

Minimum Hardware Specifications – Upgrades

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ARIA® for Medical Oncology,
& ARIA® for Radiation Oncology

Version 11.0

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Minimum: ARIA® Radiation Oncology Database Server Requirements

Processor:	(Dual) Intel® Dual Core Xeon® 5130 2.0Ghz 4MB Cache 1333MHz FSB; or better.
Bus Type:	PCI-E
Memory (RAM):	4 GB Fully Buffered DIMM's at 667MHz Dual Ranked
Storage	Equivalent (or better) to: Hot swap drives with SAS interface running at 15K RPM drives with an access time of <= 10ms Effective disk space of ~300GB of storage.
Drive Controller:	The equivalent of Dual channel SAS 3.0Gb/s RAID ^[1] controller with ≥ 256 MB cache. Configured for hardware RAID 5 fault tolerance and Read/Write cache enabled. CD/DVD device and backup device should operate from channel 2 of controller or a separate controller.
Optical Drive:	Windows compatible CD/DVD-ROM combo Drive
Backup Tape:	Windows compatible backup device sufficient to store all data (including OS) for a 'full backup'.
Network Interface:	1 NIC 1000 Mbps, compatible with the network operating system and cabling.
Monitor:	15" Monitor with 1024x768 resolution
Keyboard:	101-key IBM®-compatible
Mouse:	Microsoft® Windows-compatible 2-button scroll mouse
Redundancy:	PSU and Fans
Ports:	Minimum 2 USB
Operating System:	ARIA (8.8 and above) ^{[3], [4], [5], [6], [7]} ; Microsoft® Windows® 2003 (Standard or Enterprise) Server R2 SP2 (32 bit only), with sufficient client access licenses.
File System:	NT File System (NTFS)

Windows® OS Architecture:	32-bit
Microsoft® .NET Framework:	ARIA 8.8 and above: 1.1, 2.0, 3.0, and 3.5 ARIA 11.0: 4.0

Notes:

1. Software RAID is neither recommended nor supported with the ARIA Radiation Oncology Server.
2. Hardware used should be approved based on the current Microsoft® Windows® Catalog Listing.
3. Windows® Server 2008 R2 is currently not compatible with ARIA Version 10.0.
4. Other compatible Windows® operating systems for ARIA (10.0, 11.0) include: Windows Server 2008 R1 SP2 (Standard or Enterprise) (64-bit only).
5. Other compatible Windows® operating systems for ARIA (11.0) include: Windows Server 2008 R2 SP1 (Standard or Enterprise) (64-bit only).
6. ARIA for Radiation Oncology Database Server hardware must be confirmed with the OEM vendor as compatible for Windows Server 2008 R1 (x64) or Windows Server 2008 R2 (x64) when considering upgrading the OS and upgrading the memory (24GB RAM).
7. If a site has HARRP, the source (primary) and target (HARRP) servers should not be placed in the same rack or location for optimum reliability. The Operating System (build and version) on the source server(s) shall match the Operating System (build and version) on the HARRP *target* server(s).
8. The minimum spec DB server is insufficient to act as a host for RIA (Rich Internet Applications). Customer's whose servers do not meet v11 Recommended Spec hardware must supply a separate server to host RIA applications.
9. Specifications subject to change without notice as newer computer models become available.

Minimum: ARIA® for Medical Oncology Database Server Requirements

Server Size	Small 0-75 Concurrent Users	Medium 76-150 Concurrent Users	Large 151+ Users
Processor:	Dual Intel® Xeon 5130 Dual Core Processors at 2.0 GHz, 1333MHz FSB with 4 MB cache. (or better)	Dual Intel® Xeon 5130 Dual Core Processors at 2.0 GHz, 1333MHz FSB with 4 MB cache. (or better)	Custom Hardware Quotation Required
Memory:	4 GB RAM	4 GB RAM	
Hard Drives:	Equivalent (or better) to: Hot swap drives with SAS interface running at 15K RPM drives with an access time of <= 10ms Effective disk space of ~300GB of storage. Storage allocation: 73 GB (OS/APP) + 73 GB (DB/LOG) + 146GB (DMP)	Equivalent (or better) to: Hot swap drives with SAS interface running at 15K RPM drives with an access time of <= 10ms Effective disk space of ~600GB of storage. Storage allocation: 73 GB (OS/APP) + 73 GB (LOG) + 300 GB (DMP)+146 GB(DB)	
Drive Controller:	Equivalent of Single or Dual channel SAS RAID controller. Configured for hardware RAID 1 fault tolerance. CD & Tape unit should operate from separate controller or channel 2 on Dual Channel controller.	Equivalent of Single or Dual channel SAS RAID controller. Configured for hardware RAID 1 fault tolerance. CD & Tape unit should operate from separate controller or channel 2 on Dual Channel controller.	
Optical Drive:	Windows compatible CD/DVD-ROM combo Drive	Windows compatible CD/DVD-ROM combo Drive	
Backup Tape:	Windows compatible backup device sufficient to store all data (including OS) for a 'full backup'.	Windows compatible backup device sufficient to store all data (including OS) for a 'full backup'.	
Network Adapter:	1 NIC 1000 Mbps, compatible with the network operating system and cabling.	1 NIC 1000 Mbps, compatible with the network operating system and cabling.	
Redundancy:	PSU and Fans	PSU and Fans	
Monitor:	15" Monitor with 1024x768 resolution	15" Monitor with 1024x768 resolution	
Keyboard:	101-key IBM®-compatible	101-key IBM®-compatible	
Mouse:	Microsoft® Windows-compatible 2-button scroll	Microsoft® Windows-compatible 2-button scroll mouse	

	mouse		
Ports:	Minimum 2 USB	Minimum 2 USB	
Operating System:	ARIA MO (8.8 and above) Microsoft® Windows® 2003 (Standard or Enterprise) Server SP2, with sufficient client access licenses.	ARIA MO (8.8 and above) Microsoft® Windows® 2003 (Standard or Enterprise) Server SP2, with sufficient client access licenses.	
File System:	NTFS	NTFS	
Windows® OS Architecture:	32-bit	32-bit	

Notes:

