Hewlett Packard Enterprise

Administrator Guide

HPE ProLiant DL380 Gen11 Solutions for SAP HANA Administration, Operations and Troubleshooting Guide

Scale-up configurations built with the Intel® Xeon® Scalable 4th Generation Processor (Sapphire Rapids) processors

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INTRODUCTION

The HPE ProLiant DL380 Gen11 is SAP certified for SAP HANA appliances, or SAP HANA Tailored Datacenter Integration (TDI) deployments for up to 4TB of memory, making it ideal for small to medium use cases across Suite on HANA (SoH), Business Warehouse on HANA (BWoH), Business Warehouse for HANA (BW4H), or Data Mart (DM). The HPE ProLiant DL380 Gen11 Scale-up for SAP HANA is a hardware and software solution that integrates SAP HANA with industry-leading HPE ProLiant DL380 Gen11 enterprise servers.

The HPE ProLiant DL380 Gen11 Scale-up for SAP HANA a hardware and software solution that integrates SAP HANA with industry-leading HPE ProLiant DL380 Gen11 enterprise servers.

Refer to the section References for more information on SAP HANA, RHEL, SLES, HPE ProLiant Servers Quickspecs and userguides.

Target audience: This document is intended to assist SAP solution architects, SAP database and basis administrators, storage administrators, and IT professionals who are involved in planning and deploying HPE ProLiant DL380 Gen11 Scale-up solutions for SAP HANA. This document assumes you have experience with SAP HANA databases, familiarization with HPE ProLiant DL380 Gen11 Servers, and understanding of Linux operating systems (SLES for SAP Applications and RHEL for SAP Solutions).

OPERATING SYSTEM AND SAP HANA LICENSE STATEMENT

This HPE solution contains an unlicensed copy of the SAP HANA database software by SAP, RHEL and SUSE operating system licenses from Red Hat and SUSE respectively. Each SAP product is subject to its respective SAP end-user license agreement. You are not licensed to use the copy of the SAP HANA software contained in the HPE solution until you have purchased, or have available for use, the appropriate license from SAP, or its authorized distributors. Contact your SAP representative to obtain the applicable license rights to use the SAP HANA database software.

STORAGE PARTITIONING LAYOUT FOR OPERATING SYSTEM AND SAP HANA DATABASE

The partition layout given here has been used to certify the HPE ProLiant DL380 Gen11 server for SAP HANA Appliance.

Figure 1 represents the standard and recommended partitioning layout for SUSE operating system. operating system partitioning will remain same for all memory offering while the partitioning layout for persistent storage for SAP HANA will vary according to the memory configuration.

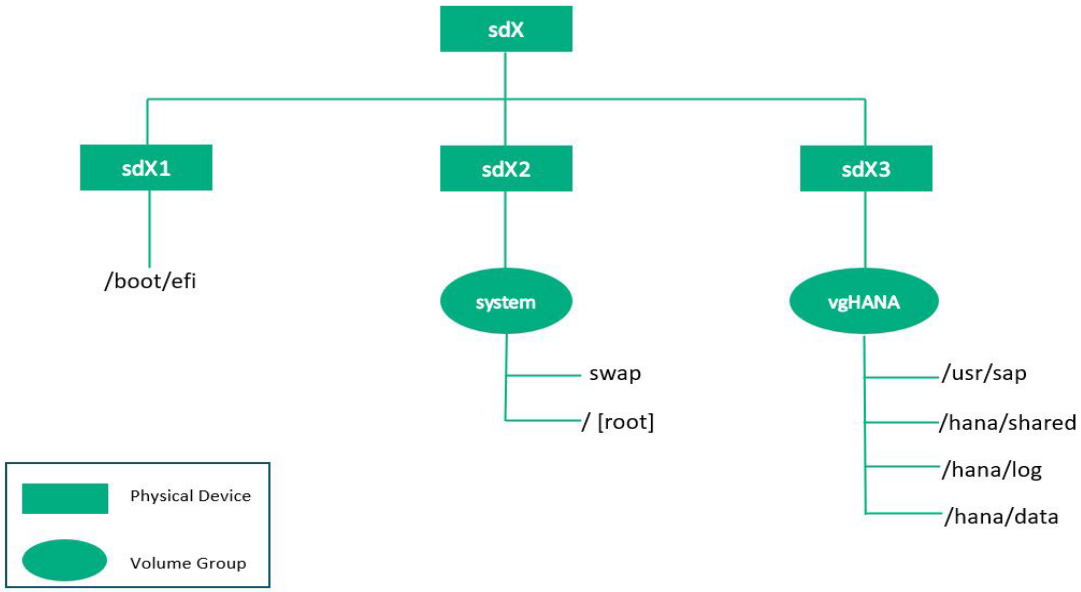


FIGURE 1. Storage partitioning layout for SUSE Operating System

Figure 2 represents the standard and recommended partitioning layout for RHEL operating system. Operating system partitioning will remain same for all memory offering while the partitioning layout for persistent storage for SAP HANA will vary according to memory configuration.

