# SAP Business One User Guide

**Issue** 01
**Date** 2022-12-07

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# 1 Introduction

This document describes how to deploy SAP Business One (SAP HANA as the database).

The document conventions are as follows:

- This document describes how to install and deploy SAP Business One (SAP HANA as the database).
- This document cannot replace the standard SAP document. If you have any trouble in installing and using SAP Business One due to its own problems, contact the SAP technical support.
- This document is written based on the OS SUSE Linux Enterprise Server. The deployment modes mentioned in the document are only for reference. Install SAP Business One by referring to the standard SAP installation manual or based on sizing results and site requirements.
- For details about the official SAP installation guide and related notes, see the following documents:
  - **SAP Installation Guides**
  - **SAP Library**
  - **https://partneredge.sap.com**

## Introduction to SAP Business One

SAP Business One is an ERP software designed by SAP to meet the ever-changing requirements of small and medium-sized enterprises. It is a service management software that can be scaled up along with enterprise development.

Based on deployment and O&M modes, SAP Business One products include traditional Business One, Business One Cloud, and Business One OnDemand.

- Traditional Business One: is deployed by enterprises.
- Business One Cloud: is provided in the form of SaaS on public cloud.
- Business One OnDemand: is provided in the form of SaaS by SAP hosting providers.

Based on database types, SAP Business One products include B1, B1A, and B1H.

- B1: uses traditional non-HANA databases.

- B1A: The analysis part of Business One uses HANA databases for acceleration, but the application part still uses traditional databases for data replication.
- B1H: Business One uses the HANA database. In this way, OLTP and OLAP are processed in the same database to achieve the best performance.

## SAP Business One and Public Cloud Services

- **Elastic Cloud Server (ECS)**

  An ECS is an elastically scalable computing server that consists of CPU, memory, images, and EVS disks. An ECS can be obtained at any time and provides various services and functions, such as VPC, virtual firewall, and multiple copies of data storage. SAP Business One, NAT server, SAP Business One Client, and SAP HANA Studio are deployed on ECSs.
- **Virtual Private Cloud (VPC)**

  All ECSs in SAP Business One scenarios belong to the same VPC. They are isolated using VPC subnets and network groups for network security.
- **Image Management Service (IMS)**

  When creating an ECS, select a proper public image, for example, **SUSE Linux Enterprise Server (SLES) 11 SP4**.
- **Scalable File Service (SFS)**

  SFS provides high-performance file storage that is scalable on demand. It can be shared with multiple cloud servers. Backup volumes of the SAP HANA database are provided by SFS.

## Node and Role

- SAP Business One

  SAP Business One is an ERP software designed by SAP to meet the ever-changing requirements of small and medium-sized enterprises. It is a service management software that can be scaled up along with enterprise development.
- SAP HANA

  An SAP HANA system consists of one or multiple SAP HANA nodes.

  SAP HANA nodes are logical units that constitute an SAP HANA system. An SAP HANA node contains the CPU, memory, and storage (such as log, data, shared, and backup disks) resources with specified specifications, as shown in Figure 1-1.

  **Figure 1-1** SAP HANA database

  
  
- SAP HANA Studio

The SAP HANA Studio provides management, monitoring, and information modeling of the SAP HANA system. It can also function as a client and provides capabilities to access user data. The information that the SAP HANA Studio provides includes the system information (such as software version), alarm information (generated by Statistics Server), and statistics of key system resources.

