SAP on Cloud Solution

# Feature Tree

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# Contents



  

# 1 SAP on Cloud Solution Features Overview

| Category | Feature | Description |
| --- | --- | --- |
| SAP Certifications | Huawei and SAP have worked closely since partnering in 2012. Huawei has many SAP certifications for servers, virtualization, SAP HANA, SAP ASE, SAP NetWeaver Application Server with ABAP and Java, SAP Business One, and SAP Operations & Hosting. More offerings will be certified in the future. | |
| | **Various SAP Certified HANA ECSs** | The solution provides many types of HANA ECSs with 348 GB to 4 TB of memory and up to 208 vCPUs. These ECSs have been certified by SAP and can be used in your development, testing, and production systems. For details about the HANA ECS specifications, see **Recommended ECS Configuration for SAP HANA**.<br>To deploy the SAP HANA database, see the **SAP HANA User Guide**. |
| | **Various SAP Certified Application ECSs** | HUAWEI CLOUD provides many types of ECSs with 8 GB to 512 GB memory. These ECSs have been certified by SAP and can be used in your development, testing, and production systems. For more information, see **SAP S/4HANA Data Planning** and **SAP NetWeaver ECS Flavors**.<br>• To deploy SAP NetWeaver, see the **SAP NetWeaver User Guide**.<br>• To deploy SAP S/4HANA, see the **SAP S/4HANA Quick Deployment User Guide** and **SAP S/4HANA HA Deployment Guide**. |

| Category | Feature | Description |
| --- | --- | --- |
| | **Various SAP Certified Business One ECSs** | SAP Business One is an enterprise resource planning (ERP) software designed by SAP to meet the ever-changing requirements of developing small-and medium-sized enterprises. HUAWEI CLOUD released many ECSs with 64 GB to 256 GB memory that are suitable for SAP Business One. These ECSs have been certified by SAP and can be used in your development, testing, and production systems. For details, see **SAP Business One ECS Specifications**.<br>To deploy SAP Business One. For details, see the **SAP Business One User Guide** and **SAP Business One Quick Deployment Guide**. |
| High Performance | Before deploying the SAP system at the infrastructure provided as a service (IaaS) layer, you need to plan the resources based on the enterprise SAP system requirements. The storage IOPS, VM instance SAPS, and network interfaces are important aspects for resource planning. | |
| | **High-Performance Elastic Cloud Server** | The SAP Application Performance Standard (SAPS) is a hardware-independent measurement unit describing the performance of a system configuration in the SAP environment. Holding CPUs and memory size constant, a higher SAPS value indicates better performance. Generally, the SAPS value in the HANA project is the score in the SAP SD tier-2 benchmark test. SAP HANA–certificated Xeon V5 ECSs (1.5 and 3 TB of memory) have excellent BWH performance. The SAP Xeon V5 m3 ECSs support up to 32 vCPUs and 256 GB of memory. The SAPS value ranked No. 1 among products of the same specifications. |
| | **High-Performance Storage** | HUAWEI CLOUD provides multiple high-performance storage services, such as Object Storage Service (OBS) and Elastic Volume Service (EVS), meeting large throughput and high read/write speed requirements.<br>• An EVS disk provides a maximum of 33000 IOPS and 350 Mbit/s throughput with latency down to 1 ms.<br>• OBS provides users with high concurrency (tens of millions of TPS), high bandwidth (2.4 Gbit/s of single-flow upload), and stable low latency (small object uploading latency < 10 ms) through intelligent scheduling, transmission acceleration, and vertical big data optimization. |
| | **High-Performance Network** | Huawei 25GE network chips support hardware offloading. The chip performance is four times higher than the certification requirements. |

| Category | Feature | Description |
| --- | --- | --- |
| High Security | HUAWEI CLOUD full-stack security services help you to ensure the proper running of service systems and improve security maintenance efficiency. Especially, when you manage a distributed system environment, the security services can further enhance security control over SAP service systems, improve network and SAP system security, and secure the running of various applications. For more information, see the **SAP Security White Paper**.<br>For more related cloud services, see **SAP System Security**. | |
| | **Secure Network Access** | • All SAP systems are deployed in a VPC (dedicated network) on the cloud. All system IP addresses are intranet addresses, and other tenants' access is shielded.<br>• The HANA Studio/NAT/SAProunter is installed in the access server on the public subnet and bound to an elastic IP address. SAP engineers can access the SAP system on the private subnet through this server to provide technical support. |
| | **Network Isolation and Access Control** | Security groups and network ACL features enable intranet access control policies to be implemented under the minimum and default failure principles. You can open only the required IP addresses and ports to access form specific sources. |
| | **SAP System Security Boundary** | The production environment needs to provide services for the public network and interconnect with other IDCs. Therefore, set up virtual private network (VPN) channels between the production environment and enterprise intranets (IDCs). You can configure access control policies between the cloud and the on-premises system and between the cloud and the Internet.<br>Take border protection measures in the DMZ, internal network application, and management zones because they can be accessed from external networks. |