1. Software RAID is neither recommended nor supported with the ARIA for Medical Oncology Database Server.
2. Hardware used must be approved based on the current Microsoft® Windows Catalog Listing.
3. Windows® Server 2008 R2 is currently not compatible with ARIA MO Version 10.0.
4. Other compatible Windows® operating systems for ARIA MO (10.0, 11.0) include: Windows Server 2008 R1 SP2 (Standard or Enterprise) (64-bit only).
5. Other compatible Windows® operating systems for ARIA MO (11.0) include: Windows Server 2008 R2 SP1 (Standard or Enterprise) (64-bit only).
6. ARIA for Medical Oncology Database Server hardware must be confirmed with the OEM vendor as compatible for Windows Server 2008 R1 (x64) or Windows Server 2008 R2 (x64) when considering upgrading the OS and upgrading the memory (24GB RAM).
7. Specifications subject to change without prior notification.
8. Additional hard disk space may be required with newer capabilities; IT/S staff shall review backup means and schedules.
9. If a site has HARRP, the source (primary) and target (HARRP) servers should not be placed in the same rack or location for optimum reliability. The Operating System (build and version) on the source server(s) shall match the Operating System (build and version) on the HARRP *target* server(s).

Minimum: Image File Server Requirements

(Not needed for a data-only system)

System Size	Small	Medium	Large
Processor:	(Single) Intel® Dual Core Xeon® 5130 2.0Ghz 4MB Cache 1333MHz FSB; or better	(Single) Intel® Dual Core Xeon® 5140 2.33Ghz 4MB Cache 1333MHz FSB; or better	(Single) Intel® Dual Core Xeon® 5160 3.0Ghz 4MB Cache 1333MHz FSB; or better
Bus Type:	PCI-E/PCI-X	PCI-E/PCI-X	PCI-E/PCI-X
Memory: (RAM)	2 GB Fully Buffered DIMM'S at 667MHz Single Ranked; or greater	2 GB Fully Buffered DIMM'S at 667MHz Single Ranked; or greater	4 GB Fully Buffered DIMM'S at 667MHz Single Ranked; or greater
Hard Disk:	Equivalent (or better) to: Hot swap drives with SAS interface running at 10K RPM drives with an access time of <= 10ms Effective Disk Space: ~300GB of storage.	Equivalent (or better) to: Hot swap drives with SAS interface running at 10K RPM drives with an access time of <= 10ms Effective Disk Space: ~1.2TB of storage.	Equivalent (or better) to: Hot swap drives with SAS interface running at 10K RPM drives with an access time of <= 10ms Effective Disk Space: ~1.8TB of storage.
Drive Controller:	The equivalent of Dual channel SAS 3.0Gb/s RAID controller with > 128 MB cache. Configured for hardware RAID 5 fault tolerance and read/write cache (50/50) enabled. CD/DVD device and backup device should operate from channel 2 of this controller or a separate controller.	The equivalent of Dual channel SAS 3.0Gb/s RAID controller with > 128 MB cache. Configured for hardware RAID 5 fault tolerance and read/write cache (50/50) enabled. CD/DVD device and backup device should operate from channel 2 of this controller or a separate controller.	The equivalent of Dual channel SAS 3.0Gb/s RAID controller with > 128 MB cache. Configured for hardware RAID 5 fault tolerance and read/write cache (50/50) enabled. CD/DVD device and backup device should operate from channel 2 of this controller or a separate controller.
Optical Drive:	Windows compatible CD/DVD-ROM combo Drive	Windows compatible CD/DVD-ROM combo Drive	Windows compatible CD/DVD-ROM combo Drive
Backup Tape:	Windows compatible backup device sufficient to store all data (including OS)	Windows compatible backup device sufficient to store all data (including OS)	Windows compatible backup device sufficient to store all data (including OS)

	for a 'full backup'.	for a 'full backup'.	for a 'full backup'.
Network Interface:	1 LOM 1000 Mbps, compatible with the network operating system and cabling.	1 LOM 1000 Mbps, compatible with the network operating system and cabling.	1 LOM 1000 Mbps, compatible with the network operating system and cabling.
Monitor:	15" Monitor with 1024x768 resolution	15" Monitor with 1024x768 resolution	15" Monitor with 1024x768 resolution
Keyboard:	101-key IBM®-compatible	101-key IBM®-compatible	101-key IBM®-compatible
Mouse:	Microsoft® Windows-compatible 2-button scroll mouse	Microsoft® Windows-compatible 2-button scroll mouse	Microsoft® Windows-compatible 2-button scroll mouse
Redundancy:	PSU and Fans	PSU and Fans	PSU and Fans
Ports:	Minimum 2 USB	Minimum 2 USB	Minimum 2 USB
Operating System:	ARIA (8.8 and above) ^{[3], [4], [5], [6]} . Windows Server® 2003 R2 SP2 (Standard or Enterprise) (with sufficient seat licenses).	ARIA (8.8 and above) ^{[3], [4], [5], [6]} . Windows Server® 2003 R2 SP2 (Standard or Enterprise) (with sufficient seat licenses).	ARIA (8.8 and above) ^{[3], [4], [5], [6]} . Windows Server® 2003 R2 SP2 (Standard or Enterprise) (with sufficient seat licenses).
File System:	NTFS	NTFS	NTFS
Windows® OS Architecture	32-bit	32-bit	32-bit
Microsoft® .NET Framework	<ul style="list-style-type: none"> • ARIA 8.8, 10.0,11.0: 1.1, 2.0, 3.0, and 3.5 • ARIA 11.0: 4.0 	<ul style="list-style-type: none"> • ARIA 8.8, 10.0,11.0: 1.1, 2.0, 3.0, and 3.5 • ARIA 11.0: 4.0 	<ul style="list-style-type: none"> • ARIA 8.8, 10.0,11.0: 1.1, 2.0, 3.0, and 3.5 • ARIA 11.0: 4.0

NOTES:

1. Software RAID is neither recommended nor supported with the Image File Server.
2. Hardware used should be approved based on the current Microsoft® Windows Catalog Listing.
3. Windows® Server 2008 R2 is currently not compatible with ARIA Version 10.0.
4. Other compatible Windows® operating systems for ARIA (10.0, 11.0) include: Windows Server 2008 R1 SP2 (Standard or Enterprise) (64-bit only).

