Technical white paper

HPE Solutions for Azure Local

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Introduction

This technical white paper provides solution guidelines and example configurations for Azure Local Hyperconverged Infrastructure (HCI) on HPE ProLiant, HPE Alletra (HPE Apollo), and HPE Edgeline servers deployed as clustered solutions using Azure Local. Microsoft provides multiple Solution Categories for Azure Local including Validated Nodes, Integrated Systems, and Premier Solutions with each category having different requirements for the OEM, HPE in this case, and the customer.

Validated Node

The original foundation for all Solution Categories is a Validated Node. A Validated Node is effectively a reference architecture defining a platform and affiliated option components such as network adapters. When an OEM decides to define a platform as a Validated Node, at a high level, they are required to:

- Have server hardware representing the platform to be validated in a lab environment at the time of validation with all supporting infrastructure allowing for the creation of a multi-node cluster.
- Use a Microsoft provided test harness to run an extended stress test over a period of ~5-days at the time of validation.
- Provide the validation results to Microsoft which will include information representing all the option components that were tested in the platform at the time of validation.
- Optionally provide a Minimal Solution Builder Extension (SBE) which includes a Windows Defender Application Control (WDAC) policy defining what binaries and scripts (based on signing certificates, checksums, and other approaches) can be launched on an Azure Local server when in WDAC Enforced Mode (the default mode for Azure Local). Any executable component not explicitly whitelisted will be actively blocked from running within the server OS.

Once certain option components, such as network adapters and storage controllers, have been validated in one platform, they may be used with any Validated Node platform the OEM offers. As such, Validated Nodes provide customers with immense flexibility. However, it must be noted that this flexibility comes with some tradeoffs as the OEM is **not required to**:

- Re-validate the specific platform at any time.
- Publish information about the drivers and firmware used during the validation or at any time in the future.
- Publish any form of driver and firmware recipe for the tested configuration.
- Provide any package representing the driver or firmware used during the validation.

This approach allows/requires the customer to provide/create a “known good driver and firmware recipe” of their liking.

Independent from Azure Local, HPE publishes the HPE Service Pack for ProLiant (SPP) which is a general-purpose package of drivers, firmware, and other HPE software elements released multiple times per year. While the SPP **seems like** an obvious starting point for a customer when defining their own known good driver and firmware recipe, the following should be noted:

- Although a given driver or firmware component may be identified as “supported” for Azure Local (of some version) on its respective HPE support/download page it is important to note that this statement means that it can be successfully installed on the Azure Stack HCI OS of the defined version and has proven to have basic functionality. The statement **does not** imply that the component has been thoroughly tested under stress with the Azure Stack HCI OS.
- HPE Smart Update Manager (SUM) is independent tooling, which is also the underpinnings of the SPP, used by HPE to discover the hardware platform and options present and apply driver, firmware and software installation or updates as appropriate based on what is discovered. Although a given version of HPE SUM may be identified as “supported” for Azure Local (of some version) and is functionally able to run on the Azure Stack HCI OS, the statement **does not** imply that the version of HPE SUM has been thoroughly tested under stress with the Azure Stack HCI OS and found to discover or install/apply all relevant packages to the server.
- Neither the SPP nor SUM are “cluster aware” meaning that they will not identify that an Azure Local server as part of a cluster and have not been instrumented to perform any cluster specific actions such suspending a node and draining workloads.

As such, if the customer determines that they will use an SPP as the starting point for their known good driver and firmware recipe, they should ensure thorough testing in a lab environment first prior to deploying to production solutions. Alternatively, HPE recommends that customers adhere as closely as possible to what has been published in the HPE ProLiant for Azure Local Firmware and Software Compatibility Guide which illustrates platforms, option components and affiliated drivers and firmware which have been thoroughly tested with Azure Local. Although this guide formally targets HPE platforms defined as Integrated Systems and Premier Solutions for Azure Local and their available option components, many of those option components (e.g., network adapters) may overlap with what the customer has in their Validated Nodes. This approach can minimize the additional components (e.g., BIOS) that the customer may have to independently test based on their chosen HPE platform.

HPE has defined the following platforms as Validated Nodes:

- HPE ProLiant DL380 Gen11
- HPE ProLiant DL380 Gen10 Plus
- HPE ProLiant DL380 Gen10
- HPE ProLiant DL385 Gen11
- HPE ProLiant DL385 Gen10 Plus v2
- HPE ProLiant DL385 Gen10 Plus
- HPE ProLiant DL385 Gen10
- HPE ProLiant DL365 Gen11
- HPE ProLiant DL360 Gen11
- HPE ProLiant DL360 Gen10 Plus
- HPE ProLiant DL360 Gen10
- HPE ProLiant DL345 Gen11
- HPE ProLiant DL325 Gen11
- HPE ProLiant DL325 Gen10 Plus v2
- HPE ProLiant DL325 Gen10 Plus
- HPE ProLiant DL325 Gen10
- HPE ProLiant DL145 Gen11
- HPE ProLiant DL110 Gen10 Plus
- HPE Alletra Storage Server 4110
- HPE Apollo 4200 Gen10 Plus
- HPE Apollo 4200 Gen10
- HPE Edgeline EL8000 with HPE Edgeline e920 Server Blade
- HPE Edgeline EL8000 with HPE Edgeline e920d Server Blade
- HPE Edgeline EL8000 with HPE Edgeline e910 Server Blade
- HPE Edgeline EL8000t with HPE Edgeline e920t Server Blade
- HPE Edgeline EL8000t with HPE Edgeline e910t Server Blade

Integrated System

The concept of an Integrated System builds on a Validated Node wherein the OEM is required to perform the following:

- Fulfill all requirements of a Validated Node.
- Provide a solution that is "easily" orderable.
- Ensure that all security features used by Azure Local are enabled by the OEM factory prior to shipment.
- Optionally pre-install the Azure Stack HCI OS.
- Re-validate the platform at least twice per year including verification that the latest build of Azure Local, at the time of execution, can be successfully deployed end-to-end as an Azure Local cluster.
- Provide a Standard/Full SBE that includes numerous elements, building on a Minimal SBE, including drivers, firmware, and any other OEM specific software elements a minimum of twice per year.

Regarding drivers and firmware, the contents of the SBE is generally considered the supported "recipe". While in some cases deviating from the supported recipe may be required, this should only be performed under the direction of the OEM. In addition to publishing a Standard SBE in HPE Support Center, HPE also publishes the HPE ProLiant for Azure Local Firmware and Software Compatibility Guide which is a documented companion to the SBE.

Premier Solution

The concept of a Premier Solution builds on an Integrated System wherein the OEM is required to perform the following:

- Fulfill all requirements for an Integrated System.
- Provide hardware to Microsoft for deployment into Microsoft's continuous integration, continuous deployment, Azure Local lab environment.
- Provide integrated support experience for the customer.
- Optionally support one of multiple Premier Solution exclusive features.