| Category | Feature | Description |
| --- | --- | --- |
| | **Host Security** | • To hardening the security of cloud servers that communicate with the public network, you can refer to the *HUAWEI CLOUD Brute Force Attack Prevention for Cloud Hosts*. Host security protection includes operating system (OS) security hardening and the use of host security products, such as host-based intrusion detection system (HIDS) and antivirus (AV) software.<br>• To ensure the running reliability of key cloud servers, you can add key nodes of the same type to a cloud server group (when creating cloud servers) and allocate the cloud servers to different physical servers using anti-affinity policies. For example, you can add backend cloud servers monitored by ELB listeners to a group and add SAP database cloud servers to another group. |
| | **Security Maintenance Channel** | • Provides the SAP Support channel for security maintenance.<br>• Provides a security maintenance channel for Huawei maintenance personnel. |
| HA and DR | HUAWEI CLOUD high availability (HA) refers to a reliability design aimed at eliminating single points of failures and ensuring system continuity.<br>Disaster recovery (DR) refers to the use of a remote backup system that can quickly take over services from a failed local data center. This also ensures service continuity. For more information, see the **SAP HA and DR Guide**. | |

| Category | Feature | Description |
| --- | --- | --- |
| | SAP HANA HA and DR | • Intra-AZ HA and cross-AZ DR deployment of SAP HANA<br>Deploy the primary and secondary SAP HANA systems in the same AZ and configure the System Replication function of SAP HANA and the SUSE HAE function to enable automatic switchover and realize HA. In the other AZ, deploy a secondary SAP HANA system and configure Multitier System Replication function to implement cross-AZ DR.<br>• Intra-AZ HA and cross-region DR deployment of SAP HANA<br>Deploy the primary and secondary SAP HANA systems in different AZs of the same region and configure the System Replication function of SAP HANA and the SUSE HAE function to enable automatic switchover and realize HA across AZs. In the other region, deploy a secondary SAP HANA system and configure Multitier System Replication function to implement cross-region DR.<br>• Cross-AZ HA and Cross-Region HANA DR Deployment<br>Deploy the active and standby SAP HANA systems in different AZs of the same region and configure the System Replication function of SAP HANA and the SUSE HAE function to enable automatic switchover and realize HA across AZs. In the other region, deploy a standby SAP HANA system and configure Multitier System Replication function to implement cross-region DR.<br>For details about how to configure SAP HANA HA, see the **SAP HANA Single Node Scenario Where HA is Required**. |

| Category | Feature | Description |
| --- | --- | --- |
| Backup and Restoration | To ensure data reliability, you need to periodically and continuously back up SAP HANA data.<br>HUAWEI CLOUD SAP on Cloud solution supports two backup methods.<br>• Backup based on file systems<br>You can back up a single file or directory. Triggered from application servers, data consistency between applications and databases is ensured. This is applicable to all scenarios, especially the database environment. A backup function provided by SAP or certified third-party backup software can be used in this backup method.<br>• Backup based on storage volumes<br>For storage-based backup, the consistency between applications and databases cannot be ensured. You need to perform operations at the application layer, for example, stop the applications or freeze databases to keep the consistency. This is applicable to stateless applications and SAP development and test systems. You can combine HUAWEI CLOUD OBS, VBS, and CSBS with SAP's built-in backup function for this method.<br>For more information, see the **SAP Backup and Restoration Guide**. | |
| | **SAP Studio Backup** | SAP Studio is the main management tool of the HANA system. You can use SAP Studio to back up SAP HANA.<br>For details about how to use SAP Studio, see **Backing Up and Restoring Data** in the *SAP HANA User Guide (Single Node)*. |
| | **VBS** | VBS allows you to create data backups for EVS disks and use the backups to restore the EVS disks. This maximizes user data correctness and security.<br>• VBS supports both full and incremental backup modes.<br>• CSBS automatically creates snapshots during backup and retains the latest snapshots for each disk.<br>For more information about VBS, see the **SAP Backup and Restoration Guide**. |
| | **CSBS** | The Cloud Server Backup Service (CSBS) offers the backup service for cloud servers. It works based on the consistent snapshot technology for EVS disks. With CSBS, you can use backup data to restore server data, ensuring data security and correctness.<br>For details about how to use CSBS, see the **SAP Backup and Restoration Guide**. |

