HP CloudSystem Matrix 7.3 Compatibility Chart v7.3.0.0

Abstract

This document is intended for people involved in planning, installing, or maintaining a CloudSystem Matrix solution. It provides the minimum hardware, firmware, and software requirements for HP CloudSystem Matrix.

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Notices

Acknowledgments

Contents

1 Overview

This document specifies the definition of hardware, firmware, and software for this version of the HP CloudSystem Matrix. The hardware components, the firmware versions, and the software versions that are listed in this document have been tested as a solution set, which HP fully supports. For HP CloudSystem Matrix support, HP cannot support the use of hardware or versions of firmware or software that are not part of this definition.

△ **CAUTION:** The specific firmware and software versions that are listed in this document provide support for HP CloudSystem Matrix and must be used together to ensure complete solution component compatibility and full functionality, since these have been tested as a set. Using other version levels, including later revisions of individual components, might result in operational issues. Always see the latest version of this document at http://www.hp.com/go/matrixcompatibility.

Matrix versioning

HP CloudSystem Matrix versions are indicated by major.minor.update.revision. For example, version 7.2.2.1 is Matrix 7.2 Update 2 Revision 1. Revisions are only for firmware, driver, and/or agent changes to the CloudSystem Matrix recipe. Your current Insight Management DVD continues to support this new CloudSystem Matrix revision.

Release history

Published	Changes	Document version

December 2013	**HP CloudSystem Matrix 7.3 v7.3.0.0**
	• Adds the following:
	  ◦ Microsoft Windows Server 2012 R2 Standard
	  ◦ Microsoft Windows Server 2012 R2 Data Center
	  ◦ Internet Explorer 11 and Firefox 24 ESR for supported browsers
	  ◦ HP SA 9.15 for supported deployment services
	  ◦ Microsoft Hyper-V Server 2012 R2 for hypervisor and guest operating system support
	  ◦ System Center 2012 R2 Virtual Machine Manager (SCVMM)
	  ◦ HP MSA 2040 iSCSI
	  ◦ HP MSA 2040 SAS
	  ◦ HP ProLiant WS460c Gen8
	• Upgrades HP SUM Integrity CloudSystem Matrix bundle to version 7.3.0.0
	• Updates the prerequisites and considerations of Matrix OE support in VMware VXLAN environments
	• Removes database support for Microsoft SQL Server 2012 Standard, Microsoft SQL Server 2012 Enterprise, Microsoft SQL Server 2012 Business Intelligence, Microsoft SQL Server 2012 Web, and Oracle 10g R2
		754813-001

2 Enclosure and server hardware

This chapter defines the enclosures and options, as well as server blades and options, that HP CloudSystem Matrix supports.

HP CloudSystem Matrix starter and expansion kit

When purchasing a kit, you may select either the:

- **HP CloudSystem Matrix Platinum Kit for ProLiant with 3-year 24x7 Support** optimized for order, licensing, and delivery of ProLiant server blades.
- **HP CloudSystem Matrix with HP-UX LDS Kit with 3-year 24x7 Support** optimized for order, licensing, and delivery of Integrity server blades with HP-UX.

After selecting the kit, select the service you want to purchase:

- Starter Kit Implementation Service
- Expansion Kit Integration Service

Standard components

All HP CloudSystem Matrix kits contain:

- HP BladeSystem c7000 Platinum Enclosure with 6 power supplies and 10 fans
- HP BladeSystem c7000 Onboard Administrator (OA) with KVM option (redundant pair)
- HP CloudSystem Matrix documentation CD
- HP CloudSystem Matrix branding nameplate that is attached to an HP Intelligent Series Rack door

Interconnect modules

HP CloudSystem Matrix offers a choice of FlexFabric or Flex-10 interconnect modules that can be selected with the starter and expansion kits. FlexFabric supports Fibre Channel over Ethernet (FCoE) technology.

The following interconnect modules are supported in HP CloudSystem Matrix enclosure configurations:

- HP Virtual Connect Flex-10/10D 10Gb Module
- HP Virtual Connect Flex-10 10Gb Ethernet Module
- HP Virtual Connect FlexFabric 10Gb 24-Port Module
- HP Virtual Connect 8Gb 24-Port Fibre Channel (FC) Module
- HP Virtual Connect 8Gb 20-Port Fibre Channel (FC) Module

NOTE: The HP Virtual Connect 8Gb 20-Port Fibre Channel Module for c-Class BladeSystem is supported in a field Matrix conversion but cannot be ordered as part of a new configuration.

You can purchase additional interconnect modules as necessary. Best practices indicate that you should configure the modules in redundant pairs. Interconnect bays 5 through 8 are available for additional interconnects in all HP CloudSystem Matrix starter and expansion kits. Interconnect bays 3 and 4 are also available for additional Virtual Connect (VC) FlexFabric modules in HP CloudSystem Matrix FlexFabric starter and expansion kits.

Table 1: CloudSystem Matrix supported configurations (page 6) shows supported VC configurations for CloudSystem Matrix kits. Supported VC configurations are selected independently for each enclosure in the environment except when configuring multiple enclosures to the same VC domain or Virtual Connect domain group (VCDG).

IMPORTANT: Mixing FlexFabric and Flex-10 modules within the same enclosure is not permitted. (As of CloudSystem Matrix 7.3, mixing of FlexFabric and VC FC is permitted.) Server blades without connectivity to all SAN fabrics in the enclosure are not permitted for automated provisioning. The CloudSystem Matrix environment does not support the mixing of Flex-10 and Flex 10/10D interconnect modules in the same enclosure.

Table 1 CloudSystem Matrix supported configurations

Virtual Connect modules	Adapter requirements for server blades	HP server blade options and notes[1]
VC Flex-10 configuration In bays 1–2: • **VC Flex-10 modules** or • **VC Flex-10/10D modules** In bays 3-4: • **VC FC 8Gb 20p modules**[2] or • **VC FC 8Gb 24p modules** In bays 5-8: additional VC Flex-10 or VC FC modules or empty[3]	• **FlexibleLOM** in Gen8 server blades • **Embedded LOM** in G5, G6, G7, i2 and i4 server blades • **FC HBA mezzanine** in slot 1 for all server blades • **Additional NIC or FC HBA mezzanine** (if additional VC modules are installed) in slot 2 or later	All ProLiant server blade models (G5, G6, G7, and Gen8). All Integrity server blade models (i2 and i4).
VC FlexFabric option 1 configuration In bays 1-2: VC FlexFabric modules In bays 3-8: additional VC FlexFabric modules or empty[3]	• **FlexFabric FlexibleLOM** in Gen8 server blades • **Embedded FlexFabric LOM** in G7 and i4 server blades • **Additional FlexFabric mezzanine** (if additional VC modules are installed) in slot 2 or later	Preferred FlexFabric option for G7, Gen8, and i4 server blade models.
VC FlexFabric option 2 configuration In bays 1–2: additional VC FlexFabric modules or empty[3]	• **FlexFabric FlexibleLOM** in Gen8 server blades • **Embedded LOM** in G6, G7, i2 and i4 server blades	Only FlexFabric option for G6 and i2 server blade models. G7, Gen8, and i4 server blade models are also supported.[4]

Table 1 CloudSystem Matrix supported configurations *(continued)*

Virtual Connect modules	Adapter requirements for server blades	HP server blade options and notes[1]
In bays 3–4: VC FlexFabric modules In bays 5-8: additional VC FlexFabric modules or empty [3]	• **FlexFabric mezzanine** in slot 1 for all server blades • **Additional FlexFabric mezzanine** (if additional VC modules are installed) in slot 2 or later	
VC FlexFabric option 3 configuration In bays 1–2: VC FlexFabric modules In bays 3–4: VC FC 8Gb 20p modules[2] or VC FC 8Gb 24p modules In bays 5-8: Additional pairs of VC FlexFabric modules, VC FC 8Gb modules, or empty.	• **FlexFabric or Flex-10 FlexibleLOM** in Gen8 server blades • **Embedded FlexFabric LOM** in G7 and i4 server blades • **FC HBA mezzanine** in mezz slot 1 for all server blades • If **additional VC modules** are installed in bays 5-8, then additional CNA or FC HBA mezzanine card in mezz slot 2 or later depending on the VC module type	All Blades must have FlexFabric LOMs. Combination of ProLiant Server Blades G7 and Gen8 and Integrity i4 server Blades only.
VC FlexFabric option 4 configuration In bays 1–2: VC FlexFabric modules (NIC only config) In bays 3–4: VC FC 8Gb 20p modules[2] or VC FC 8Gb 24p modules In bays 5-8: Additional pairs of VC FlexFabric modules, VC FC 8Gb modules, or empty.	• **FlexFabric or Flex-10 FlexibleLOM** in Gen8 server blades • **Embedded FlexFabric LOM** in G7 and i4 server blades • **Embedded Flex-10 LOM** in G6 and i2 server blades • **FC HBA mezzanine** in slot 1 for all server blades • If **additional VC modules** are installed in bays 5-8, then additional CNA or FC HBA mezzanine slot 2 or later depending on the VC module type.	All Blades must have either Flex-10 or FlexFabric LOMs. Combination of ProLiant Server Blades G6, G7 and Gen8 and Integrity Server Blades i2 and i4 only. If G6 Blades are in the mix (or will be) of blades, then FlexFabric modules in bays 1-2 cannot be configured for FCoE.