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5. Other compatible Windows® operating systems for ARIA (11.0) include: Windows Server 2008 R2 SP1 (Standard or Enterprise) (64-bit only).
 6. Image File Server hardware must be confirmed with the OEM vendor as compatible for Windows Server 2008 R1 (x64) or Windows Server 2008 R2 (x64) when considering upgrading the OS and upgrading the memory (8GB RAM).
 7. In addition to this Image Fileserver, the following [database server](#) is required for use with Image-based products and would be installed in the same rack.
 8. Specifications subject to change without prior notification.
 9. Additional hard disk space may be required with newer capabilities; customer's IT/S staff shall review backup means and schedules.
 10. If a site has HARRP, the source (primary) and target (HARRP) servers should not be placed in the same rack or location for optimum reliability. The Operating System (build and version) on the source server(s) shall match the Operating System (build and version) on the HARRP *target* server(s).

Minimum: Citrix Server Requirements

Processor:	(Dual) Intel® Xeon® 5130 Dual Core Processors at 2.66 GHz, 1333MHz FSB with [2X 4MB 2X 6MB] cache; (or better)
Bus Type:	PCI-E/PCI-X
Memory (RAM):	4GB Memory (32 bit)
Hard Drives (Local Storage):	Equivalent (or better) to: Hot swap drives with SAS interface running at 15K RPM drives with an access time of <= 10ms Effective Disk Space: ~36GB of storage
Drive Controller:	Equivalent of Single channel SAS RAID controller; configured with hardware RAID 1 fault tolerance.
Optical Drive:	Windows compatible CD/DVD-ROM combo Drive
Backup Device:	None
Network Interface:	1 NIC 1000 Mbps, compatible with the network operating system and cabling.
Monitor:	15" Monitor with 1024x768 resolution
Keyboard:	101-key IBM®-compatible
Mouse:	Microsoft® Windows-compatible 2-button scroll mouse
Redundancy:	PSU and Fans
Ports:	Minimum 2 USB
Operating System:	ARIA(8.8,10.0,11.0) & Eclipse (8.8): Windows® Server 2003 R2 SP2 (Standard or Enterprise), 32-bit, English only (with sufficient seat licenses) Eclipse (Version 10.0,11.0): Windows® Server 2008 R1 SP2 (Standard or Enterprise) 64-bit , English only (with sufficient seat licenses)
File System: NT File System (NTFS)	NTFS
Windows® OS Architecture:	32-bit or 64-bit (Eclipse v10.0 & 11.0)

<p>Microsoft® .NET Framework:</p>	<ul style="list-style-type: none"> • ARIA 8.8, 10.0,11.0: 1.1, 2.0, 3.0, and 3.5 • ARIA 11.0: 4.0
<p>Citrix Compatibility^{2,3,4,13,14,15}</p>	<p>Citrix Presentation Server® 4.0 Advanced Edition (32 bit), English Only – ARIA for MO (8.8)</p> <p>Citrix Presentation Server® 4.5 Advanced Edition (32 bit), English Only – ARIA for MO (8.8, 10.0, 11.0), ARIA for RO (v10.0 & 11.0 <u>excludes</u> Eclipse)</p> <p>Citrix Presentation Server® 4.0 Enterprise Edition (32 bit), English Only – ARIA for RO and Eclipse (8.8)</p> <p>Citrix Presentation Server® 4.5 Enterprise Edition (32 bit), English Only – ARIA for RO and Eclipse (8.8)</p> <p>Citrix XenApp™ 5.0 Advanced Edition (64-bit), English only → ARIA for MO, ARIA for RO and Eclipse (10.0,11.0)</p> <p>Citrix XenApp™ 6.0 Advanced Edition (64-bit), English only → ARIA for MO, ARIA for RO and Eclipse (11.0)</p>

Notes:

1. Software RAID is neither recommended nor supported with the Citrix Server.
2. Review the [Citrix Road Map](#) on qualifying Citrix Presentation Server and XenApp with ARIA for Radiation Oncology and Eclipse.
3. ARIA for Radiation Oncology and Eclipse version 10.0 & 11.0 are supported within an English language Citrix Farm only.
4. Eclipse version 10.0 and 11 are only supported within a **64-bit** Citrix Farm.
5. AcurosBV has **not** been qualified to run on Minimum Spec hardware.
6. Varian is not a Citrix authorized reseller; customers are responsible for maintaining sufficient Citrix and Microsoft Terminal Client Access Licenses for their environment.
7. Windows® Server 2008 R2 is currently not compatible with ARIA Version 10.0.
8. Other compatible Windows® operating systems for ARIA (10.0, 11.0) include: Windows Server 2008 R1 SP2 (Standard or Enterprise) (64-bit only).
9. Other compatible Windows® operating systems for ARIA (11.0) include: Windows Server 2008 R2 SP1 (Standard or Enterprise) (64-bit only).
10. The above configuration is for a Single Citrix Server or the First Server in a Citrix Farm.
11. Load Balancing and High Availability (N+1) Citrix Server shall use the same hardware; however, RAID controllers, hot spare drives, and redundant power supplies are not required.
12. Specifications subject to change without notice as newer computer models become available.
13. Citrix Server hardware must be confirmed as compatible with the OEM vendor for Windows Server 2008 R1 (x64) or Windows Server 2008 R2 (x64) when considering upgrading the OS and upgrading the memory (24GB RAM).

14. Hardware used with ARIA for Radiation Oncology and Eclipse must be approved based on the current Microsoft® specifications.
15. Additional Citrix Servers should be planned and accounted for based on concurrent user count.
16. The minimum specs defined here will 'nominally' support approximately 50 concurrent ARIA for Medical Oncology concurrent users on one (1) Citrix Server. Customers should always plan for an "N+1" server configuration to ensure proper responsiveness and load balancing.
17. The minimum specs defined here will 'nominally' support the number of concurrent users of ARIA for Radiation Oncology on one (1) Citrix Server *per* Client Type row but not combined in the table below. Customer's should always plan for an "N+1" server configuration to ensure proper responsiveness and load balancing.