| Category | Feature | Description |
| --- | --- | --- |
| | **Third-party Backup Software** | You can use third-party software to back up SAP system data as required, ensuring data security and integrity.<br>For details, see the official documents of third-party software. |
| SAP O&M Management | The SAP O&M management service provides a management console to enterprises whose SAP systems are running on HUAWEI CLOUD for cloud O&M.<br>For more information, see **Best Practices of SAP with Enterprise Project Management**. | |
| | **Application Management** | Application management includes the following functions:<br>• Template management: You can edit and save a preset template as your own template.<br>• Application creation: You can use a preset template or customize your own templates.<br>• Application monitoring: You can add existing applications to the service for monitoring.<br>For details about how to configure application management, see **Provisioning an SAP HANA Database** in SAP best practices. |
| | **O&M Management** | O&M management allows you to back up applications and databases, expand capacity, and restore your SAP systems from a disaster with just a few clicks.<br>For details about O&M management configuration, see **Expanding the Capacity of an EVS Disk and Backing up Applications** in the *Best Practices of SAP with Enterprise Project Management*. |
| | **Application Monitoring** | SAP application monitoring provides SAP system monitoring data, including alarm statistics, application overview, CPU usage, memory usage, disk I/O, and network traffic overview.<br>For details about how to configure application monitoring, see **Installing SAP Monitoring Plug-ins** in the *Best Practices of SAP with Enterprise Project Management*. |
| SAP Application AS | SAP application auto scaling (AS) automatically increases or decreases the number of Additional Application Servers (AASs) as needed depending on your SAP service requirements.<br>For more information, see the **SAP Application Auto Scaling User Guide**. | |

| Category | Feature | Description |
| --- | --- | --- |
| | **Auto Scaling** | When services increase, AASs are automatically added to ensure the normal running of services, optimizing the cost management of application systems.<br>After SAP application AS is deployed, the AASs will be automatically added without any other configuration. |
| | **Expanding AASs Manually** | If services are temporarily adjusted, you need to manually create AASs to ensure normal service running.<br>For details about how to manually expand AASs, see **Expanding AASs Manually**. |
| | **Deleting AASs Manually** | After the service workload decreases, no running process exists in an AAS. To reduce resource waste, you can delete the AAS.<br>For details about how to manually delete AASs, see **Deleting AASs Manually**. |

# 2 SAP Certifications

## 2.1 Various SAP Certified HANA ECSs

### Description

The solution provides many types of HANA ECSs with 348 GB to 4 TB of memory and up to 208 vCPUs. These ECSs have been certified by SAP and can be used in your development, testing, and production systems.

For more information, see **SAP HANA Nodes**.

### Customer Benefits

- Your requirements for deploying SAP HANA are met by various types of HANA ECSs.
- With the growth of the business, you can scale up and out the SAP HANA system.

### Constraint

The SAP HANA production system needs the infrastructure resources officially certified by SAP. HUAWEI CLOUD E1, E2, and E3 ECSs are officially certified by SAP.

### Specifications

- SAP Business Suite on HANA
  - The E1 ECSs support the following specifications: 470 GB and 940 GB of memory.
  - The E3 ECSs support the following specifications: 348 GB, 696 GB, 1466 GB, 2932 GB, and 4096 GB of memory.
- SAP Business Warehouse on HANA
  - The E2 ECSs support the following specifications: 445 GB and 890 GB of memory.
  - The E3 ECSs support the following specifications: 348 GB, 696 GB, 1466 GB, 2932 GB, and 4096 GB of memory.

  

### Configuration

To deploy the SAP HANA database, see the **SAP HANA User Guide**.

### Release History

| Released On | Description |
| --- | --- |
| January 2019 | SAP HANA ECSs with 1.5 TB, 3 TB, and 4 TB of memory were certified. |
| November 2018 | SAP HANA ECSs with 348 GB and 696 GB of memory were certified. |
| April 2018 | SAP HANA ECSs with 470 GB and 940 GB of memory were certified. |

## 2.2 Various SAP Certified Application ECSs

### Description

HUAWEI CLOUD provides many types of ECSs with 8 GB to 512 GB memory. These ECSs have been certified by SAP and can be used in the development, testing, and production systems.