The HPE ProLiant Compute DL380 Gen12 Server Premier Solution for Azure Local delivers secure hybrid cloud infrastructure that brings select Azure services and AI capabilities directly to your data center while supporting NVIDIA RTX PRO 6000 Blackwell Server Edition for AI, graphics, and VDI workloads giving enterprises the confidence to run Azure services anywhere and accelerate AI innovation.

The HPE ProLiant DL380 Gen11 Server Premier Solution for Azure Local is designed for enterprise, edge, and retail use and offers a carefully curated choice of options and continuous update testing for demanding virtualized, hybrid workloads requiring high levels of reliability with hardware, services, and support with seamless integration into Microsoft Azure's public cloud services.

The HPE ProLiant DL145 Gen11 Server Premier Solution for Azure Local is available in All Flash NVMe configurations with optional GPUs optimized for office, edge, and far-edge scenarios. It provides tight integration between on-premises solution and public cloud service and optional Azure Local-specific cloud services that can run on-premises.

Azure Local solution management

HPE offers unique Microsoft Windows Admin Center (WAC) extensions for Azure Local solution management. To download the WAC extensions, visit HPE WAC Extensions for HPE Server and Azure Local.

HPE Extensions for Microsoft Windows Admin Center

HPE has created two WAC extensions to enable HPE specific management features. The HPE server extension provides a single-pane-of-glass view of server components, health status, remedy options, and BIOS setting details. It also provides links to HPE iLO for in-depth server management. The HPE extension for

Azure Local highlights health and configuration details. It also surfaces firmware and driver revisions across instance nodes to help prevent node inconsistency, a leading factor of issues with hyperconverged clusters.

To download and deploy the HPE Server and Azure Local Extension, see Installing HPE Server and Azure Stack HCI WAC Extensions at HPE Support Center.

HPE snap-in for deployment and update of Azure Local Validated Nodes

HPE provides a snap-in for WAC to support firmware/software deployment and update on Validated Nodes. An SPP can be installed after Azure Local instance has been deployed to update the drivers and firmware on the servers in the Azure Local cluster. Customers can also use a custom bundle to deploy their tested known good recipe of choice. Check the Azure Local Known issues to determine if any alternative component firmware or driver should be used to resolve critical issues.

The HPE WAC Update snap-in should be used on HPE Validated Nodes for firmware/software updates, while HPE Premier Solutions and Integrated Systems must use the Standard SBE for this operation. Details on the HPE Standard SBE can be found in the Solution Builder Extension section of this document.

HPE Solution Configuration Guidelines for Azure Local

The following guidelines apply **to all Azure Local solution types**:

- Any core count processor can be used.
- Intel® Xeon® "P" processors are supported
- Intel Xeon "E" processors are not supported.
- All nodes in the instance must be configured identically in terms of hardware components (including quantities and capacities), use the same firmware, drivers, and BIOS configuration.
- Fibre Channel Adapters can be used if available for ordering with the server platform (see supported list in Table 10).
- When configuring hyperconverged solutions, a minimum of 2 internal capacity drives is required per server for Storage Spaces Direct (S2D).
- When configuring disaggregated solutions, no internal capacity drives are required.
- Configurations with both internal capacity drives and external storage (Fibre Channel or iSCSI) are supported.
- Very Read Optimized (VRO) drives are not supported with Azure Local solutions.
- For more information on Microsoft's platform hardware requirements for an Azure Local solution, see the System requirements for Azure Local

For **Validated Nodes**, the following additional guidelines apply:

- Validated Nodes for Azure Local support the use of any type of boot drive and controller so long as they are certified for Windows Server 2025.
- Validated Nodes for Azure Local can be configured using an LFF, SFF, or EDSFF drives if supported in the platform.
- Validated Nodes for Azure Local can be configured using any drive certified for Windows Server 2025 that is available for ordering with the platform.
- Validated Nodes for Azure Local can be configured with any SAS storage controllers listed in Table 9.
- Validated Nodes for Azure Local can be configured with any supported network adapter listed in Table 6.

For **Premier Solutions**, the following additional guidelines apply:

- HPE ProLiant Premier Solutions for Azure Local require a minimum support level of 3-year Tech Care Essentials.
- HPE ProLiant Premier Solutions for Azure Local support the use of NS204i-u boot devices only.
- HPE ProLiant Premier Solutions for Azure Local support the use of single tier capacity configurations only, and all drives should be of the same capacity.
- Mixing of network adapters from different manufacturers is explicitly not supported in any HPE ProLiant Premier Solutions for Azure Local solution.
- All 1 GB network adapters are explicitly not supported in any HPE ProLiant Premier Solutions for Azure Local solution.
- Intel® E810 Ethernet 10/ 25 GB network adapters are supported in all HPE ProLiant Premier Solutions for Azure Local solutions.
- Intel E810-CQDA2 Ethernet 100 GB 2-port QSFP28 network adapters are explicitly not supported in any HPE ProLiant Premier Solutions for Azure Local solution.
- NVIDIA® ConnectX-6 Series network adapters are supported in all HPE ProLiant Premier Solutions for Azure Local solutions.
- DL380 Gen11 Server Premier Solution for Azure Local:
  - Capacity drives configurations are limited to Small Form Factor (SFF) drives.
  - SAS SSDs, SAS connected NVMes, or direct attached NVMes can be used.
  - MR216 storage controller is the only supported SAS controller.
- DL145 Gen11 Server Premier Solution for Azure Local:
  - Capacity drives configurations are limited to Enterprise and Datacenter SSD Form Factor (EDSFF) drives.
  - Broadcom BCM574XX series network adapters are supported.
  - Broadcom BCM575XX series network adapters are supported.
- DL360 Gen12 Server and DL380 Gen12 Server Premier Solutions for Azure Local:
  - Capacity drives configurations are limited to Enterprise and Datacenter SSD Form Factor (EDSFF) drives.
  - Broadcom BCM574XX series network adapters are supported.
  - Broadcom BCM575XX series network adapters are supported.
- Whenever possible, use HPE's One Config Advanced (OCA) Wizard options to build a solution vs. a Configure-To-Order (CTO) option.
  - Most HPE Premier Solutions for Azure Local offer both an OCA Wizard and OCA CTO ordering option.
  - OCA Wizards ordering options include all necessary guard rails to ensure a compliant Azure Local configuration with no need for review or exception approvals.
  - OCA CTO ordering options include all native platform server options and are designed as an "expert mode" for configurations that are supportable but not yet configurable in the corresponding OCA Wizard.
  - OCA CTO built Azure Local solutions will require one or more exception requests and mandatory review by HPE's Azure Local team.
- OEM licenses for Azure Local are only supported with HPE ProLiant Premier Solutions for Azure Local solutions.
  - Mixing servers with the OEM license with servers using a different licensing or consumption approach in the same cluster is not supported.
  - All physical cores in the server must be licensed.
  - Minimum quantity 1 of (P84046-B21) Azure Local with Microsoft Windows Server 2025 16-core FIO Software for HPE OEM is required per server when the OEM license for Azure Local is included.
  - Appropriate quantities of (P84047-B21) Azure Local with Microsoft Windows Server 2025 2-core Additional License FIO Software for HPE OEM to license physical cores beyond 16.