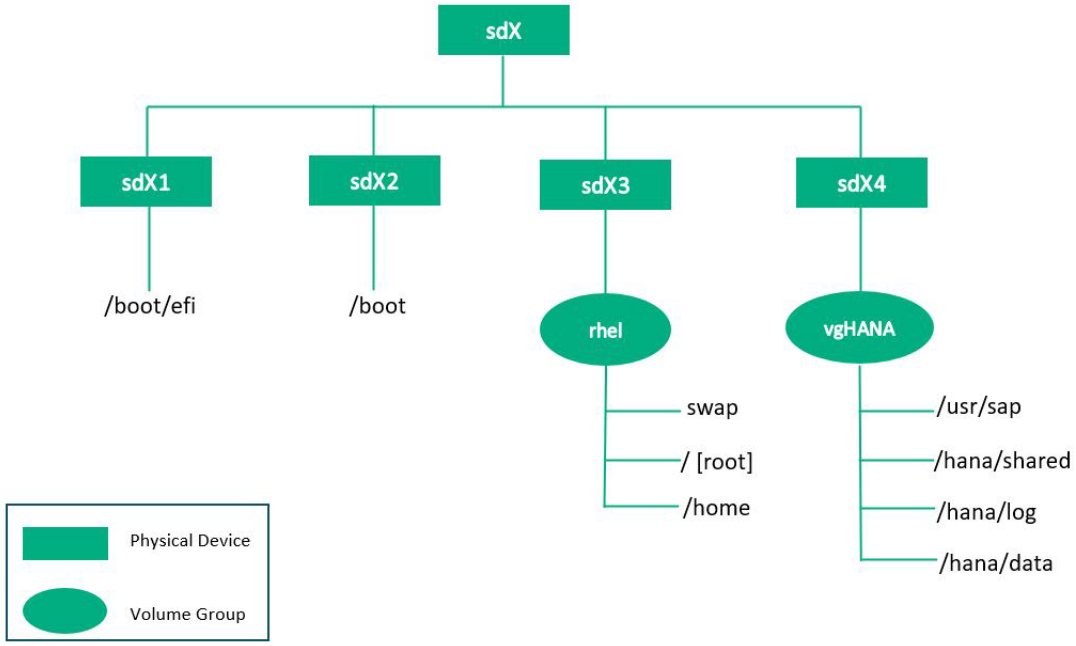


FIGURE 2. Storage partitioning layout for RHEL Operating System

Figure 3 shows the SAP recommended file system layout required for SAP HANA database installation, , where <m> depicts Host Number and <n> is the number of services with their own persistence

File directory structure is shown as below:

/hana/shared – shared files, binaries

/hana/data – HANA DATA

/hana/log – HANA LOG

/usr/sap – HANA admin directory

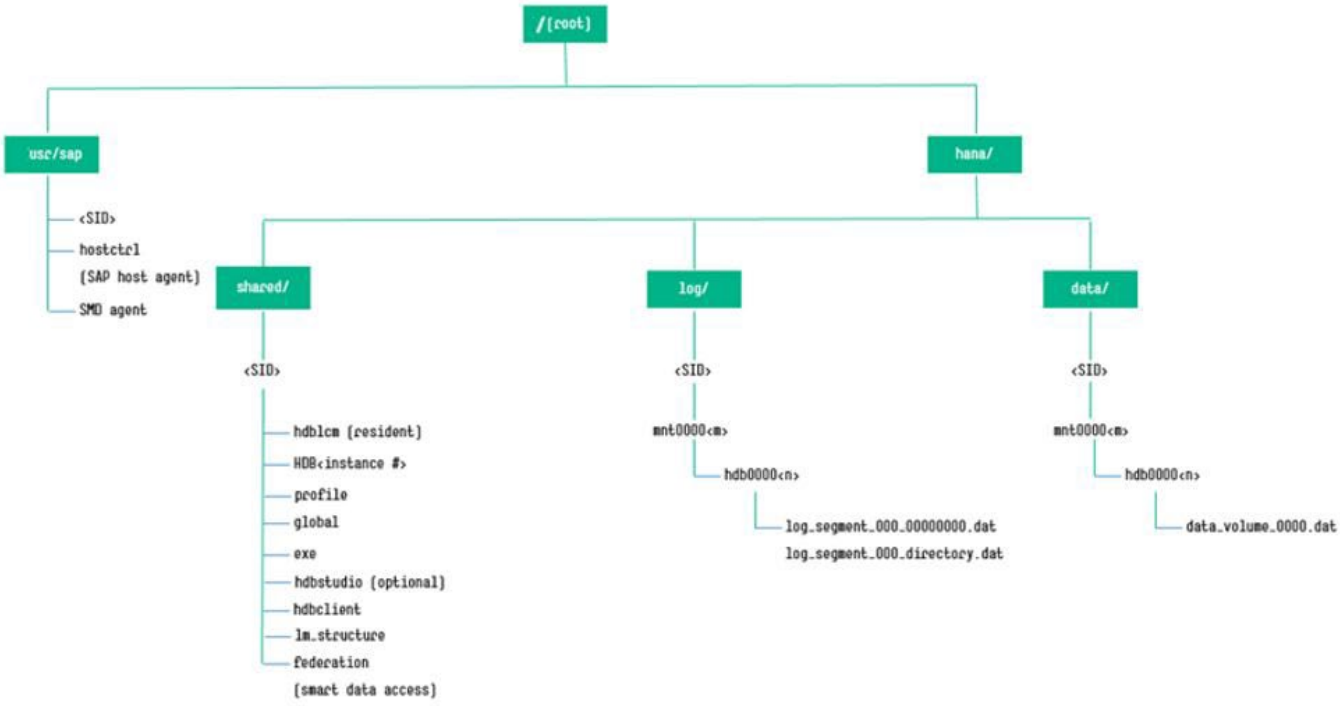


FIGURE 3. SAP recommended file system layout with edits for deployment overlay

Storage drive layout using 6.4TB NVMe SSD

Three mandatory persistent data storages are required to implement SAP HANA Appliance: shared, LOG, and DATA storages. Table 1 shows the required space and the partition size requirement for SAP HANA Database Appliance and its persistent data storage.

TABLE 1. Storage Drive Layout using 6.4TB NVMe SSD (Sizes are in GB)

Memory	No. of Drives	RAID	Shared	LOG	DATA
256	3	5	2048	1536	6144
512	3	5	2048	1536	6144
1024	3	5	2048	1536	6144
2048	3	5	2048	1536	6144
4096	5	5	4096	1536	12288

The SAP HANA persistent data storage layout will remain the same for 256GB, 512GB, 1.0TB, and 2.0TB as to achieve these memory configurations 3x 6.4TB NVMe SSD is required, and the filesystem layout and their respective sizes are described.

While for 4.0TB Memory configuration 5x 6.4TB NVMe SSDs are required to fulfill the space requirement for SAP HANA persistent storage mount points.

Table 1 shows minimum requirement, in case the customer is asking for more storage than the total number of disks can be grown to 8x 6.4TB using RAID50 and given persistent storage space can be expanded.

Storage drive layout using 3.2TB NVMe SSD

Like the previous section, this section shows the requirement of storage for each persistent storage partition for SAP HANA Appliance configuration using 3.2TB NVMe SSDs

The first column in Table 2 shows the SAP HANA memory configuration and the second column shows the required number of 3.2TB NVMe SSD along the RAID configuration. The next columns show the partition sizes for shared, LOG, and DATA filesystems.

TABLE 2. Storage Drive Layout using 6.4TB NVMe SSD (Sizes are in GB)

Memory	No. of Drives	RAID	Shared	LOG	DATA
256	3	5	1024	1536	1536
512	3	5	1024	1536	1536
1024	4	5	1024	1536	3072
2048	5	5	2048	1536	6144
4096	8	50	4096	1024	12288

The number of NVMe SSDs is from three (3) to eight (8) here. But for a 4.0TB Memory configuration we recommend using 6.4TB NVMe SSDs.

NETWORKING

HPE collects a set of parameters for each installation. One requirement is to collect networking details such as network addresses and the type and quantity of networks required. Figure 4 shows the network connections touch points.

