

The Philips logo is displayed in a white rounded rectangle at the top left of the page. The background of the entire page is a photograph of a modern office with large windows, a man in a blue suit leaning over a desk, and two other people sitting at the desk looking at a laptop displaying a bar chart.

Advanced Visualization  
Workspace 15

Technical datasheet

# Integrating across your hospital network

Manage your hospital's advanced analysis needs with an intelligent, automated, and connected solution

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# 1 The benefits of a single partner

Advanced Visualization Workspace (AVW) is an advanced visualization platform that offers a comprehensive set of advanced clinical and IT tools on a single platform. Clinical tools are designed to support clinical insights for multiple clinical domains, while the platform allows easy scaling from a single workstation connected across modalities to a server-based departmental, hospital-wide, or even an Enterprise solution, to meet your growing IT needs..



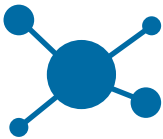
## Multiple clinical domains, one standard for facilitating the diagnosis process

Advanced Visualization Workspace 15 helps you extend your clinical depth and coverage. Leverage a broad range of over 70 applications, designed for intelligent workflow automation. Spanning multiple clinical domains including oncology, cardiovascular, neurology, and pulmonary, these applications offer exceptional flexibility to access, analyze, and quantify patient data in one unified view.



## Multiple advanced tools, one consistent workflow

Designed to optimize your workflow, Advanced Visualization Workspace 15 supports consistency across applications. Advanced Visualization Workspace 15 is predicated on intelligent workflows empowered by AI methods.



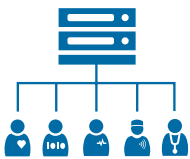
## Multiple modalities, one comprehensive view

Advanced Visualization Workspace 15 handles CT, MR, MI, US, XA, and DXR data from multiple vendors<sup>(1)</sup> within a consistent multi-modality viewing environment, providing you a comprehensive view of the patient's condition. Advanced Visualization Workspace includes an enhanced suite of applications for the Philips CT Spectral scanners, which supports both in-depth spectral information on demand and retrospective analysis.



## One solution for today and tomorrow

Advanced analysis is changing rapidly. Stay at the forefront of clinical innovation available in Advanced Visualization Workspace with our newly updated Philips RightFit Service Agreements<sup>(2)</sup>. The service solution allows you to take advantage of a steady stream of clinical and IT innovations including clinical support on demand and consulting services.



## Solution scalability and integration

Advanced Visualization Workspace concurrent users (CCU) licensing allows you to quickly and easily scale-up to the exact number of users you need. The Advanced Visualization Workspace server/client architecture provides a simple process for deployment. Upgrades are via centralized distribution, user preferences or settings, and connectivity to new modalities.

<sup>1</sup> Please contact your local Philips representative for details about multi-vendor coverage

<sup>2</sup> Consult your local Philips representative for information on RightFit Service Agreements



## 2 System and hardware specifications

The physical hardware specifications under the system specifications are for reference only. The physical hardware that will eventually be delivered will either meet or exceed the listed specifications.

### 2.1 Advanced Visualization Workspace workstation

Hardware model	HP Z4 <sup>1</sup>
CPU	Intel Xeon W-2245 3.9GHz
RAM	16GB, 32GB (option)
Hard Drive (OS + AVW Application)	256GB SSD
Hard Drive (AVW DICOM storage)	1TB SATA / SSD
Monitor	24 inch
Graphics cards	NVIDIA T600 / T1000
Others	DVD drive, keyboard, and mouse
Operating System	Windows 10

<sup>1</sup> Advanced Visualization Workspace workstation hardware specification in this datasheet is just for reference. The Advanced Visualization Workspace workstation hardware that will eventually be delivered to customer under this datasheet either meets or exceeds the mentioned specifications.

#### Supported Advanced Visualization Workspace workstation hardware

HP Z4 and Z440 are the only hardware configuration that will allow upgrades to Advanced Visualization Workspace 15.

#### Network specifications

LAN bandwidth between modalities and Advanced Visualization Workspace workstation should be minimum 100Mbit/s, but 1Gbps or above is recommended

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## 2.2 Advanced Visualization Workspace

Advanced Visualization Workspace can be installed either on server hardware provided by Philips or on virtualized server infrastructure provided by customer.