- SAP Business One Client

  SAP Business One Client node

- NAT Server

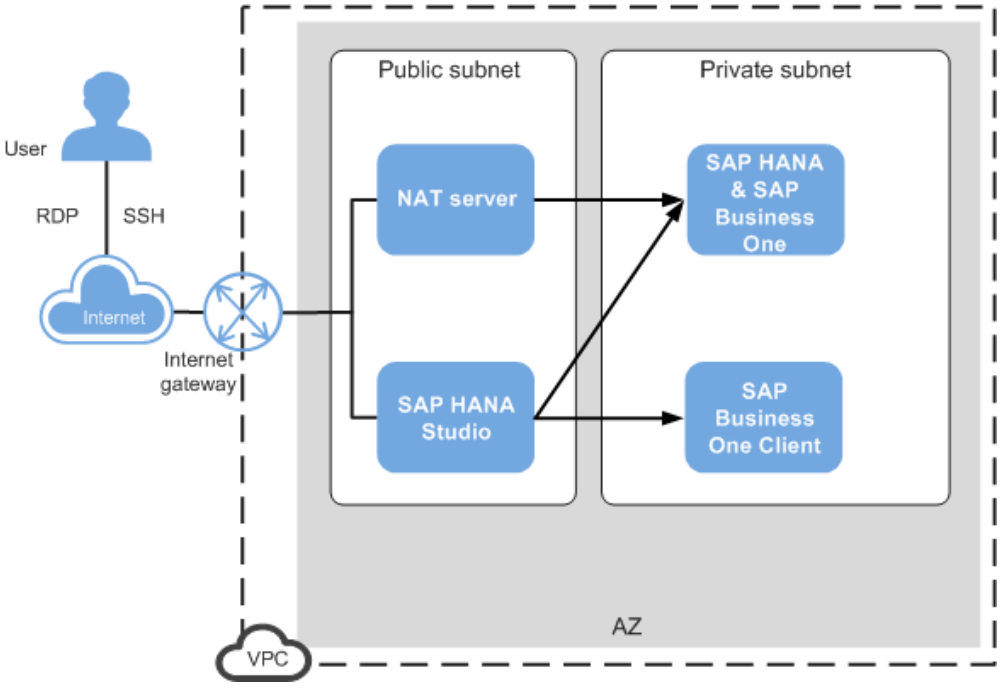
  A Network Address Translation (NAT) server provides the capability to switch to SAP nodes using SSH. It allows you to switch to an SAP node from the NAT server using Secure Shell (SSH).

# 2 Deployment Modes

**Figure 2-1** shows the deployment scheme of the SAP Business One.

**Figure 2-1** SAP Business One deployment scheme




The concepts involved in the preceding figures are as follows:

- VPC network: All nodes in the SAP Business One system are deployed within a VPC network and belong to the same AZ to ensure network security.
- Public subnet:
  - A NAT ECS allows you to access SAP Business One nodes using SSH.
  - An SAP HANA Studio ECS is an ECS running the SAP HANA Studio software. You can use the Remote Desktop Protocol (RDP) or SSH to access the SAP HANA Studio ECS and manage the SAP HANA database.
- Private subnet:

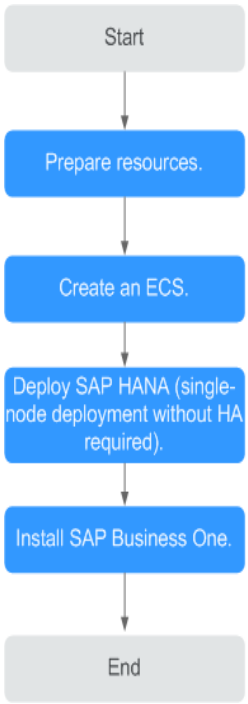
An SAP HANA and SAP Business One ECS is used to deploy the SAP HANA database and SAP Business One (SAP HANA version). The ECS has the following disks attached:

- OS disk: provides the directory for installing the OS.
- Data volume: periodically stores the data transmitted from the SAP HANA IMDB (a database running in high-performance memory). The period is 5 minutes by default.
- Log volume: stores the data triggered by an event. When an event, for example, a record or a batch of records are updated, is triggered for the server IMDB, the system will write the latest IMDB data into the log volume.
- Shared volume: stores the SAP HANA installation software and SAP HANA database log files.
- Backup volume: stores SAP HANA database backup files. The backup volume is provided by SFS in this document.