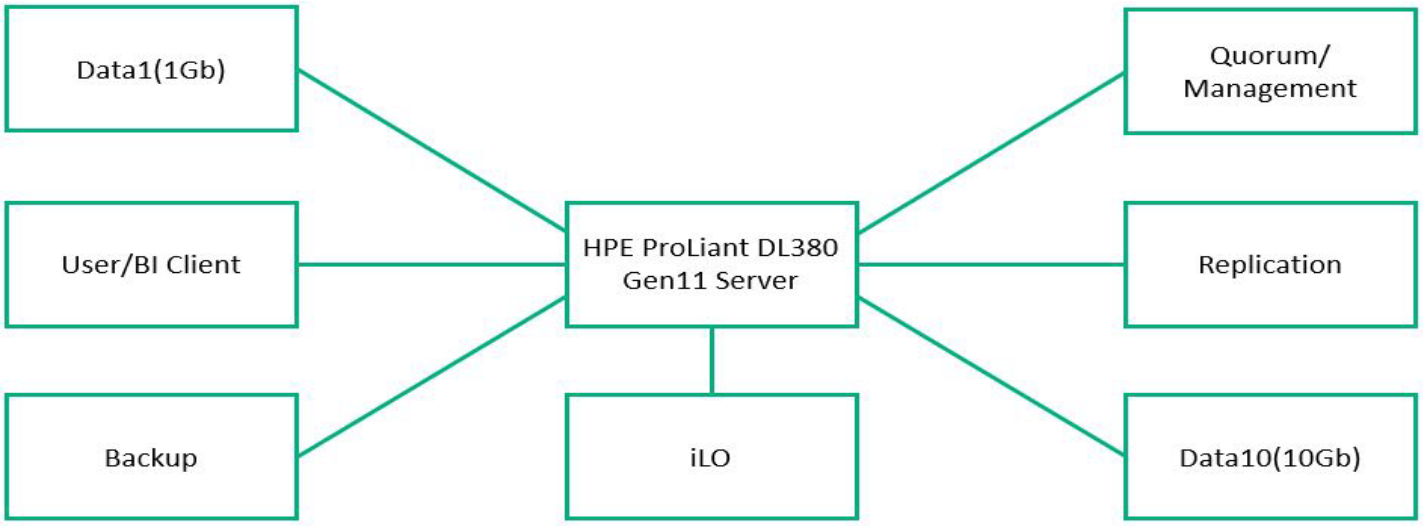


FIGURE 4. Network connections touch points

Ensure that the network drivers and firmware have been updated. Verify the HPE support portal for the latest HPE ProLiant DL380 Gen11 server driver/firmware pack.

For optimized network configuration for SAP HANA, refer the SAP Note 2382421.

Table 3 shows the network zone and description with bandwidth details.

TABLE 3. Network configuration details

Network Zone	Purpose	Bandwidth and Bond
DATA 1	Purposed for data traffic from other SAP applications. Generally, this network is connected to SAP application servers and other source systems, which are supposed to interact with the HANA landscape	1 Gbps / Bond 8 NIC
User/BI Client	Purposed to external connection for SAP HANA client to run SQL queries and/or for external application to connect to SAP HANA for fetching the analytical data	10 Gbps / Bond 3 NIC

Network Zone	Purpose	Bandwidth and Bond
Backup	Dedicated backup link to take the backup of HANA landscape log, data, and shared volumes	1 Gbps / Bond 7 NIC
Management network	To connect to the landscape and handle the management task	1 Gbps / Bond 4 NIC
DATA 10	Same as DATA 1 with 10 Gbps	10 Gbps / Bond 2 NIC
Replication	To replicate the HANA Landscape from primary to secondary HANA system	10 Gbps / Bond6 NIC
Quorum[1]	Required if HPE Serviceguard is used to automate failover process across two systems, used to manage the failover and failback of HANA Landscape	1 Gbps / Bond 4 NIC

These connections help isolate the traffic types onto their own LANs or VLANs. If the HPE Factory Express Integration Service is purchased for this configuration, HPE will set up these connections in the HPE factory prior to delivery.

The HPE ProLiant DL380 Gen11 solution for SAP HANA provides the provision for bonding across network cards for high availability.

The network architecture layout and the network bond mapping with device ports are detailed in the following.

Network connections for 2-socket configurations

The independent and secured network channels that we can use are described in this section.

The network layout shown in Figure 5 is a minimal requirement for SAP HANA Appliance implementation, and it is described in detail in the configuration and VISIO diagram. In case the customer is willing to add more network bandwidth, it is allowed to add 1 or 2 network cards as mentioned in the order guide for SAP HANA Appliance.

Figure 5 shows the network connections layout in a 2-socket configuration.

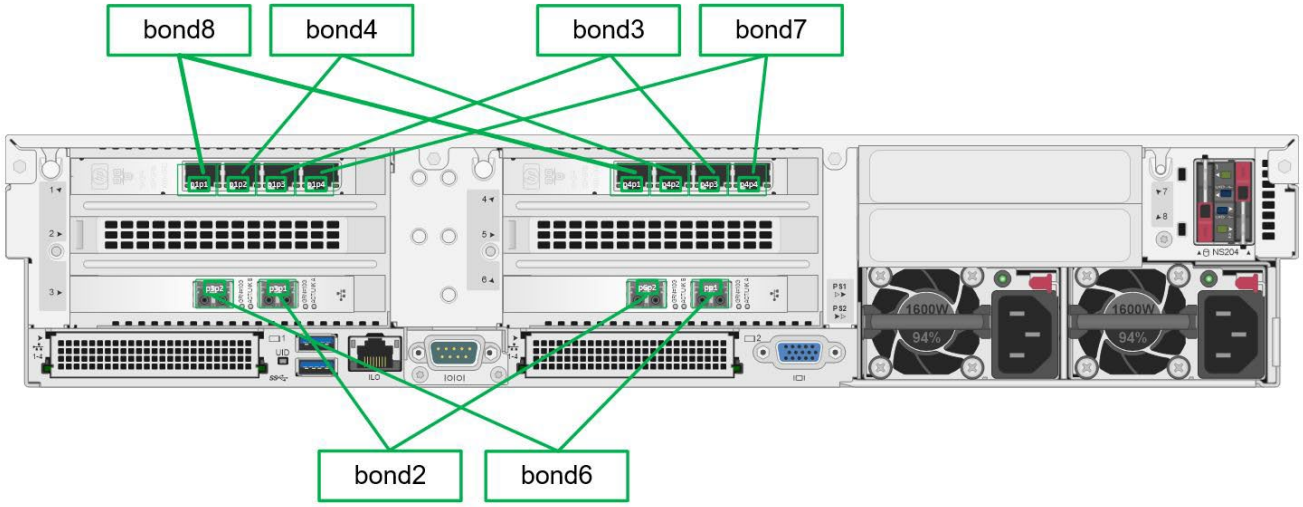


FIGURE 5. Network connections layout - 2- socket configuration

[1] Management and Quorum can use the same bond configuration

Table 4 shows the network bond mapping with device ports in a 2-socket configuration.