### 2.2.1 Server hardware specifications<sup>1</sup>

Hardware model	Dell PowerEdge T/R640
CPU	Intel Xeon 6226 R 2.9GHz, 16Cores
RAM	32GB (default) up to 64GB (option)
Hard drive	3x 1.2TB (default) 6x 1.2TB (option) RAID5
Remote card	iDRAC9 Enterprise
Power supply	Redundant Power Supply, 1100W
NIC card	Dual Port 1GBps and Dual Port 10Gbps NIC Rack server, Dual Port 10Gbps NIC Tower server
Operating system	Windows Server 2019 -Standard Edition (English Only) <sup>2</sup>

Hardware model	HPE DL360/ML350 Gen 11
CPU	Intel Xeon 6426Y, 16 cores
RAM	32GB (default) up to 64GB (option)
Hard drive	3x 1.2TB (default) 6x 1.2TB (option) RAID5
Remote card	iLO
Power supply	Redundant Power Supply,
NIC card	Dual Port 1GBps and Dual Port 10Gbps NIC
Operating system	Windows Server 2019 -Standard Edition (English Only) <sup>2</sup>

<sup>1</sup> Advanced Visualization Workspace server hardware specification in this datasheet is just for reference. The Advanced Visualization Workspace server hardware that will eventually be delivered to customer under this datasheet either meets or exceeds the mentioned specifications.

<sup>2</sup> Advanced Visualization Workspace server hardware is delivered with one instance of Microsoft Windows Server 2019 Standard Edition. Client Access Licenses (CALs) for client machines are not included as part of the product and are to be obtained by customer. For more information about Microsoft CAL policy, please refer to <https://www.microsoft.com/en-us/licensing/product-licensing/client-access-license>

### Supported Advanced Visualization Workspace server hardware

HP ProLiant ML350 Gen 9 & Gen 11 server and DL360 Gen 9 & Gen 11 server and Dell T/R640 are the only hardware configurations that allow the upgrade to Advanced Visualization Workspace 15.

- **Dell PowerEdge R640 rack.**: NVIDIA Tesla T4 - GPU card is available as upgrade for existing customers with Dell PowerEdge R640 rack server and new customers ordering new Dell PowerEdge R640 rack server.
- **Dell PowerEdge T640 tower.**: NVIDIA Tesla T4 - GPU card is ONLY available for new customers ordering new Dell PowerEdge T640 tower server.
- For all customers with a different Advanced Visualization Workspace server type, NVIDIA Tesla T4 - GPU card is not available



## 2.2.2 Virtual server specifications

Advanced Visualization Workspace 15 supports deployment on virtualization server infrastructure provided by the customer (VMware, Microsoft Hyper V or Nutanix).

### Advanced Visualization Workspace Server Virtual Machine specifications

<b>Hypervisor version</b>	One of the below: <ul style="list-style-type: none"> <li>VMware ESXi 6.5 upto 8.0<sup>1</sup></li> <li>Microsoft Hyper-V on Windows Server 2016 or higher</li> <li>Nutanix AHV hypervisor, 20190906, or higher</li> </ul>
<b>CPU</b>	Intel Xeon Scalable Processors: 2nd Generation to 4th Generation Supported frequency for optimal performance <ul style="list-style-type: none"> <li>2nd Gen CPUs: from 2.8GHz.</li> <li>3rd Gen CPUs: from 2.6GHz.</li> <li>4th Gen CPUs: from 2.4GHz.</li> </ul>
<b>RAM</b>	32GB up to 64GB (recommended)
<b>Network Interface Card</b>	1Gbps
<b>Storage</b>	Drive C: minimum of 100GB Drive D: minimum 500GB storage space up to 5TB  Storage requirements: Drive should be optimized for reading performance with Random 4K IOPS = at least 250MB/s
<b>Operating system</b>	Windows Server 2019 - Standard, Datacenter and Enterprise Edition (English Only) <sup>2</sup>
<b>Anti-virus</b>	Either Microsoft Defender anti-virus software <sup>3</sup> provided by Philips or anti-virus software of choice provided by the customer
<b>Other software requirements</b>	.NET Framework 3.5 and .NET Framework 4.8 or higher

<sup>1</sup> Supported for single server. Work in progress for testing compatibility on dual server

<sup>2</sup> Advanced Visualization Workspace server hardware is delivered with one instance of Windows Server 2019 - Standard, Datacenter and Enterprise Edition. Client Access Licenses (CALs) for client machines are not included as part of the product and are to be obtained by customer. For more information about Microsoft CAL policy, please refer to <https://www.microsoft.com/en-us/licensing/product-licensing/client-access-license>

<sup>3</sup> Anti-virus scan exclusions are required, please contact your Phillips representative for detailed information

## 2.2.3 RAM/CPU specifications

Advanced Visualization Workspace allows a user to open 2 Advanced Visualization Workspace clinical analysis applications simultaneously. This feature is only possible when the Advanced Visualization Workspace server is equipped with 64GB RAM. Please contact your Advanced Visualization Workspace sales specialist to answer any questions about this functionality and requirements.