An SAP Business One Client ECS is used to install the SAP Business One (SAP HANA version) client.

**Figure 2-2** shows the deployment flowchart.

**Figure 2-2** Deployment flowchart



# 3 Data Planning

3.1 Node Planning

3.2 Network Planning

## 3.1 Node Planning

### SAP HANA and SAP Business One

- **Table 3-1** lists the ECS specifications applicable for installing SAP HANA and SAP Business One.

**Table 3-1** ECS specifications for the SAP HANA and SAP Business One

| ECS Type | CPU | Memory (GB) | Flavor |
| --- | --- | --- | --- |
| General computing-plus | 16vCPU | 64 | c6.4xlarge.4 |
| Memory-optimized | 16vCPU | 128 | m6.4xlarge.8 |
| | 32vCPU | 256 | m6.8xlarge.8 |

- SAP HANA and SAP Business One node OS: SUSE Linux Enterprise Server 12 SP1 or later.
- **Table 3-2** lists the disk planning for the SAP HANA and SAP Business One node.

**Table 3-2** Disk planning for the SAP HANA and SAP Business One node

| Disk | Type | Sharing Mode | Size |
| --- | --- | --- | --- |
| OS volume | **Ultra-high I/O (Latency optimized)** | Non-shared disk | - |

| Disk | Type | Sharing Mode | Size |
| --- | --- | --- | --- |
| Log volume | **Ultra-high I/O (Latency optimized)** | Non-shared disk | • When the memory size is less than or equal to 512 GB, the log volume capacity is half of the memory size and rounded up for decimal places.<br>• When the memory size is greater than 512 GB, the log volume capacity is 512 GB. |
| Data volume | **Ultra-high I/O (Latency optimized)** | Non-shared disk | The capacity is the same as the memory size. |
| Shared volume | **Ultra-high I/O (Latency optimized)** | Non-shared disk | The capacity is the same as the memory size. |
| Backup volume | - | Provided by SFS | The recommended size is at least three times that of the memory size. |
| /usr/sap volume | **Ultra-high I/O (Latency optimized)** | Non-shared disk | 50 GB |
| Swap volume | High I/O | Non-shared disk | 10 GB |

## Other Nodes

Table 3-3 lists the planning of other nodes.

**Table 3-3** Planning for other nodes

| Node Name | Specifications |
| --- | --- |
| SAP HANA Studio | • OS:<br>**NOTE**<br>Based on service requirements, use a Windows or Linux ECS to deploy SAP HANA Studio.<br>– Windows: Windows Server 2008<br>– Linux: SUSE Linux Enterprise Server 12 SP1 or later<br>• ECS Specifications: s1.xlarge (4 vCPUs and 16 GB memory capacity)<br>• Disk: 80 GB system disk |

| Node Name | Specifications |
| --- | --- |
| NAT server | • OS:<br>SUSE Linux Enterprise Server 12 SP1 or later<br>• ECS Specifications: s1.medium (1 vCPU and 4 GB memory capacity) or higher<br>• Disk: 40 GB system disk |
| SAP Business One Client | • OS:<br>**NOTE**<br>Based on service requirements, use a Windows or Linux ECS to deploy SAP HANA Studio.<br>– Windows: Windows Server 2008<br>– Linux: SUSE Linux Enterprise Server 12 SP1 or later<br>• ECS Specifications: c3.large.2 (2 vCPUs, 4 GB memory) or larger<br>• Disk: 80 GB system disk |