[1] For a list of server blade models, see Table 2: "CloudSystem Matrix supported server blades" (page 8).

[2] The HP Virtual Connect 8Gb 20-Port Fibre Channel Module is supported in a field Matrix conversion but cannot be ordered as part of a new configuration.

[3] To increase bandwidth, additional VC modules may be added but must be matched to an additional mezzanine card on each server blade. Do not mix different types of VC FC modules in the same enclosure. Do not mix VC Flex-10 modules with VC Flex-10/10D modules in the same enclosure.

[4] To support SAN connectivity to G6 and i2 server blades, VC FlexFabric modules in bays 3 and 4 are required.

IMPORTANT: Empty interconnect bays should always be filled with blanks for proper airflow and cooling.

HP CloudSystem Matrix enclosures

CloudSystem Matrix supports the following enclosures:

- HP BladeSystem c7000 Platinum Enclosure
- HP BladeSystem c7000 Enclosure

NOTE: HP Intelligent Series Racks with the location discovery service provide detailed location information to ProLiant Gen8 servers to track new installations and equipment moves. To use the location discovery service, the HP BladeSystem c7000 Platinum Enclosure and an Intelligent Series rack with a location discovery kit are required.

HP c-Class server blades

Table 2: CloudSystem Matrix supported server blades (page 8) indicates which server blades can be used in CloudSystem Matrix kits. For consideration of mixing server blade models in the same enclosure, see Table 1: CloudSystem Matrix supported configurations (page 6).

All server blade models are supported in either the HP CloudSystem Matrix kit for ProLiant or HP CloudSystem Matrix kit with HP-UX.

Table 2 CloudSystem Matrix supported server blades

Server generation	Server model
HP Integrity i4	HP Integrity BL860c i4 HP Integrity BL870c i4 HP Integrity BL890c i4
HP Integrity i2	HP Integrity BL860c i2 HP Integrity BL870c i2 HP Integrity BL890c i2
HP ProLiant Gen8	HP ProLiant BL420c Gen8 HP ProLiant BL460c Gen8 HP ProLiant BL465c Gen8 HP ProLiant BL660c Gen8 HP ProLiant WS460c Gen8
HP ProLiant G7	HP ProLiant BL460c G7 HP ProLiant BL465c G7 HP ProLiant BL490c G7 HP ProLiant BL620c G7 HP ProLiant BL680c G7 HP ProLiant BL685c G7
HP ProLiant G6	HP ProLiant BL280c G6 HP ProLiant BL460c G6 HP ProLiant BL465c G6 HP ProLiant BL490c G6 HP ProLiant BL495c G6 HP ProLiant BL685c G6
HP ProLiant G5	HP ProLiant BL460c G5 HP ProLiant BL465c G5 HP ProLiant BL495c G5 HP ProLiant BL680c G5 HP ProLiant BL685c G5

HP mezzanine adapter options

This section defines mezzanine adapters for server blades that HP supports.

Table 3 FC Host Bus Adapter (HBA) mezzanine adapters

Mezzanine adapters	ProLiant G5 server blades	ProLiant G6 and G7 server blades	ProLiant Gen 8 server blades	Integrity i2 server blades	Integrity i4 server blades
HP QLogic QMH2562 8Gb FC HBA for HP c-Class BladeSystem HP Emulex LPe1205 8Gb FC HBA for HP c-Class BladeSystem		✓[1]		✓	✓
HP QLogic QMH2462 4Gb FC HBA for HP c-Class BladeSystem HP Emulex LPe1105-hp 4Gb FC HBA for HP c-Class BladeSystem	✓	✓			
HP QLogic QMH2572 8Gb FC HBA for HP c-Class BladeSystem HP Emulex LPe1205a-hp 8Gb FC HBA for HP c-Class BladeSystem			✓		
HP QLogic QMH2672 16Gb FC HBA for BladeSystem c-Class			✓		

[1] Not supported on the ProLiant BL465c G6 and BL495c G6 server blades.

Table 4 NIC/CNA and FlexibleLOM mezzanine adapters

Adapters	ProLiant G5 server blades	ProLiant G6 and G7 server blades	ProLiant Gen 8 server blades	Integrity i2 server blades	Integrity i4 server blades
NC325m PCI Express Quad Port Gigabit Server Adapter	✓	✓			
NC326m PCI Express Dual Port Gigabit Server Adapter	✓	✓[1]			
NC360m Dual Port 1GbE BL-c Adapter				✓	✓
NC364m Quad Port 1GbE BL-c Adapter				✓	✓
NC382m PCI Express Dual Port Multifunction Gigabit Server Adapter	✓	✓			
NC532m Dual Port 10GbE Multifunction BL-c Adapter	✓	✓		✓	✓
NC542m Dual Port Flex-10 10GbE BL-c Adapter		✓			
NC550m 10Gb 2-port PCIe x8 Flex-10 Ethernet Adapter	✓[2]	✓			
NC551m Dual Port FlexFabric 10Gb Converged Network Adapter		✓[3]		✓	✓
NC552m 10Gb 2-Port Flex-10 Ethernet Adapter		✓			✓
NC553m 10Gb 2-Port FlexFabric Converged Network Adapter		✓		✓[4]	✓[4]
HP Flex-10 10Gb 2-port 530M Adapter			✓		
HP FlexFabric 10Gb 2-port 534M Adapter			✓		
HP Flex-10 10Gb 2-port 552M Adapter			✓		

Table 4 NIC/CNA and FlexibleLOM mezzanine adapters *(continued)*

Adapters	ProLiant G5 server blades	ProLiant G6 and G7 server blades	ProLiant Gen 8 server blades	Integrity i2 server blades	Integrity i4 server blades
HP FlexFabric 10Gb 2-port 554M Adapter			✓		
HP Flex-10 10Gb 2-port 530FLB Adapter			✓		
HP FlexFabric 10Gb 2-port 534FLB Adapter			✓		
HP FlexFabric 10Gb 2-port 554FLB Adapter			✓		

[1] Not supported on HP ProLiant G7 server blades.

[2] Not supported on the ProLiant BL460c G5, BL465c G5, and BL685c G5 server blades.

[3] Not supported on the ProLiant BL460c G7, BL490c G7, BL620c G7, and BL680c G7 server blades.

[4] Requires HP-UX 11i v3 (11.31).

Extended infrastructure

HP CloudSystem Matrix includes a capability called extended infrastructure which manages any supported virtual machine (VM) host, including third-party servers, from an HP CloudSystem Matrix Central Management Server (CMS). Extended infrastructure provides provisioning of VM guests, capacity planning, and disaster recovery.

The hypervisor and system vendor determine the firmware version requirements for the VM hosts.

Supported HP servers

Extended infrastructure includes the following hardware in addition to the server blades listed in Table 2: CloudSystem Matrix supported server blades (page 8):

- HP DL-series servers are supported, based on the hypervisor vendor, when running as an HP VM host:
  - For Microsoft Windows Server: http://h18004.www1.hp.com/products/servers/windows/index.html
  - For VMware ESX: http://h18004.www1.hp.com/products/servers/vmware/supportmatrix/hpvmware.html
- HP supports Integrity servers when running as an HP Integrity VM host:
  - Integrity BL860c
  - Integrity BL870c
  - Integrity rx2660
  - Integrity rx3600
  - Integrity rx6600
  - Integrity rx7640
  - Integrity rx8640
  - Integrity rx2800 i2
  - Integrity rx2800 i4
  - Integrity rx2900 i4

- Superdome
- Superdome 2

Supported third-party servers

HP supports the third-party servers that are listed in the *HP Insight Management Support Matrix* at: http://www.hp.com/go/matrixoe/docs.

3 Enclosure and server blade firmware

This chapter provides enclosure and server firmware information for both ProLiant and Integrity server blades. The HP CloudSystem Matrix firmware definition consists of:

- ProLiant firmware from the HP Service Pack for ProLiant (SPP) 2013.09.0b, which is located at http://www.hp.com/go/spp/download. Unless otherwise indicated, all versions are in the HP 2013.09.0b SPP. The SPP 2013.09.0b hot fixes listed at http://www.hp.com/go/spp/download are also supported.

  For a list of SPP release contents for ProLiant:

  1. Go to http://www.hp.com/go/spp.
  2. Under Related Information, select **SPP Documentation.**
  3. Click the PDF under the Contents Report column for **Service Pack for ProLiant 2013.09.0b.** Some components such as Broadcom, Emulex, Mellanox, and QLogic have subcomponents. The versions for those subcomponents are listed in the SPP Release Notes.

- Integrity firmware from the HP SUM Integrity CloudSystem Matrix bundle, version 7.3.0.0. This bundle applies to all CloudSystem Matrix supported Integrity server blades. It includes OA, VC and I/O firmware for network mezzanines and HBAs. However, the embedded Serial Integrated Storage (SAS) firmware for the i4 server blades must be downloaded separately from http://www.hp.com/go/hpsc if the SAS version currently installed is 5.82. Otherwise it may be updated using the bundle.