Client Type	Users	Data Type
ARIA Practice Management (Patient Manager, Time Planner, ...)	30	Textual data
ARIA Radiation Oncology (RTChart, Offline Review, ...)	10	Textual and 2-D/3-D Image data
Eclipse	5	Textual and 2-D/3-D Image data

Minimum: Information Exchange Manager (IEM) Server Requirements

Processor:	(Dual) Intel® Xeon® 5130 Dual Core Processors at 2.0 GHz, 1333MHz FSB with 4 MB cache; or better
Bus Type:	PCI-E
Memory (RAM):	4GB
Hard Drives: (Local Storage)	Equivalent (or better) to: Hot swap drives with SAS interface running at 10K RPM drives with an access time of <= 10ms <ul style="list-style-type: none"> Effective disk space: 36 GB (OS/APP) for system with no Faxing or Scanning Interface Effective Disk space: 300 GB (OS/APP) for system with Faxing or Scanning Interface
Drive Controller:	Equivalent of Single channel SAS RAID ^[1] controller. Configured for hardware RAID 1 fault tolerance.
Optical Drive:	Windows compatible CD/DVD-ROM combo Drive
Backup:	None
Network Interface:	1 NIC 1000 Mbps, compatible with the network operating system and cabling.
Monitor:	15" Monitor with 1024x768 resolution
Keyboard:	101-key IBM®-compatible
Mouse:	Microsoft® Windows-compatible 2-button scroll mouse
Redundancy:	PSU and Fans
Ports:	Minimum 2 USB
Operating System: ^{[2], [3], [4], [5]}	IEM (8.8 and above) Microsoft® Windows® 2003 (Standard or Enterprise) Server SP2, with sufficient client access licenses.
File System:	NTFS
Windows® OS Architecture:	32-bit

Notes:

1. Software RAID is neither recommended nor supported with the IEM Server.
2. Windows® Server 2008 R2 is currently not compatible with IEM Version 10.0.
3. Other compatible Windows® operating systems for IEM (10.0, 11.0) include: Windows Server 2008 R1 SP2 (Standard or Enterprise) (64-bit only).
4. Other compatible Windows® operating systems for IEM (11.0) include: Windows Server 2008 R2 SP1 (Standard or Enterprise) (64-bit only).
5. IEM Server hardware must be confirmed as compatible with the OEM vendor for Windows Server 2008 R1 (x64) or Windows Server 2008 R2 (x64) when considering upgrading the OS and upgrading the memory (24GB RAM).
6. If the customer is providing a filtered data feed, one IEM Server can normally support up to about 150 concurrent users. If there is a substantial amount of filtering required in the IEM Server, fewer concurrent users may be supported on one interface engine. Another parameter to evaluate is the

number of messages per day. If there is a need to parse in excess of about 50,000 messages a day, additional IEM Servers may be needed.

7. Hardware used should be approved based on the current Microsoft® Windows® Catalog Listing.
8. Specifications subject to change without notice as newer computer models become available.
9. If a site has HARRP, the source (primary) and target (HARRP) servers should not be placed in the same rack or location for optimum reliability. The Operating System (build and version) on the source server(s) shall match the Operating System (build and version) on the HARRP *target* server(s).

Minimum: ARIA® T-Box Server Requirements

Processor:	Single Intel® Quad Core Xeon® E5430 2x6MB Cache, 2.66Ghz, 1333MHz FSB
Bus Type:	PCI-E
Memory (RAM):	4 GB Fully Buffered DIMM's at 667MHz Dual Ranked
Hard Drives: (Local Storage)	Equivalent (or better) to: Hot swap drives with SAS interface running at 15K RPM drives with an access time of <= 10ms Effective disk space of ~300 GB.
Drive Controller:	Equivalent of Single channel SAS RAID ^[1] controller. Configured for hardware RAID 1 fault tolerance.
Optical Drive:	Windows compatible CD/DVD-ROM combo Drive
Backup Tape:	None
Network Interface:	1 NIC 1000 Mbps, compatible with the network operating system and cabling.
Monitor:	15" Monitor with 1024x768 resolution
Keyboard:	101-key IBM®-compatible
Mouse:	Microsoft® Windows-compatible 2-button scroll mouse
Redundancy:	PSU
Ports:	Minimum 2 USB
Operating System:	ARIA (8.8, and above) ^{[3], [4], [5], [6], [7]} ; Microsoft® Windows® 2003 R2 SP2 (Standard or Enterprise) English Only, 32 bit, with sufficient client licenses.
File System:	NTFS
Windows® OS Architecture:	32-bit
Microsoft® .NET Framework:	<ul style="list-style-type: none"> • ARIA 8.8, 10.0, 11.0: 1.1, 2.0, 3.0, and 3.5 • ARIA 11.0: 4.0

Notes:

1. Software RAID is neither recommended nor supported with the T-Box Server.
2. Hardware used should be approved based on the current Microsoft® Windows® Catalog Listing.

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3. Windows® Server 2008 R2 is currently not compatible with ARIA Version 10.0.
 4. Other compatible Windows® operating systems for ARIA (10.0,11.0) include: Windows Server 2008 R1 SP2 (Standard or Enterprise) , 64-bit only.
 5. Other compatible Windows® operating systems for ARIA (11.0) include: Windows Server 2008 R2 SP1 (Standard or Enterprise) , 64-bit only.
 6. T-Box Server hardware must be confirmed with the OEM vendor as compatible for Windows Server 2008 R1 (x64) or Windows Server 2008 R2 (x64) when considering upgrading the OS and upgrading the memory (24GB RAM).
 7. Specifications subject to change without notice as newer computer models become available.
 8. The T-Box server should be mounted in the database/image server rack.