For configuration questions, contact AzureLocal@hpe.com

Table 1. Storage architecture configurations supported on each server model platform

Configuration / Server model	All-flash SATA capacity	All-flash SAS capacity	All-flash NVMe capacity	Hybrid SATA SSD cache SAS HDD capacity	Hybrid SAS SSD cache SAS HDD capacity	Hybrid NVMe cache SAS capacity
HPE ProLiant DL380 Gen11		•	•		•	•
HPE ProLiant DL380 Gen10 Plus		•	•		•	•
HPE ProLiant DL380 Gen10	•	•	•	•	•	•
HPE ProLiant DL385 Gen11		•	•			
HPE ProLiant DL385 Gen10 Plus v2		•	•	•		•
HPE ProLiant DL385 Gen10 Plus		•			•	•
HPE ProLiant DL385 Gen10	•	•	•		•	•
HPE ProLiant DL365 Gen11		•	•			
HPE ProLiant DL360 Gen11		•	•		•	•
HPE ProLiant DL360 Gen10 Plus		•	•		•	•
HPE ProLiant DL360 Gen10		•	•		•	•
HPE ProLiant DL345 Gen11		•	•			
HPE ProLiant DL325 Gen11		•	•			
HPE ProLiant DL325 Gen10 Plus v2		•	•		•	•
HPE ProLiant DL325 Gen10 Plus		•				•
HPE ProLiant DL325 Gen10	•	•			•	•
HPE ProLiant DL145 Gen11			•			
HPE ProLiant DL110 Gen10 Plus			•			
HPE Alletra Storage Server 4110			•			
HPE Apollo 4200 Gen10 Plus	•	•				•
HPE Apollo 4200 Gen10		•			•	•
HPE Edgeline EL8000 with e920 Server Blade			•			
HPE Edgeline EL8000 with e920d Server Blade			•			
HPE Edgeline EL8000 with e910 Server Blade			•			
HPE Edgeline EL8000t with e920t Server Blade			•			
HPE Edgeline EL8000t with e910t Server Blade			•			

Table 2. Storage architecture configurations for HPE ProLiant Premier Solutions for Azure Local

Configuration Server model	All-flash SATA capacity	All-flash SAS capacity	All-flash NVMe capacity	Hybrid SATA SSD cache SAS HDD capacity	Hybrid SAS SSD cache SAS HDD capacity	Hybrid NVMe cache SAS capacity
HPE ProLiant Compute DL380 Gen12 Server Premier Solution			•			
HPE ProLiant Compute DL360 Gen12 Server Premier Solution			•			
HPE ProLiant DL380 Gen11 Server Premier Solution		•	•			
HPE ProLiant DL145 Gen11 Server Premier Solution			•			

Drive configuration guidelines

- Use of any size drive above 500 GB within this solution is supported for cache-tier, capacity-tier, or single-tier storage.
- Hybrid storage tiers, supported only with Validated Nodes, require two cache drives minimum, plus four capacity drives minimum.
- Single-tier storage all-flash requires at least two drives. This can be achieved with:
  - SATA SSD (Validated Nodes only)
  - SAS SSD (Gen11 and earlier only excluding the DL145 Gen11)
  - Direct attached SFF NVMe devices (Gen10 and Gen11 only excluding the DL145 Gen11)
  - Direct attached EDSFF NVMe devices (Gen12 and DL145 Gen11)
- Cache-tier and single-tier all-flash configurations are recommended to use mixed-use endurance.

Table 3. Supported NVMe EDSFF drives

Description	Part number
HPE 30.72TB NVMe Gen5 High Performance Read Intensive E3.S EC1 E3 Thin PQC27 CM9 SSD	P85745-B21
HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3.S EC1 E3 Thin PQC27 CM9 SSD	P85743-B21
HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3.S EC1 E3 Thin PQC27 CM9 SSD	P85741-B21
HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3.S EC1 E3 Thin PQC27 CM9 SSD	P85739-B21
HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 Self-encrypting 7600 SSD	P87723-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 Self-encrypting 7600 SSD	P87721-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 Self-encrypting 7600 SSD	P87719-B21
HPE 15.36TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 SPDM 7600 SSD	P85128-B21
HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 SPDM 7600 SSD	P85126-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 SPDM 7600 SSD	P85124-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 SPDM 7600 SSD	P85121-B21

Table 3. Supported NVMe EDSFF drives (continued)

Description	Part number
HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3.S EC1 PM1753 SSD	P78793-B21
HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3.S EC1 PM1753 SSD	P78791-B21
HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3.S EC1 PM1753 SSD	P78789-B21
HPE 30.72TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF Self-encrypting PM9D3a SSD	P79147-B21
HPE 30.72TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PM9D3a SSD	P78923-B21
HPE 15.36TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PM9D3a SSD	P78921-B21
HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PM9D3a SSD	P78919-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PM9D3a SSD	P78917-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PM9D3a SSD	P78914-B21
HPE 15.36TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69546-B21
HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69239-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69237-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 CD8P SSD	P69234-B21
HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 Self-encrypting FIPS 140-2 CM7 SSD	P70674-B21
HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM CM7 SSD	P61187-B21
HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM CM7 SSD	P61183-B21
HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM CM7 SSD	P61179-B21
HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743 SSD	P57807-B21
HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743 SSD	P57803-B21
HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 EDSFF SPDM PM1743 SSD	P57799-B21
HPE 15.36TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD	P70397-B21

Table 3. Supported NVMe EDSFF drives (continued)