For more information, see **SAP S/4HANA Data Planning** and **SAP NetWeaver ECS Flavors**.

### Customer Benefits

Your requirements for deploying SAP applications on HUAWEI CLOUD are met by multiple types of SAP-certified ECSs with memory from 8 GB to 512 GB.

### Constraint

The SAP application production system needs the infrastructure resources officially certified by SAP. HUAWEI CLOUD H1, M3, M6, and C6 ECSs are officially certified by SAP.

### Specifications

- SAP S/4HANA
  - The H1 ECSs support the following specifications: 16 GB, 32 GB, 64 GB, and 128 GB of memory.
  - The M3 ECSs support the following specifications: 16 GB, 32 GB, 64 GB, 128 GB, and 256 GB of memory.
  - The C6 ECSs support the following specifications: 8 GB, 16 GB, 32 GB, 48 GB, 64 GB, 96 GB, and 128 GB of memory.
- SAP Netweaver
  - The H1 ECSs support the following specifications: 16 GB, 32 GB, 64 GB, and 128 GB of memory.

  - The M3 ECSs support the following specifications: 16 GB, 32 GB, 64 GB, 96 GB, 128 GB, 192 GB, and 256 GB of memory.
  - The C6 ECSs support the following specifications: 8 GB, 16 GB, 32 GB, 48 GB, 64 GB, 96 GB, and 128 GB of memory.
  - The M6 ECSs support the following specifications: 16 GB, 32 GB, 64 GB, 96 GB, 128 GB, 192 GB, 256 GB, and 512 GB of memory.

### Configuration

- To deploy SAP NetWeaver, see the **SAP NetWeaver User Guide**.
- To deploy SAP S/4HANA, see the **SAP S/4HANA Quick Deployment User Guide** and **SAP S/4HANA HA Deployment Guide**.

### Release History

| Released On | Description |
| --- | --- |
| January 2020 | General computing-plus C6 ECSs were certified. |
| November 2018 | Memory-optimized M3 ECSs were certified. |
| April 2018 | High-performance computing H1 ECSs were certified. |

## 2.3 Various SAP Certified Business One ECSs

### Description

SAP Business One is an ERP software designed by SAP to meet the ever-changing requirements of developing small-and medium-sized enterprises. HUAWEI CLOUD released many ECSs with 64 GB to 256 GB of memory that are suitable for SAP Business One. These ECSs have been certified by SAP and can be used in your development, testing, and production systems.

For details, see **SAP Business One Node Planning**.

### Customer Benefits

HUAWEI CLOUD provides multiple types of ECSs with memory from 64 GB to 256 GB, meeting your requirements for deploying SAP Business One.

### Constraint

SAP Business One production system needs the infrastructure resources officially certified by SAP. HUAWEI CLOUD E1, M3, and C3 ECSs are certified by SAP.

### Specifications

- The E1 ECSs support the following specifications: 470 GB and 940 GB of memory.

- The M3 ECSs support the following specifications: 256 GB of memory.
- The C3 ECSs support the following specifications: 64 GB and 128 GB of memory.

## Configuration

To deploy SAP Business One. For details, see the **SAP Business One User Guide** and **SAP Business One Quick Deployment Guide**.

## Release History

| Released On | Description |
| --- | --- |
| December 2018 | SAP Business One ECSs with 64 GB and 128 GB of memory were certified. |
| November 2018 | SAP Business One ECSs with 256 GB of memory were certified. |
| April 2018 | SAP Business One ECSs with 470 GB and 940 GB of memory were certified. |

# 3 High Performance

## 3.1 High-Performance ECS

### Description

The SAPS is a hardware-independent measurement unit describing the performance of a system configuration in the SAP environment. Holding CPUs and memory size constant, a higher SAPS value indicates better performance. Generally, the SAPS value in the HANA project is the score in the SAP SD tier-2 benchmark test. SAP HANA–certificated Xeon V5 ECSs (1.5 and 3 TB of memory) have excellent BWH performance. The SAP Xeon V5 M3 ECSs support up to 32 vCPUs and 256 GB of memory. The SAPS value ranked No. 1 among products of the same specifications.

### Customer Benefits

- Reduced TCO

  You pay only for what you use, and the total costs are greatly reduced. More small- and medium-sized enterprises can afford the high performance they need.

- Improved efficiency

  Supports on-demand provisioning as well as quick deployment and capacity expansion, shortening the time to market (TTM) and scientific research period for products.