Minimum: Duet Server Requirements

System Size	Small and Medium	Large
Processor:	Single Intel® Xeon® E5530, 2.4Ghz, 8M Cache, 5.86 GT/s QPI, Turbo, HT, 1066MHz	Single Intel® Xeon® X5650, 2.66Ghz, 12M Cache, Turbo, HT, 1333MHz
Bus Type:	PCI-E	PCI-E
Memory (RAM):	8GB Memory (4x2GB), 1333MHz Dual Ranked RDIMMs for 1 Processors, Optimized	12GB Memory (3x4GB), 1333MHz Dual Ranked RDIMMs for 1 Processor, Optimized
Hard Drives: (Local Storage)	Equivalent (or better) to: Hot swap drives with SAS interface running at 15K RPM drives with an access time of <= 10ms Effective disk space of ~1.7TB	Equivalent (or better) to: Hot swap drives with SAS interface running at 15K RPM drives with an access time of <= 10ms Effective disk space of ~2.4 TB
Drive Controller:	Equivalent of Internal PERC H700 Integrated RAID Controller with 512MB of battery-backed cache with (50/50) read/write cache enabled. Configure drive storage with RAID 5. CD/DVD device and backup device should operate from separate controller or separate channel on Dual Channel controllers	Equivalent of Internal PERC H700 Integrated RAID Controller with 512MB of battery-backed cache with (50/50) read/write cache enabled. Configure drive storage with RAID 5. CD/DVD device and backup device should operate from separate controller or separate channel on Dual Channel controllers
Optical Drive:	Windows compatible CD/DVD-ROM combo Drive	Windows compatible CD/DVD-ROM combo Drive
Backup Tape:	Windows compatible backup device sufficient to store all data (including OS) for a 'full backup'.	Windows compatible backup device sufficient to store all data (including OS) for a 'full backup'.
Network Interface:	1 NIC 1000Mbps, compatible with the network operating system and cabling.	1 NIC 1000Mbps, compatible with the network operating system and cabling.
Monitor:	15" Monitor with 1024x768 resolution	15" Monitor with 1024x768 resolution
Keyboard:	101-key IBM®-compatible	101-key IBM®-compatible

Mouse:	Microsoft® Windows-compatible 2-button scroll mouse	Microsoft® Windows-compatible 2-button scroll mouse
Redundancy:	PSU and Fans	PSU and Fans
Ports:	Minimum 2 USB	Minimum 2 USB
Operating System ^{[3], [4], [5], [6]} :	Duet (Version 8.8, 10.0, 11.0): Windows® Server 2003 R2 SP2 Server (Standard or Enterprise) (with sufficient seat licenses)	Duet (Version 8.8, 10.0, 11.0): Windows® Server 2003 R2 SP2 Server (Standard or Enterprise) (with sufficient seat licenses)
File System: NT File System (NTFS)	<ul style="list-style-type: none"> Volume C, (OS & APP): 100GB; Volume D, (Database, Database Logs, Database Dumps, & Image Directory): ~1.6TB (RAID 5). 	<ul style="list-style-type: none"> Volume C, (OS & APP): 100GB; Volume D, (Database, Database Logs, Database Dumps, & Image Directory): ~2.2TB (RAID 5)
Windows® OS Architecture:	32-bit	32-bit
Microsoft® .NET Framework:	<ul style="list-style-type: none"> Duet 8.8, 10.0,11.0: 1.1, 2.0, 3.0, and 3.5 Duet 11.0: 4.0 	<ul style="list-style-type: none"> Duet 8.8, 10.0,11.0: 1.1, 2.0, 3.0, and 3.5 Duet 11.0: 4.0

Notes:

1. Software RAID is neither recommended nor supported with the Duet Server.
2. Other compatible Windows® operating systems for Duet (10.0, 11.0) include: Windows Server 2008 R1 SP2 (Standard or Enterprise), 64-bit only.
3. Other compatible Windows® operating systems for Duet (11.0) include: Windows Server 2008 R2 SP1 (Standard or Enterprise), 64-bit only
4. Windows® Server 2008 R2 is currently not compatible with Duet Version 10.0.
5. Duet Server hardware must be confirmed with the OEM vendor as compatible for Windows Server 2008 R1 (x64) or Windows Server 2008 R2 (x64) when considering upgrading the OS and upgrading the memory (24GB RAM).
6. Hardware used should be approved based on the current Microsoft® Windows® Catalog Listing.
7. The Operating System (build and version) of the Duet Server must match the operating system (build and version) of the HARRP *target* server.
8. Specifications subject to change without notice as newer computer models become available.

Minimum: High Availability and Rapid Recovery Requirements

(Prerequisite: Database Server and/or Image Fileserver)

System Size	Small	Medium	Large
Processor:	Dual Intel® Dual Core Xeon® 5160 3.0Ghz 4MB Cache 1333MHz FSB	Dual Intel® Dual Core Xeon® 5160 3.0Ghz 4MB Cache 1333MHz FSB	Dual Intel® Dual Core Xeon® 5160 3.0Ghz 4MB Cache 1333MHz FSB
Bus Type:	PC-EI/PCI-X	PC-EI/PCI-X	PC-EI/PCI-X
Memory: (RAM)	4 GB Fully Buffered DIMM'S at 667MHz Single Ranked	4 GB Fully Buffered DIMM'S at 667MHz Single Ranked	4 GB Fully Buffered DIMM'S at 667MHz Single Ranked
Hard Disk:	<p>OS/APPS: Equivalent (or better) to: Hot swap drives with SAS interface running at 15K RPM drives with an access time of <= 10ms</p> <p>Effective disk space of ~73 GB</p> <p>Data: Equivalent (or better) to: Hot swap drives with Ultra-320 SCSI Interface with 10K RPM drives with an access time of <=10ms.</p> <p>Effective Disk space is 438 GB</p>	<p>OS/APPS: Equivalent (or better) to: Hot swap drives with SAS interface running at 15K RPM drives with an access time of <= 10ms</p> <p>Effective disk space of ~73 GB</p> <p>Data: Equivalent (or better) to: Hot swap drives with Ultra-320 SCSI Interface with 10K RPM drives with an access time of <=10ms.</p> <p>Effective Disk space is 1.5 TB</p>	<p>OS/APPS: Equivalent (or better) to: Hot swap drives with SAS interface running at 15K RPM drives with an access time of <= 10ms</p> <p>Effective disk space of ~73 GB</p> <p>Data: Equivalent (or better) to: Hot swap drives with Ultra-320 SCSI Interface with 10K RPM drives with an access time of <=10ms.</p> <p>Effective Disk space is 2.1 TB</p>
Drive Controller:	<p>OS/APPs: The equivalent of Dual channel SAS 3.0Gb/s RAID controller with > 128 MB cache. Configured for hardware RAID 1 fault tolerance and read/write cache (50/50) enabled.</p> <p>Data: Equivalent of Adaptec 39160 Ultra-320 SCSI controller with external port configured for hardware RAID 5 fault tolerance.</p>	<p>OS/APPs: The equivalent of Dual channel SAS 3.0Gb/s RAID controller with > 128 MB cache. Configured for hardware RAID 1 fault tolerance and read/write cache (50/50) enabled.</p> <p>Data: Equivalent of Adaptec 39160 Ultra-320 SCSI controller with external port configured for hardware RAID 5 fault tolerance.</p>	<p>OS/APPs: The equivalent of Dual channel SAS 3.0Gb/s RAID controller with > 128 MB cache. Configured for hardware RAID 1 fault tolerance and read/write cache (50/50) enabled.</p> <p>Data: Equivalent of Adaptec 39160 Ultra-320 SCSI controller with external port configured for hardware RAID 5 fault tolerance.</p>

