

Overview

The HP Medical Archive solution (MAS) is a specialized content archiving platform to help global healthcare providers of all sizes address exploding medical image retention requirements. With HP MAS, healthcare providers can strengthen their focus on improving patient care and adhering to strict regulatory governance by ensuring fast-growing medical image data are securely preserved and highly available. The grid architecture satisfies the scalability and performance requirements of healthcare providers at a price point any customer can afford.

HP MAS is designed to handle medical fixed content, ranging from large medical images and movies to smaller electronic patient documents. MAS is an expandable appliance composed of integrated HP disk storage, servers, and policy management software to provide long-term retention of medical data, and it supports the leading medical imaging applications. What differentiates HP MAS is its ability to improve care delivery and facilitate regulatory governance by providing high availability for secure storage of images while reducing the cost and management of medical fixed content by consolidating historical data from multiple sources to lower cost media. The latter feature, bolstered by the native ability to enable information management policy-based migration across storage tiers, helps providers consistently align the business value of images and studies with appropriate retention policies.

HP MAS is a modular appliance composed of infrastructure components/nodes and storage nodes, which form a unified archive based on a grid architecture. Each node consists of multiple software services operating on a server that manages a fixed capacity storage resource. MAS nodes can be configured together and tailored to a customer's deployment requirements for single site, single site plus disaster recovery site, multi-site or multi-site hub and spoke topologies.

HP MAS is an important building block of the HP Digital Hospital value proposition. The HP Digital Hospital solution is a framework of hardware, software, partner point solutions and consulting services that lay the foundation for digital transformation. Addressing and managing diagnostic information explosion, HP MAS helps healthcare providers to build the hospital of the future.

HP Software Professional Services offer a complete portfolio of Information Management Services including upfront consulting to define the right strategy and roadmap for information management and storage optimization to meet your medical archiving requirements with design, planning and implementation services to maximize value from your HP MAS solution. These services are part of the HP Professional Services Information Management Service offering including Data Management Services, Information Governance Strategy and Planning Services and Solutions, Educations Services, and Solution Management Service. HP Professional Services can deliver an integrated solution using the entire Information Management Software product suite as well as in heterogeneous infrastructures.

For more information on HP Medical Archive solution, please visit: www.hp.com/go/mas

Overview

What's New in MAS 5.0

HP MAS 5.0 introduces newer hardware, higher storage capacity, better throughput, Grid Node Virtualization, greater administrative productivity from new audit feeds. Below is a summary on what's new in HP MAS 5.0 release. For the complete list of HP MAS components, please see the section "Features and Benefits".

Platform

- Support for Virtualized Nodes based on VMware
- Higher storage capacity

Functionality and Performance

- Support for larger storage capacity kits (min 12TB MDL, 3TB ENT capacity kits), configurable as 30TB MDL and 6TB ENT
- Gateway Nodes with 2TB cache
- The HP MAS Supplemental SW DVD includes tools to manage HP MAS grids. Tools such as site specific configuration have been updated.

New SKUs

- The following SKUs are introduced in MAS 5.0

Description

Description	New SKUs
HP MAS Network Bundle	C8R85A
HP MAS V5.0 Base Storage Node	C8R87A
HP MAS V5.0 Base Admin Node	C8R88A
HP MAS V5.0 Base SAN Storage Node	C8R89A
HP MAS V5.0 Base Gateway/Control Node	C8R90A
HP MAS V5.0 SW Media	C8R91A
HP MAS V5.0 SAS MDL 8TB Svr Cap Kit	C8R92A
HP MAS V5.0 SAS MDL 12TB Svr Cap Kit	C8R93A
HP MAS V5.0 SAS MDL 12TB Expn Cap Kit	C8R94A
HP MAS V5.0 SAS ENT 3TB Svr Cap Kit	C8R95A

** HP Medical Archive solution V5.0 Media must be purchased for all new orders, including expansions.

QuickSpecs

HP Medical Archive solution 5.0

Models and Options

NOTE: Storage Node and solution capacities are expressed as redundant array of independent disks (RAID-5)-6 Terabytes available for image and study data.