Description	Part number
HPE 7.68TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD	P70395-B21
HPE 3.84TB NVMe Gen5 High Performance Read Intensive E3S EC1 PS1010 SSD	P70392-B21
HPE 15.36TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77275-B21
HPE 7.68TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77273-B21
HPE 3.84TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77271-B21
HPE 1.92TB NVMe Gen5 Mainstream Performance Read Intensive E3S EC1 EDSFF SPDM PE1010 SSD	P77269-B21
HPE 12.8TB NVMe Gen5 High Performance Mixed Use E3.S EC1 E3 Thin PQC27 CM9 SSD	P85735-B21
HPE 6.4TB NVMe Gen5 High Performance Mixed Use E3.S EC1 E3 Thin PQC27 CM9 SSD	P85733-B21
HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3.S EC1 E3 Thin PQC27 CM9 SSD	P85731-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3.S EC1 Self-encrypting 7600 SSD	P87717-B21
HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3.S EC1 Self-encrypting 7600 SSD	P87715-B21
HPE 6.4TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 SPDM 7600 SSD	P85119-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 SPDM 7600 SSD	P85117-B21
HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 SPDM 7600 SSD	P85114-B21
HPE 6.4TB NVMe Gen5 High Performance Mixed Use E3.S EC1 PM1755 SSD	P78787-B21
HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3.S EC1 PM1755 SSD	P78784-B21
HPE 6.4TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD	P69245-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD	P69243-B21
HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 CD8P SSD	P69241-B21
HPE 6.4TB NVMe Gen5 High Performance Mixed Use E3S EC1 Self-encrypting FIPS 140-2 CM7 SSD	P70672-B21
HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3S EC1 Self-encrypting FIPS 140-2 CM7 SSD	P70669-B21
HPE 6.4TB NVMe Gen5 High Performance Mixed Use E3S EC1 EDSFF SPDM CM7 SSD	P61195-B21
HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3S EC1 EDSFF SPDM CM7 SSD	P61191-B21

Table 3. Supported NVMe EDSFF drives (continued)

Description	Part number
HPE 12.8TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD	P70403-B21
HPE 6.4TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD	P70401-B21
HPE 3.2TB NVMe Gen5 High Performance Mixed Use E3S EC1 PS1030 SSD	P70399-B21
HPE 6.4TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD	P77267-B21
HPE 3.2TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD	P77265-B21
HPE 1.6TB NVMe Gen5 Mainstream Performance Mixed Use E3S EC1 EDSFF SPDM PE1030 SSD	P77262-B21

Table 4. Supported NVMe SFF drives

Description	Part number
HPE 30.72TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PQC27 CM9 SSD	P85676-B21
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PQC27 CM9 SSD	P85674-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PQC27 CM9 SSD	P85672-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PQC27 CM9 SSD	P85670-B21
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PQC27 CM9 SSD	P85668-B21
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Static PM1753 SSD	P78810-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Static PM1753 SSD	P78808-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Static PM1753 SSD	P78806-B21
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Multi Vendor SSD	P91249-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Multi Vendor SSD	P91247-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Multi Vendor SSD	P91245-B21
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Multi Vendor SSD	P91243-B21
HPE 15.36TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 SPDM 7500b SSD	P84239-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61035-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61027-B21
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61019-B21
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD	P63841-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD	P63837-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD	P63833-B21
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 CM7 SSD	P63829-B21

Table 4. Supported NVMe SFF drives (continued)

Description	Part number
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50224-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50222-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50219-B21
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PM1733a SSD	P50216-B21
HPE 15.36TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PS1010 SSD	P70436-B21
HPE 7.68TB NVMe Gen4 High Performance Read Intensive SFF BC U.3 PS1010 SSD	P70434-B21
HPE 15.36TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static SPDM Multi Vendor SSD	P69255-B21
HPE 7.68TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD	P64848-B21
HPE 3.84TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD	P64846-B21
HPE 1.92TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD	P64844-B21
HPE 960GB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static V2 Multi Vendor SSD	P64842-B21
HPE 3.84TB NVMe Gen4 High Performance Read Intensive SFF BC Self-encrypting FIPS U.3 CM6 SSD	P41403-B21
HPE 1.92TB NVMe Gen4 High Performance Read Intensive SFF BC Self-encrypting FIPS U.3 CM6 SSD	P41402-B21
HPE 7.68TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static Multi Vendor SSD	P47847-B21
HPE 3.84TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static Multi Vendor SSD	P47846-B21
HPE 1.92TB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static Multi Vendor SSD	P47845-B21
HPE 960GB NVMe Gen4 Mainstream Performance Read Intensive SFF BC U.3 Static Multi Vendor SSD	P47844-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PQC27 CM9 SSD	P85666-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PQC27 CM9 SSD	P85664-B21
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PQC27 CM9 SSD	P85662-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Static PM1755 SSD	P78804-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Static PM1755 SSD	P78801-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Multi Vendor SSD	P91241-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Multi Vendor SSD	P91239-B21
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Multi Vendor SSD	P91237-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61059-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61051-B21
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 Self-encrypting FIPS 140-3 CM7 SSD	P61043-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 CM7 SSD	P63853-B21

Table 4. Supported NVMe SFF drives (continued)

Description	Part number
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 CM7 SSD	P63849-B21
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 CM7 SSD	P63845-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50233-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50230-B21
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PM1735a SSD	P50227-B21
HPE 6.4TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PS1030 SSD	P70428-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC U.3 PS1030 SSD	P70426-B21
HPE 6.4TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P65023-B21
HPE 3.2TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P65015-B21
HPE 1.6TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P65007-B21
HPE 800GB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static V2 Multi Vendor SSD	P64999-B21
HPE 3.2TB NVMe Gen4 High Performance Mixed Use SFF BC Self-encrypting FIPS U.3 CM6 SSD	P41405-B21
HPE 1.6TB NVMe Gen4 High Performance Mixed Use SFF BC Self-encrypting FIPS U.3 CM6 SSD	P41404-B21
HPE 6.4TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static Multi Vendor SSD	P47840-B21
HPE 3.2TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static Multi Vendor SSD	P47839-B21
HPE 1.6TB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static Multi Vendor SSD	P47838-B21
HPE 800GB NVMe Gen4 Mainstream Performance Mixed Use SFF BC U.3 Static Multi Vendor SSD	P47837-B21

Note

Gen10 NVMe drives use Smart Carrier (SC) and may have different part numbers. See HPE QuickSpecs for a complete list of available drive options and capacities.

For Integrated Systems and Premier Solutions, supported drives may be further restricted and defined in the HPE ordering system configuration wizard. Contact your HPE account team or channel partner for specifics.