# 3.2 Network Planning

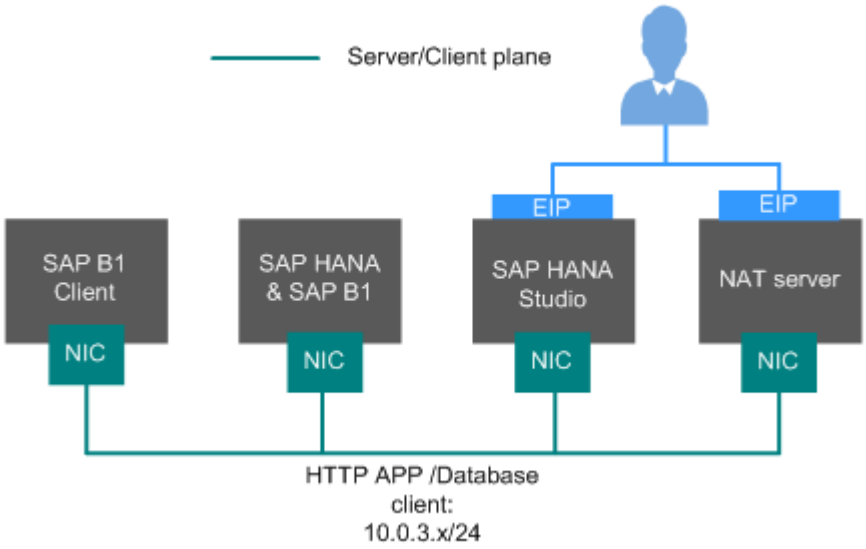
## Network Plane Planning

Figure 3-1 shows the network plane planning in the single node scenario.

NOTE

The network segments and IP addresses are for reference only.

**Figure 3-1** Network plane planning in the single node scenario




In this scenario, only one NIC is used for network communication.

Table 3-4 shows the planned network information.

**Table 3-4** Network planning in the single node scenario where HA is not required

| Parameter | Description | Example Value |
| --- | --- | --- |
| IP address of the server/ client plane | Allows an SAP Business One node to communicate with service software or SAP Business One Client software.<br>Allows an SAP HANA node to communicate with service software or SAP HANA Studio client software. | SAP Business One: 10.0.3.2<br>SAP Business One Client: 10.0.3.3<br>SAP HANA Studio: 10.0.3.4<br>NAT server: 10.0.3.5 |
| Elastic IP address | Allows you to access the SAP HANA Studio and NAT server. | Automatically allocated |

## Security Group Rules

NOTE

- The network segments and IP addresses are for reference only. The following security group rules are recommended practices. You can configure your own security group rules as needed.
- In the following table, ## stands for the SAP HANA instance ID, such as **00**. Ensure that this ID is the same as the instance ID specified when you install the SAP HANA software.
- For more information about specific ports and security group rules to be accessed by SAP, see **https://help.sap.com/viewer/575a9f0e56f34c6e8138439eefc32b16/2.0/en-US/616a3c0b1cc748238de9c0341b15c63c.html**.

**Table 3-5** Security group rules (SAP HANA & SAP Business One)

| Source | Protocol | Port Range | Description |
| --- | --- | --- | --- |
| Inbound | | | |
| 10.0.0.0/24 | TCP | 5##13 to 5##14 | Allows the SAP HANA Studio to access SAP HANA. |
| 10.0.0.0/24 | TCP | 3##15 | Provides ports for the service plane. |
| 10.0.0.0/24 | TCP | 3##17 | Provides ports for the service plane. |
| 10.0.0.0/24 | TCP | 22 | Allows SAP HANA to be accessed using SSH. |

| Source | Protocol | Port Range | Description |
| --- | --- | --- | --- |
| 10.0.0.0/24 | TCP | 43## | Allows access to XS Engine from the 10.0.0.0/24 subnet using HTTPS. |
| 10.0.0.0/24 | TCP | 80## | Allows access to XS Engine from the 10.0.0.0/24 subnet using HTTP. |
| 10.0.0.0/24 | TCP | 8080 (HTTP) | Allows Software Update Manager (SUM) to access SAP HANA using HTTP. |
| 10.0.0.0/24 | TCP | 8443 (HTTPS) | Allows Software Update Manager (SUM) to access SAP HANA using HTTPS. |
| 10.0.0.0/24 | TCP | 1128-1129 | Allows access to SAP Host Agent using SOAP/HTTP. |
| Automatically specified by the system | ANY | ANY | Security group rule created by the system by default<br>It enables ECSs in the same security group to communicate with each other. |
| Outbound | | | |
| ANY | ANY | ANY | Security group rule created by the system by default<br>Allows SAP HANA to access all peers. |