### Slice limit overview

Advanced Visualization Workspace server configuration	RAM Memory 32GB RAM	RAM Memory 64GB RAM
Single server	30.000	47.000
Dual server	60.000	94.000

### Network specifications

In case of Advanced Visualization Workspace dual-server deployment a dedicated 1Gbps connection is required between Advanced Visualization Workspace servers

Domain-based network environment (recommended)



## 2.3 Advanced Visualization Workspace Enterprise

A typical implementation of Advanced Visualization Workspace Enterprise solution usually comprises one Advanced Visualization Workspace Enterprise Engine and at least one Advanced Visualization Workspace application server. The number of Advanced Visualization Workspace application servers to be deployed depends on the number of concurrent users, the number of physical hospital locations, and the network characteristics (available bandwidth and latency) across sites. Additionally, a dedicated Advanced Visualization Workspace Enterprise Domain controller and Service workstation may get installed.

Advanced Visualization Workspace Enterprise solution can be installed either on server hardware provided by Philips or on virtualized server infrastructure provided by customer.

Advanced Visualization Workspace can be deployed in different configurations based on customer's exact requirements. Advanced Visualization Workspace Enterprise can support a maximum of 50 CCU on main/central site and 150 CCU additionally on remote sites on Distributed configuration. So the maximum supported CCU for distributed configuration is 200. For more information about these different Advanced Visualization Workspace Enterprise configurations please contact your local Philips representative.

### 2.3.1 Server Advanced hardware specifications<sup>1</sup>

Hardware model	Dell PowerEdge R740 rack
CPU	Intel® Xeon® 6242 R 3.1GHz, 20Cores
RAM	384GB
Hard drive	3 x 480GB SSD RAID5
Hard drive <sup>2</sup>	7x 2.4TB (default) up to 22x 2.4TB (option) RAID5
Remote card	iDRAC9 Enterprise
Power supply	Redundant Power Supply, 1100W
NIC card	<ul style="list-style-type: none"> <li>• Dual Port 1Gbps and Dual Port 10Gbps NIC</li> <li>• Quad port 10Gbps fiber optic (optional)</li> </ul>
Hypervisor	VMware ESXi 7.x <sup>2</sup>
Operating system	<ul style="list-style-type: none"> <li>• Windows® Server 2019 – Standard edition (English local)<sup>3</sup></li> <li>• Microsoft SQL Server 2019 - Standard edition (English local)<sup>3</sup></li> </ul>
Anti-virus	Either Microsoft Defender version 2019 anti-virus software <sup>4</sup> (part of Windows 2019 server) or anti-virus software of choice provided by customer.

<sup>1</sup> Advanced Visualization Workspace Enterprise Advanced server hardware specification in this datasheet is just for reference. The Advanced Visualization Workspace Enterprise Advanced server hardware that will eventually be delivered to customer under this datasheet either meets or exceeds the mentioned specifications

<sup>2</sup> Advanced Visualization Workspace Enterprise Advanced HW solution is delivered with default five years of VMware support and subscription contract.

<sup>3</sup> Advanced Visualization Workspace Enterprise Advanced HW solution is delivered with required Microsoft Windows Server 2019 Standard Edition and SQL server 2019 Standard Edition. Microsoft Windows Server 2019 and SQL server 2019 Client Access Licenses (CALs) for client machines are not included as part of the product and are to be obtained by the customer. For more information about Microsoft CAL policy, please refer to <https://www.microsoft.com/en-us/licensing/product-licensing/client-access-license>. For more information about Microsoft CAL policy, please refer to <https://www.microsoft.com/en-us/licensing/product-licensing/client-access-license>.

<sup>4</sup> Anti-virus scan exclusions are required, please contact your Phillips representative for detailed information.