### Constraint

Only Linux operating systems are supported for HANA servers and SAP application servers.

### Specifications

The SAPS value of HUAWEI CLOUD Xeon V5 M3 ECSs (32 vCPUs and 256 GB of memory) is 56280, which ranks first in the industry among other servers with the same specifications.

  

### Configuration

No other configuration is required.

### Release History

None

## 3.2 High-Performance Storage

### Description

HUAWEI CLOUD provides multiple high-performance storage services, such as OBS and EVS, meeting large throughput and high read/write speed requirements.

1. An EVS disk provides a maximum of 33000 IOPS and 350 Mbit/s throughput with latency down to 1 ms.
2. OBS provides users with high concurrency (tens of millions of TPS), high bandwidth (2.4 Gbit/s of single-flow upload), and stable low latency (small object uploading latency < 10 ms) through intelligent scheduling, transmission acceleration, and vertical big data optimization.

### Customer Benefits

EVS provides persistent block storage. With advanced data redundancy and cache acceleration capabilities, EVS offers high availability and durability with an extremely low latency. In a similar way for traditional hard disks on servers, you can format EVS disks that are attached to ECSs, create file systems on EVS disks, and store data into them persistently.

### Constraint

- If you upload an object through the OBS management console, the maximum size of the object is 50 MB.
- If you upload an object through OBS Browser+, obsutil, OBSFTP, or using the API and SDK, the maximum size of the object is 48.8 TB.
- The OBS management console does not support batch file download.
- The OBS management console does not support resumable data transfer.

### Specifications

HUAWEI CLOUD storage KPI values are two to four times higher than those required by SAP.

### Configuration

No other configuration is required.

### Release History

None

  

# 3.3 High-Performance Network

## Description

Huawei 25GE network chips support hardware offloading. The chip performance is three times higher than the certification requirements.

## Customer Benefits

You can use the high-speed network to access HUAWEI CLOUD with stable connections, low latency, and smoother cloud service experience.

## Constraint

No application constraint

## Specifications

25GE Huawei-developed NIC chip supporting hardware offloading

## Configuration

No other configuration is required.

## Release History

None

# 4 High Security

## Description

HUAWEI CLOUD full-stack security services help you to ensure the proper running of service systems and improve security maintenance efficiency. Especially, when you manage a distributed system environment, the security services can further enhance security control over SAP service systems, improve network and SAP system security, and secure the running of various applications.

- Secure Network Access
  - All SAP systems are deployed in a VPC (dedicated network) on the cloud. All system IP addresses are intranet addresses, and other tenants' access is shielded.
  - The HANA Studio/NAT/SAProunter is installed in the access server on the public subnet and bound to an elastic IP address. SAP engineers can access the SAP system on the private subnet through this server to provide technical support.
- SAP System Network Isolation and Access Control

  Security groups and network ACL features enable intranet access control policies to be implemented under the minimum and default failure principles. You can open only the required IP addresses and ports to access form specific sources.
- SAP System Security Boundary

  The production environment needs to provide services for the public network and interconnect with other IDCs. Therefore, set up VPN channels between the production environment and enterprise intranets (IDCs). You can configure access control policies between the cloud and the on-premises system and between the cloud and the Internet.

  Take border protection measures in the DMZ, internal network application, and management zones because they can be accessed from external networks.
- SAP System Host Security
  - To hardening the security of cloud servers that communicate with the public network, you can refer to the *HUAWEI CLOUD Brute Force Attack Prevention for Cloud Hosts*. Host security protection includes OS security hardening and the use of host security products, such as HIDS and antivirus software.

  

  - To ensure the running reliability of key ECSs, you can add key similar nodes (when creating ECSs) to an ECS group and allocate ECSs in an ECS group to different physical servers using anti-affinity policies. For example, you can add backend ECSs monitored by ELB listeners to an ECS group and add SAP DB ECSs to an ECS group.
- Security Maintenance Channel
  - Provides the SAP Support channel for security maintenance.
  - Provides a security maintenance channel for Huawei maintenance personnel.

For details, see **SAP Security White Paper**.

## Customer Benefits

Your SAP system is protected from heavy-traffic DDoS attacks, viruses, and hackers. The service stability and reliability are ensured with tier-3 data centers and carrier-level security architecture. HUAWEI CLOUD never collects tenant data.

## Constraint

No application constraint

## Specifications

No special specifications

## Configuration

For the configuration of related cloud services, see the **SAP on Cloud Security Architecture**.