**Table 3-6** Security group rules (SAP HANA Studio)

| Source | Protocol | Port Range | Description |
| --- | --- | --- | --- |
| Inbound | | | |
| 0.0.0.0/0 | TCP | 3389 | Allows users to access the SAP HANA Studio using RDP.<br>This rule is required only when the SAP HANA Studio is deployed on a Windows ECS. |
| 0.0.0.0/0 | TCP | 22 | Allows users to access the SAP HANA Studio using SSH.<br>This rule is required only when the SAP HANA Studio is deployed on a Linux ECS. |
| Automatically specified by the system | ANY | ANY | Security group rule created by the system by default<br>It enables ECSs in the same security group to communicate with each other. |
| Outbound | | | |
| ANY | ANY | ANY | Security group rule created by the system by default<br>Allows SAP HANA Studio to access all peers. |

**Table 3-7** Security group rules (NAT server)

| Source | Protocol | Port Range | Description |
| --- | --- | --- | --- |
| Inbound | | | |
| 0.0.0.0/0 | TCP | 22 | Allows users to access the NAT server using SSH. |
| 10.0.3.0/24 | TCP | 80 (HTTP) | Allows access to instances in the same VPC using HTTP. |
| 10.0.3.0/24 | TCP | 443 (HTTPS) | Allows access to instances in the same VPC using HTTPS. |
| Automatically specified by the system | ANY | ANY | Security group rule created by the system by default<br>It enables ECSs in the same security group to communicate with each other. |
| Outbound | | | |
| 10.0.3.0/24 | TCP | 22 (SSH) | Allows the NAT server to access the 10.0.3.0 subnet using SSH. |
| 0.0.0.0/0 | TCP | 80 (HTTP) | Allows instances in a VPC to access any network. |
| 0.0.0.0/0 | TCP | 443 (HTTPS) | Allows instances in a VPC to access any network. |

# 4 Preparing for Resources

4.1 Software and Tools
4.2 Creating a VPC
4.3 Applying for a Subnet and Configuring a Security Group
4.4 Creating an SFS File System
4.5 Creating an ECS for the SAP HANA and SAP Business One Node
4.6 Creating an ECS (Other Nodes)

## 4.1 Software and Tools

**Table 4-1** lists the software and tools to be obtained.

**Table 4-1** Required software and tools

| Item | Description | How to Obtain |
| --- | --- | --- |
| Local computer | Runs a Windows OS which is Windows 7 and later. | N/A |
| WinSCP | Uploads key files to HANA ECSs. | **https://winscp.net/eng/index.php** |
| PuTTY and PuTTYgen | Used for logging in to a HANA ECS and running commands. | **https://www.chiark.greenend.org.uk/~sgtatham/putty/download.html** |

| Item | Description | How to Obtain |
| --- | --- | --- |
| SAP HANA 1.0<br>SAP HANA Studio<br>**NOTE**<br>Install the required SAP HANA Studio version based on version mapping. | Downloads the SAP HANA and SAP HANA Studio installation packages from the SAP official website. | **https://support.sap.com/swdc** |
| Configuration script | Contains the script and configuration file used for installing and configuring SAP HANA. | • **CN-Hong Kong**: https://obs-sap-ap-southeast-1.obs.ap-southeast-1.myhuaweicloud.com/ha_auto_script/ha_auto_script.zip<br>• **AP-Bangkok**: https://obs-sap-ap-southeast-2.obs.ap-southeast-2.myhuaweicloud.com/ha_auto_script/ha_auto_script.zip |
| SAP Business One (SAP HANA version)<br>SAP B1 Client | Downloads the SAP Business One and client installation packages from the SAP official website. | **https://support.sap.com/swdc** |

# 4.2 Creating a VPC

## Scenarios

All servers of an SAP Business One system must be in the same VPC. Therefore, you must apply for a VPC for an SAP Business One system and specify the subnet segment for the VPC.

