" feature is only available with use of NVidia video cards.

³ It is necessary to use one of the validated video cards listed in Chapter 13 to ensure the correct operation of rear projection (Primary Reconstruction) with iRYS software if the program is installed in the same station.

⁴ It is necessary to use one of the validated video cards listed in Chapter 13 to ensure the correct operation of MAR option with iRYS software if the program is installed in the same station.

11.2.SUGGESTED REQUIREMENTS FOR REALGUIDE STATIONS

	Suggested requirements
Operating system	Windows 10 Pro 64 bit build v1909 / v2004
Processor	Intel Xeon E-2276G (3.8 Ghz)
Hard Disk	500 GB SSD
System memory	16 GB ECC
Video card	3D NVidia VideoCard 4 GB physical RAM ⁽¹⁾ ⁽²⁾ ⁽³⁾
Slots	1 x PCI Express (1 x PCI Express x16 slot) 1 x USB 2.0 1 x USB 3.0
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel (or higher) Wide Monitor 1344 x 768 pixel (or higher)
Power supply	Use a power supply suitable for the power required by the video card being used

¹ "RealBODY" feature is only available with use of NVidia video cards.

² The use of an NVidia card implies that the rear projection feature (Primary Reconstruction) of iRYS software is not available if the program is installed in the same station.

³ The use of an NVidia card implies that the MAR feature of iRYS software is not available if the program is installed in the same station.

12. SYSTEM REQUIREMENTS FOR 3DI TS STATIONS

The tables below indicate the requirements for the workstations directly connected to the 3Di TS acquisition device.

12.1. MINIMUM REQUIREMENTS FOR 3DI TS STATIONS

	Minimum requirements
Operating system	Windows 7 Professional 64 bit SP1 Windows 10 Pro 64 bit
Processor	Intel Core i5 quad core 3.8 Ghz ⁽¹⁾
Hard Disk	80-150 GB free space
System memory	16 GB
Video card	3D VideoCard 4 GB physical RAM
Slots	1 x PCI Express (1 x PCI Express x16 slot) 1 x USB 2.0 1 x USB 3.0
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel Wide Monitor 1344 x 768 pixel
Power supply	Use a power supply suitable for the power required by the video card being used

¹ The correct operation of the software is not guaranteed when using processors with lower technical features.

12.2.SUGGESTED REQUIREMENTS FOR 3DI TS STATIONS

	Suggested requirements
Operating system	Windows 10 Pro 64 bit build v1909 / v2004
Processor	Intel Xeon E-2276G (3.8 Ghz)
Hard Disk	500 GB SSD
System memory	16 GB ECC
Video card	3D VideoCard 4 GB physical RAM
Slots	1 x PCI Express (1 x PCI Express x16 slot) 1 x USB 2.0 1 x USB 3.0
Monitor (minimum resolution)	4:3 monitor 1280 x 1024 pixel (or higher) Wide Monitor 1344 x 768 pixel (or higher)
Power supply	Use a power supply suitable for the power required by the video card being used

13. SYSTEM REQUIREMENTS FOR 3DI IOS STATIONS

The table below indicates the requirements for the workstations directly connected to the 3Di IOS acquisition device.

13.1.REQUIREMENTS FOR 3DI IOS STATIONS

	Requirements (*)
Operating system	Windows 10 Pro 64 bit
Processor	Intel Core i7 quad core 2.1 Ghz / 4.0Ghz Turbo/Boost Clock ⁽¹⁾ (or higher)
Hard Disk	≥ 100 GB free space SSD disc
System memory	16 GB DDR4 (or higher)
Video card	NVIDIA VideoCard GeForce Graphics Processor ⁽²⁾ ⁽³⁾ 10 Series (GTX): 1070 or higher – Min. 6 GB video memory 20 Series (RTX): 2060 or higher – Min. 6 GB video memory 30 Series (RTX): 30x0 or higher
Ports	1 x USB 3.0
Monitor (minimum resolution)	Wide Monitor 1920 x 1080 pixel

* Minimum requirements but not sufficient to ensure correct operation: it is recommended to use the models mentioned in Par. 13.2

¹ The correct operation of the software is not guaranteed when using processors with lower technical features.