Enclosure firmware

Table 5 Enclosure components

Component	Version
HP BladeSystem c7000 Enclosure Onboard Administrator	4.01[1]
HP Blade System c-Class Virtual Connect Firmware[2] Flex-10 10Gb Ethernet, 8Gb 20-port and 8Gb 24-port FC, and FlexFabric 10Gb/24-port Interconnect Modules	4.10

[1] OA 4.01 is for both ProLiant and Integrity server blades.

[2] The VC firmware package contains the specific firmware images for the various Interconnect modules and automatically updates the firmware on these modules when it is flashed. For Interconnect module-specific firmware version information, see the VC firmware release notes at http://www.hp.com/go/vcdocs.

HP ProLiant server blade firmware

Supported ProLiant server blade firmware versions are listed in the 2013.09.0b SPP. The following tables cross-reference adapter names and the smart component name found in the SPP.

Table 6 Network mezzanine adapters

Adapters	Smart component name in SPP
NC325m PCI Express Quad Port Gigabit Server Adapter NC326m PCI Express Dual Port Gigabit Server Adapter NC382m PCI Express Dual Port Multifunction Gigabit Server Adapter NC532m Dual Port 10GbE Multifunction BL-c Adapter HP Flex-10 10Gb 2-port 530M Adapter[1] HP FlexFabric 10Gb 2-port 534M Adapter[1]	HP NC-Series Broadcom Online Firmware Upgrade Utility[2]
NC542m Dual Port Flex-10 10GbE BL-c Adapter	HP NC-Series Mellanox Online Firmware Upgrade Utility
NC550m 10GbE 2-port PCIe x8 Flex-10 Ethernet Adapter NC551m Dual Port FlexFabric 10Gb Converged Network Adapter NC552m 10Gb 2-Port Flex-10 Ethernet Adapter NC553m 10Gb 2-Port FlexFabric Converged Network Adapter HP Flex-10 10Gb 2-port 552M Adapter [1] HP FlexFabric 10Gb 2-port 554M Adapter[1]	HP Firmware Flash for Emulex Fibre Channel Host Bus and Converged Network Adapters

[1] This adapter is only supported on Gen8 server blades listed in "HP c-Class server blades " (page 8).

[2] For version numbers, search for the component on www.hp.com and then select the Release Notes tab.

Table 7 FC HBA mezzanine adapters

Adapters	Smart component name in SPP
HP QLogic QMH2462 4Gb FC HBA HP QLogic QMH2562 8Gb FC HBA HP QLogic QMH2572 8Gb FC HBA HP QLogic QMH2672 16Gb FC HBA	HP Firmware Flash for QLogic Fibre Channel Host Bus Adapters
HP Emulex LPe1105-hp 4Gb FC HBA	HP Firmware Flash for Emulex Fibre Channel Host Bus and Converged Network Adapters
HP Emulex LPe1205 8Gb FC HBA HP Emulex LPe1205a-hp 8Gb FC HBA	HP Firmware Flash for Emulex Fibre Channel Host Bus and Converged Network Adapters - Linux

Table 8 Ethernet integrated adapters and FlexibleLOMs

Server blades	Adapters	Smart component name in SPP
HP ProLiant BL280c G6	NC362i Integrated Dual Port BL-c Gigabit Server Adapter	N/A, included in system ROM
HP ProLiant BL680c G5 HP ProLiant BL685c G5	NC326i Integrated Dual Port PCI Express Gigabit Server Adapter	HP NC-Series Broadcom Online Firmware Upgrade Utility[1]
HP ProLiant BL465c G5 HP ProLiant BL465c G6	NC370i Multifunction Network Adapter	
HP ProLiant BL460c G5 HP ProLiant BL680c G5 HP ProLiant BL685c G5	NC373i Integrated Multifunction Gigabit Server Adapter	
HP ProLiant BL495c G5 HP ProLiant BL460c G6 HP ProLiant BL490c G6 HP ProLiant BL495c G6 HP ProLiant BL685c G6	NC532i Dual Port Flex-10 10GbE Multifunction Server Adapter	
HP ProLiant BL460c G7 HP ProLiant BL465c G7 HP ProLiant BL490c G7 HP ProLiant BL620c G7 HP ProLiant BL680c G7 HP ProLiant BL685c G7	NC551i Dual Port FlexFabric 10Gb Converged Network Adapter[2] NC553i Dual Port FlexFabric 10Gb Converged Network Adapter[2]	HP Firmware Flash for Emulex Fibre Channel Host Bus and Converged Network Adapters
HP ProLiant BL420c Gen8 HP ProLiant BL460c Gen8 HP ProLiant BL465c Gen8 HP ProLiant BL660c Gen8	HP Flex-10 10Gb 2-port 530FLB Adapter	HP NC-Series Broadcom Online Firmware Upgrade Utility[1]
	HP FlexFabric 10Gb 2-port 534FLB Adapter[3, 4]	
	HP FlexFabric 10Gb 2-port 554FLB Adapter	HP Firmware Flash for Emulex Fibre Channel Host Bus and Converged Network Adapters

[1] For version numbers, search for the component on www.hp.com and then select the Release Notes tab.

[2] This adapter is compatible with FlexFabric and Flex-10. FC over Ethernet capability requires the HP CloudSystem Matrix FlexFabric starter and expansion kit.

[3] This adapter is not supported on ProLiant BL465c Gen8 server blades.

[4] Insight Control server provisioning does not support this adapter in an FCoE or iSCSI configuration.

HP Integrity server blade firmware

Supported Integrity server blade firmware versions are contained in the HP SUM Integrity CloudSystem Matrix bundle, version 7.3.0.0. This bundle applies to all CloudSystem Matrix supported Integrity server blades. It includes OA, VC, and I/O firmware for network mezzanines and HBAs. See the Release Notes for this bundle for version information. The embedded SAS firmware for the i4 server blades must be downloaded separately from http://www.hp.com/go/hpsc if the SAS version currently installed is 5.82 (otherwise the bundle may be used). The versions are listed in Table 13: "Integrated SAS controller" (page 16). See the *HP CloudSystem Matrix Release Notes* for installation instructions.

Table 9 Server blade firmware

Server blade model	Smart component name in bundle
HP Integrity BL860c i4 Server Blade HP Integrity BL870c i4 Server Blade HP Integrity BL890c i4 Server Blade	CloudSystem Matrix Firmware Bundle for HP Integrity BL860c/BL870c/BL890c i2 and i4 Servers
HP Integrity BL860c i2 Server Blade HP Integrity BL870c i2 Server Blade HP Integrity BL890c i2 Server Blade	

Table 10 Network mezzanine adapters

Component	Smart component name in bundle
NC360m Dual Port 1GbE BL-c Adapter	HP Firmware Flash Component for Intel and Broadcom Adapters for HP Integrity servers
NC364m Quad Port 1GbE BL-c Adapter	
NC532m Dual Port 10GbE Multifunction BL-c Adapter	• HP Firmware Flash Component for Intel and Broadcom Adapters for HP Integrity servers if IEXGBE-DRV revision is lower than B.11.31.1303. • HP Firmware Flash Component for Broadcom NIC for HP Integrity servers – HP-UX if IEXGBE-DRV revision is B.11.31.1303 or greater.
NC551m Dual Port FlexFabric 10Gb Converged Network Adapter	HP Firmware Flash Component for Emulex Adapters Firmware for HP Integrity servers
NC552m 10Gb 2-Port Flex-10 Ethernet Adapter	
NC553m Dual Port FlexFabric 10Gb Converged Network Adapter[1]	

[1] Supported on Integrity server blades with HP-UX 11i v3 (11.31)

Table 11 FC HBA mezzanine adapters

Component	Smart component name in bundle
QLogic QMH2562 8Gb FC HBA for HP c-Class BladeSystem	Firmware Flash Component for Qlogic Fibre Channel Host Bus Adapters Firmware HP Integrity servers
Emulex LPe1205-hp 8Gb FC HBA for HP c-Class BladeSystem	Firmware Flash Component for Emulex Adapters Firmware for HP Integrity Servers

Table 12 Integrated network adapters

Server blade model	Component	Smart component name in bundle
HP Integrity BL860c i2 Server Blade HP Integrity BL870c i2 Server Blade HP Integrity BL890c i2 Server Blade	NC532i Dual Port Flex-10 10GbE Multifunction Server Adapter	• HP Firmware Flash for Intel and Broadcom Adapters for HP Integrity servers if IEXGBE-DRV revision is lower than B.11.31.1303. • HP Firmware Flash Component for BL8x0c i2 LOM – HP-UX if IEXGBE-DRV revision is B.11.31.1303 or greater.
HP Integrity BL860c i4 Server Blade HP Integrity BL870c i4 Server Blade HP Integrity BL890c i4 Server Blade	HP NC553i 10Gb 2-port FlexFabric Converged Network Adapter	Firmware Flash component for BL8x0c i4 LOM – HP-UX

Table 13 Integrated SAS controller

Component	Server blade model	Version/Smart component name
Smart Array P410i	HP Integrity BL860c i4 Server Blade HP Integrity BL870c i4 Server Blade HP Integrity BL890c i4 Server Blade	Firmware Flash Component for BL8x0c i4 p410i. • If the existing version is 5.84 or greater, the latest firmware is available on the HP SUM Integrity CloudSystem Matrix bundle. • If the existing version is 5.82 or earlier, use the following versions: EFI: 3.54 Firmware: 6.22[1]
	HP Integrity BL860c i2 Server Blade HP Integrity BL870c i2 Server Blade HP Integrity BL890c i2 Server Blade	Firmware Flash Component for BL8x0c i2 p410i

[1] This version is not on the HP SUM Integrity CloudSystem Matrix bundle. See the *HP CloudSystem Matrix Release Notes* for installation instructions.