DL Series servers based:

HP Medical Archive solution Infrastructure Components and Cabinet	HP Medical Archive solution Console Bundle, 2U	AP742A
	HP Medical Archive solution Cabinet Connectivity Kit	AG769A
	HP Medical Archive solution Infrastructure Cabinet	AJ770A
	HP MAS V4.3 WAN Gigabit Connectivity Kit	AJ771B

HP Medical Archive solution Storage Nodes	HP MAS V5.0 Base Storage Node	C8R87A
	V4.2 SAS MDL 8 TB Capacity Kit	BV928A
	HP MAS V5.0 SAS MDL 8TB Srvr Cap Kit	C8R92A
	HP MAS V5.0 SAS MDL 12TB Srvr Cap Kit	C8R93A
	HP MAS V5.0 SAS MDL 12TB Expn Cap Kit	C8R94A
	V4.2 SAS ENT 3 TB Capacity Kit	BV929A
	HP MAS V5.0 SAS ENT 3TB Srvr Cap Kit	C8R95A
	V4.2 Storage Expansion Shelf, 0 TB	BV927A
	HP MAS V5.0 Base SAN Storage Node	C8R89A

NOTE: Storage Node and solution capacities are expressed as redundant array of independent disks (RAID-5 or RAID-6).

HP Medical Archive solution Admin, Gateway, and Control Nodes	HP MAS V5.0 Base Admin Node	C8R88A
	HP MAS V5.0 Base Gateway/Control Node	C8R90A

NOTE: Base Gateway/Control Node (C8R90A) can be configured either as a Gateway Node or as Control Node, but not as a combo node

HP Medical Archive solution media	HP MAS V5.0 SW Media	C8R91A
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Features and Benefits

HP Medical Archive solution architecture

The HP MAS architecture provides a secure, reliable, scalable and high performance solution for the storage and distribution of very high volumes of medical fixed content within a data centre, an optional disaster recovery site, and/or co-located with data sources or clinical sites.

HP MAS is composed of Infrastructure Nodes (Admin, Gateway, and Control Nodes) and various types/capacities of Storage Nodes. A single HP MAS grid can accommodate various types/capacities of SAN, SAS enterprise, SAS midline, enabling a flexible multi-tier archiving solution fully supported by HP. Native information management policy-based migration allows the automated movement of medical images between storage tiers to optimize the existing storage infrastructure and align the business value of images with the right media tiers over time.

HP MAS Storage Nodes replicate data across the grid. At the level of the Storage Node (any mode or model), encryption provides secure data storage and transmission (via an internal HTTP API) to ensure that image transfers across the grid are secure. Multiple Storage Nodes of any mode/model can be added to the MAS grid depending on capacity requirements, the need for redundancy, and performance/configuration guidelines for best practices.

HP MAS supports virtual grid nodes. All grid nodes can be installed on virtual machines.

New nodes must be installed virtual machines running on DL 380e Gen8 -servers.

HP MAS supports expansion of existing physical grid node based installation with virtual nodes. Physical and Virtual Nodes can co-exist in a MAS installation.

Within a given facility, all nodes are interconnected using standard TCP/IP networking, and communicate with local medical imaging applications, such as Picture Archive Communication Systems (PACS), workstations, and modalities, using CIFS and NFS interface. Wide area network (WAN) links extend the grid, enabling off-site replication of content for disaster recovery.

NOTE: DICOM is no longer available, neither for new installations, nor for upgrades.

HP Medical Archive solution Components and Nodes

HP MAS offers standard grid. A standard HP MAS configuration has the functionality of one (1) Admin Node, two (2) Gateway Nodes, two (2) Control Nodes, and a minimum of two (2) Storage Nodes. However, this can change depending on customer requirements. The number and type of nodes used in a grid is dependent upon imaging environment requirements. The various components and nodes are described below.