TABLE 4. Network bond mapping with device ports (2-socket)

Bond Name	Bonding NIC 1	Bonding NIC 2	Speed	Network Traffic
Bond3	P1P3	P4P3	1Gbps	User/BI Client
Bond4	P4P2	P1P2	1Gbps	Management/Quorum
Bond7	P4P4	P1P4	1Gbps	Backup
Bond8	P1P1	P4P1	1Gbps	Data 1
Bond2	P3P1	P6P2	10Gbps or 10/25Gbps	Data 10
Bond6	P6P1	P3P2	10Gbps or 10/25Gbps	Replication

NOTE
The figure is for representation purposes only, refer Table 4 for bonding details and its bonding member NICs, use the appropriate ports on the Network cards and Fiber Channel cards installed in the server.

MAINTENANCE AND OPERATIONS

Tasks and responsibilities

To understand how to work with Hewlett Packard Enterprise, SAP, and the operating system providers in supporting the appliance in your environment, review your support contract. Administer each component using the appropriate methods described in the manuals for that device.

Table 5 shows the roles, responsibilities, maintenance, and operation tasks that are defined in the SAP HANA Technical Operations Manual.

TABLE 5. Roles and responsibilities

Phase	Task	Responsible
Provisioning/Setup		
	Installation of Hardware	Hardware Partner
	Installation of operating system	Hardware Partner
	Installation of SAP HANA Platform	Hardware Partner
	Adding Additional SAP HANA database instances (MCOS)	Customer
	Data Source Connectivity	Customer
	Installation of SMD Agent	Customer
Maintenance		
	Patching of Firmware	Customer (*)
	Patching of operating system	Customer (*)
	Patching of SAP HANA Platform components	Customer
	Patching of peripheral components	Customer
	Upgrade of operating system	Customer (*)
	Update of SAP HANA platform components	Customer
Operations		
	General administration of SAP HANA database	Customer

Phase	Task	Responsible
	Backup and Recovery	Customer
	Bare Metal Recovery	Customer
	SAP HANA System Monitoring	Customer
	SAP HANA Database Monitoring	Customer
	Installation of third-party software components	Customer
Support		
	Issue Handling Process	SAP, Customer (*), (**)

(*) The customer is generally responsible for maintenance of the SAP HANA system. If the customer has a special support agreement with the hardware partner, maintenance may be the responsibility of the hardware partner.

(**) SAP is the main point of contact and distributes all issues within the support organization by default, as is the case for other SAP applications. If the customer has defined special support agreements with the hardware partner, the customer should contact the hardware partner directly in cases of obvious hardware or operating system issues. If no agreements have been made neither SAP nor the hardware partner are responsible for the installation, maintenance and possible adjustment of external software installed on the SAP HANA system.

NOTE
HPE recommends the following data center best practices to connect HPE servers, storage, and switches for power, networking, and fiber channel. Doing so will minimize downtime and inconveniences.

Provisioning and setup

HPE offers the HPE Factory Express Integration Service to provide a preintegrated solution including hardware, operating system and SAP HANA per your specifications as identified in your Customer Intent Document (CID). HPE Installation Services provide onsite hardware installation services. And HPE offers the HPE Rapid Deployment Service to build on the HPE Factory Express Integration Service by integrating the DL380 Gen11 Scale-up configuration into your environment.

Maintenance

Customers are responsible for various maintenance tasks for the HPE ProLiant DL380 Gen11 Scale-up configuration. HPE offers optional services for some maintenance activities such as firmware updates and operating system updates or upgrades.

Support

HPE provides standard support services to help protect your investment. For details on support services, see the HPE ProLiant DL380 Gen11 Solutions for SAP HANA QuickSpecs and the specific support service Data Sheet.

Manageability softwares, utilities and tools

Insight Remote Support

HPE Insight Remote Support (IRS) provides remote support to certain devices under warranty or support services contract. Tools such as HPE IRS might require installation on a separate Microsoft Windows server before some support tasks can be run. These tools are subject to the site security requirements and network protocol. Follow all security protocols, and if approved, apply the approved security and anti-virus processes before exposing the system to the external network, and before connecting to an internet domain or downloading software to the system.

HPE OneView

NOTE
Do not edit the configuration of an HPE ProLiant DL380 Gen11 Solutions for SAP HANA using HPE OneView in Manage mode. These changes could impact the integrity of the solution. For assistance with updating your HPE ProLiant DL380 Gen11 Solutions for SAP HANA, contact your HPE Pointnext services representative.