**Hardware model****HPE DL380**

<b>CPU</b>	Intel Xeon 6442Y, 24 cores
<b>RAM</b>	384GB
<b>Hard drive</b>	3 x 480GB SSD RAID5
<b>Hard drive<sup>2</sup></b>	7x 2.4TB (default) up to 22x 2.4TB (option) RAID5
<b>Remote card</b>	iLO
<b>Power supply</b>	Redundant Power Supply
<b>NIC card</b>	<ul style="list-style-type: none"> <li>• Quadl Port 1Gbps and Dual Port 10Gbps NIC</li> <li>• Dual port 10Gbps fiber optic (optional)</li> </ul>
<b>Hypervisor</b>	VMware ESXi 7.x <sup>1</sup>
<b>Operating system</b>	<ul style="list-style-type: none"> <li>• Windows® Server 2019 – Standard edition (English local)<sup>2</sup></li> <li>• Microsoft SQL Server 2019 - Standard edition (English local)<sup>2</sup></li> </ul>
<b>Anti-virus</b>	Either Microsoft Defender version 2019 anti-virus software <sup>3</sup> (part of Windows 2019 server) or anti-virus software of choice provided by customer.

<sup>1</sup> Advanced Visualization Workspace Enterprise Advanced HW solution is delivered with default five years of VMware support and subscription contract.

<sup>2</sup> Advanced Visualization Workspace Enterprise Advanced HW solution is delivered with required Microsoft Windows Server 2019 Standard Edition and SQL server 2019 Standard Edition. Microsoft Windows Server 2019 and SQL server 2019 Client Access Licenses (CALs) for client machines are not included as part of the product and are to be obtained by the customer. For more information about Microsoft CAL policy, please refer to <https://www.microsoft.com/en-us/licensing/product-licensing/client-access-license>. For more information about Microsoft CAL policy, please refer to <https://www.microsoft.com/en-us/licensing/product-licensing/client-access-license>.

<sup>3</sup> Anti-virus scan exclusions are required, please contact your Phillips representative for detailed information.

## 2.3.2 Server Premium hardware specifications<sup>1</sup>

**Hardware model****Dell PowerEdge R740 rack**

<b>CPU</b>	Intel® Xeon® 6242 R3.1GHz, 20Cores
<b>RAM</b>	384GB
<b>Remote card</b>	iDRAC9 Enterprise
<b>Power supply</b>	Redundant Power Supply, 1100W
<b>NIC card</b>	<ul style="list-style-type: none"> <li>• Dual Port 1Gbps and Dual Port 10Gbps NIC</li> <li>• Quad port 10Gbps fiber optic (optional)</li> </ul>
<b>Hypervisor</b>	VMware ESXi 7.x <sup>2</sup>
<b>Operating system</b>	<ul style="list-style-type: none"> <li>• Windows® Server 2019 – Standard edition (English local)<sup>3</sup></li> <li>• Microsoft SQL Server 2019 - Standard edition (English local)<sup>3</sup></li> </ul>
<b>Anti-virus</b>	Either Microsoft Defender version 2019 anti-virus software <sup>4</sup> (part of Windows 2019 server) or anti-virus software of choice provided by customer.

<sup>1</sup> Advanced Visualization Workspace Enterprise Premium server hardware specification in this datasheet is just for reference. The Advanced Visualization Workspace Enterprise Premium server hardware that will eventually be delivered to customer under this datasheet either meets or exceeds the mentioned specifications.

<sup>2</sup> Advanced Visualization Workspace Enterprise Premium HW solution is delivered with default five years of VMware support and subscription contract.

<sup>3</sup> Advanced Visualization Workspace Enterprise Premium HW solution is delivered with required Microsoft Windows Server 2019 Standard Edition and SQL server 2019 Standard Edition. Microsoft Windows Server 2019 and SQL server 2019 Client Access Licenses (CALs) for client machines are not included as part of the product and are to be obtained by the customer. For more information about Microsoft CAL policy, please refer to <https://www.microsoft.com/en-us/licensing/product-licensing/client-access-license>. For more information about Microsoft CAL policy, please refer to <https://www.microsoft.com/en-us/licensing/product-licensing/client-access-license>.

<sup>4</sup> Anti-virus scan exclusions are required, please contact your Phillips representative for detailed information.





Hardware model	HPE DL380
CPU	Intel Xeon 6442Y, 24 cores
RAM	384GB
Remote card	iLO
Power supply	Redundant Power Supply
NIC card	<ul style="list-style-type: none"> <li>• Quadl Port 1GBps and Dual Port 10Gbps NIC</li> <li>• Dual port 10Gbps fiber optic (optional)</li> </ul>
Hypervisor	VMware ESXi 8 <sup>1</sup> Default is 7.x
Operating system	<ul style="list-style-type: none"> <li>• Windows® Server 2019 – Standard edition (English local)<sup>2</sup></li> <li>• Microsoft SQL Server 2019 - Standard edition (English local)<sup>2</sup></li> </ul>
Anti-virus	Either Microsoft Defender version 2019 anti-virus software <sup>3</sup> (part of Windows 2019 server) or anti-virus software of choice provided by customer.