- HP MAS Infrastructure Cabinet
 - Base or expansion cabinet required for housing the Infrastructure Nodes/components and Storage Nodes. The cabinets can host a variable number of Storage, Control, Gateway, Admin Nodes and storage enclosures, depending on the specific configuration.
 - Functions and configuration details:
 - Includes the physical 42U rack and all power, communication, and management infrastructure that may be used in an installation. The cabinet has defined locations for each infrastructure component and storage node for DL Series servers.
 - The "Console bundle" is included in the "Infrastructure Cabinet"; however, the same can be ordered separately.
- HP MAS Cabinet Connectivity Kit (CCK)
 - The CCK consists of two switches for redundancy per site.
 - In Single Site configurations: Required to interconnect the base cabinet with the first expansion cabinet.
 - In Single Site + Disaster Recovery configurations: Required to interconnect the base cabinet at both sites.

Features and Benefits

- HP MAS WAN Gigabit Connectivity Kit (WCK)
 - The new Gigabit WAN connectivity kit is based on HP A-MSR30-20 routers. This router is capable of handling gigabit speed network connectivity
 - WCK consists of two routers that are installed in the base cabinet at each site and are connected to the switches in the CCKs
 - WCK is not required in Single Site (DC) configurations.
 - The WCK requires installation of the Cabinet Connectivity Kit (CCK).
- HP MAS Storage Node - on DL380e Gen8 servers
 - It consists of a server with SAS enterprise hard drives for virtual machine, Linux OS, Storage Node software and embedded disk for object storage.
 - It supports 3TB, 8TB, 12TB, 20TB, or 30 TB (excluding Expansion Shelves) of effective capacity depending on the mode, model, and type of disk selected (SAS enterprise or SAS midline)
- HP MAS Storage Expansion Shelf
 - The Storage Nodes allow for additional MAS Storage shelves to be purchased, up to 2 per Storage Node. The benefit is less cost, less heat, and less power; as well as lower TCO.
 - Storage Expansion Shelf supports the same capacity kits as the Storage Node.
 - Storage Nodes and Storage shelves are expandable and have two capacities, filled and half filled. For SAS midline, when filled in initial purchase, user can achieve 25% capacity gain. Example, half-filled = 8 TB, filled = 20 TB.
 - Can be connected to supported SKUs of HP MAS 4.0 and higher.
- HP MAS SAN Storage Node - on DL 380e Gen8 servers
 - It consists of a server with SAS enterprise hard drives for virtual machine, Linux OS, SAN Storage Node software.
 - It uses SAN based LUNs for object storage.
 - Maximum supported storage capacity is 90TB, similar to direct attached Storage Node.
- HP MAS Control Node
 - The Control Node consists of a server with SAS enterprise drives for virtual machine, Linux OS, Control Node software, and SQL server database (DB) operation.
 - It provides object management (an object is a single medical study, comprised of many images), indexes, manages, replicates, and synchronizes object metadata, and acts as the "brains" behind object replication.
 - The Control Node manages storage policies and internal grid communications and provides policing and authentication.
 - Best Practices: The minimum deployment in an HP MAS grid is two Control Nodes to provide database redundancy. Additional Control Nodes can be added for grid resiliency in a distributed environment to control local access and storage with limited or unreliable WAN or to extend the number of objects supported on the grid for larger systems.
- HP MAS Gateway Node
 - The Gateway Node consists of a server with SAS enterprise hard drives for virtual machine, Linux OS, Gateway Node software, and SAS enterprise drives for Gateway cache. CIFS and NFS mounts provided by the Linux OS services are managed by HP MAS software within the Gateway Node.
 - The Gateway Node acts as interface to the HP MAS grid for client systems (e.g., PACS) and presents the HP MAS grid to client systems as a near-limitless network mounted drive. The archiving application only has to deposit the file in the CIFS/NFS interface with immediate response from the HP MAS grid.
 - The Gateway Node can be utilized as fast file-cache for remote sites (up to 2.0 TB of cache, and manages up to 200 million objects per Gateway Node replication group.
 - The Parallel Fetch software feature (included and applied on the Gateway Node) will streamline retrieval of additional images within a given study when the first image is

Features and Benefits

retrieved to speed up viewing exams for some PACS applications. This is advantageous for PACS which do not containerize all images in a study prior to archival. Also, the Selective WORM feature enables flexibility to select which data types require WORM (file or path name-based) and the ability to enhance WORM duration. Both Parallel Fetch and Selective WORM software features are included, giving customers the choice to deploy them.