## Procedure

**Step 1** Log in to the management console.

**Step 2** In the navigation pane on the left, click ☰ and choose **Virtual Private Cloud** under **Network**.

**Step 3** Click **Create VPC** on the right of the page.

**Step 4** On the **Create VPC** page, configure VPC parameters.

The parameters are as follows:

- **Name**: specifies the VPC name.
- **CIDR Block**: specifies the IP address range for the VPC. The subnet segment in the VPC must be within this IP address segment. Therefore, you must configure this parameter according to the deployment plan described in

section **3.2 Network Planning**. For example, set this parameter value to **10.0.3.0/8**.

- **Name**: specifies the name of the default VPC subnet. You are recommended to set this parameter value to the name of the service or client plane subnet, for example, **10.0.3.x**.
- **CIDR Block**: specifies the IP address segment for the default VPC subnet. Ensure that the IP address segment for the default VPC subnet is within the IP address segment for the VPC subnet. Configure this parameter based on the deployment plan described in section **3.2 Network Planning**.
- **Gateway**: specifies the gateway IP address of the subnet.
- **DNS Server Address**: The external DNS server address is used by default. If you need to change the DNS server address, ensure that the DNS server addresses are available.

**Step 5** Click **Create Now**.

**----End**

# 4.3 Applying for a Subnet and Configuring a Security Group

## Scenarios

To ensure proper communication between the servers in an SAP Business One system, apply for a subnet for the ECSs and configure a proper security group.

## Procedure

**Step 1** Apply for a subnet.

1. Log in to the management console.
2. In the navigation pane on the left, click ☰ and choose **Virtual Private Cloud** under **Network**.
3. Choose **Subnets** in the left navigation pane.
4. In the upper right corner of the displayed page, click **Create Subnet**.
5. In the displayed **Create Subnet** dialog box, configure parameters as prompted.
   - **VPC**: Select the VPC created in **4.2 Creating a VPC**.
   - **AZ**: Select an AZ.
   - **Name**: Configure the subnet name that is easy to identify, for example, **service_subnet**.
   - **CIDR Block**: Configure this parameter according to the deployment plan described in section **3.2 Network Planning**.
   - **Advanced Settings**: Set it to **Default**.
6. Click **OK**.
7. Repeat **Step 1.4** to **Step 1.6** to create all required subnets according to the requirements specified in section **3.2 Network Planning**.

**Step 2** Set security groups.

Create a security group for all nodes in the SAP Business One system.

1. In the navigation pane on the left, choose **Access Control** > **Security Group** and then click **Create Security Group** on the right side of the page. The **Create Security Group** dialog is displayed.
2. Enter the security group name and click **OK** to complete the security group configuration.

   Name the security group that is easy to identify, for example, **studio_security_group**.
3. Repeat **Step 2.1** to **Step 2.2** to create other security groups.
4. In the security group list on the right of the page, click the security group name for which a rule is to be added.
5. Click **Add Rule** on the **Inbound Rules** or **Outbound Rules** tab as planned.
6. On the displayed page, add the rule according to the requirements specified in section **3.2 Network Planning**.

   The default security group rules cannot be deleted.
7. Repeat **Step 2.4** to **Step 2.6** to configure all security groups.

**----End**

# 4.4 Creating an SFS File System

## Scenarios

In the SAP Business One scenario using the SAP HANA database, backup volumes of the SAP HANA database are provided by SFS. This section describes how to create an SFS file system on the public cloud.

## Procedure

**Step 1** (Optional) Buy an SFS storage package.

Before creating an SFS file system in SAP HANA, you can purchase an SFS storage package as required.