	CD/DVD device and backup device operate from separate controller or separate channel on Dual Channel controllers	CD/DVD device and backup device operate from separate controller or separate channel on Dual Channel controllers	CD/DVD device and backup device operate from separate controller or separate channel on Dual Channel controllers
Optical Drive: (CD / DVD)	Windows compatible CD/DVD Combo optical Drive	Windows compatible CD/DVD Combo optical Drive	Windows compatible CD/DVD Combo optical Drive
Backup Tape:	Windows compatible backup device sufficient to store all data (including OS) for a 'full backup'.	Windows compatible backup device sufficient to store all data (including OS) for a 'full backup'.	Windows compatible backup device sufficient to store all data (including OS) for a 'full backup'.
Network Interface:	1 NIC 1000 Mbps, compatible with the network operating system and cabling.	1 NIC 1000 Mbps, compatible with the network operating system and cabling.	1 NIC 1000 Mbps, compatible with the network operating system and cabling.
Monitor:	15" Monitor with 1024x768 resolution	15" Monitor with 1024x768 resolution	15" Monitor with 1024x768 resolution
Keyboard:	101-key IBM®-compatible	101-key IBM®-compatible	101-key IBM®-compatible
Mouse:	Microsoft® Windows-compatible 2-button scroll mouse	Microsoft® Windows-compatible 2-button scroll mouse	Microsoft® Windows-compatible 2-button scroll mouse
Redundancy:	PSU	PSU	PSU
Ports:	Minimum 2 USB	Minimum 2 USB	Minimum 2 USB
Operating System:	ARIA (8.8, 10.0, 11.0) ^{[3], [4], [5], [6]} : Windows Server® 2003 R2 SP2 (Standard or Enterprise) (with sufficient seat licenses).	ARIA (8.8, 10.0, 11.0) ^{[3], [4], [5], [6]} : Windows Server® 2003 R2 SP2 (Standard or Enterprise) (with sufficient seat licenses).	ARIA (8.8, 10.0, 11.0) ^{[3], [4], [5], [6]} : Windows Server® 2003 R2 SP2 (Standard or Enterprise) (with sufficient seat licenses).
File System:	NTFS	NTFS	NTFS
Windows® OS Architecture	32-bit	32-bit	32-bit
Microsoft® .NET Framework	<ul style="list-style-type: none"> • ARIA 8.8, 10.0,11.0: 1.1, 2.0, 3.0, and 3.5 • ARIA 11.0: 4.0 	<ul style="list-style-type: none"> • ARIA 8.8, 10.0,11.0: 1.1, 2.0, 3.0, and 3.5 • ARIA 11.0: 4.0 	<ul style="list-style-type: none"> • ARIA 8.8, 10.0,11.0: 1.1, 2.0, 3.0, and 3.5 • ARIA 11.0: 4.0
Other Software:	Double-Take™ for Windows® Server	Double-Take™ for Windows® Server	Double-Take™ for Windows® Server

	Standard. One license required per server.	Standard. One license required per server.	Standard. One license required per server.
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NOTES:

1. Software RAID is neither recommended nor supported with the Image File Server.
2. Hardware used should be approved based on the current Microsoft® Windows Catalog Listing.
3. Windows® Server 2008 R2 is currently not compatible with ARIA Version 10.0.
4. Other compatible Windows® operating systems for ARIA (10.0, 11.0) include: Windows Server 2008 R1 (Standard or Enterprise) with Service Pack 2, 64-bit only.
5. Other compatible Windows® operating systems for ARIA (11.0) include: Windows Server 2008 R2 SP1 (Standard or Enterprise) , 64-bit only.
6. HARRP Server hardware must be confirmed with the OEM vendor as compatible for Windows Server 2008 R1 (x64) or Windows Server 2008 R2 (x64) when considering upgrading the OS and upgrading the memory (24GB RAM).
7. Specifications subject to change without prior notification.
8. Additional hard disk space may be required with newer capabilities; customer's IT/S staff shall review backup means and schedules.
9. Source (primary) and target (HARRP) servers **should not** be placed in the same rack or location for optimum reliability.
10. The Operating System (build and version) on the source server(s) shall match the Operating System (build and version) on the HARRP *target* server(s).

Minimum: OncQT Server Requirements

System Size	0-75 Concurrent Users
Processor:	Dual Intel® X5550 Quad Core Xeon Processor with 2x6MB Cache, 2.66GHz, 1333MHz FSB or better
Bus Type:	PCI-E
Memory (RAM):	6GB Memory (6x1GB), 1333MHz Single Ranked UDIMMs for 2 Processors, Optimized
Hard Drives: (Local Storage)	Equivalent (or better) to: Hot swap drives with SAS interface running at 15K RPM drives with an access time of <= 10ms Effective Disk Space of ~1 TB
Drive Controller:	Equivalent of Dual channel SAS 3.0Gb/s RAID controller with ≥ 256 MB cache. Configured for hardware RAID 5 fault tolerance and Read/Write cache enabled. Storage for OS/APPS&DB should operate off of a separate channel or controller from the DB Dump storage. CD/DVD device & backup device should operate off of a separate controller than Application & Data storage.
Optical Drive:	Windows compatible CD/DVD-ROM combo Drive
Backup Tape:	Windows compatible backup device sufficient to store all data (including OS) for a 'full backup'.
Network Interface:	1 NIC 1000 Mbps, compatible with the network operating system and cabling
Monitor:	15" Monitor with 1024x768 resolution
Keyboard:	101-key IBM®-compatible
Mouse:	Microsoft® Windows-compatible 2-button scroll mouse
Redundancy:	PSU and Fans
Ports:	Minimum 2 USB