- Best Practice: The minimum deployment in an HP MAS grid is typically two Gateway Nodes to provide interface redundancy to the imaging (e.g., PACS) application. Additional Gateway Nodes can be added for resiliency. In a distributed environment, Gateway Nodes can provide the interface to the local PACS (or other imaging application), cache the inbound data, and then communicate to the appropriate Storage Node for archival storage.
- HP MAS Admin Node
 - This node consists of a server with SAS enterprise hard drives for virtual machine, Linux OS and Admin Node software.
 - It provides centralized management, an administrative interface, and user access security.
 - The Admin Node collects real-time and historical data for alerts, reporting, troubleshooting, auditing and analysis.
 - Best Practice: one (1) Admin Node per monitoring site is recommended for redundancy.

System Contents

HP MAS V5.0 Base SAN Storage Node		C8R89A
Specifications	<ul style="list-style-type: none"> ● HP DL380e Gen8, 2.2 GHz quad core Xeon processor, 8GB RAM ● Hot Plug AC Redundant Power Supply - Quantity 2 ● 450GB, 6G SAS 15K 3.5" SC ENT Hard Drive - Quantity 2 ● HP Medical Archive solution Storage Node software 	
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6 TB SAS ENT Storage Node		
1x	HP Medical Archive solution V5.0 Base Storage Node	C8R87A
2x	HP Medical Archive solution SAS ENT Capacity Kit, 3 TB	C8R95A#0D1
Specifications	<ul style="list-style-type: none"> ● 6 TB SAS ENT Storage Node ● HP DL380e Gen8, Dual 2.2 GHz quad core Xeon processor, 8GB RAM ● Hot Plug AC Redundant Power Supply ● 450GB, 6G SAS 15k 3.5" SC ENT Hard Drive - Quantity 2 ● 600GB, 6G SAS 15K 3.5" SC ENT Hard Drive - Quantity 12 (RAID-6) ● HP Medical Archive solution Storage Node software 	
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3 TB SAS ENT Storage Node		
1x	HP Medical Archive solution V5.0 Base Storage Node	C8R87A
2x	HP Medical Archive solution SAS ENT Capacity Kit, 3 TB	C8R95A#0D1
Specifications	<ul style="list-style-type: none"> ● 3 TB SAS ENT Storage Node ● HP DL380e Gen8, Dual 2.2 GHz quad core Xeon processor, 8GB RAM ● Hot Plug AC Redundant Power Supply ● 450GB, 6G SAS 15k 3.5" SC ENT Hard Drive - Quantity 2 ● 600GB, 6G SAS 15K 3.5" SC ENT Hard Drive - Quantity 6 (RAID-5) ● HP Medical Archive solution Storage Node software 	
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8 TB SAS MDL Storage Node	1x HP Medical Archive solution V5.0 Base Storage Node	C8R87A
	1x HP Medical Archive solution SAS MDL 8TB Srvr Cap Kit	C8R92A#0D1
Specifications	<ul style="list-style-type: none"> ● 8 TB SAS MDL Storage Node ● HP DL380e Gen8, Dual 2.2 GHz quad core Xeon processor, 8GB RAM ● Hot Plug AC Redundant Power Supply ● 450GB, 6G SAS 15k 3.5" SC ENT Hard Drive - Quantity 2 ● 2TB 6G SAS 7.2k 3.5" SC MDL Hard Drive - Quantity 6 (RAID-6) ● HP Medical Archive solution Storage Node software 	
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20 TB SAS MDL Storage Node	1x HP Medical Archive solution V5.0 Base Storage Node	C8R87A
	2x HP Medical Archive solution SAS MDL 8TB Srvr Cap Kit	C8R92A#0D1

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HP Medical Archive solution 5.0