² The use of an NVidia card implies that the rear projection feature (Primary Reconstruction) of iRYS software is not available if the program is installed in the same station.

³ The use of an NVidia card implies that the MAR feature of iRYS software is not available if the program is installed in the same station.

13.2.RECOMMENDED PC MODELS FOR 3DI IOS

Manufacturer	Model
DELL	Alienware 17 R5 Alienware M15 R2 Alienware M17 R2
HP	Pavilion Gaming 16-a0014nl OMEN 15-dh0025nl
ASUS	ROG Zephyrus GX501

14. LIST OF VALIDATED VIDEO CARDS

The following video cards have been validated for use in the workstation dedicated to primary reconstruction of the CBCT data and for metal artefact reduction (MAR) function.



WARNING:

Use a discrete video card (no APU).



WARNING:

For the correct operation of the software it is necessary to use the special video drivers available on the software installation support and on the Extranet platform.

In order to choose the appropriate card model, check the power of your PC power supply.

Card (brand and model)	Win7 32 bit	Win7 64 bit	Win8.1 32 bit	Win8.1 64 bit	Win10 64 bit	Power power supply	Validation
Sapphire Radeon RX 5500 XT – NITRO – OC – 8GB GDDR6					◦	≥ 500W	2020
AMD Radeon Pro WX3200 – 4GB GDDR5		◦			◦	≥ 400W	2020
Sapphire Radeon RX 590 – NITRO – OC – 8GB GDDR5					◦	≥ 500W	2019
AMD Radeon Pro WX3100 – 4GB GDDR5		◦			◦	≥ 400W	2019
AMD Radeon Pro WX4100 – 4GB GDDR5		◦			◦	≥ 400W	2018
Sapphire / ASUS Radeon RX 550 – OC – 4GB GDDR5		◦			◦	≥ 400W	2018
Sapphire Radeon RX 580 – NITRO – OC – 4GB/8GB GDDR5					◦	≥ 500W	2017
Sapphire Radeon RX 570 – NITRO – OC – 4GB/8GB GDDR5					◦	≥ 500W	2017
Sapphire Radeon RX 560 – OC – 4GB GDDR5					◦	≥ 450W	2017
Sapphire Radeon RX 480 – NITRO – OC – 4GB/8GB GDDR5		◦			◦	≥ 500W	2017
Sapphire Radeon RX 470 – NITRO – OC – 4GB/8GB GDDR5		◦			◦	≥ 450W	2017
Sapphire Radeon RX 460 – NITRO – OC – 4GB GDDR5		◦			◦	≥ 400W	2017
AMD FirePro W4300 – 4GB GDDR5	◦	◦			◦	≥ 400W	2017
Sapphire Radeon R9 380 – NITRO – OC – 4GB GDDR5		◦			◦	≥ 500W	2016
Sapphire Radeon R9 270 – BOOST & OC – 2GB GDDR5	◦	◦	◦	◦		≥ 500W	2015
Sapphire Radeon R7 370 – DualX – OC – 2GB GDDR5		◦			◦	≥ 500W	2016