Table 5. Supported NVMe M.2 drives

Description	Part number
HPE Edgeline 3.84TB NVMe Gen4 Mainstream Performance Mixed Use M.2 22110 Extended Temp PM9A3 SSD	P49025-B21
HPE Edgeline 1.92TB NVMe Gen4 Mainstream Performance Mixed Use M.2 22110 Extended Temp PM9A3 SSD	P49023-B21
HPE Edgeline 960GB NVMe Gen4 Mainstream Performance Mixed Use M.2 22110 Extended Temp PM9A3 SSD	P49021-B21
HPE 1.92TB NVMe Gen3 Mainstream Performance Read Intensive M.2 Multi Vendor SSD	P40515-B21
HPE 960GB NVMe Gen3 Mainstream Performance Read Intensive M.2 Multi Vendor SSD	P40514-B21

Network adapter support list

Table 6. List of supported and validated network adapters

Option type	Description	Part number
Network adapter OCP3	Marvell QL41232HQCU Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P10118-B21
Network adapter OCP3	Mellanox MCX562A-ACAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P10112-B21
Network adapter OCP3	Mellanox MCX631432AS-ADAI Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P42041-B21
Network adapter OCP3	Intel E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 OCP3 Adapter for HPE	P41614-B21
Network adapter OCP3	Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P10106-B21
Network adapter OCP3	Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 OCP3 Adapter for HPE	P22767-B21
Network adapter OCP3	Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ OCP3 Adapter for HPE	P26256-B21
Network adapter OCP3	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T OCP3 Adapter for HPE	P10097-B21
Network adapter OCP3	Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 OCP3 Adapter for HPE	P10115-B21
Network adapter OCP3	Broadcom BCM57504 Ethernet 10/25Gb 4-port SFP28 OCP3 Adapter for HPE	P26269-B21
Network adapter PCIe plug-in	Marvell QL41232HLCU Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P22702-B21
Network adapter PCIe plug-in	Mellanox MCX512F-ACHT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P13188-B21
Network adapter PCIe plug-in	Mellanox MCX631102AS-ADAT Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P42044-B21
Network adapter PCIe plug-in	Mellanox MCX623106AS-CDAT Ethernet 100Gb 2-port QSFP56 Adapter for HPE	P25960-B21
Network adapter PCIe plug-in	Intel E810-XXVDA4 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE	P08458-B21
Network adapter PCIe plug-in	Intel E810-XXVDA2 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P08443-B21
Network adapter PCIe plug-in	Intel E810-CQDA2 Ethernet 100Gb 2-port QSFP28 Adapter for HPE	P21112-B21
Network adapter PCIe plug-in	Broadcom BCM57412 Ethernet 10Gb 2-port SFP+ Adapter for HPE	P26259-B21
Network adapter PCIe plug-in	Broadcom BCM57416 Ethernet 10Gb 2-port BASE-T Adapter for HPE	P26253-B21
Network adapter PCIe plug-in	Broadcom BCM57414 Ethernet 10/25Gb 2-port SFP28 Adapter for HPE	P26262-B21
Network adapter PCIe plug-in	Broadcom BCM57504 Ethernet 10/25Gb 4-port SFP28 Adapter for HPE	P26264-B21

Note

Azure Local 23H2 and later requires Microsoft's Network ATC technology. Network ATC automatically configures network ports based on the network intents defined by the end user at deployment time. Any network adapter ports included in the same network intent must be from an adapter with the same product ID. Any attempt to combine ports of adapters from different manufacturers will fail. Any attempt to combine ports from different models will fail. Any attempt to combine ports from similar adapters with different form factors (e.g., OCP3 vs. PCIe) will fail. This is subject to change as Microsoft continues to evolve the platform.

For Integrated Systems and Premier Solutions, supported network adapters may be further restricted and defined in the HPE ordering system configuration wizard. Contact your HPE account team or channel partner for specifics.

Network switch support list

Management switches

– HPE Networking CW5900 Switch Series

– HPE Networking CX 6300 Switch Series

Top-of-Rack (ToR) switches

– HPE Networking CW5944 Switch Series
– HPE Networking CW5945 Switch Series
– HPE Networking CX8100 Switch Series
– HPE Networking CX8325 Switch Series
– HPE Networking CX8360 Switch Series
– HPE Networking CX9300 Switch Series
– HPE Networking CX10000 Switch Series
– HPE Juniper Networking QFX Switch Series

For the latest information, see the Physical network requirements for Azure Local.

Switch speed support matrix

Table 7. List of switch models and their supported bandwidth speeds

Switch model	10GbE	25GbE	40GbE	100GbE	400GbE
HPE Networking CW5944 Switch Series	Yes	n/a	n/a	Yes	n/a
HPE Networking CW5945 Switch Series	Yes	Yes	n/a	Yes	n/a
HPE Networking CX8100 Switch Series	Yes	n/a	Yes	Yes	n/a
HPE Networking CX8325 Switch Series	Yes	Yes	Yes	Yes	n/a
HPE Networking CX8360 Switch Series	Yes	Yes	Yes	Yes	n/a
HPE Networking CX9300 Switch Series	Yes	Yes	n/a	Yes	Yes
HPE Networking CX10000 Switch Series	Yes	Yes	Yes	Yes	n/a
HPE Juniper QFX5110 Switch Series	Yes	n/a	n/a	n/a	n/a
HPE Juniper QFX5120 Switch Series	Yes	Yes	n/a	Yes	n/a
HPE Juniper QFX5130 Switch Series	n/a	n/a	n/a	n/a	Yes
HPE Juniper QFX5200 Switch Series	Yes	Yes	n/a	Yes	n/a
HPE Juniper QFX5210 Switch Series	n/a	Yes	n/a	Yes	n/a
HPE Juniper QFX5220 Switch Series	n/a	n/a	n/a	Yes	Yes

Switch minimum firmware requirements for Azure Local

Table 8. List of switch minimum firmware version

Option type	Description
HPE Networking Comware Switch Series	Comware 7 version R6710 or later
HPE Networking CX Switch Series	HPE Aruba Networking ArubaOS CX version 10.11.1010 or later
HPE Networking CX8100 Switch Series*	HPE Aruba Networking ArubaOS CX version 10.12.0006 or later
HPE Networking CX9300S Switch Series**	HPE Aruba Networking ArubaOS CX version 10.14.1000 or later
HPE Networking CX8325H/CX8325P Switch Series***	HPE Aruba Networking ArubaOS CX version 10.15.1005 or later
HPE Juniper Networking QFX Switch Series****	Junos 23.4R2-S4.11 or later
HPE Juniper Networking QFX5130 and QFX5220 Switch Series	Junos 20.2R3-S2 or later

* This firmware version applies only to the CX8100 Switch Series
** This firmware version applies only to the CX9300S Switch Series
*** This firmware version applies only to the CX8325H/CX8325P Switch Series
**** This firmware version does NOT apply to the QFX5130 and QFX5220 Switch Series

Storage controller support list

– Azure Local solutions support the use of external disk enclosures only with SAS drives.
– OS boot drives must not reside on any controller containing Storage Spaces Direct drives.
– Storage Spaces Direct drives cannot reside on any controller configured with RAID volumes.
– Only boot drives may be connected to a RAID controller.
– HPE recommends MR controllers for Azure Local solutions.