System Contents

Specifications

- 20 TB SAS MDL Storage Node
- HP DL380e Gen8, Dual 2.2 GHz quad core Xeon processor, 8GB RAM
- Hot Plug AC Redundant Power Supply
- 450GB, 6G SAS 15k 3.5" SC ENT Hard Drive - Quantity 2
- 2TB 6G SAS 7.2k 3.5" SC MDL Hard Drive - Quantity 12 (RAID-6)
- HP Medical Archive solution Storage Node software

12 TB SAS MDL Storage Node

1x	HP Medical Archive solution V5.0 Base Storage Node	C8R87A
2x	HP Medical Archive solution SAS MDL 12TB Srvr Cap Kit	C8R93A#0D1

Specifications

- 12 TB SAS MDL Storage Node
- HP DL380e Gen8, Dual 2.2 GHz quad core Xeon processor, 8GB RAM
- Hot Plug AC Redundant Power Supply
- 450GB, 6G SAS 15k 3.5" SC ENT Hard Drive - Quantity 2
- 3TB 6G SAS 7.2k 3.5" SC MDL Hard Drive - Quantity 6 (RAID-6)
- HP Medical Archive solution Storage Node software

30 TB SAS MDL Storage Node

1x	HP Medical Archive solution V5.0 Base Storage Node	C8R87A
1x	HP Medical Archive solution SAS MDL 12TB Srvr Cap Kit	C8R93A#0D1

Specifications

- 30 TB SAS MDL Storage Node
- HP DL380e Gen8, Dual 2.2 GHz quad core Xeon processor, 8GB RAM
- Hot Plug AC Redundant Power Supply
- 450GB, 6G SAS 15k 3.5" SC ENT Hard Drive - Quantity 2
- 3TB 6G SAS 7.2k 3.5" SC MDL Hard Drive - Quantity 12 (RAID-6)
- HP Medical Archive solution Storage Node software

HP MAS V5.0 Base Gateway/Control Node

C8R90A

Specifications

- HP DL380e Gen8, 2.2 GHz quad core Xeon processor, 8GB RAM
- Hot Plug AC Redundant Power Supply
- 450GB, 6G SAS 15k 3.5" SC ENT Hard Drive - Quantity 2
- 600GB, 6G SAS 15k 3.5" SC ENT Hard Drive - Quantity 6
- HP Ethernet 1Gb Quad Port 331T Server Adapter - Quantity 1
- HP MAS Gateway Node software or HP MAS Control Node software

NOTE: This node can be configured either as a Gateway Node or as Control, but not as a combo node

HP MAS V5.0 Base Admin Node

C8R88A



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HP Medical Archive solution 5.0

System Contents

Specifications	<p>HP DL380e Gen8, 2.2 GHz quad core Xeon processor, 8GB RAM</p> <ul style="list-style-type: none"> • Hot Plug AC Redundant Power Supply • 450GB, 6G SAS 15k 3.5" SC ENT Hard Drive - Quantity 2 • HP Ethernet 1Gb Quad Port 331T Server Adapter - Quantity 1 • HP Medical Archive solution Admin and Gateway Node software
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HP MAS V4.2 Storage Expansion Shelf

BV927A

Specifications	<ul style="list-style-type: none"> • D2600 Storage Array - Quantity 1 • Hot Plug AC Redundant Power Supply - Quantity 2 • Supports SAS ENT & MDL capacity kits
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HP MAS Infrastructure Cabinet

AJ770A

Specifications	<ul style="list-style-type: none"> • Cabinet for DL Series servers • 10642 G2 (42U) Rack Cabinet with Shock Pallet • HP ProCurve Switch 2810-48G - Quantity 2 (for data network) • HP ProCurve Switch 2620 - Quantity 1 (for management network) • TFT7600RKM (all-in-one monitor/keyboard) and KVM Switch • HP Power distribution Units • Network cabling and cable management harness
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HP MAS Cabinet Connectivity Kit

AG769A

Specifications	<ul style="list-style-type: none"> • ProCurve 3500yl-24G Switch - Quantity 2 • CAT5e system network cables
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HP WAN Gigabit Connectivity Kit