<sup>1</sup> Advanced Visualization Workspace Enterprise Premium HW solution is delivered with default five years of VMware support and subscription contract.

<sup>2</sup> Advanced Visualization Workspace Enterprise Premium HW solution is delivered with required Microsoft Windows Server 2019 Standard Edition and SQL server 2019 Standard Edition. Microsoft Windows Server 2019 and SQL server 2019 Client Access Licenses (CALs) for client machines are not included as part of the product and are to be obtained by the customer. For more information about Microsoft CAL policy, please refer to <https://www.microsoft.com/en-us/licensing/product-licensing/client-access-license>. For more information about Microsoft CAL policy, please refer to <https://www.microsoft.com/en-us/licensing/product-licensing/client-access-license>.

<sup>3</sup> Anti-virus scan exclusions are required, please contact your Phillips representative for detailed information.

Hardware model	Dell EMC ME5024 Storage Array
Hard drive	2 x 1.92TB SSD - RAID1
Hard drive	10x 2.4TB (default) up to 20x 2.4TB (option) RAID 5
HDD controller	12 Gb SAS 8 Port Dual Controller

Hardware model	HPE MSA
Hard drive	2 x 1.92TB SSD - RAID1
Hard drive	10x 2.4TB (default) up to 20x 2.4TB (option) RAID 5
HDD controller	12 Gb SAS 8 Port Dual Controller



## 2.3.3 Virtual server specifications

Advanced Visualization Workspace supports deployment on virtualization server infrastructure provided by customer, either VMware, Microsoft Hyper V or Nutanix.

### 2.3.3.1 Advanced Visualization Workspace Virtual Server specifications

<b>Hypervisor version</b>	One of the below: <ul style="list-style-type: none"> <li>VMware ESXi 6.5 upto 8.0<sup>1</sup></li> <li>Microsoft Hyper-V on Windows Server 2016 and higher</li> <li>Nutanix AHV hypervisor, 20190906, or higher</li> </ul>
<b>CPU</b>	Intel Xeon Scalable Processors: 2nd Generation to 4th Generation Supported frequency for optimal performance <ul style="list-style-type: none"> <li>2nd Gen CPUs: from 2.8GHz.</li> <li>3rd Gen CPUs: from 2.6GHz.</li> <li>4th Gen CPUs: from 2.4GHz.</li> </ul>
<b>RAM</b>	32GB up to 64GB (recommended)
<b>Network Interface Card</b>	10Gbps
<b>Storage</b>	Drive C: minimum of 100GB, preferably fast storage Drive D: minimum 500GB storage space up to 0.5TB Storage access speed shall be equal or more than 6500 IOPS for 4k Random disk read
<b>Operating system</b>	Windows Server 2019 - Standard, Datacenter and Enterprise Edition (English Only) <sup>2</sup>
<b>Anti-virus</b>	Either Microsoft Defender version 2019 anti-virus software <sup>3</sup> (part of Windows 2019 server) or anti-virus software of choice provided by customer.
<b>Other software requirements</b>	.NET Framework 3.5 and .NET Framework 4.8 or higher

<sup>1</sup> Supported if IPv6 is disabled

<sup>2</sup> Advanced Visualization Workspace server hardware is delivered with one instance of Windows Server 2019 - Standard, Datacenter and Enterprise Edition. Client Access Licenses (CALs) for client machines are not included as part of the product and are to be obtained by customer. For more information about Microsoft CAL policy, please refer to <https://www.microsoft.com/en-us/licensing/product-licensing/client-access-license>

<sup>3</sup> Anti-virus scan exclusions are required, please contact your Phillips representative for detailed information

### 2.3.3.2 Advanced Visualization Workspace Enterprise Engine Virtual Server specifications

<b>CPU</b>	6Cores @ 2.3GHz up to 2.9GHz running on Intel® CPU Haswell model or later up to fourth Generation Intel® Xeon® Scalable Processors
<b>RAM</b>	32GB
<b>Network interface card</b>	10Gbps
<b>Storage</b>	Drive C: minimum of 100GB, preferably fast storage Drive D: main storage drive: 0.5TB up to 20TB. Highly recommended to use of the VMWare Paravirtual adapter for optimized performance Storage access speed shall be equal or more than 6500 IOPS for 4k Random disk read
<b>Operating system</b>	<ul style="list-style-type: none"> <li>Windows® Server 2019 – Standard, Datacenter and Enterprise Edition (English Only)</li> <li>Microsoft SQL Server 2019 - Express or Standard edition (English local)</li> </ul>
<b>Other software requirements</b>	<ul style="list-style-type: none"> <li>.NET Framework 3.5 and</li> <li>.NET Framework 4.8 or higher</li> </ul>

Advanced Visualization Workspace provides new functionality called Photorealistic Volume Rendering. Photorealistic Volume Rendering will require virtual GPU resources. These virtual GPU resources should be minimum 8GB RAM, equivalent or better than NVIDIA T4/A2 (8 TFLOPS for single precision) display card, per each virtualized Advanced Visualization Workspace server.