Operating System:	OncQT (8.8, 10.0, & 11.0) ^{[3], [4], [5], [6], [7]} : Microsoft® Windows® 2003 R2 SP2 (Standard and Enterprise) Server, with sufficient client access licenses.
File System(NTFS):	<ul style="list-style-type: none"> • Volume C, (OS, APPS, & Dumps): 300GB (RAID 1) • Volume D, (Database): 600 GB (RAID 1) • Volume E, (Database Logs): 146GB (RAID 1).
Windows® OS Architecture:	32-bit
Microsoft® .NET Framework:	<ul style="list-style-type: none"> • OncQT8.8, 10.0,11.0: 1.1, 2.0, 3.0, and 3.5 • OncQT11.0: 4.0

Notes:

1. Software RAID is neither recommended nor supported with the OncQT Server.
2. OncQT is required to run on a separate server. The OncQT database is expected to require approximately 3 times the disk space requirements of the production database.
3. Software – database server and client licenses are required. Please contact Varian for additional information.
4. If used in a Citrix environment, a separate Citrix server is required for OncQT (additional Citrix licenses may be required).
5. Hardware used should be approved based on the current Microsoft® Windows® Catalog Listing.
6. Windows® Server 2008 R2 is currently not compatible with OncQT Version 10.0.
7. Other compatible Windows® operating systems for OncQT (10.0, 11.0) include: Windows Server 2008 R1 SP2 (Standard or Enterprise) (64-bit only).
8. Other compatible Windows® operating systems for OncQT (11.0) include: Windows Server 2008 R2 SP1 (Standard or Enterprise) (64-bit only).
9. OncQT for Radiation Oncology Database Server hardware must be confirmed with the OEM vendor as compatible for Windows Server 2008 R1 (x64) or Windows Server 2008 R2 (x64) when considering upgrading the OS and upgrading the memory (24GB RAM).
10. Specifications subject to change without notice as newer computer models become available.

Minimum: ARIA® for Radiation Oncology Information System Workstation Requirements

Processor:	(Single) Intel® Core™ 2 Duo® at 2.13 GHz with 2 MB L2 cache; or better. (Single) Intel® Core™ 2 Duo® at 2.33 GHz with 2 MB L2 cache; or better. (with Smart Adapt or Smart Segmentation for Knowledge Based Contouring)
Bus Type:	PCI-E
Memory: (RAM)	ARIA (8.8, 10.0,11.0): ≥2GB ARIA (10.0,11.0)(64 bit) and Smart Adapt/Smart Segmentation: ≥8GB
Hard Drives: (Local Storage)	≥ 80 GB SATA-II at 7200 RPM <i>with 10 percent of free available space</i>
Drive Controller:	SATA-II controller
Video Card/Adapter:	Equivalent or better of 256MB ATI RADEON X1300 PRO with DVI and VGA out; <i>or similar</i> DirectX 9 hardware accelerated and Shader model 3.0
Monitor:	17" LCD monitor capable of 1280 x 1024 at > 60 Hz; or 20" LCD monitor capable of 1600 x 1200 at > 60 Hz. (optional)
Optical Drive:	8x or Faster CD/DVD-ROM {optional external}
Network Interface:	1 NIC 100/1000Mbps, compatible with the network operating system and cabling.
Keyboard:	101-key IBM®-compatible
Mouse:	Microsoft® Windows-compatible 2-button scroll mouse
Operating System:	Windows XP Professional SP2 (32 bit)
Windows® MUI Packs:	Windows® 7 editions may be used with ARIA version 10.0 and 11.0: Ultimate (MUI), or Enterprise (MUI) XP Pro Multilingual User Interface (MUI) License and MUI Software CD for XP Operating System (International Purchase Option) Windows Vista® Ultimate and Enterprise versions support MUI
Microsoft Windows Installer:	3.1
Microsoft® .NET Framework:	<ul style="list-style-type: none"> • ARIA 8.8, 10.0,11.0: 1.1, 2.0, 3.0, and 3.5 • ARIA 11.0: 4.0
File System:	NT File System (NTFS)
Windows® OS Architecture:	32 bit
Ports:	1 parallel, 1 serial, minimum 2 USB

NOTES:

24 ARIA® Version 11.0 Minimum Hardware Specifications|
Varian Medical Systems, Inc.

Revision Date: July 7th, 2011

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1. Customers, who require the use and access of EclipseSV version 10.0 or 11.0 from an ARIA version 10.0/11.0 workstation, will use the EclipseSV version 10.0/11.0 hardware specifications instead of this *ARIA for Radiation Oncology Information System (OIS) Workstation* specification.
 2. The Registration application is compatible with the lower CPU & Memory requirements of a standard ARIA workstation, customers using SmartAdapt or Smart Segmentation for Knowledge Based Contouring need to meet the higher CPU & Memory specifications identified in the body of the table.
 3. Other compatible Operating systems are Windows XP Professional 32 bit SP3 (8.8, 10.0 and 11.0), Windows Vista SP1 (8.8), Windows XP Professional SP2 64 bit (ARIA 8.8, 10.0 & 11.0), and Windows 7 Professional (32 & 64 bit) (ARIA 10.0 and 11.0), Windows 7 Professional SP1 (32 & 64 bit) (ARIA 11.0).
 4. Windows® Vista® is not a validated operating system for ARIA version 10.0 or version 11.0.
 5. IEM and OncQT client software is not supported on Windows XP Professional SP2 (64 bit)
 6. PC hardware used should be approved based on the current Microsoft® Windows® Catalog Listing.
 7. Languages supported by ARIA version 11.0 are qualified for use with the Windows® 7 operating system.
 8. Client workstations usually do not require uninterruptible power supplies. However, they may be needed in areas that experience frequent brown outs or brief power drop outs.
 9. 4D Integrated Treatment Console (4D ITC) and Varian Treatment (VT) hardware is provided by Varian as a software/hardware package and specifications differ from those listed on this website.
 10. ARIA 8.8 Documents is compatible with Microsoft Word 2003 and Microsoft Word 2007 SP2.
 11. ARIA 10.0 Documents is compatible with Microsoft Word 2003, Microsoft Word 2007 SP2 and Microsoft Word 2010.
 12. ARIA 11.0 Documents is compatible with Microsoft Word 2007 SP2 and Microsoft Word 2010.
 13. Specifications subject to change without notice as newer computer models become available.