Card (brand and model)	Win7 32 bit	Win7 64 bit	Win8.1 32 bit	Win8.1 64 bit	Win10 64 bit	Power power supply	Validation
Sapphire Radeon R7 360 – NITRO – OC – 2GB GDDR5		◦		◦		≥ 500W	2016
Sapphire Radeon R7 360 – OC – 2GB GDDR5		◦		◦		≥ 500W	2016
Sapphire Radeon R7 265 – DualX – 2GB GDDR5	◦	◦	◦	◦		≥ 500W	2015
Sapphire Radeon R7 260X – OC – 2GB GDDR5	◦	◦	◦	◦		≥ 500W	2015
Sapphire Radeon R7 250X – VaporX – 1GB/2GB GDDR5	◦	◦	◦	◦		≥ 400W	2015
Sapphire / ASUS Radeon R7 250 – 1GB/2GB GDDR5	◦	◦	◦	◦	◦	≥ 400W	2015
ATI FirePro W7000 – 4GB GDDR5 (1)	◦	◦				≥ 400W	2014
Sapphire Radeon HD 7870 – 2GB GDDR5	◦	◦	◦	◦		≥ 500W	2014
Sapphire Radeon HD 7850 – 1GB/2GB GDDR5	◦	◦	◦	◦		≥ 500W	2014
Sapphire Radeon HD 7770 – GHZ Ed. – OC – VaporX – 1GB GDDR5	◦	◦	◦	◦		≥ 500W	2014
Sapphire Radeon HD 7750 – GHZ Ed. – OC – VaporX – 1GB GDDR5	◦	◦	◦	◦		≥ 400W	2014
Sapphire Radeon HD 6970 – VaporX – 2GB GDDR5	◦	◦				≥ 500W	2013
Sapphire Radeon HD 6950 – VaporX – 1GB GDDR5	◦	◦				≥ 500W	2013
Sapphire Radeon HD 6870 – VaporX – 1GB GDDR5	◦	◦				≥ 500W	2013
Sapphire Radeon HD 6850 – VaporX – 1GB GDDR5	◦	◦				≥ 500W	2013
Sapphire Radeon HD 6770 – VaporX – 1GB GDDR5	◦	◦				≥ 450W	2013
Sapphire Radeon HD 6750 – VaporX – 1GB GDDR5	◦	◦				≥ 450W	2013
ATI Radeon HD 5870 – 1GB	◦	◦				≥ 500W	2012
ATI Radeon HD 5850 – 1GB	◦	◦				≥ 500W	2012
ATI Radeon HD 5770 – 1GB	◦	◦				≥ 450W	2012

¹ Not validated for MAR function.

15. DONGLE KEY USE

The program Dongle Keys are usually connected to a computer where the software is installed, thus inheriting the system minimum requirements.

In case of multi-licence dongle keys (NET), being by definition installable on any network computer (including server) where the program is not installed, the system minimum requirements will be those listed in the table below:

Operating system	Windows 10 64bit build v1607 / v1703 / v1709 / v1803 / v1809 / v1909 / v2004 Windows 8.1 Update 3 Windows 7 SP1 Windows Server 2012 R2 Windows Server 2008 R2 SP1 Windows Server 2008 SP2 Windows Server 2003 SP2
Network / firewall settings	Enable 1947 TCP/UDP port. The workstations using the multi-licence (NET) Dongle Key must be connected to a wired LAN Gigabit network within the same network domain and subnet mask. The multi-licence dongle keys cannot be used in RDP (<i>Remote Desktop Protocol</i>) mode.

16. WARNING NOTES ON SOFTWARE USE



NOTE:

The software is optimised for keyboard and mouse use.



NOTE:

The software is optimised to be used with increased resolution monitors (e.g. 4K) connected to Workstations with Windows 10 operating system.



WARNING:

Software correct operation for installation and execution within a Virtual Machine is not guaranteed.



WARNING:

Software correct operation through the use of remote control systems (*Remote Desktop, Teamviewer, VNC, VPN connections etc.*) is not guaranteed.



WARNING:

MAR algorithm can be used only with software executed on a physical machine and not on a Virtual Machine.



WARNING:

Use a wired LAN Gigabit network. The use of LAN WiFi does not ensure image archives/program database consistency and could cause data corruption and/or loss.



WARNING:

The use of synchronization software of the patient archive (patient data and / or images) for the connection of workstations located in different networks does not ensure image archives/program database consistency and could cause data corruption and/or loss.



WARNING:

Software correct visualisation is guaranteed if 100% is set as system font size. If you are using a different % value with Windows 10, the operating system will adjust the images accordingly by decreasing their resolution: it is recommended to prefer lower % values.