4 Storage

HP CloudSystem Matrix supports the use of virtual and physical logical servers. Physical logical servers use storage provisioned from the SAN for flexible movement. HP supports local disk boot for physical servers through HP Matrix Operating Environment infrastructure orchestration, but recommends boot-from-SAN for maximum flexibility.

Server blade deployments

Remove or disable any local disks to realize the benefits of VC logical servers, including the ability to move logical servers and to easily repurpose server blades associated with inactive logical servers.

HP recommends FC SAN with boot from SAN capability for physical server blade deployments. Boot and data volumes can be:

- pre-provisioned LUNs (logical unit number identified storage volumes) or
- on-demand provisioned through integration with the HP Storage Provisioning Manager (SPM), including automated zoning in a Brocade SAN environment with suitable SMI-S instrumentation

Whether pre-provisioned or on-demand provisioned, the storage is managed through logical server storage pool entries. Matrix can either auto-generate or manually create these storage pool entries based on the storage definitions in the infrastructure orchestration service templates.

Storage and switch recommendations

FC SAN

To use FC storage, the customer must provide connectivity to a compatible FC SAN array. The storage vendor generally certifies end-to-end support for a FC storage device. See the vendors' support documentation for details. The FC SAN array must meet the following minimum requirements:

- The storage vendor must certify the storage device to work with the HP VC modules and HBAs (or CNAs), as well as the operating systems and hypervisors, that HP CloudSystem Matrix will use.
- The storage device must support boot from SAN.
- The storage device must support N_Port ID Virtualization (NPIV).
- The storage device must be able to present LUNs on the storage fabric without requiring visibility to the HBA initiator.

Customer-supplied FC switches to an external SAN must support boot from SAN and NPIV functionality.

For more information on HP storage or third-party FC SAN arrays certified for HP BladeSystem c-Class servers, see http://h18004.www1.hp.com/products/blades/components/c-class-sans.html.

For more information on support for FC switches and storage devices that VC supports, see http://www.hp.com/storage/spock. Simple registration is required. Following login, navigate to **Other Hardware→Virtual Connect→HP VC 8Gb 24-Port Module**.

A list of supported HP storage solutions is listed in Table 14: HP Fibre Channel storage support (page 18). For supported storage operating systems such as 3PAR OS or P6000 Command View Software, see the Supported storage hardware table in the *HP Insight Management Support Matrix* at http://www.hp.com/go/insightmanagement/docs.

Table 14 HP Fibre Channel storage support

HP storage solution	Pre-provisioned FC storage	Storage validation	On-demand provisioning via SPM[1]	Matrix recovery management[2]
HP 3PAR StoreServ Storage [3] • F-Class • T-Class • StoreServ 10000 • StoreServ 7000	√		√[4]	√[5]
HP EVA P6000 Storage • 4x00/6x00/8x00 • P6300/P6500 • P6350/P6550	√	√	√[4]	√[6]
HP XP P9000 Storage [7, 8] • XP10000 • XP12000 • XP20000 • XP24000 • P9500	√			√[9]
HP MSA Storage • HP MSA 2040 • P2000 G3 FC	√	√		

[1] On-demand provisioning is also supported for the EMC Symmetrix VMAX storage arrays through the HP SPM adapter.

[2] Requires an array per site, in conjunction with HP Continuous Access replication software.

[3] SPM supports 3PAR FC and provides varied support for a number of 3PAR options such as Virtual Domains, Autonomic Groups, and Peer Motion. For more information, see the *HP Storage Provisioning Manager (SPM) User Guide* and white papers at http://www.hp.com/go/matrixoe/docs.

[4] Include automated zoning of Brocade SAN environments via SMI-S provider. Brocade fabric with HP B-series SAN Network Advisor 11.1.3 or Brocade Network Advisor 11.1.3 or 11.1.4 is required.

[5] Remote Copy Synchronous or Asynchronous replication is required. HP 3PAR Cluster Extension Software version 2.0 or later is required. See http://www.hp.com/go/clx.

[6] Continuous Access Synchronous or Asynchronous Replication software is required.

[7] XPs that SPM manages must have both FC and network connectivity to the CMS.

[8] Storage Provisioning Manager supports XP storage solutions for automated catalog import and presentation, but does not support on-demand provisioning.

[9] Continuous Access Synchronous and Asynchronous Replication is required. HP P9000 Cluster Extension Software version 3.01 or later is required. See http://www.hp.com/go/clx.

iSCSI SAN

iSCSI is supported only as a virtual backing store (not a physical server booting from iSCSI or a virtual machine directly accessing raw iSCSI LUNs). To use iSCSI, the customer must provide connectivity to a compatible iSCSI SAN. As with FC storage, the storage vendor generally certifies end-to-end support for an iSCSI storage device.

HP CloudSystem Matrix supports the following iSCSI initiators, provided that the versions of operating systems, hypervisors, physical servers and associated I/O cards, and firmware are listed in this *HP CloudSystem Matrix Compatibility Chart*:

- VMware iSCSI software initiator included with the VMware ESX hypervisor
- Microsoft iSCSI software initiator included with the Microsoft Hyper-V hypervisor
- Only iSCSI storage devices that the storage vendor certifies, from the OS/hypervisor through the initiator (or HBA) to the iSCSI target. Please see the iSCSI storage vendor's documentation.

NOTE: VMware and Microsoft independently certify third-party devices with their respective operating systems, hypervisors, and iSCSI initiators. Confirmation of device support by the hypervisor vendor is a prerequisite to support in HP CloudSystem Matrix.

iSCSI targets as backing storage for VM guests

HP recommends the following iSCSI targets as backing storage for virtual machine guests:

iSCSI targets	See
HP 3PAR StoreServ 7000 iSCSI	www.hp.com/go/storeserv
HP StoreVirtual: • HP 4300 G2 • HP 4500 G2 • HP 4800 G2	www.hp.com/go/storevirtual

Other iSCSI targets certified and supported by the storage vendor and Microsoft Hyper-V and VMware ESX. See storage vendor's documentation.

VM guest storage

HP CloudSystem Matrix supports managing VM guests as logical servers using storage from various technologies as supported by the hypervisor.

HP CloudSystem Matrix automatically provisions logical servers to VMs backed by files in the hypervisor file systems. Supported storage for hypervisors include FC, iSCSI, local disk, and, for VMware only, NFS. Provision hypervisors independently from Matrix, or use Matrix to provision a logical server as the hypervisor. When using iSCSI or NFS for VM backing store, manually create the storage volume and present it to the hypervisor. Matrix infrastructure orchestration can automatically associate FC storage pool entries to the hypervisor logical server.

VM guest storage options

Table 15 VM guest storage options

Storage type	VMware VM			Microsoft Hyper-V VM		Integrity VM[1]	
	VM File System (VMFS)[2]	Raw Disk Mapping (RDM)	Network File System (NFS)	NTFS[2]	Disk Pass-Through (RDM)	SLVM with Serviceguard (SG)[3]	SAN-based (or NPIV-based)[4]
FC	√	√[5]		√	√[5, 6]	√	√[5]
iSCSI	√[7, 8, 9]		√[8, 10]				
DAS	√[10]			√[10]			
SAS	√[10]			√[10]			
Network Attached Storage (NAS)			√[10]				

[1] Integrity VM guest must have an HP-UX operating system type. Windows and Linux guests are not supported.

[2] All virtual disks on a given VM must reside in the same datastore as the VM itself.

[3] Serviceguard version A.11.20

[4] Integrity VM only supports NPIV for the Emulex HBA and not the CNA.

[5] VMware RDM, Hyper-V Disk Pass-Through, and Integrity VM SAN/NPIV-based disks are not supported for shared data disks. They are supported for boot or private data disks, but cannot be shared among VMs.

[6] Non-High Availability (HA) VMs with non-cluster Disk Pass-Through are supported without limitations. High Availability VMs are only supported with pass-through cluster disks if Maintenance Mode is turned on for those disks (using Microsoft Failover Cluster Manager) before any provisioning or deactivate/reactivate operations. Maintenance Mode can be turned off after successful provisioning, OS installation, and activation (or reactivation).

[7] Matrix recovery management only supports 3PAR StoreServ iSCSI as a VM backing store.

[8] The customer must provide connectivity to a compatible iSCSI SAN. End-to-end support for iSCSI storage use by the hypervisor is generally certified by the storage vendor.

[9] Supported for VMware ESXi 5.0 Update 2 and later.

[10] Not supported by Matrix recovery management.