The best practice for using HPE OneView with HPE ProLiant DL380 Gen11 Solutions for SAP HANA is to monitor, but not manage. When you install HPE OneView with HPE ProLiant DL380 Gen11 Solutions for SAP HANA, select the Monitor mode.

For HPE ProLiant DL380 Gen11 Solutions for SAP HANA, HPE does not recommend enabling the remote monitoring capabilities of HPE OneView. Enabling HPE OneView remote monitoring would override the HPE Insight Remote Support (HPE IRS) solution configuration information, impacting proper case routing for your HPE ProLiant DL380 Gen11 Solutions for SAP HANA to the appropriate HANA support resources.

When using both HPE IRS and HPE OneView to monitor a HPE ProLiant DL380 Gen11 Solutions for SAP HANA, use HPE IRS for remote monitoring and use HPE OneView for local monitoring of devices. Hewlett Packard Enterprise recommends engaging HPE Pointnext Services to configure HPE IRS or HPE OneView on your HPE ProLiant DL380 Gen11 Solutions for SAP HANA.

Resources

- HPE OneView Installation guide for customers: Hewlett Packard Enterprise Information Library
- HPE Get Connected: www.hpe.com/services/getconnected

SAP HANA Studio

SAP HANA Studio is the tool used for general administration and monitoring functions related to SAP HANA. The system includes a Linux version of SAP HANA Studio that is installed on the delivered SAP HANA database node.

To install SAP HANA Studio, refer the SAP HANA Studio Installation Guide. Many administrative functions are provided by SAP HANA Studio. Follow the instructions available in the SAP HANA Server Installation and Update Guide, as needed. For more information, refer the section References

SAP HANA Cockpit

SAP HANA cockpit provides a single point of access to a range of tools for administration and detailed monitoring of SAP HANA databases. SAP HANA cockpit should be installed on a dedicated system. It is a web based HTML5 user interface that is accessible through a browser. Follow the instructions available in the SAP HANA Administration Guide and the SAP HANA Server Installation and Update Guide, as needed. For more information, see the section References.

YaST

YaST (Yet another Setup Tool) is an operating system setup and configuration tool for the SLES distribution. Use this tool to perform normal operating system maintenance.

RHEL web console

The RHEL web console is a Red Hat Enterprise Linux web-based interface designed for managing and monitoring your local system, as well as Linux servers located in your network environment. The RHEL web console enables you to perform a wide range of administration tasks, more details are available in Getting started using the RHEL web console.

HPE GreenLake for Compute Ops Management

HPE GreenLake for Compute Ops Management streamlines your compute management operations using a seamless as-a-service single console experience from edge to cloud with self-service and real-time access to servers. To configure and use Compute Ops Management, please refer to the Getting Started Guide.

IP Addresses

If the customer orders the HPE Factory Express Integration Service, IP addresses for the components in the solution are listed in the CID.



Managing Licenses

For SAP HANA, refer the *Managing SAP HANA Licenses* section in the SAP HANA Administration Guide.

For SLES, this process should be handled upon delivery of the system. Hewlett Packard Enterprise offers the SLES subscriptions for electronic delivery. For the registration process, perform the following steps:

1. You will receive an email which includes your Hewlett Packard Enterprise License Entitlement Certificate containing your Entitlement Order Number.
2. Go to the Hewlett Packard Enterprise Software Licensing Portal to retrieve your SUSE activation token.
3. Once you retrieve your activation token, go to the SUSE website to activate your subscriptions.

For RHEL, obtain the activation code and follow the steps provided in the Red Hat website to activate your subscriptions.

Managing users

The default user identifiers and passwords for the components are listed in the CID.

There are two user sets for SAP HANA and SLES and RHEL, they are managed accordingly.

For SAP HANA, refer the SAP HANA Administration Guide, *Managing SAP HANA Users*.

For SLES, refer the YaST User and Group Administration dialog.

For RHEL, refer *Managing Users and Groups* in the Red Hat Enterprise Linux System Administrator's Guide.

For the other components, see the appropriate user guide.

Power-on sequence

1. Power on the server.
2. Verify that all components are powered on.
3. Start SAP HANA database using the SAP HANA Studio.

Power-off sequence

To power off the servers:

1. Stop SAP HANA database using SAP HANA Studio, or by using the command line, and wait for the HANA processes to stop.

   To stop the SAP HANA database using command line.

   a. Log in to the server as `<sid>adm` user.

   b. Execute `HDB stop`.

   c. Verify all the processes are stopped.
2. Shut down SLES/RHEL and power off the server.

Backups

Use the site recommended tools and procedures to backup the SAP HANA nodes and SAP HANA Studio or site recommended tools to backup the SAP HANA database. HPE does not recommend attempting to backup to the SAP HANA server and its direct attached storage.

SAP HANA best practices

Avoid system outages

Follow the list of guidelines to avoid system outages:

1. Manage firmware/driver updates.
2. Schedule installation of updates (drivers and firmware) for HPE ProLiant DL380 Gen11 Scale-up for SAP HANA periodically with HPE personnel.
3. Ensure that there is sufficient free space available on the SAP HANA file systems including HANA shared, data, and log.