### 2.3.3.3 Advanced Visualization Workspace Domain Controller Virtual Server specifications

<b>CPU</b>	4Cores (no requirements on frequency)
<b>RAM</b>	8GB
<b>Network interface card</b>	1Gbps
<b>Storage</b>	Drive C: minimum of 100GB
<b>Operating system</b>	Windows® Server 2019 – Standard, Datacenter and Enterprise Edition (English Only)



## 2.4 Client Specifications

### 2.4.1 Recommended client hardware specifications

Advanced Visualization Workspace client hardware should support the following recommended client hardware requirements. Advanced Visualization Workspace provides optional new functionality MR CAAS 4D flow and Strain Analysis<sup>1,2</sup>. Please note that this requires dedicated client HW requirements.

	Processor	Memory	Network adapter card	Screen resolution	Graphics card	Operating system:
Recommended Advanced Visualization Workspace client hardware specifications	6Cores @ 3.0GHz	8GB or above, DDR3 or above	1Gbit/s	1280 x 1024 or above	≥128MB RAM	
Recommended Advanced Visualization Workspace client hardware specifications with 6MP Diagnostic Monitors.	6Cores @ 3.0GHz	8GB or above, DDR3 or above	1Gbit/s	6MP Landscape (3280 x 2048) 6MP monitors as 2 x 3MP (1640 X 2048) monitors	Approved by 6MP diagnostic monitor provider with most up to date drivers	Windows® 10 64bit build 1709 or higher

### 2.4.2 Minimum client hardware specifications\*

Processor	Memory	Network adapter card	Screen resolution
4Cores @ 2.4GHz	4GB	100Mbit/s	1280x1024

\* System performance may be suboptimal with minimum specifications compared to recommended specifications

#### Additional client hardware specifications

Free disk space on C drive: 5GB or higher, C:/ drive should be SSD drive

Additional 5GB of free disk space required to burn DVDs , 3-button mouse

Additional 15GB of free disk space required to install iXR client

Additional 80GB free disk space required for MR CAAS 4D flow and Strain Analysis<sup>1,2</sup>

Recommendation for Corridor4DM<sup>3</sup>:

CPU: at least 6 cores with base frequency above 3.5 GHz from 11th generation (Tiger lake) and above.

Memory: at least 16 GB.

HD type: SSD\NVME.

When running Advanced Visualization Workspace on a 6MP Diagnostic Monitor in Landscape mode (3280 x 2048) it's recommended to use additional standard monitor for Advanced Visualization Workspace Patient Directory and other system applications when the entire 6MP screen for Advanced Visualization Workspace review and analysis applications is used.

<sup>1</sup> Caas is a trademark of Pie Medical Inc.

<sup>2</sup> These functionalities may not be available in all territories.

<sup>3</sup> Corridor4DM is a registered trademark of Invia, LLC.

Please contact your Philips representative for more details.



## 2.4.3 Client display specifications

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Advanced Visualization Workspace offers support for following Diagnostic Monitors:

- Landscape and portrait monitors up to 3MP (1640 X 2048)
  - 6MP Landscape (3280 x 2048)
  - 6MP monitors which are treated as 2 x 3MP (1640 X 2048) monitors
- 

No support for monochrome or grayscale-only diagnostic monitors

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Scaling factor should be set in Windows to 100%

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Graphics card with the following requirements:

- Native DirectX 9.c support
  - Native GDI+ support
  - at least 128MB RAM
- 

Graphics card with the following requirements when MR CAAS 4D flow and Strain Analysis<sup>1,2</sup> is required:

- 2 GB or more dedicated GPU memory.
  - OpenGL 3.3 support
- 

## 2.4.4 Recommended Client software specifications

### Supported Windows® operating systems

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Windows® 10 (64bit only)

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Windows® 11 (64bit only)

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DynaCAD DynaCAD version 4.0 clients are supported on Windows 10.