All Integrity VM logical server operations are supported on SLVM with SG and SAN-based (or NPIV-based) storage types. Only the following operations are supported for whole LUNs:

- Import
- Online move
- Power on/off
- Unmanage
- SAN move

Flat SAN

Matrix Operating Environment supports the use of Flat SAN technology by several hypervisors to direct connect from the FlexFabric module to an HP 3PAR StoreServ Storage System. The following configurations for each hypervisor are supported:

- VMware (standalone and clustered): VMs using file-based and/or RDM volumes from Flat SAN connected 3PAR (hypervisor configured to use Flat SAN out-of-band to Matrix)
- Hyper-V (standalone and clustered): VMs using file-based and/or Disk Pass-Through volumes from Flat SAN connected 3PAR (hypervisor configured to use Flat SAN out-of-band to Matrix)
- Integrity VMs: VMs using file-based and SAN-based LUNs through AVIO (hypervisor configured to use Flat SAN out-of-band to Matrix, AVIO SAN-based LUNs configured out-of-band to

Matrix, and Matrix only provisions NPIV-based LUNs); Flat SAN requires FlexFabric modules. Integrity VM does not support NPIV for the Converged Network Adapters.

HP CloudSystem Matrix does not provision volumes for physical servers from the direct connect HP 3PAR StoreServ Storage System.

5 Management servers

This chapter defines the hardware and software requirements for each management server.

A Central Management Server is required in an HP CloudSystem Matrix environment. The following products are available as options and each require a management server that is separate from the CMS:

- HP Matrix KVM Private Cloud provides ProLiant customers the ability to provision VM instances on KVM hosts in a virtual data center (a cloud). It provides automatic detection and accelerated integration of KVM hosts, and includes a health monitoring subsystem to provide up-to-date information about KVM hosts. For more information, see the *HP Matrix 7.2 KVM Private Cloud Getting Started Guide* from http://www.hp.com/go/matrixoe/docs .
- HP Insight Control server provisioning is a replacement for HP Insight Control server deployment, although the two applications can co-exist provided they are on different networks. Insight Control server provisioning is a virtual appliance used to install and configure HP ProLiant servers. Insight Control server provisioning uses resources such as OS Build Plans and scripts to run deployment jobs. The appliance can be configured in either single NIC configuration where two IP addresses share the same NIC, or a dual NIC configuration where each IP is on a separate NIC. See HP Insight Control server provisioning documentation at http://www.hp.com/go/insightcontrol/docs.

NOTE: As of CloudSystem Matrix 7.3, HP Insight Control server deployment has been removed from the DVD media and is only available as a separate download and purchase. For more information about Insight Control server deployment, see www.hp.com/go/insightupdates.

Central Management Server

CMS hardware

HP offers a choice between rack-mounted ProLiant server (DL or ML) or ProLiant server blade (BL) as the CMS host for HP CloudSystem Matrix. HP recommends a rack-mounted ProLiant server as the CMS host so customers can use all available and licensed enclosure server blade bays for managed target server blades and workloads. See the *HP Insight Management Support Matrix* for more information.

The CloudSystem Matrix server blade firmware recipe described in "Enclosure and server blade firmware" (page 12) pertains to a server blade hosting a CMS. Specific firmware updates are not necessary for an HP ProLiant rack-mounted server hosting a CMS. Consult your HP sales representative for specifications for an appropriate rack-mounted server to host the CMS.

CMS software

HP does not support Insight Management on a VM guest in an HP CloudSystem Matrix production environment.

CMS operating system

Table 16 CMS operating system versions

Operating system[1, 2]	Version
Microsoft Windows Server 2012 R2, Standard Edition	Initial release
Microsoft Windows Server 2012, Standard Edition	Initial release
Microsoft Windows Server 2012 R2, Data Center Edition[3]	Initial release
Microsoft Windows Server 2012 Data Center Edition[3]	Initial release

Table 16 CMS operating system versions *(continued)*

Operating system[1, 2]	Version
Microsoft Windows Server 2008 R2, Enterprise Edition	SP1 Initial release
Microsoft Windows Server 2008, Enterprise Edition	SP2: x64
Microsoft Windows Server 2008 R2, Standard Edition	SP1 Initial release
Microsoft Windows Server 2008, Standard Edition	SP2: x64

[1] CMS clustering requires Windows Server 2008 R2 Enterprise Edition, Windows Server 2008 R2 SP1 Enterprise Edition, Windows Server 2012 Standard Edition, or Windows Server 2012 R2. Microsoft Windows Server 2012 (or 2012 R2) Standard Edition is recommended. For information on setting up a Failover Cluster environment for the CMS, see the *Installing and Upgrading HP Insight Management 7.3 on Windows Server 2012 Failover Clusters* at http://www.hp.com/go/matrixoe/docs.
For information on setting up a Failover Cluster environment for the CMS, see the *Installing and Upgrading HP Insight Management on Windows Server 2012 Failover Clusters* , which is located at http://www.hp.com/go/matrixoe/docs.

[2] For optimal performance and scalability, HP recommends Microsoft Windows Server 2012 Standard Edition.

[3] Insight Control server deployment does not support this operating system.

HP Insight Management DVD

The HP Insight Management DVD contains the Insight Management 7.3 software and contains the tools to install Insight Remote Support.

Other prerequisite software

Table 17 (page 23) lists the minimum requirements of non-OS software on the CMS.

Table 17 Other prerequisite software

Software product	Version	Notes
Microsoft .NET Framework[1, 2]	2.0 SP1	If .NET 2.0 SP1 is not already installed, the HP Insight Management Installer installs it. This is a requirement of the HP Insight Management Installer and of Matrix infrastructure orchestration.
	3.5 SP1	This is required when using the Microsoft SQL Server 2008 R2 Express SP2 database server from the Installation DVD. This is also a requirement of Matrix infrastructure orchestration and the HP Matrix Operating Environment.
	4.0	This is a requirement of the HP Insight Control server deployment and the HP Storage Provisioning Manager.
ASP.NET service	4.0	This is a requirement of HP Insight Control server deployment.
Adobe Acrobat Reader		You must have Adobe Acrobat Reader to read PDF files and documents shipped on HP Insight Management DVD #1. This free reader is available at: http://get.adobe.com/reader.
Adobe Flash Player	11	Insight Management requires Adobe Flash Player, which is included with Systems Insight Manager on the Insight Management 7.3 DVD. All Flash players are only for x86 browsers. You can run an x86 browser on an x64 OS.
Microsoft Silverlight [3]	5.0.61118.0	HP Storage Provisioning Manager requires the Silverlight application framework.

Table 17 Other prerequisite software *(continued)*

Software product	Version	Notes
Microsoft iSCSI Software Initiator		Insight Control server migration requires iSCSI Software Initiator.
TCP/IP with DNS installed		Installed system names must resolve to an IP address, and IP addresses must resolve to system names.
Windows Installer	4.5 or later	This is a requirement for the installation or upgrade of the database packaged in the DVD. This is a requirement of Microsoft SQL Server 2008 R2 Express SP2.

[1] Microsoft .NET Framework 4.0 can be installed and present on the CMS, but it cannot be set as the default.

[2] The Insight Management DVD only includes Microsoft .NET 2.0 SP1. All other versions must be installed separately.

[3] Microsoft Silverlight does not support the Firefox browser on a Windows Server 2008 R2 operating system.

CMS supported databases

Table 18 Supported databases

Database name and version[1]	Supported as a local database	Supported as a remote database
Microsoft SQL Server (unless otherwise noted, both 32-bit and 64-bit versions are supported)		
Microsoft SQL Server 2008 Standard SP3[2]	✓	✓
Microsoft SQL Server 2008 R2 Standard SP2[2]	✓	✓
Microsoft SQL Server 2008 Enterprise SP3[2]	✓	✓
Microsoft SQL Server 2008 R2 Enterprise SP2[2]	✓	✓
Microsoft SQL Server 2008 R2 Express SP2 (32-bit only)[3]	✓	
Microsoft SQL Server 2012 Standard SP1 [2]	✓	✓
Microsoft SQL Server 2012 Enterprise SP1 [2]	✓	✓

[1] A clustered CMS requires a clustered instance of Microsoft SQL Server 2008 R2 Enterprise SP2, SQL Server 2012 Enterprise SP1 or SQL Server 2012 Standard SP1 edition. The instance may run in the CMS cluster or in another cluster that is a member of the same domain as the CMS cluster.

[2] Supports up to 5,000 systems and 50,000 events.

[3] Supports up to 500 systems and 5,000 events.

HP Matrix KVM Private Cloud

As part of the CloudSystem Matrix solution, the HP Matrix KVM Private Cloud is an optional VM appliance that is hosted on a physically separate and dedicated KVM management host or cluster for environments with KVM resource pools. It enables the provisioning of virtual machine instances on KVM hosts in a virtual data center (a cloud) using Matrix infrastructure orchestration templates and self-service portal processes.

For hardware requirements, see the *HP Insight Management Support Matrix* at http://www.hp.com/go/matrixoe/docs for more information. HP Matrix KVM Private Cloud runs on a RHEL 6.3 with KVM or RHEL 6.4 with KVM operating system.

HP Insight Control server provisioning

Insight Control server provisioning is a replacement for HP Insight Control server deployment. Insight Control server provisioning is a virtual appliance that is used to install and configure HP ProLiant servers. IC server provisioning allows you to:

- Install Windows and Linux on ProLiant servers
- Update drivers, utilities, and firmware on ProLiant servers using the HP Service Packs for ProLiant (SPPs)
- Configure ProLiant system hardware, iLOs, BIOS, HP Smart Array, and Fibre Channel HBA
- Deploy to target servers without using PXE (HP ProLiant Gen8 and later)

  NOTE: Gen8 server deployments without PXE can only be initiated from the IC server provisioning appliance. PXE–less deployment is not supported by Matrix infrastructure orchestration.