Table 9. List of supported and validated storage controllers

Option type	Description	Part number
Storage controller OCP	HPE MR216i-o Gen11 x 16 Lanes without Cache OCP SPDM Storage Controller	P47789-B21
Storage controller OCP	HPE MR416i-o Gen11 x 16 Lanes 8GB Cache OCP SPDM Storage Controller	P47781-B21
Storage controller PCIe plug-in	HPE MR216i-p Gen11 x 16 Lanes without Cache PCI SPDM Plug-in Storage Controller	P47785-B21
Storage controller PCIe plug-in	HPE MR416i-p Gen11 x 16 Lanes 8GB Cache PCI SPDM Plug-in Storage Controller	P47777-B21
Storage controller modular	HPE MegaRAID MR416i-a Gen10 Plus 4GB 72b Cache Storage Controller	P26279-B21
Storage controller modular	HPE MegaRAID MR216i-a Gen10 Plus 4GB 72b Cache Storage Controller	P26325-B21
Storage controller PCIe plug-in	HPE MegaRAID MR416i-p Gen10 Plus 4GB 72b Cache Storage Controller	P06367-B21
Storage controller PCIe plug-in	HPE MegaRAID MR216i-p Gen10 Plus 4GB 72b Cache Storage Controller	P26324-B21
Storage controller modular	HPE Smart Array P816i-a SR Gen10 (16 Internal Lanes/4GB Cache/SmartCache) 12G SAS Modular Controller	804338-B21
Storage controller modular	HPE Smart Array E208i-a SR Gen10 (8 Internal Lanes/No Cache) 12G SAS Modular Controller	804326-B21

Table 9. List of supported and validated storage controllers (continued)

Option type	Description	Part number
Storage controller modular	HPE Smart Array P408i-a SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS Modular Controller	804331-B21
Storage controller PCIe plug-in	HPE Smart Array E208i-p SR Gen10 (8 Internal Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804394-B21
Storage controller PCIe plug-in	HPE Smart Array P408i-p SR Gen10 (8 Internal Lanes/2GB Cache) 12G SAS PCIe Plug-in Controller	830824-B21
Storage controller PCIe plug-in (only SAS drives are supported)	HPE Smart Array E208e-p SR Gen10 (8 External Lanes/No Cache) 12G SAS PCIe Plug-in Controller	804398-B21
Storage controller PCIe plug-in (only SAS drives are supported)	HPE Smart Array P408e-p SR Gen10 (8 External Lanes/4GB Cache) 12G SAS PCIe Plug-in Controller	804405-B21

Fibre Channel HBA support list

– Azure Local solutions support the use of Fibre Channel based SAN arrays.

Table 10. List of supported Fibre Channel HBAs

Description	Part number
HPE SN1610E 32Gb 1-port Fibre Channel Host Bus Adapter	R2J62A
HPE SN1610E 32Gb 2-port Fibre Channel Host Bus Adapter	R2J63A
HPE SN1700E 64Gb 1-port Fibre Channel Host Bus Adapter	R7N77A
HPE SN1700E 64Gb 2-port Fibre Channel Host Bus Adapter	R7N78A
HPE SN1610Q 32Gb 1-port Fibre Channel Host Bus Adapter	R2E08A
HPE SN1610Q 32Gb 2-port Fibre Channel Host Bus Adapter	R2E09A
HPE SN1700Q 64Gb 1-port Fibre Channel Host Bus Adapter	R7N86A
HPE SN1700Q 64Gb 2-port Fibre Channel Host Bus Adapter	R7N87A

GPU support guidelines

– NVIDIA A2 — Inference and AI

– NVIDIA A16 — High-density VDI

– NVIDIA A40 — High-performance visualization, rendering, modeling, simulation, CAD

– NVIDIA L4 — Efficient video, AI, and graphics

– NVIDIA L40 — High-performance visual computing

– NVIDIA L40S — High-performance AI and graphics

– NVIDIA RTX PRO 6000 — AI, graphics and VDI workloads

GPU configuration may include some limitations (for example, GPU quantity, ambient air inlet temperature, or other limitations), depending on the configuration of other server options such as storage configuration, CPU type and wattage, or power supply type. Best practice guidance is subject to change.

Azure Local deployment

Enabling Secured-core

This section provides brief guidance for steps to enable Secured-core in BIOS. You may also need to install additional software from the Service pack for HPE ProLiant to enable the Secured-core features, such as the DRTM driver for the AMD platform.

Configuring UEFI/BIOS settings for Secured-core enablement:

– On applicable servers, a **Microsoft(R) Secured-core Support** option is available in the BIOS to easily configure all the necessary BIOS settings, as shown in Figure 1.

– Navigate to System Utilities (F9 During POST) > System Configuration > BIOS/Platform Configuration (RBSU) > Server Security to enable Secured-core support.

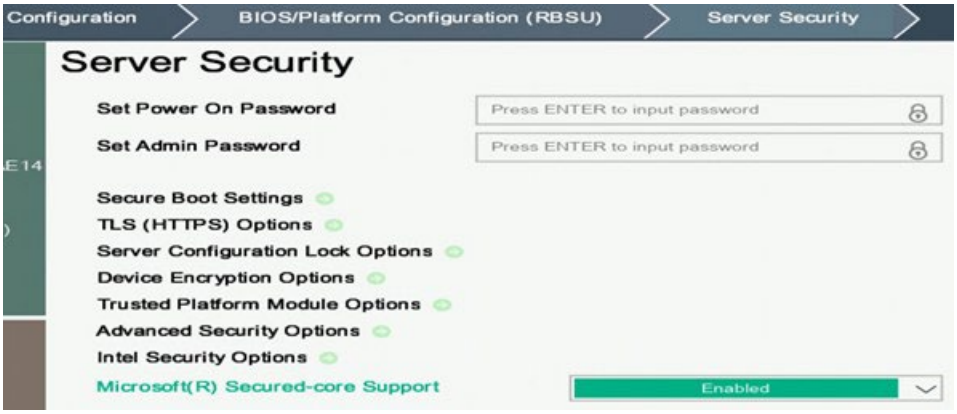


Figure 1. Security settings in RBSU

– On the same menu, go to > Trusted Platform Module Options > TPM 2.0 Operation > Clear to clear the TPM

Note

It is advised that Secured-core be configured in the BIOS before OS installation. Enabling Secured-core post-instance deployment can result in communication issues between the Azure Local instance and the Azure cloud. If not resolved, these issues may impact the creation of new virtual machines or starting existing ones.

Premier Solutions and Integrated Systems deployment

Premier Solutions and Integrated Systems server nodes come with an Azure Local 24H2 pre-installed OS image ready for deployment. It is not recommended to reimage the nodes and/or use the SPP to flash firmware and install drivers. This may result in an unsupported firmware/software recipe different from the Firmware and Software Compatibility Guide.

Instance deployment

There are two different ways to deploy an Azure Local instance: through the Azure Portal or using an Azure Resource Manager (ARM) template. Both methods support a fully automated deployment of single-node and multi-node instances. Make sure to review the requirements and prerequisites as most deployment failures will require re-deployment from scratch. For detailed documentation, read About Azure Local deployment.