## Release History

None

  

# 5 HA and DR

## 5.1 SAP HANA HA and DR

### Description

HUAWEI CLOUD high availability (HA) refers to a reliability design aimed at eliminating single points of failures and ensuring system continuity.

Disaster recovery (DR) refers to the use of a remote backup system that can quickly take over services from a failed local data center. This also ensures service continuity.

- Intra-AZ HA and cross-AZ DR deployment of SAP HANA

  Deploy the primary and secondary SAP HANA systems in the same AZ and configure the System Replication function of SAP HANA and the SUSE HAE function to enable automatic switchover and realize HA. In the other AZ, deploy a secondary SAP HANA system and configure Multitier System Replication function to implement cross-AZ DR.
- Intra-AZ HA and cross-region DR deployment of SAP HANA

  Deploy the primary and secondary SAP HANA systems in different AZs of the same region and configure the System Replication function of SAP HANA and the SUSE HAE function to enable automatic switchover and realize HA across AZs. In the other region, deploy a secondary SAP HANA system and configure Multitier System Replication function to implement cross-region DR.
- Cross-AZ HA and Cross-Region DR deployment of SAP HANA

  Deploy the primary and secondary SAP HANA systems in different AZs of the same region and configure the System Replication function of SAP HANA and the SUSE HAE function to enable automatic switchover and realize HA across AZs. In the other region, deploy a secondary SAP HANA system and configure Multitier System Replication function to implement cross-region DR.

For details, see the **SAP HA and DR Guide**.

### Customer Benefits

If the active database is faulty, the SAP service system can quickly connect to the standby database to prevent data loss.

  

## Constraint

- An ECS can be automatically recovered only if the physical server where it is deployed becomes faulty. This function does not take effect if the fault is caused by the ECS itself.
- An ECS can be automatically recovered only once within 12 hours if the physical server where it is deployed becomes faulty.

## Specifications

No special specification

## Configuration

For details about how to configure SAP HANA HA, see the **SAP HANA Single Node Scenario Where HA is Required**.

## Release History

None

  

# 6 Backup and Restoration

## 6.1 SAP Studio Backup

### Description

SAP Studio is the main management tool of the HANA system. You can use SAP Studio to back up SAP HANA.

### Customer Benefits

SAP Studio backup ensures data security and reliability and reduces data loss risks.

### Constraint

For details, see the backup guide released by SAP.

### Specifications

For details, see the backup guide released by SAP.

### Configuration

For details about how to back up SAP Studio, see the **SAP HANA Backup and Restoring**.

### Release History

None

## 6.2 VBS

### Description

VBS allows you to create data backups for EVS disks and use the backups to restore the EVS disks. This maximizes user data correctness and security.

  

- VBS supports both full and incremental backup modes.
- CSBS automatically creates snapshots during backup and retains the latest snapshots for each disk.

### Customer Benefits

You can create online backups for EVS disks while services are running. VBS offers protection against virus attacks, accidental deletions, software and hardware faults. It restores data of any backup point.

### Constraint

- Currently VBS supports backup and restoration only within a region but not across regions.
- Before using the VBS to restore data, stop the server and unmount EVS disks from the server. After the EVS disk data is restored, mount the EVS disk to the server and start the server.
- You can restore the system disk using a VBS backup. Before restoring the system disk, you must unmount it from the cloud server. You can also use a backup of the system disk to create new disks. However, newly created disks cannot be used as system disks.
- Up to 24 automatic backup jobs can be executed per day. Manual backup jobs have no such restriction.
- The minimum frequency for policy-driven backup is once per integral hour.

### Specifications

- The number of VBS backups are limited. By default, you can create up to 360 VBS backups.
- An EVS disk can be associated with only one backup policy.

### Configuration

For more information about using VBS, see the **SAP Backup and Restoration Guide**.

### Release History

None

## 6.3 CSBS

### Description

CSBS offers the backup service for cloud servers. It works based on the consistent snapshot technology for EVS disks. With CSBS, you can use backup data to restore server data, ensuring data security and correctness.

  

### Customer Benefits

Consistent online backups are created for all EVS disks of your ECS. CSBS offers protection against virus attacks, accidental deletions, software and hardware faults. It restores data of any backup point.

### Constraint

- The minimum frequency for policy-driven backup is once per hour. Manual backup can be performed at any frequency. You can manually set the backup time (accurate to minute) in a backup policy. The backup interval must be not shorter than 1 hour.
- Selecting disks on a server for backup is supported but such disk backups must be restored as a whole. File- or directory-level restoration is not supported.
- Only ECS backups can be used for creating images.
- The system shuts down the server before restoring server data, and automatically starts up the server after the restoration is complete.