AJ771B

Specifications	<ul style="list-style-type: none"> • HP A-MSR30-20 - Quantity 2 • CAT5e system network cables • 40 ft CAT5e customer network cable - Quantity 2
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HP MAS Network Bundle

C8R85A

Specifications	<ul style="list-style-type: none"> • ProCurve 2810-48G switch - data (2) • ProCurve 2620 switch - management (1)
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HP MAS Console Bundle

AP742A

Specifications	<ul style="list-style-type: none"> • Console Bundle for cabinet with DL Series servers • Provide a separate "console bundle", containing the KVM, keyboard, and related components (dongles for example)
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Service and Support, HP Care Pack, and Warranty Information

Warranty and included services

- **Warranty:** The first year warranty includes both hardware (HW) and software (SW) support to reflect the total solution value of HP Medical Archive solution (MAS). This includes 9 x 5 coverage with 4 hour response for HW related calls along with 9 x 5 telephone assistance for SW related calls.
- **HP Installation and Startup:** This applies to the base MAS deployment as well as to each building block. The HP Specialist will initially collect needed network information to configure HP Medical Archive solution. HP Specialists will go on site to install and test the hardware components, and then install and verify the HP Medical Archive solution. Finally, the specialists will provide knowledge transfer.
HP Software Professional Services (HPSW PS) will be handling this Installation and Startup service. To utilize this HPSW PS service the customer will be provided with a statement of work (SOW) for their installation.
- **HP Foundation Care 24x7** connects you to HP 24 hours a day, seven days a week for assistance on resolving issues - hardware onsite response within four hours and software call back within two hours after opening your case. Make HP your first call for hardware or software questions; Collaborative Support is included in all Foundation Care Services for this product and provides troubleshooting assistance on software such as Microsoft Server, Red Hat Linux, VMware and more. Three years' coverage recommended with HP Care Pack Service.
- **HP Software Upgrade Service:** HP Software Professional Services (HPSW PS) are performing the HP MAS upgrade service to help ensure the updates are properly installed. Please, be aware that a warranty upgrade service is no longer bundled with the product. Using a Statement of Work (SOW) the HPSW PS will schedule and execute upgrades as required. The cost of this upgrade service is based on the configuration, size of the grid, and distance between sites.
- **Custom Implementation Services:** Additional, customized, SOW services to assist in whatever area of expertise is required. This can range from traditional training to advanced application integration to assistance with implementation of data policies for efficient data management. PS also delivers upfront consulting, planning and large-scale implementation services.
- For more services information: www.hp.com/go/IMprofessionalservices
- HP warrants only that the software media will be free of physical defects for a period of ninety (90) days from delivery. For more information about HP's Global Limited Warranty and Technical Support, visit: www.hp.com/products/storageworks/warranty

HP Care Pack services

HP CarePack Services offer upgraded service levels to extend and expand your extended product warranty with easy-to-buy, easy-to-use support packages that help you make the most of your hardware and software investments. They let you choose the support levels that meet your business requirements and help you contain total cost of ownership.

HP Care Pack support extensions can be purchased along with HP products to cost-effectively upgrade or extend your warranty. For many products, post-warranty HP Care Pack Services are available when your original warranty has expired. For more information on these services, contact your local HP sales representative, authorized HP business partner, or visit: <http://www.hp.com/go/storage/carepacks>

Service and Support, HP Care Pack, and Warranty Information

Education services

HP offers a variety of training methods to fit your needs including traditional instructor-led courses at one of our 120 training centres worldwide, onsite training customized to your needs, in your facility, or even Remotely Assisted Instruction Learning that combines the best of traditional classroom training (including its live instructor and labs) with the best of online training (no traveling required). And if you like learning on your own schedule, at your own pace, make use of e-learning opportunities on the award-winning HP IT Resource Centre, a "learning community" with extensive on-demand resources that can be accessed 24x7. For more information on these services, contact your HP sales representative, authorized HP business partner. <http://h10076.www1.hp.com/education/hpsw/>