Solution Builder Extension

HPE provides a Standard Solution Builder Extension (SBE) that includes a supplemental WDAC policy and firmware/software driver updates for Premier Solutions and Integrated Systems. Similarly, a Minimal SBE containing only the WDAC policy is available for Validated Nodes. An Azure Local instance without the HPE SBE will require WDAC to be switched to audit mode when installing drivers, as described in the next section.

The list of all current SBE releases and the supported Azure Local solution versions is shown in Tables 11 and 12. Go to hpe.com/info/ASHCI-SBE to download them or to check for newer updates.

Table 11. List of Solution Builder Extension releases for **Premier Solutions and Integrated Systems**

SBE version	Azure Local solution version	Notes
Standard SBE 5.0.2608.10	12.x.1003.x	
Standard SBE 5.0.2604.21	12.x.1003.x	
Standard SBE 5.0.2512.10	12.x.1002.x	Pre-installed OS image only
Standard SBE 4.2.2511.11	12.x.1002.x	
Standard SBE 4.2.2509.10	12.x.1001.x and 11.x.1001.x	Download Connector support
Standard SBE 4.2.2506.14	12.x.1001.x and 11.x.1001.x	
Standard SBE 4.1.2504.10	10.2503.x.x	
Standard SBE 4.1.2411.20	10.2411.x.x and 10.2408.x.x	SBE Patch for Standard SBE 4.1.2411.10
Standard SBE 4.1.2411.10	10.2411.x.x and 10.2408.x.x	

The Standard SBE can be installed on Premier Solutions and Integrated Systems during or after Azure Local instance deployment through the Microsoft Azure Portal.

For installation during deployment,

(a) Extract the contents of the package and place the following files under directory C:\SBE on all nodes before deployment:

– SBE_Discovery_HPE.xml

– SBE_HPE_ProLiant-Standard_x.x.xxxx.xx.xml

– SBE_HPE_ProLiant-Standard_x.x.xxxx.xx.zip

The SBE package will be validated during deployment and installed to the instance as Standard SBE version "4.0.0.0".

(b) After deployment is completed, create a folder in the Cluster Shared Volume (e.g., C:\ClusterStorage\UserStorage_1\SBE), place the three files listed above and discover the package using PowerShell as follows:

```
Add-SolutionUpdate -SourceFolder "C:\ClusterStorage\UserStorage_1\SBE"
```

Next, run the following to start the update:

```
Get-SolutionUpdate | Where-Object {$_.PackageType -eq "SBE" -and $_.State -eq "Ready"} |
Start-SolutionUpdate
```

For installation after deployment, follow the instructions in step (b) only.

The Minimal SBE can be installed using the same procedure as the Standard SBE. Follow step (a) only for installation during deployment. For installation after deployment, follow step (b) instructions.

Table 12. List of Solution Builder Extension releases **for Validated Nodes**

SBE version	Azure Local solution version	Notes
Minimal SBE 4.2.2606.1	12.x.1003.x	SPP support up to version 2026.05.00.00
Minimal SBE 4.2.2601.1	12.x.1002.x	SPP support up to version 2025.11.00.00
Minimal SBE 4.2.2507.1	12.x.1001.x and 11.x.1001.x	SPP support up to version 2025.05.00.00
Minimal SBE 4.1.2505.1	11.x.1001.x and 10.2503.x.x	SPP support up to version 2025.03.00.00
Minimal SBE 4.1.2412.2	10.2411.x.x	SBE Patch for Minimal SBE 4.1.2412.1
Minimal SBE 4.1.2412.1	Up to 10.2408.x.x	SPP support up to version 2024.11.00.00
Minimal SBE 4.1.2407.2	10.2311.x.x	SPP support up to version 2024.04.00.01
Minimal SBE 4.1.2403.2	10.2311.x.x	SPP support up to version 2023.09.00.00

Specific installation instructions for each SBE can be found in the Release Notes. To verify the SBE has been installed successfully, use `Get-SolutionUpdateEnvironment` as in Figure 2.

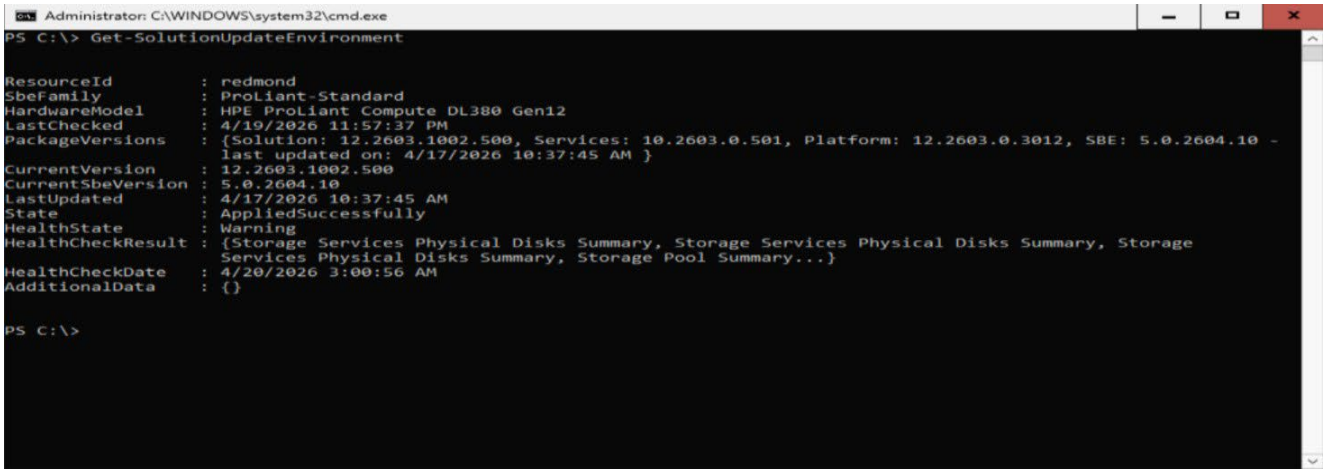


Figure 2. Current SBE version installed

For additional help, see Update Azure Local by using PowerShell.

Configuring the Windows Defender Application Control

Windows Defender Application Control (WDAC) is an enhanced security feature that reduces the attack surface of Azure Local by limiting the applications and drivers that can be run and installed. WDAC is enforced by default. To install new drivers and/or run other programs, disable it by switching the policy mode to audit as follows:

Check the current WDAC policy mode as shown in Figure 3:

```
Get-AsWdacPolicyMode
```

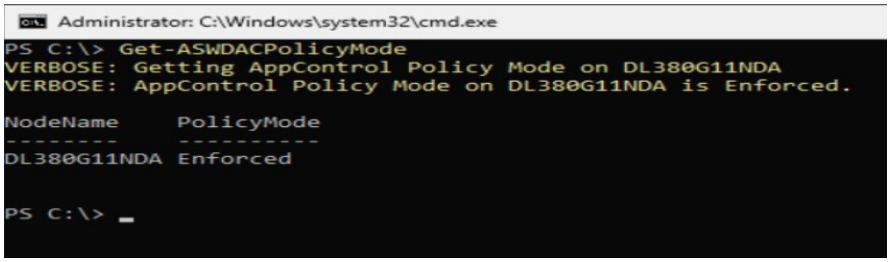


Figure 3. Checking the WDAC setting

Switching the policy mode:

```
Enable-AsWdacPolicy -Mode Audit
```

```
Enable-AsWdacPolicy -Mode Enforced
```

For more information on WDAC, see Manage Application Control for Azure Local.