### Specifications

A server can be associated with only one backup policy.

### Configuration

For more information about using CSBS, see the **SAP Backup and Restoration Guide**.

### Release History

None

## 6.4 Third-party Backup Software

### Description

This backup method requires third-party software and applies to the production and non-production systems.

For details about the third-party backup software that supports the SAP HANA Backint interface, see **SAP NOTE 2031547**.

### Customer Benefits

You can choose third-party software to back up your SAP system, ensuring data security and integrity.

### Constraint

See the official documents of the third-party software.

  

## Specifications

See the official documents of the third-party software.

## Configuration

See the official documents of third-party software.

## Release History

N/A

  

# 7 SAP O&M Management

## 7.1 Application Management

### Description

Application management includes the following functions:

- Template management: You can edit and save a preset template as your own template.
- Application creation: You can use a preset template or customize your own templates.
- Application monitoring: You can add existing applications to the service for monitoring.

### Customer Benefits

You will be able to quickly deploy SAP systems and manage applications using templates. This greatly reduces the deployment time.

### Constraint

- Only the deployment of SAP HANA, SAP S/4HANA, and single-node SAP Business One systems are supported.
- SAP HANA peripheral systems, such as SAP Studio, cannot be synchronously deployed.
- Currently, only EVS data can be backed up using Enterprise Project Management. For SFS data, you need to back it up on your own.
- To use the SAP full screen monitoring for the SAP HANA (single-node with HA), SAP S/4HANA (single-node with HA), distributed SAP S/4HANA (single-node with HA), and distributed SAP S/4HANA (single-node without HA) scenarios, the following requirements must be met:
  - All ECSs are provisioned on the Enterprise Project Management console and are manually deployed in HA or distributed mode.
  - ECSs are provisioned on the management console and managed by applications of Enterprise Project Management.

  

- For disk capacity expansion, when the MBR partition is used, the maximum disk capacity supported is 2048 GB, and the rest exceeding 2048 GB cannot be allocated or used.
- To prevent data loss, the disk capacity can be expanded only.

### Specifications

- Each master account can create a maximum of 100 enterprise projects.
- A maximum of 100 applications can be created in each region.
- A maximum of 10 parameter groups can be created, and a maximum of 100 parameters can be created.
- A maximum of 18 application monitoring records can be added currently.
- Each panel supports a maximum of 24 graphs.
- You can add a maximum of 20 metrics to one graph. Monitoring comparison between different services, dimensions, and metrics is supported.

### Configuration

For details, see **Best Practices > Best Practices of SAP with Enterprise Project Management > Creating an Application > Provisioning an SAP HANA Database**.

### Release History

| Released On | Description |
| --- | --- |
| April 2019 | Allowed users to invoke SDRS for SAP DR system deployment. |
| March 2019 | Allowed users to provision SAP Business One through Enterprise Project Management. |
| January 2019 | Allowed users to provision and expand SAP HANA and SAP S/4HANA resources, back up SAP service data, and view monitoring metrics of SAP services. |

## 7.2 O&M Management

### Description

O&M management allows you to back up applications and databases, expand capacity, and restore your SAP systems from a disaster with just a few clicks.

### Customer Benefits

You can back up and recover the SAP system, expand capacity, and deploy DR systems to ensure data security.

## Constraint

- Only the deployment of SAP HANA, SAP S/4HANA, and single-node SAP Business One systems are supported.
- SAP HANA peripheral systems, such as SAP Studio, cannot be synchronously deployed.
- Currently, only EVS data can be backed up using Enterprise Project Management. For SFS data, you need to back it up on your own.
- To use the SAP full screen monitoring for SAP HANA (single-node with HA), SAP S/4HANA (single-node with HA), distributed SAP S/4HANA (single-node with HA), and distributed SAP S/4HANA (single-node without HA) scenarios, the following requirements must be met:
  - All ECSs are provisioned on the Enterprise Project Management console and are manually deployed in HA or distributed mode.
  - ECSs are provisioned on the management console and managed by applications of Enterprise Project Management.
- For disk capacity expansion, when the MBR partition is used, the maximum disk capacity supported is 2048 GB, and the rest exceeding 2048 GB cannot be allocated or used.
- To prevent data loss, the disk capacity can be expanded only.