DynaCAD versions 5.0 and 5.1 are supported on Windows 11

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### Additional client software specifications

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NET® framework 4.8 or higher

- Microsoft Visual C++ Redistributable package 2015-2022

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Ability to add the Advanced Visualization Workspace to the firewall exception list

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Additional software recommended (for optional functionality):

- Adobe Acrobat Reader (for Reports and Help)
  - Windows® Media Player 9.0 or above (for saving movies)
  - IMAPv2 (for burning CD/DVD)
- 

Browsers: Microsoft Edge, Firefox or Chrome

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Desktop Virtualization technology Citrix Xen Desktop version 7.8 and backward compatible until versions up to 7.1. and VMware Horizon VDI solutions

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<sup>1</sup> Caas is a trademark of Pie Medical Inc.

<sup>2</sup> These functionalities may not be available in all territories

Please contact your Philips representative for more details.



# 2.5 Server Configuration Recommendation For CCU

## 2.5.1 If there are no users using AVW spectral applications

Number of CCU	Server Configuration	Number of Cores
Upto 10	AVW Single Server – 32/64 GB RAM	12-16
10-15	AVW Dual Server - 64 GB RAM	12-16
16 and above	AVW Enterprise with 3 or more servers	12-16

## 2.5.2 If up to 2 concurrent users using AVW spectral applications

Here if 2 users use spectral applications, other users can use non-spectral applications.

Number of CCU	Server Configuration	Number of Cores
1- 5	AVW Single Server - 64 GB RAM	8
6 - 10	AVW Dual Server - 64 GB	12-16
Above 10	AVW Enterprise with 3 or more servers	12-16

## 2.5.3 If more than 2 concurrent users using AVW spectral applications

Number of CCU	Server Configuration	Number of Cores
3	AVW Single Server - 64 GB RAM	8
4 - 7	AVW Dual Server - 64 GB	12-16
8 and above	AVW Enterprise with 3 or more servers	12-16

Note: If more accuracy is needed, then RBL(Resource Based Licensing) calculator needs to be used for specific cases. Please contact your Phillips representative for detailed information



## 2.6 Advanced Visualization Workspace Zero Footprint Viewer<sup>1</sup>

Advanced Visualization Workspace Zero Footprint Viewer can be installed either on server hardware provided by Philips or on virtualized server infrastructure provided by customer.

### 2.6.1 Server hardware specifications<sup>2</sup>

Hardware model	Dell PowerEdge T/R640
CPU	Intel Xeon 6226 R 2.9GHz, 16Cores
RAM	32GB (default) up to 64GB (option)
Hard drive	3x 1.2TB RAID 5
Remote card	iDRAC9 Enterprise
Power supply	Redundant Power Supply, 1100W
NIC card	Dual Port 1GBps and Dual Port 10Gbps NIC Rack server, Dual Port 10Gbps NIC Tower server
Operating system	Windows Server 2019 -Standard Edition (English Only) <sup>3</sup>

Hardware model	HPE DL360/ML350 Gen 11
CPU	Intel Xeon 6426Y, 16 cores
RAM	32GB (default) up to 64GB (option)
Hard drive	3x 1.2TB (default) 6x 1.2TB (option) RAID5
Remote card	iLO
Power supply	Redundant Power Supply
NIC card	Dual Port 1GBps and Dual Port 10Gbps NIC
Operating system	Windows Server 2019 -Standard Edition (English Only) <sup>3</sup>

<sup>1</sup> Zero Footprint Viewer enables viewing - not intended for diagnostic image reading.

<sup>2</sup> Advanced Visualization Workspace Zero Footprint server hardware specification in this datasheet is just for reference. The Advanced Visualization Workspace server hardware that will eventually be delivered to customer under this datasheet either meets or exceeds the mentioned specifications.

<sup>3</sup> Advanced Visualization Workspace Zero Footprint server hardware is delivered with one instance of Microsoft Windows Server 2019 Standard Edition. Client Access Licenses (CALs) for client machines are not included as part of the product and are to be obtained by customer. For more information about Microsoft CAL policy, please refer to <https://www.microsoft.com/en-us/licensing/product-licensing/client-access-license>



## 2.6.2 Virtual server specifications

Zero footprint viewer supports deployment on virtualization server infrastructure provided by customer, either VM-ware or Microsoft Hyper V.