Installation and deployment services for Azure Local

For Integrated Systems and Premier Solutions, the following on-site services are delivered to complete the deployment and integration of the solution into the environment:

– On-site installation and start-up
  - Installation of the solution rack into the data center if an HPE rack is selected.
  - Installation of servers and switches into a customer-provided rack if an HPE rack is not selected.
  - Hardware check and visual acknowledgment that all hardware components have power.
  - Cabling check to confirm all components are properly connected.

Optional services: HPE Landing Zone for Microsoft Azure Local Service

Service benefits

– Remote project management to manage all aspects of the services engagement

– Assist the customer in rapidly implementing Azure Local solution from HPE

– Validate core functionality following the solution implementation

– Provide basic solution-level knowledge transfer

Service feature highlights

– Pre-deployment readiness tracking

– Windows Admin Center deployment and/or configuration

– Azure Local node server hardware configuration

– Azure Local operating system configuration

– Azure Local instance creation

– Customer handoff

Resources for Azure Local

- Azure Local documentation
- HPE ProLiant for Azure Local QuickSpecs
- HPE Solutions for Azure Local | HPE
- HPE ProLiant Compute DL380 Gen12 Server Premier Solution for Azure Local (P86930-B21)
- HPE ProLiant Compute DL360 Gen12 Server Premier Solution for Azure Local (P86963-B21)
- HPE ProLiant DL380 Gen11 Server Premier Solution for Azure Local (P65984-B21)
- HPE ProLiant DL145 Gen11 Server Premier Solution for Azure Local (P78955-B21)
- HPE ProLiant for Azure Local Solutions User Guide
- HPE ProLiant for Azure Local Solutions Firmware and Software Compatibility Guide

Services and support

HPE Services—service and support

Get the most from your HPE products. Get the expertise you need at every step of your IT journey with HPE Services. We help you lower your risks and overall costs using automation and methodologies that have been tested and refined by HPE experts through thousands of deployments globally. Advisory services from HPE Services, focus on your business outcomes and goals, partnering with you to design your transformation and build a road map aligned to your unique requirements. Our consulting and operational support services can be leveraged to speed up time to production, boost performance, and accelerate your business. HPE Services specializes in flawless and on-time implementation, on-budget implementation, and creative configurations that get the most out of software and hardware alike.

Consume IT on your terms

GreenLake cloud brings the cloud experience directly to your apps and data wherever they are—edge, colocation, or data center. It delivers cloud services for on-premises IT infrastructure specifically tailored to your most demanding workloads. With a pay-per-use,* scalable, point-and-click self-service experience that is managed for you, GreenLake accelerates digital transformation in a distributed, edge-to-cloud world.

- Get faster time to market
- Save on TCO, align costs to business
- Scale quickly, meet unpredictable demand
- Simplify IT operations across your data centers and clouds

Managed services to run your IT operations

HPE Managed Services provides services that monitor, operate, and optimize your infrastructure and applications, delivered consistently and globally to give you unified control and let you focus on innovation.

Free up resources with Operational Services from HPE Services

HPE delivers services for IT by using proven best practices as well as automation and methodologies that have been tested and refined by HPE experts and artificial intelligence (AI) through thousands of deployments globally. Choose from the recommended services for customers purchasing from HPE or an authorized reseller. Services are quoted using HPE order configuration tools.

* May be subject to minimums or reserve capacity may apply

HPE Tech Care Service

HPE Tech Care Service is the new operational service experience for HPE products. HPE Tech Care Service goes beyond traditional support by providing access to product-specific experts, an AI-driven digital experience, and general technical guidance to not only reduce risk but constantly search for ways to do things better. HPE Tech Care Service has been reimagined from the ground up to support a customer-centric, AI-driven, and digitally enabled customer experience to move your business forward. HPE Tech Care Service is available in three response levels: Basic, which provides 9x5 business hour availability and a 1-hour response time; Essential, which provides a 15-minute response time 24x7 for most enterprise-level customers; and Critical, which includes a 6-hour repair commitment where available and outage management response for severity 1 incidents.

HPE Complete Care Service

HPE Complete Care Service is a modular, edge-to-cloud IT environment service that provides a holistic approach to optimize your entire IT environment and achieve agreed-upon IT outcomes and business goals through a personalized and customer-centric experience. All are delivered by an assigned team of HPE Services experts. HPE Complete Care Service provides:

- A complete coverage approach—edge to cloud
- An assigned HPE team
- Modular and fully personalized engagement
- Enhanced incident management experience with priority access
- Digitally enabled and AI-driven customer experience

HPE as Microsoft Cloud Solution Provider

Microsoft Cloud Solution Provider (CSP) program allows the customer to move away from transactional purchases of software and infrastructure and embraces cloud-driven business enablement with pay-as-you-go* solutions.

- CSP means no up-front commitment and there are no constraints of perpetual licenses. It provides enterprises with improved flexibility as they pay a predictable monthly bill based on their usage of Microsoft cloud services.
- Enterprises can contract solely with HPE as their CSP for the Azure subscription and services. The price and payment relationship with the CSP simplifies the billing, as it avoids the hassle of keeping track of multiple billing cycles for different subscriptions with Microsoft.
- Customers can save cost and increase the efficiency of their IT spending by switching from transactional and perpetual purchases of software and infrastructure and embracing cloud-driven business enablement with pay-as-you-go* pay-per-minute solutions.
- It is a CSP program requirement that CSP partners must include support when reselling the subscription. Customers will contact their CSP for level 1 and level 2 support, and the CSP is required to help resolve the problem for the customer. The CSP can elevate calls to Microsoft if needed but the CSP remains responsible for all customer communications.

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For additional information on the Microsoft CSP program, visit partner.microsoft.com/en-US/partnership/cloud-solution-provider.

HPE can also provide remote support for Microsoft Cloud Services (Azure and Office 365) through Microsoft's proven access model for partners such as Microsoft Azure Lighthouse and granular delegated admin privileges (DAP) to existing cloud customers when HPE is not the customer's CSP.

For additional information on the Microsoft Managed Services features for remote access, visit:

Azure Lighthouse documentation

Introduction to granular delegated admin privileges (GDAP)

Learn more at

HPE.com/solutions/AzureStackHCI

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