## Specifications

- Each master account can create a maximum of 100 enterprise projects.
- A maximum of 100 applications can be created in each region.
- A maximum of 10 parameter groups can be created, and a maximum of 100 parameters can be created.
- A maximum of 18 application monitoring records can be added currently.
- Each panel supports a maximum of 24 graphs.
- You can add a maximum of 20 metrics to one graph. Monitoring comparison between different services, dimensions, and metrics is supported.

## Configuration

For details, see **Best Practices > Best Practices of SAP with Enterprise Project Management > Creating an Application > Provisioning an SAP HANA Database**.

## Release History

| Released On | Description |
| --- | --- |
| April 2019 | Allowed users to invoke SDRS for SAP DR system deployment. |
| March 2019 | Allowed users to provision SAP Business One through Enterprise Project Management. |

  

| Released On | Description |
| --- | --- |
| January 2019 | Allowed users to provision and expand SAP HANA and SAP S/4HANA resources, back up SAP service data, and view monitoring metrics of SAP services. |

# 7.3 Application Monitoring

## Description

SAP application monitoring provides SAP system monitoring data, including alarm statistics, application overview, CPU usage, memory usage, disk I/O, and network traffic overview.

## Customer Benefits

You can view key SAP metrics on the full screen monitoring page and keep informed of resource usage, alarms, and SAP system running status.

## Constraint

- Only the deployment of SAP HANA, SAP S/4HANA, and single-node SAP Business One systems are supported.
- SAP HANA peripheral systems, such as SAP Studio, cannot be synchronously deployed.
- Currently, only EVS data can be backed up using Enterprise Project Management. For SFS data, you need to back it up on your own.
- To use the SAP full screen monitoring for SAP HANA (single-node with HA), SAP S/4HANA (single-node with HA), distributed SAP S/4HANA (single-node with HA), and distributed SAP S/4HANA (single-node without HA) scenarios, the following requirements must be met:
  - All ECSs are provisioned on the Enterprise Project Management console and are manually deployed in HA or distributed mode.
  - ECSs are provisioned on the management console and managed by applications of Enterprise Project Management.
- For disk capacity expansion, when the MBR partition is used, the maximum disk capacity supported is 2048 GB, and the rest exceeding 2048 GB cannot be allocated or used.
- To prevent data loss, the disk capacity can be expanded only.

## Specifications

- Each master account can create a maximum of 100 enterprise projects.
- A maximum of 100 applications can be created in each region.
- A maximum of 10 parameter groups can be created, and a maximum of 100 parameters can be created.

  

- A maximum of 18 application monitoring records can be added currently.
- Each panel supports a maximum of 24 graphs.
- You can add a maximum of 20 metrics to one graph. Monitoring comparison between different services, dimensions, and metrics is supported.

## Configuration

For details, see **Best Practices > Best Practices of SAP with Enterprise Project Management > Creating an Application > Provisioning an SAP HANA Database**.

## Release History

| Released On | Description |
| --- | --- |
| April 2019 | Allowed users to invoke SDRS for SAP DR system deployment. |
| March 2019 | Allowed users to provision SAP Business One through Enterprise Project Management. |
| January 2019 | Allowed users to provision and expand SAP HANA and SAP S/4HANA resources, back up SAP service data, and view monitoring metrics of SAP services. |

  

# 8 SAP Application AS

## Description

SAP application AS automatically increases or decreases the number of AASs as needed depending on your SAP service requirements.

- Auto Expansion

  When services increase, AASs are automatically added to ensure the normal running of services, optimizing the cost management of application systems.
- Manual Expansion

  If services are temporarily adjusted, you need to manually create AASs to ensure normal service running.
- Manual Reduction

  After the service workload decreases, no running process exists in an AAS. To reduce resource waste, you can delete the AAS.

For details, see the **SAP Application Auto Scaling User Guide**.

## Customer Benefits

You can specify AS configurations and policies based on service requirements. These configurations and policies free you from repeated resource adjustment for keeping up with service changes and demand spikes, helping you reduce the resources and manpower required.

## Constraint

- Currently, only AAS automatic expansion is supported.
- PAS and AAS must be in the same AZ.
- PAS and ASCS must be deployed on the same ECS.

## Specifications

- You can create a maximum of 10 AS groups.
- You can create a maximum of 100 AS configurations.
- A maximum of 10 AS policies can be created in an AS group.

  

- A maximum of 20 instances can be created in an AS group.

## Configuration

After SAP application AS is deployed, the AASs will be automatically added without any other configuration.

## Release History

| Released On | Description |
| --- | --- |
| 2018-09-30 | This issue is the first official release. |

  