### Advanced Visualization Workspace Virtual Server specifications

<b>Hypervisor version</b>	One of the below: <ul style="list-style-type: none"> <li>• VMware ESXi 6.5 upto 7.2</li> <li>• Microsoft Hyper-V on Windows Server 2016 and higher</li> <li>• Nutanix AHV hypervisor, 20190906, or higher</li> </ul>
<b>CPU</b>	Intel Xeon Scalable Processors : 2nd Generation to 4th Generation Supported frequency for optimal performance <ul style="list-style-type: none"> <li>• 2nd Gen CPUs: from 2.8GHz.</li> <li>• 3rd Gen CPUs: from 2.6GHz.</li> <li>• 4th Gen CPUs: from 2.4GHz.</li> </ul>
<b>RAM</b>	32GB up to 64GB (recommended)
<b>Network Interface Card</b>	1Gbps
<b>Storage</b>	Drive C: minimum of 100GB Drive D: minimum 500GB storage space up to 5TB  Storage requirements: Drive should be optimized for reading performance with Random 4K IOPS = at least 250MB/s
<b>Operating system</b>	Windows Server 2019 - Standard, Datacenter and Enterprise Edition (English Only) <sup>1</sup>
<b>Anti-virus</b>	Either Microsoft Defender anti-virus software <sup>2</sup> provided by Philips or anti-virus software of choice provided by the customer
<b>Other software requirements</b>	.NET Framework 3.5 and .NET Framework 4.8 or higher

<sup>1</sup> Advanced Visualization Workspace server hardware is delivered with one instance of Windows Server 2019 - Standard, Datacenter and Enterprise Edition. Client Access Licenses (CALs) for client machines are not included as part of the product and are to be obtained by customer. For more information about Microsoft CAL policy, please refer to <https://www.microsoft.com/en-us/licensing/product-licensing/client-access-license>

<sup>2</sup> Anti-virus scan exclusions are required, please contact your Phillips representative for detailed information

### Network specifications

LAN Network bandwidth between modalities, Advanced Visualization Workspace server and Advanced Visualization Workspace clients should be minimum 100Mbit/s but 1Gbps or above is recommended

LAN bandwidth between Advanced Visualization Workspace Zero Footprint server and Advanced Visualization Workspace Zero Footprint Viewer should be 10Mbit/s or above with latency <20ms

## 2.6.3 Recommended client hardware specifications

Advanced Visualization Workspace Zero Footprint Viewer client hardware should support the following minimum hardware requirements.

	<b>Processor</b>	<b>Memory</b>	<b>Network adapter card</b>	<b>Graphics card</b>
Minimum	2Cores @ 2.5GHz	6GB	10Mbit/s	Mid-range graphics card with OpenGL 3.2 support, 1GB on-board memory

## 2.6.4 Client software specifications

### Supported Windows® operating systems

Windows® 10 (64bit only)

Windows® 11 (64bit only)

### Browser compatibility

Microsoft Edge

Chrome latest version

Safari on Mac OS



## 2.7 Advanced Visualization Workspace Virtual Application Guide\*

Advanced Visualization workspace Virtual Application Guide is a context based help solution for Advanced Visualization Workspace. There are 2 options available. Cloud based solution and on-premise solution. For customers who have access to internet from Advanced Visualization Workspace servers/clients to cloud can utilize cloud option. For customers who don't have access to internet from Advanced Visualization Workspace servers/clients can utilize on-premise option.

\*(previously called KnowledgeScape)

### 2.7.1 Cloud based Virtual Application Guide Server

Advanced Visualization workspace Virtual Application Guide server is hosted by Philips on Amazon AWS cloud. Customer needs to launch the Virtual Application Guide from Advanced Visualization Workspace client. Two regions, US & EU, can be configured during installation of Advanced Visualization Workspace. Refer to installation manual on how to select the servers for these regions.

### 2.7.2 On-Premise Virtual Application Guide Server Specifications

This needs to be provided by customer.

- a. VM server with following specification
  - i. CPU: 4Cores @1.8GHz,
  - ii. RAM: 8GB
  - iii. Disk Space:
  - iv. Drive C: 100GB
  - v. Drive D: 250GB
- b. OS: win server 2019 (English only)
- c. IIS (Internet Information Service) : 10
- d. SQL Express: 2019 (will be installed by KS software)
- e. N/W connection: between ISP and on-premise KS server.  
10Mbps download/1Mbps upload Latency: up to 10ms
- f. Certificates: either self signed or domain certificate. should be provided.

### 2.7.3 Virtual Application Guide Client specifications

HW specs same as Advanced Visualization Workspace client specs. Refer to "Recommended client hardware specifications" section of this document.

Will require Adobe reader to read the IFU and other documents

Browser compatibility: same as defined in "Additional client software specifications" section of this document.