Minimum: ARIA RO/MO + Eclipse Thin-Client (Citrix) Requirements

Processor:	1 gigahertz (GHz) or faster processor
Memory: (RAM)	1 gigabyte (GB) RAM (32-bit) or 2 GB RAM (64-bit)
Hard Drives: (Local Storage)	500 MB available Minimum
Drive Controller:	SATA-II Controller
Video Card/Adapter:	<ul style="list-style-type: none"> • SVGA 1024x768 resolution (ARIA MO Applications 8.8 and above) • Radiation Oncology and Eclipse Applications <ul style="list-style-type: none"> ○ Intel Extreme Graphics Controller (or comparable equivalent) with dedicated Video RAM. ○ Resolution minimum(ARIA RO 8.8): 1024x768 or better ○ Resolution Minimum(ARIA RO & Eclipse 10.0 and above) 1280x1024 or better
Monitor	<ul style="list-style-type: none"> • 15" or greater capable of 1024x768 (ARIA MO Applications) • 17" LCD monitor capable of 1280 x 1024 at > 60 Hz (ARIA RO & Eclipse Applications)
Optical Drive:	8x or Faster DVD+/-RW
Network Interface:	<ul style="list-style-type: none"> • 1 NIC 10/100/1000Mbps, compatible with the network operating system and cabling. OR • 802.11 a/b/g/n compliant wireless
Keyboard:	101-key IBM®-compatible OR MAC Compatible Keyboard
Mouse:	2-button scroll mouse
Operating System:	<ul style="list-style-type: none"> • Windows XP and Windows 7 (32/64 bit) • MAC OS
Ports:	1 parallel, 1 serial, Minimum 2 USB

NOTES:

1. Languages supported by ARIA version 11.0 are qualified for use with the Windows® 7 operating system.
2. Windows PC hardware used should be approved based on the current Microsoft® Windows® Computer Catalog Listing.

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3. Client workstations usually do not require uninterruptible power supplies. However, they may be needed in areas that experience frequent brown outs or brief power drop outs.
 4. Specifications subject to change without notice as newer computer models become available.

Minimum: ARIA RO Slate, Tablet PC or Convertible Laptop Requirements

Processor:	Intel® Core(TM) 2 Duo 1.5 GHz with 2MB of L2 Cache, 667MHz FSB; comparable equivalent or better
Memory: (RAM)	<ul style="list-style-type: none"> • ARIA (8.8) with Windows XP [PRO or Tablet PC Edition]: ≥1GB • ARIA (8.8) with Windows Vista®: ≥2GB • ARIA (10.0,11.0) with Windows XP [PRO or Tablet PC Edition]: ≥2GB • ARIA (10.0,11.0) with Windows 7: ≥4GB
Hard Drives: (Local Storage)	≥ 60 GB drive <i>with 10 percent of free available space</i>
Video Card/Adapter:	Intel Extreme Graphics Controller (or comparable equivalent) with dedicated Video RAM. <ul style="list-style-type: none"> • Resolution minimum: 1024x768 • Highly Recommended: 1280x1024 or better
Optical Drive:	8x or Faster DVD+/-RW {optional external}
Network Interface:	<ul style="list-style-type: none"> • 1 LOM 10/100/1000Mbps, compatible with the network operating system and cabling. OR • 802.11a/b/g/n compliant wireless
Monitor: (Optional)	<ul style="list-style-type: none"> • 17" LCD monitor capable of 1280 x 1024 at > 60 Hz
Keyboard:	101-key IBM®-compatible {optional external}
Mouse:	Microsoft® Windows®-compatible 2-button scroll mouse {optional external}
Ports	Minimum 2 USB
Docking Station:	Optional Docking station for the Tablet PC connected to mouse and keyboard
Operating System:	ARIA (8.8): Windows XP PRO; Windows XP Tablet PC Edition; Windows Vista® ARIA (10.0,11.0) ^{[1], [2], [3], [4]} : Windows XP PRO; Windows XP Tablet PC Edition; Windows® 7
OS Service Packs:	ARIA (8.8): Windows XP SP2 & SP3; Windows Vista® SP1 ARIA (10.0,11.0): Windows XP SP2 & SP3; Windows® 7 (no SP)
Microsoft® .NET Framework	ARIA 8.8, 10.0,11.0: 1.1, 2.0, 3.0, and 3.5 ARIA 11.0: 4.0
Microsoft Internet Explorer	7, & 8

NOTES:

1. Memory (RAM) recommended for 64-bit Windows Operating Systems for ARIA for Radiation Oncology version 10.0 is 8GB.
2. The following Windows 7 editions may be used with ARIA version 10.0 and higher: Professional (English), Ultimate (MUI), or Enterprise (MUI).

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3. Languages supported by ARIA version 10.0 and higher are qualified for use with the Windows® 7 operating system.
 4. Windows Vista® Versions: Business (English), Ultimate (MUI), or Enterprise (MUI)
 5. Windows® Vista® is not a validated operating system for ARIA version 10.0 or higher.
 6. PC hardware used should be approved based on the current Microsoft® Windows® Catalog Listing.
 7. Display resolution is subject to change with future releases of ARIA for Radiation Oncology; higher resolution settings may be required.
 8. ARIA (8.8 and 10.0) Documents is compatible with Microsoft Word 2003 and Microsoft Word 2007.
 9. ARIA 11.0 Documents in compatible with Microsoft Word 2007 and Microsoft Word 2010.
 10. Microsoft Word 2007 users require that the 2007 Microsoft Office Suite Service Pack 2 (SP2) be installed.
 11. Specifications subject to change without notice as newer computer models become available

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