Financial services

HP Financial Services provides innovative financing and financial asset management programs to help customers cost-effectively acquire, manage, and ultimately retire their HP solutions. For more information on these services, please contact your HP sales representative or visit: www.hp.com/go/hpfinancialservices

QuickSpecs

HP Medical Archive solution 5.0

Technical Specifications

SAN Storage Node - C8R89A	Dimensions (H x W x D)	Installed	2U rack space 3.44 x 17.54 x 29.5 in (8.75 x 44.55 x 79.94 cm)
	Weight	Operating	71.20 lbs (32.30 kg)
	Power/Cooling Requirements	Shipping	85 lbs (38.55 kg)
		Power	505 W max; 2.6 A
		Voltage	200-240 V
		Cooling	1725 BTU/hour
6 TB SAS ENT Storage Node C8R87A + 2xC8R95A#0D1	Dimensions (H x W x D)	Installed	2U rack space 3.44 x 17.54 x 29.5 in (8.75 x 44.55 x 79.94 cm)
	Weight	Operating	71.20 lbs (32.30 kg)
	Power/Cooling Requirements	Shipping	85 lbs (38.55 kg)
		Power	824 W max; 4.3 A
		Voltage	200-240 V
		Cooling	2812 BTU/hour
3 TB SAS ENT Storage Node C8R87A + 1xC8R95A#0D1	Dimensions (H x W x D)	Installed	2U rack space 3.44 x 17.54 x 29.5 in (8.75 x 44.55 x 79.94 cm)
	Weight	Operating	71.20 lbs (32.30 kg)
	Power/Cooling Requirements	Shipping	85 lbs (38.55 kg)
		Power	824 W max; 4.3 A
		Voltage	200-240 V
		Cooling	2812 BTU/hour
20 TB SAS MDL Storage Node C8R87A + 2xC8R92A#0D1	Dimensions (H x W x D)	Installed	2U rack space 3.44 x 17.54 x 29.5 in (8.75 x 44.55 x 79.94 cm)
	Weight	Operating	71.20 lbs (32.30 kg)
	Power/Cooling Requirements	Shipping	85 lbs (38.55 kg)
		Power	824 W max; 4.3 A
		Voltage	200-240 V
		Cooling	2812 BTU/hour
8 TB SAS MDL Storage Node C8R87A + 1xC8R92A#0D1	Dimensions (H x W x D)	Installed	2U rack space 3.44 x 17.54 x 29.5 in (8.75 x 44.55 x 79.94 cm)
	Weight	Operating	71.20 lbs (32.30 kg)
	Power/Cooling Requirements	Shipping	85 lbs (38.55 kg)
		Power	824 W max; 4.3 A
		Voltage	200-240 V
		Cooling	2812 BTU/hour



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Technical Specifications

30 TB SAS MDL Storage Node C8R87A + 2xC8R93A#0D1	Dimensions (H x W x D)	Installed	2U rack space 3.44 x 17.54 x 29.5 in (8.75 x 44.55 x 79.94 cm)
	Weight	Operating	71.20 lbs (32.30 kg)
		Shipping	85 lbs (38.55 kg)
	Power/Cooling Requirements	Power	824 W max; 4.3 A
		Voltage	200-240 V
		Cooling	2812 BTU/hour

12 TB SAS MDL Storage Node C8R87A + 1xC8R93A#0D1	Dimensions (H x W x D)	Installed	2U rack space 3.44 x 17.54 x 29.5 in (8.75 x 44.55 x 79.94 cm)
	Weight	Operating	71.20 lbs (32.30 kg)
		Shipping	85 lbs (38.55 kg)
	Power/Cooling Requirements	Power	824 W max; 4.3 A
		Voltage	200-240 V
		Cooling	2812 BTU/hour

D2600 Enclosure- BV927A - C8R90A	Dimensions (H x W x D)	Installed	2U rack space 3.47 x 17.99 x 22.3 in (8.8 x 45.0 x 56.7 cm)
	Weight	Operating	50 lbs (17.20 kg)
		Shipping	86 lbs (38.39 kg)
	Power/Cooling Requirements	Power	300 W max; 2.68A at 115VAC typical
		Voltage	100 - 240 V
		Cooling	964 BTU/ hour