To view the available free space, run the `df -h` command on the HANA nodes.

4. The size of the HANA database must not exceed the physical memory installed on the system.
5. Ensure that backup and replication activities are configured on the network with optimal speed.
6. The following tasks must be performed by HPE service personnel only:
   a. Connecting the HPE ProLiant DL380 Gen11 Scale-up for SAP HANA Solutions to the Customer Enterprise Network
   b. Replacing any cables in the HPE ProLiant DL380 Gen11 Scale-up for SAP HANA Solutions

> **NOTE**
> HPE recommends using HPE cables only. Use of non-HPE cables will not guarantee proper contacts and the HPE ProLiant DL380 Gen11 Scale-up for SAP HANA Solutions might not function correctly.

   c. Updating the operating system kernel
7. Do not use operating system file systems for saving any other files or for storing operating system or SAP HANA database backups.
8. Do not update any of the kernel parameters as this update might reduce system performance.

SAP HANA issues

- During instances when SAP HANA database is not responding and/or services don't start anymore, refer to SAP Note 2072410 for enlarge limitation of log segment number of log segment directory.
- **Symptom:** If backup of log isn't run regularly for whatever reason, the number of log segment files can grow rapidly. Reaching the limit causes a log Full situation so that the database does not respond and/or services cannot start anymore.
- **Reason and prerequisites:** Any revision of SAP-HANA-Database.

Solution: The existing directory limitation of 10240 segment files must be configured in DB state offline, with the hdblogdiag-Tool.

Backups

Refer to the section Backups for more information on SAP HANA database backup.

HPE Serviceguard

If HPE Serviceguard daemon `cmcld` write warnings messages in /var/log/messages file that indicates the problem. The following three describe the errors that can occur.

Warning: cmcld was unable to run for the last <n.n> seconds. Consult the Managing Serviceguard manual for guidance on setting `MEMBER_TIMEOUT`, and information on `cmcld`.

If this message appears, increase `MEMBER_TIMEOUT` to more than 10 times the largest reported delay.

- This node is at risk of being evicted from the running cluster. Increase `MEMBER_TIMEOUT`.
- If network traffic is high, increase the timeout.
- Member node_name seems unhealthy, not receiving heartbeats from it.

If you have diagnosed and fixed root cause problem, for example, Network Interface Card (NIC) failure and are confident that it won't reoccur, you don't need to take any further action, otherwise you should increase `MEMBER_TIMEOUT`.

For more information refer the Cluster Re-formations Caused by MEMBER_TIMEOUT Being Set too Low on Page 317 in HPE Serviceguard for Linux Concepts Guide A.15.00.00 at: http://hpe.com/info/linux-serviceguard-docs.

Troubleshooting

Common problem resolutions

The following list provides some recommendations for starting the troubleshooting process. Before calling for service, perform the following basic troubleshooting procedures. If the following procedures do not solve your problem, follow the instructions for accessing HPE support.



1. Power and connectivity issues
   a. Isolate the problem to the component level by checking power and connectivity.
   b. Check any interlock or interconnect LEDs that may indicate a component is not connected properly.
   c. Be sure all power cords are securely connected.
   d. Be sure all network cables are properly aligned and securely connected.
   e. If a device has latches, be sure they are completely closed and locked.
2. Server and storage issues
   a. For server and storage, use the HPE Service Pack for ProLiant (SPP) tools to check basic operational statistics.
   b. For networking, isolate to the network and port using ping and troubleshoot from this point.
   c. Ensure that all the file systems, including SAP HANA data and log, have enough free space.
3. SAP HANA Studio tools (database issues)

   SAP HANA Studio has monitoring capability. Use this tool to discover issues with the SAP HANA software.

Service notifications

To search for service notifications, see the Hewlett Packard Enterprise Support Center. Enter the product name or number, and then click **Go**. Select **Advisories, Bulletins and Notices**. The complete list of documents is displayed.

Safety considerations

Important safety information

Familiarize yourself with the safety information in the following sections before troubleshooting the server.

IMPORTANT SAFETY INFORMATION

Before servicing this product, read the Important Safety Information document provided with the server.

Warnings and cautions

The following symbols may be placed on equipment to indicate the presence of potentially hazardous conditions.

	This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel. **WARNING**: To reduce the risk of injury from electric shock hazards, do not open this enclosure. Refer all maintenance, upgrades, and servicing to qualified personnel.
	This symbol indicates the presence of electric shock hazards. The area contains no user or field serviceable parts. Do not open for any reason. **WARNING:** To reduce the risk of injury from electric shock hazards, do not open this enclosure.
	This symbol on an RJ-45 receptacle indicates a network interface connection. **WARNING**: To reduce the risk of electric shock, fire, or damage to the equipment, do not plug telephone or telecommunications connectors into this receptacle.
	These symbols indicate the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists. **WARNING**: To reduce the risk of injury from a hot component, allow the surface to cool before touching.