- Run deployment jobs on multiple servers simultaneously
- Customize your ProLiant deployments via an easy to use browser-based interface

Insight Control server provisioning runs on a VMware vSphere/ESXi or Microsoft Hyper-V operating system. It also requires VMware vSphere Client with VMware Tools. For managed node hardware and operating system support, see the *HP Insight Management Support Matrix* at http://www.hp.com/go/matrixoe/docs for more information.

Additional management server requirements

This section defines other management server requirements for all management servers (CMS, Matrix KVM Private Cloud, and Insight Control server provisioning).

Supported browsers

Browser[1], [2]	**Version**
Microsoft Internet Explorer	8.0[3, 4]
	9.0
	10.0[5]
	11.0[6]
Mozilla Firefox [7, 8, 9]	17.0.x ESR
	24.0 ESR

[1] In addition to the browsers listed, Insight Control server provisioning also supports the use of Google Chrome (version 28 or higher) as part of its integration with HP's next generation products.

[2] Windows Server 2012 R2 only supports Internet Explorer version 10 and the bundled version 11.

[3] For Insight Control power management to operate properly, you must install the SSL certificate.

[4] This browser is not supported for Insight Control server provisioning.

[5] To access the Matrix Operating Environment using Windows Server 2012, turn on the Desktop Experience feature in Windows Programs and Features.

[6] This browser is not supported by Insight Control server provisioning or Insight Control server deployment.

[7] This browser is not supported for Insight Control server deployment.

[8] Linux and Microsoft Windows systems support Firefox.

[9] HP Storage Provisioning Manager requires that the browser runs on a Windows platform.

Recommended screen resolution

The minimum supported resolution for all management servers is 800 x 600 pixels. For the Insight Control server provisioning appliance, the minimum supported screen resolution is 1024 x 768. For optimum performance, the screen size should be at least 1280 × 1024 pixels for desktop monitors, or 1280 × 800 for laptop displays.

Supported deployment services

HP CloudSystem Matrix integrates with several deployment services to enable seamless application provisioning and lifecycle management. The Insight Management CMS installation process allows the use of up to two deployment services provided that one of the services is HP Ignite-UX. Consult the documentation for each deployment service for supported deployment environments. Chapter 6 of this document includes the environments that Insight Control server deployment software supports.

Table 19 Supported deployment services

Deployment services	Version
HP Cloud Service Automation (CSA)	See http://support.openview.hp.com/selfsolve/manuals. Login and select **Cloud Service Automation**.
HP Cloud Service Automation for Matrix (including HP Server Automation (SA) and SiteScope)	Feb 2012
HP SA	9.05 9.06 9.1 Satellite 9.10 9.11 9.12 9.13 9.14 9.15 10.0
HP Ignite-UX	C.7.16.283 for 1303 C.7.15.254 for 1209
HP Insight Control server deployment	7.2.2[1]
HP Insight Control server provisioning	7.2.2

[1] As of CloudSystem Matrix 7.3, HP Insight Control server deployment has been removed from the DVD media and is only available as a separate download and purchase. For more information about Insight Control server deployment, see www.hp.com/go/insightupdates.

6 Managed system software

HP ProLiant managed systems

This section defines the managed systems for the CMS, Matrix KVM Private Cloud, and Insight Control server provisioning for ProLiant servers. CMS and Insight Control server provisioning are defined in the following tables. For Matrix KVM Private Cloud, see "HP Matrix KVM Private Cloud managed system" (page 33).

HP recommends using the 2013.09.0b SPP. If using the 2013.09.0b SPP, it must be used for the CMS and all managed nodes.

Table 20 Managed system operating system support

Operating system	Version	Insight Control server deployment[1]	Insight Control server provisioning[2]
Microsoft Windows Standard Editions			
Windows Server 2012 R2, Standard Edition[3]	Initial release	√	√[4]
Windows Server 2012, Standard Edition[3]	Initial release	√	√
Windows Server 2008, Standard Edition	SP2	√	√
Windows Server 2008 R2, Standard Edition	Initial release	√	
	SP1	√	√
Microsoft Windows Datacenter Editions			
Windows Server 2012 R2, Datacenter Edition[3]	Initial release	√[5]	√[4]
Windows Server 2012, Datacenter Edition[3]	Initial release	√[5]	√
Windows Server 2008, Datacenter Edition	SP2	√	√
Windows Server 2008 R2, Datacenter Edition	Initial release	√	
	SP1	√	√
Microsoft Windows Enterprise Editions			
Windows Server 2008, Enterprise Edition	SP2	√	√
Windows Server 2008 R2, Enterprise Edition	Initial release	√	
	SP1	√	√
Microsoft Windows Web Servers			
Windows Server 2008 R2, Web Server	Initial release	√	
	SP1	√	√
Windows Server 2008, Web Server	SP2	√	√
Red Hat Enterprise Linux (RHEL)			
Red Hat Enterprise Linux 5	5.8	√	
	5.9	√	√[6]
Red Hat Enterprise Linux 6	6.3	√	√[7]
	6.4	√	√
SUSE Linux Enterprise Server (SLES)			

Table 20 Managed system operating system support *(continued)*

Operating system	Version	Insight Control server deployment[1]	Insight Control server provisioning[2]
SUSE Linux Enterprise Server 10	SP4	√	
SUSE Linux Enterprise Server 11	SP1[8]	Upgrades only[9]	
	SP2[8, 10]	√	√
	SP3[8]	√	√

[1] Insight Control server deployment supports only PXE-based deployments.

[2] Insight Control server provisioning only supports 64–bit OS versions.

[3] Only G7 and Gen8 server blades support Windows 2012 operating systems.

[4] Insight Control server provisioning does not provide OS Build Plans for Windows 2012 R2. See *Insight Control server provisioning How to Create an OS Build Plan for Installing Windows 2012 R2* white paper for more information.

[5] This OS is supported with a localized distribution. See KB article *How To Add A Windows Localized Distribution Or Edition* at http://rdp.usa.hp.com/rdpkb/articles/20000043.asp

[6] To configure SAN multipath devices, *mpath* is required for the `kernel_arguments` custom attribute.

[7] Insight Control server provisioning does not support RHEL 6.3 on any Gen8 server configured with an Intel EP v2 Xeon processor.

[8] SLES 11 SP1, SP2, and SP3 requires an errata to support G7 with AMD Opteron 6200 series processors and Gen8 servers. See http://h18004.www1.hp.com/products/servers/linux/supportmatrix/sles/exceptions/sles-exceptions.html#BL.

[9] This operating system does not support AMD Opteron 6300 series processors.

[10] SLES 11 SP2 displays duplicate drives for servers with multiple paths.

Table 21 Hypervisor and guest operating system support

Hypervisor[1]	Supported guest OS	Insight Control server deployment of the hypervisor[2]	Insight Control server provisioning[3]
VMware vSphere (ESXi) 5.5[4]	Microsoft Windows and Linux OSs listed among managed system operating systems above *plus*: • RHEL 5.6, 5.7, and 6.1 emulated devices • SLES 10 SP4 • Microsoft Windows 2003 SP2 and R2 SP2 for Standard, Enterprise, Datacenter, and Web editions		√
VMware vSphere (ESXi) 5.1 Update 1[4]	Microsoft Windows and Linux OSs listed among managed system operating systems above *plus*: • RHEL 5.4, 5.5[5], 5.6, 5.7, 6.0, and 6.1 emulated devices • SLES 10 SP3 • Microsoft Windows 2003 SP2 and R2 SP2 for Standard, Enterprise, Datacenter, and Web editions	√	√

Table 21 Hypervisor and guest operating system support *(continued)*

Hypervisor[1]	Supported guest OS	Insight Control server deployment of the hypervisor[2]	Insight Control server provisioning[3]
VMware ESXi 5.0 Update 2[4]	Microsoft Windows and Linux OSs listed among managed system operating systems above *plus*: • RHEL 5.4, 5.5[5], 5.6, 5.7, 6.0, and 6.1 emulated devices • SLES 10 SP3 • Microsoft Windows 2003 SP2 and R2 SP2 for Standard, Enterprise, Datacenter, and Web editions	√[6]	√
Microsoft Windows Server 2012 with Hyper-V[7]	Microsoft OSs listed among managed system operating systems above plus Microsoft Windows 2003 SP2 and R2 SP2 for Standard, Enterprise, Datacenter, and Web editions. Only the following Linux operating systems: • RHEL 5.7, 5.8, 5.9, 6.0, 6.1, 6.2, and 6.3 • SLES 11 SP2 and SP3	√[8]	√
Microsoft Windows Server 2008 SP2 with Hyper-V[9]	Microsoft OSs listed among managed system operating systems above plus Microsoft Windows 2003 SP2 and R2 SP2 for Standard, Enterprise, Datacenter, and Web editions. Only the following Linux operating systems:[5] • RHEL 5.5, 5.6, 5.7, 5.8, 5.9, 6.0, 6.1, 6.2, and 6.3 • SLES 10 SP4 • SLES 11 SP1 and SP2	√[8]	√
Microsoft Windows Server 2008 R2 with Hyper-V[10, 11]		√[8]	
Microsoft Windows Server 2008 R2 SP1 with Hyper-V [10]		√[8]	√
Microsoft Hyper-V Server 2012	Microsoft OSs listed among managed system operating systems above plus Microsoft Windows 2003 SP2 and R2 SP2 for Standard, Enterprise, Datacenter, and Web editions. Only the following Linux operating systems:[5] • RHEL 5.7, 5.8, 5.9, 6.0, 6.1, 6.2, and 6.3 • SLES 11 SP2 and SP3	√[8]	
Microsoft Hyper-V Server 2012 R2	Microsoft OSs listed among managed system operating systems above plus Microsoft Windows 2003 SP2 and R2 SP2 for Standard, Enterprise, Datacenter, and Web editions. Only the following Linux operating systems:[5] • RHEL 5.5, 5.6, 5.7, 5.8, 5.9, 6.0, 6.1, 6.2, 6.3, and 6.4 • SLES 10 SP4 • SLES 11 SP1 and SP2	√	√
Microsoft Hyper-V Server 2008 SP2[10]	Microsoft OSs listed among managed system operating systems above plus Microsoft Windows 2003 SP2 and R2 SP2 for Standard, Enterprise, Datacenter, and Web editions.	√[8]	