Gateway / Control Node - C8R90A	Dimensions (H x W x D)	Installed	2U rack space 3.44 x 17.54 x 29.5 in (8.75 x 44.55 x 79.94 cm)
	Weight	Operating	71.20 lbs (32.30 kg)
		Shipping	85 lbs (38.55 kg)
	Power/Cooling Requirements	Power	505 W max; 2.6 A
		Voltage	200-240 V
		Cooling	1725 BTU/hour

Admin Node - C8R88A	Dimensions (H x W x D)	Installed	2U rack space 3.44 x 17.54 x 29.5 in (8.75 x 44.55 x 79.94 cm)
	Weight	Operating	71.20 lbs (32.30 kg)
		Shipping	85 lbs (38.55 kg)
	Power/Cooling Requirements	Power	505 W max; 2.6 A
		Voltage	200-240 V
		Cooling	1725 BTU/hour



QuickSpecs

HP Medical Archive solution 5.0

Technical Specifications

Cabinet Connectivity Kit - AG769A	Dimensions	Installed	2U rack space
		Shipping	38 x 22.5 x 21.5 in (17.24 x 10.21 x 9.75 cm)
		Weight	Operating
	Power/Cooling Requirements	Shipping	46 lbs (20.87 kg)
		Power	180 W
		Voltage	200-240 V
		Cooling	614 BTU/ hour

WAN Gigabit Connectivity Kit - AJ771B	Dimensions (H x W x D)	Installed	2U rack space 3.48 x 17.4 x 17.39 in (8.84 x 44.2 x 17.39 cm)	
		Weight	Operating	30.42 lbs (13.8 kg)
		Shipping	52 lbs (23.59 kg)	
	Power/Cooling Requirements	Power	250 W max	
		Voltage	200-240 V	
		Cooling	852 BTU/ hour	

Infrastructure Cabinet - AJ770A	Dimensions	Cabinet	78.7 x 39.7 x 24 in (199.9 x 100.8 x 60.96 cm)	
		Shipping	86.2 x 48 x 32 in (218.95 x 121.92 x 81.28 cm)	
		Weight	Operating	499 lb (226.34 kg)
	Power Requirements	Shipping	540 lb (244.94 kg)	
		Static loading	1754 lb (797 kg)	
		Dynamic loading	1754 lb (797 kg)	
		Americas/Japan	Connector	NEMA L6-30P plugs - Quantity 4
		Voltage	200-240 V	
		EMEA / ROW	Connector	IEC 309-32A - Quantity 2 (all options)
		Connector	Country Specific - Quantity 2 (all options)	
		Voltage	200-240 V	
		Cooling Requirements	1xx Options (MSA20)	30,270 BTU / hour
	2xx Options (MSA30)	23,526 BTU / hour		
	Color	Doors/side panels	Graphite Metallic	
	Frame	Carbon		

HP MAS shipped in Infrastructure cabinet (per cabinet)	Dimensions (HxDxW)	Total Cabinet Area	78.25 x 39.50 x 23.25 in (198.28 x 100.65 x 58.57 cm)
		Shipping	43 x 39.75 x 16 in
	(with packaging materials)	(109.22 x 100.97 x 40.64 cm)	



QuickSpecs

HP Medical Archive solution 5.0

Technical Specifications

Weight	Operating	(depends on configuration)
	Shipping	(depends on configuration)
Power Requirements	Connector	(depends on configuration)
	Voltage	200-240 V
Color	Door/Side Panels	Graphite Metallic
	Frame	Carbon

Environmental Specifications

When choosing a location for the rack, ensure that the operating environment meets the following specifications:

Temperature Range	All temperature ratings shown are for sea level. An altitude derating of 1 C° per 300 m (1.8 FR per 1000 ft) to 3048 m (10,000 ft) is applicable. No direct sunlight allowed. Operating 50° to 95° F (10° to 35° C)
Relative Humidity (non-condensing)	40% to 60%
Maximum wet bulb temperature	28° C (82.40° F)

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