	These symbols, on power supplies or systems, indicate that the equipment is supplied by multiple sources of power. **WARNING**: To reduce the risk of injury from electric shock, remove all power cords to disconnect power from the system completely.

Electrostatic discharge

Preventing electrostatic discharge

To prevent damaging the system, be aware of the precautions you must follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage:

1. Avoid hand contact by transporting and storing products in static-safe containers.
2. Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
3. Place parts on a grounded surface before removing them from their containers.
4. Avoid touching pins, leads, or circuitry.
5. Always be properly grounded when touching a static-sensitive component or assembly.

Grounding methods to prevent electrostatic discharge

Several methods are used for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

1. Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm ±10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
2. Use heel straps, toe straps, or bootstraps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
3. Use conductive field service tools.
4. Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have an authorized reseller install the part.

For more information on static electricity or assistance with product installation, contact an authorized reseller.

HPE services

The entitlement to HPE services is determined by the HPE support offer purchased. Customers may contact HPE either via phone or electronic case logging. Instructions for case logging are provided in the customer support agreement.

Support and other resources

Accessing Hewlett Packard Enterprise support

- For live assistance, go to the contact Hewlett Packard Enterprise Worldwide website: http://www.hpe.com/assistance
- To access documentation and support services, go to the Hewlett Packard Enterprise Support Center website: http://www.hpe.com/support/hpesc

Information to collect

- Technical support registration number (if applicable)
- Product name, model or version, and serial number
- Operating system name and version

- Firmware version
- Error messages
- Product-specific reports and logs
- Add-on products or components
- Third-party products or components

Accessing updates

To download product updates:

- Hewlett Packard Enterprise Support Center: https://www.hpe.com/support/hpesc
- Hewlett Packard Enterprise Support Center: Software downloads: www.hpe.com/support/downloads
- Software Depot: http://www.hpe.com/support/softwaredepot
- To subscribe to E-Newsletters and alerts: www.hpe.com/support/e-updates
- To view and update your entitlements, and to link your contracts and warranties with your profile, go to the Hewlett Packard Enterprise Support Center More Information on Access to Support Materials page: www.hpe.com/support/AccessToSupportMaterials

NOTE

Access to some updates might require product entitlement when accessed through the Hewlett Packard Enterprise Support Center. You must have an HP Passport set up with relevant entitlements.

Customer Self-Repair

Hewlett Packard Enterprise customer self-repair (CSR) programs allow you to repair your product. If a CSR part needs to be replaced, it will be shipped directly to you so that you can install it at your convenience.

Some parts do not qualify for CSR. Your Hewlett Packard Enterprise authorized service provider will determine whether a repair can be accomplished by CSR.

For more information about CSR, contact your local service provider or go to the HPE Support Center home

Warranty information

To view the warranty for your product, see the Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products document, available at the Hewlett Packard Enterprise Support Center: www.hpe.com/support/Safety-Compliance-EnterpriseProducts.

Additional warranty information

HPE ProLiant and x86 Servers and Options, www.hpe.com/support/ProLiantServers-Warranties

HPE Storage Products, www.hpe.com/support/Storage-Warranties

HPE Networking Products,www.hpe.com/support/Networking-Warranties

Regulatory information

To view the regulatory information for your product, view the Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products, available at the Hewlett Packard Enterprise Support Center: www.hpe.com/support/Safety-Compliance-EnterpriseProducts

Additional regulatory information

Hewlett Packard Enterprise is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and the Council). A chemical information report for this product can be found at: www.hpe.com/info/reach

For Hewlett Packard Enterprise product environmental and safety information and compliance data, including RoHS and REACH, see: www.hpe.com/info/ecodata



For Hewlett Packard Enterprise environmental information, including company programs, product recycling, and energy efficiency, see: www.hpe.com/info/environment

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References

- SAP HANA Platform Documentation
- SAP HANA Administration Guide
- SAP HANA Server Installation and Update Guide

HPE ProLiant Servers and Storage Controllers

- HPE ProLiant Servers and Systems
- HPE ProLiant DL380 Gen11 QuickSpecs
- HPE ProLiant DL360 Gen11 QuickSpecs
- HPE ProLiant DL380 Gen11 Server User Guide
- HPE ProLiant DL360 Gen11 Server User Guide
- HPE Compute MR Gen11 Controllers
- HPE Compute SR Gen11 Controllers

SUSE Linux Enterprise Server for SAP Applications: SLES 15 SP4

Red Hat Linux Enterprise Server: https://access.redhat.com/documentation/en-us/red_hat_enterprise_linux/8/html/configuring_basic_system_settings/index



RESOURCES AND ADDITIONAL LINKS

HPE Reference Architectures, hpe.com/info/ra

HPE Servers, hpe.com/servers

HPE Storage, hpe.com/storage

HPE Networking, hpe.com/networking

HPE Technology Consulting Services, hpe.com/us/en/services/consulting.html

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