Table 21 Hypervisor and guest operating system support *(continued)*

Hypervisor[1]	Supported guest OS	Insight Control server deployment of the hypervisor[2]	Insight Control server provisioning[3]
	Only the following Linux operating systems:[5] • RHEL 5.5, 5.6, 5.7, 5.8, 5.9, 6.0, 6.1, 6.2, and 6.3 • SLES 10 SP4 • SLES 11 SP1 and SP2		
Microsoft Hyper-V Server 2008 R2[10]	Microsoft OSs listed among managed system operating systems above plus Microsoft Windows 2003 SP2 and R2 SP2 for Standard, Enterprise, Datacenter, and Web editions. Only the following Linux operating systems:[5] • RHEL 5.5, 5.6, 5.7, 5.8, 5.9, 6.0, 6.1, 6.2, and 6.3 • SLES 10 SP4 • SLES 11 SP1 and SP2	√	
Microsoft Hyper-V Server 2008 R2 SP1[10]		√	

[1] Matrix recovery management only supports VMware ESX VM guests, standalone Hyper-V VM guests, and clustered Hyper-V VM guests on cluster shared volumes (CSV) in HP CloudSystem Matrix. Hyper-V 2008 SP2 is not supported. Hypervisor hosts are not supported for Disaster Recovery protection with Matrix recovery management, this includes hosts managed via a VC hosted logical server.

[2] Insight Control server deployment only supports PXE-based deployments.

[3] Insight Control server provisioning supports VM guest deployment for Linux and Windows OSs. However, Linux VM guest deployment to Hyper-V VM host is not supported. See *Insight Control server provisioning How to Deploy to a Virtual Machine* white paper for more information.

[4] For Matrix infrastructure orchestration, only the VMware AutoDeploy method can be used for full automation. Customers can also choose to manually install or manually deploy through Insight Control server deployment or Insight Control server provisioning.

[5] Red Hat Enterprise Linux 5.5 cannot be installed in VM guest on any ESX/ESXi host on server blades BL465c G7 and BL685c G7.

[6] RHEL 5.4, 5.5, 5.6, 5.7, 6.0, 6.1 and 6.2 are only supported when upgrading from a previous release of HP CloudSystem Matrix. Additionally, this operating system may only be deployed to servers that were supported by Insight Control server deployment for that release.

[7] Insight Control server migration does not support SLES 11 SP1 or earlier on Microsoft Windows Server 2012 with Hyper-V.

[8] RHEL 5.5, 5.6, 5.7, 6.0, 6.1, and 6.2 are only supported when upgrading from a previous release of HP CloudSystem Matrix. Additionally, this operating system can only be deployed to servers that Insight Control server deployment supported for that release.

[9] This hypervisor does not support Windows 2012.

[10] This hypervisor supports Windows 2012 Standard and Datacenter Editions as a guest with a patch downloaded from http://support.microsoft.com/kb/2744129.

[11] Microsoft Windows 2012 R2 is not supported as a guest for Microsoft Windows 2008 R2 SP1.

Matrix infrastructure orchestration enables VMware vDS (vNetwork Distributed Switch) virtual switches in an ESX data center to be used without any limitation. See the *HP Matrix Operating Environment Infrastructure Orchestration User Guide* at http://www.hp.com/go/matrixoe/docs for more information.

HP management agents and drivers for VMware ESX/ESXi

The SPP can deploy firmware to a system running a supported VMware operating system in an offline mode. For a list of the supported VMware operating systems and drivers, see the SPP Release Notes at http://h18004.www1.hp.com/products/servers/service_packs/documentation/index.html. Since the VMware drivers are not part of the SPP, HP recommends obtaining the drivers as part of an HP-custom VMware OS image. The drivers can also be obtained individually from the VMware website, except for G7 and Gen8 server blades that use the HP FlexFabric FlexibleLOM, which must use the custom image. Both the custom images and VMware components are available at http://h18004.www1.hp.com/products/servers/software/vmware/esxi-image.html.

Download the following agents from http://h18004.www1.hp.com/products/servers/software/vmware/esxi-image.html.

Table 22 VMware ESXi agents

VMware	Agent	Version
vSphere (ESXi) 5.5	HP ESXi Offline Bundle for VMware ESXi 5.5	1.5
	HP ESXi Utilities Offline Bundle for VMware ESXi 5.5	1.5
	HP NMI Sourcing Driver for VMware ESXi 5.5	2.2
	HP ProLiant Smart Array Controller Driver for VMware vSphere 5.5 (Bundle file)	5.5.0-50.0
	HP Dynamic Smart Array Controller Driver for VMware vSphere 5.5 (Bundle file)	5.5.0-68.0
	VMware vSphere 5.5 Drivers Offline Bundle for Broadcom 1/10 GbE Multifunction Adapters	55.78.16
	VMware vSphere 5.5 Drivers Offline Bundle for Broadcom tg3 Ethernet Adapters	3.132f
	VMware vSphere 5.5 Drivers Offline Bundle for Emulex 10GbE Adapters	10.0.565.0
	VMware vSphere 5.5 Drivers Offline Bundle for QLogic P3+ Adapters	5.5.164
	VMware vSphere 5.5 iSCSI Drivers Offline Bundle for Emulex 10GbE Adapters	4.6.261.0
	VMware vSphere 5.5 iSCSI Drivers Offline Bundle for QLogic P3+ Adapters	634.55.20.0
	VMware ESXi 5.5 Drivers Offline Bundle for HP Emulex CNAs HBAs and mezzanine HBAs	2013.08.01
	VMware ESXi 5.5 Drivers Offline Bundle for HP QLogic CNAs HBAs and mezzanine HBAs	2013.08.01
vSphere (ESXi) 5.1 Update 1	HP ESXi Offline Bundle for VMware ESXi 5.x	1.5
	HP ESXi Utilities Offline Bundle for VMware ESXi 5.x	1.5
	HP NMI Sourcing Driver for VMware ESXi 5.x	2.1
	HP ProLiant Smart Array Controller Driver for VMware ESXi 5.0 (Bundle file)	5.0.0-44.1
	HP Dynamic Smart Array Controller Driver for VMware ESXi 5.0 (Bundle file)	5.0.0-66.0
	HP WBEM Providers for VMware ESXi 5.0/5.1	03.03.00
	VMware ESX 5.0 Drivers Offline Bundle for Broadcom 1/10 GbE Multifunction Adapters	50.78.31

Table 22 VMware ESXi agents *(continued)*

VMware	Agent	Version
	VMware ESX 5.0 Drivers Offline Bundle for Broadcom tg3 Ethernet Adapters	3.131d
	VMware vSphere 5.1 Drivers Offline Bundle for Emulex 10GbE Adapters	4.6.247.7
	VMware ESX 5.0 Drivers Offline Bundle for Mellanox 10GbE Adapters	1.6.1.2
	VMware ESX 5.0 iSCSI Drivers Offline Bundle for Emulex 10GbE Adapters	4.6.142.2
	VMware ESX 5.0 iSCSI Drivers Offline Bundle for QLogic P3+ Adapters	634.5.18.0
	VMware ESXi 5.0 and ESXi 5.1 Drivers Offline Bundle for HP Emulex CNAs HBAs and mezzanine HBAs	2013.08.01
	VMware ESXi 5.0 and ESXi 5.1 Drivers Offline Bundle for HP QLogic CNAs HBAs and mezzanine HBAs	2013.08.01
ESXi 5.0 Update 2	HP ESXi Offline Bundle for VMware ESXi 5.x	1.5
	HP ESXi Utilities Offline Bundle for VMware ESXi 5.0x	1.5
	HP NMI Sourcing Driver for VMware ESXi 5.x	2.1
	HP ProLiant Smart Array Controller Driver for VMware ESXi 5.0 (Bundle file)	5.0.0-44.1
	HP Dynamic Smart Array Controller Driver for VMware ESXi 5.0 (Bundle file)	5.0.0-66.0
	VMware ESX 5.0 Drivers Offline Bundle for Broadcom 1/10 GbE Multifunction Adapters	50.78.31
	VMware ESX 5.0 Drivers Offline Bundle for Broadcom tg3 Ethernet Adapters	3.131d
	VMware ESX 5.0 Drivers Offline Bundle for Emulex 10GbE Adapters	4.6.247.7
	VMware ESX 5.0 Drivers Offline Bundle for QLogic P3+ Adapters	5.0.750
	VMware ESX 5.0 Drivers Offline Bundle for Mellanox 10GbE Adapters	1.6.1.2
	VMware ESX 5.0 iSCSI Drivers Offline Bundle for Emulex 10GbE Adapters	4.6.142.2
	VMware ESX 5.0 iSCSI Drivers Offline Bundle for QLogic P3+ Adapters	634.5.18.0
	VMware ESXi 5.0 and ESXi 5.1 Drivers Offline Bundle for HP Emulex CNAs HBAs and mezzanine HBAs	2013.08.01
	VMware ESXi 5.0 and ESXi 5.1 Drivers Offline Bundle for HP QLogic CNAs HBAs and mezzanine HBAs	2013.08.01

Table 23 Virtualization Management Environment software

Software	Version
Microsoft System Center Virtual Machine Manager 2012 R2[1, 2]	Initial release
Microsoft System Center Virtual Machine Manager 2012[1, 2]	Initial release

Table 23 Virtualization Management Environment software *(continued)*

Software	Version
Microsoft System Center Virtual Machine Manager 2012 [1, 2]	SP1
Microsoft System Center Virtual Machine Manager 2008 R2 [1, 2]	SP1
VMware vCenter 5.5	Initial release
VMware vCenter 5.1	Initial release
	5.1b
	Update 1
VMware vCenter 5.0	Update 2

[1] If SCVMM is integrated with Insight Control, then Insight Control virtual machine management will manage template deployment through SCVMM.

[2] Matrix infrastructure orchestration supports VM provisioning using SCVMM Hyper-V VM templates. For more information, see *HP Matrix Operating Environment Infrastructure Orchestration User Guide*.

HP Matrix KVM Private Cloud managed system

Matrix KVM Private Cloud only supports RHEL 6.3 with KVM or RHEL 6.4 with KVM as a hypervisor and supports all guest OS that are supported by RHEL 6.3 with KVM or RHEL 6.4 with KVM. For more information, see http://www.redhat.com/resourcelibrary/articles/enterprise-linux-virtualization-support.

Matrix OE support in VMware VXLAN environments

The 7.3 release adds support for VMware VXLAN with specific prerequisites and considerations. Correctly configured and used, Matrix OE can provision and import VMs in an environment using VMware VXLAN. Specifically, Matrix OE is able to provision infrastructure using virtual networks from vShield Manager, configured under dvSwitches. Customers can use infrastructure orchestration to display networks from vCenter, configure those networks in infrastructure orchestration, assign networks to organizations, and provision infrastructure using service templates.

For information about the prerequisites and considerations for the support of VMware VXLAN, see the *Insight Management Support Matrix*.

HP Integrity managed systems

Integrity managed node licenses

Licenses for managing HP CloudSystem Integrity c-Class server blades are purchased separately. Select either the HP-UX Virtual Server OE (VSE-OE) or the larger HP-UX Data Center OE (DC-OE) operating environment to obtain the necessary Integrity management software licenses to use with HP CloudSystem Matrix. For HP-UX information, see http://www.hp.com/go/hpux.

Patches

Patches for HP-UX, HP Integrity VMs (host and guest) can be downloaded from http://www.hp.com/go/hpsc. Log on with an HP Passport. From the `Download options` list, select **Patch management** and enter the patch number in the search box. Click **Search**.

Table 24 Integrity managed node operating system support

Operating system	Version/Patch
HP-UX 11i v3[1]	HP-UX 11i v3 1303

[1] Capacity Advisor supports this OS on VSP 6.1 and 6.2 with limitations (see the *HP Matrix Operating Environment 7.3 Release Notes*).

Table 25 HP Integrity Virtual Machines

Software	Version
HP Integrity Virtual Machines	6.2

HP Integrity Virtual Machines require the installation of the following patches.

Table 26 Patches

Host/Guest	Patch
11i v3 VM Host for Integrity VM 6.2	None

7 Support and other resources

Contacting HP

Information to collect before contacting HP

Be sure to have the following information available before you contact HP:

- HP CloudSystem Matrix Starter Kit or Expansion Kit HP BladeSystemc7000 Platinum Enclosure serial number and/or SAID if applicable
- Software product name
- Hardware product model number
- Operating system type and version
- Applicable error message
- Third-party hardware or software
- Technical support registration number (if applicable)

IMPORTANT: Be sure to mention that this is a HP CloudSystem Matrix configuration when you call for support. Each HP CloudSystem Matrix Starter Kit or Expansion Kit HP BladeSystem c7000 Platinum Enclosure serial number identifies it as a HP CloudSystem Matrix installation.

How to contact HP

Use the following methods to contact HP technical support:

- See the Contact HP Worldwide website for contact options:
  http://www.hp.com/go/assistance
- Use the `Contact hp` link on the HP Support Center website:
  http://www.hp.com/go/hpsc
- In the United States, call 1-800-334-5144 to contact HP by telephone. This service is available 24 hours a day, 7 days a week. For continuous quality improvement, conversations might be recorded or monitored.

Registering for software technical support and update service

HP CloudSystem Matrix includes as standard, three or one year of 24 x 7 HP Software Technical Support and Update Service and 24 x 7 four hour response HP Hardware Support Service. This service provides access to HP technical resources for assistance in resolving software implementation or operations problems.

The service also provides access to software updates and reference manuals in electronic form as they are made available from HP. Customers who purchase an electronic license are eligible for electronic updates.

With this service, Insight Management software customers benefit from expedited problem resolution as well as proactive notification and delivery of software updates. For more information about this service, see the following website:

http://www.hp.com/services/insight

Registration for this service takes place following online redemption of the license certificate.

How to use your software technical support and update service

As HP releases updates to software, the latest versions of the software and documentation are made available to you. The Software Updates and Licensing portal gives you access to software, documentation and license updates for products on your HP software support agreement.

You can access this portal from the HP Support Center:

http://www.hp.com/go/hpsc

After creating your profile and linking your support agreements to your profile, see the Software Updates and Licensing portal at http://www.hp.com/go/hpsoftwareupdatesupport to obtain software, documentation, and license updates.

Warranty information

HP will replace defective delivery media for a period of 90 days from the date of purchase. This warranty applies to all Insight Management software products.

HP authorized resellers

For the name of the nearest HP authorized reseller, see the following sources:

- In the United States, see the HP U.S. service locator web site:
  http://www.hp.com/service_locator
- In other locations, see the Contact HP worldwide web site:
  http://welcome.hp.com/country/us/en/wwcontact.html

Related information

The latest versions of manuals and white papers for HP CloudSystem Matrix and related products can be downloaded from the web at www.hp.com/go/assistance.

HP CloudSystem Matrix documentation refers to Matrix Operating Environment documents, HP Server Automation (SA), and HP Cloud Service Automation (CSA).

For Matrix Operating Environment documents, see the Insight Management documentation: http://www.hp.com/go/matrixoe/docs.

For HP Server Automation (SA), and HP Cloud Service Automation (CSA), search the SSO portal to retrieve relevant documentation:

1. Navigate to the SSO portal (http://support.openview.hp.com/selfsolve/manuals).
2. Login to HP Passport, if necessary. If you do not already have an HP Passport account, you will need to create one.
3. In the Product menu, select **Server Automation or Cloud Service Automation**.
4. In the Product version menu, select the most current version.
5. In the Operating system menu, select the relevant operating system.
6. Click **Search**.

Typographic conventions

This document uses the following typographical conventions:

Book title	The title of a book. On the web, this can be a hyperlink to the book itself.
`Command`	A command name or command phrase, for example `ls -a`.
`Filename`	The name of a file or the path to a file location.
`Computer output`	Information displayed by the computer.
Ctrl-x	A key sequence that indicates you must hold down the keyboard key labeled **Ctrl** while you press the letter `x`.

`ENVIRONMENT VARIABLE`	The name of an environment variable, for example, `PATH`.
Key	The name of a keyboard key. **Return** and **Enter** both refer to the same key.
Term	A term or phrase that is defined in the body text of the document, not in a glossary.
`User input`	Indicates commands and text that you type exactly as shown.
`<Replaceable>`	The name of a placeholder that you replace with an actual value.
[ ]	In command syntax statements, these characters enclose optional content.
{ }	In command syntax statements, these characters enclose required content.
|	The character that separates items in a linear list of choices.
…	Indicates that the preceding element can be repeated one or more times.
WARNING	An alert that calls attention to important information that, if not understood or followed, results in personal injury.
CAUTION	An alert that calls attention to important information that, if not understood or followed, results in data loss, data corruption, or damage to hardware or software.
IMPORTANT	An alert that calls attention to essential information.
NOTE	An alert that contains additional or supplementary information.
TIP	An alert that provides helpful information.

8 Documentation feedback

HP is committed to providing documentation that meets your needs. To help us improve the documentation, send any errors, suggestions, or comments to Documentation Feedback (docsfeedback@hp.com). Include the document title and part number, version number, or the URL when submitting your feedback.