- Yearly/monthly subscription: You can purchase a yearly or monthly package based on your resource usage and duration plan. When a purchased package is within its validity period, any data used is initially offset by the quota provided. However, when data exceeds this quota, subsequent data is charged on a pay-per-use basis.
- Pay per use: If you select this mode, perform **Step 2** to create an SFS file system.

1. Log in to the management console.
2. Click in the upper left corner of the console, and select a region and project.
3. In the navigation pane on the left, click and choose **Scalable File Service** under **Storage**. The **Scalable File Service** page is displayed.

4. Click **Buy Storage Package**.
5. On the displayed **Bug SFS Package** page, set the parameters described in **Table 4-2**.

**Table 4-2** Parameter description

| Parameter | Description | Example Value |
| --- | --- | --- |
| Region | Storage packages in different regions are isolated. Select the region based on your requirements. | CN-Hong Kong |
| Resource Package | Select the resource package size based on your requirements. | 5 TB |
| Usage Duration | Select the effective time of the storage package based on your requirements. | 1 year |

6. Click **Next**.
7. Submit the order and pay as prompted.

**Step 2** Create an SFS file system.

1. Log in to the management console.
2. Click in the upper left corner of the console, and select a region and project.
3. In the navigation pane on the left, click and choose **Scalable File Service** under **Storage**. The **Scalable File Service** page is displayed.
4. Click **Create File System**.
5. Configure the parameters listed in **Table 4-3**.

**Table 4-3** Parameter description

| Parameter | Description | Example Value |
| --- | --- | --- |
| File System Type | Specifies the file system type. Select **SFS**. | SFS |
| Region | Select the target region. | CN-Hong Kong |
| AZ | Specifies the AZ in which the file system is located. Select an AZ as required. | AZ1 |
| Protocol Type | Specifies the protocol type. Select **NFS**. | NFS |

| Parameter | Description | Example Value |
| --- | --- | --- |
| Virtual Private Cloud (VPC) | Select the VPC where SAP HANA ECSs reside. | - |
| Auto Capacity Expansion | This function is enabled by default. When it is enabled, the capacity of the file system is not limited. Therefore, you do not need to adjust the capacity of the file system. You can determine whether to enable the function based on the site requirements.<br>**NOTICE**<br>If you have purchased an SFS storage package and it is within the validity period, any data used is initially offset by the quota provided. However, when data exceeds this quota, subsequent data is charged on a pay-per-use basis. | - |
| Maximum Capacity | This parameter shows after **Automatic Capacity Expansion** is disabled. Specifies the maximum capacity of a single file system. For details, see **3.1 Node Planning**. | - |
| Encryption | Optional.<br>This parameter specifies whether a file system is encrypted. You can create a file system that is encrypted or not, but you cannot change the encryption settings of an existing file system. If you want to encrypt the file system to be created, select **Enable static data encryption**. For details, see the **Getting Started with Scalable File Service**. | - |
| Enterprise Project | Select the project you need. | SAP |
| Name | Specifies the file system name. | sfs-share-001 |
| Quantity | Select the quantity according to the site requirements. | 1 |

**Step 3** Click **Create Now**. On the displayed page, confirm the configuration information and click **Submit**.

**Step 4** On the displayed **SFS** page, locate the new file system by its name in the file system list on the right. In the **Shared Path** column, query the shared path.

**Step 5** Log in to the node to which the SFS file system is to be attached and check whether the IP address of the DNS server is configured in the **/etc/resolv.conf** file. If not, write the IP address of the DNS server into the **/etc/resolv.conf** file.

NOTE

For details, see section **Related Resources** > **Configuring DNS** in the *Scalable File Service User Guide*.

**----End**

# 4.5 Creating an ECS for the SAP HANA and SAP Business One Node

## Scenarios

Based on the deployment scheme, create an ECS to deploy the SAP Business One software and SAP HANA database.

For details about the ECS specifications, see sections **2 Deployment Modes** and **3.1 Node Planning**.

## Procedure

**Step 1** Log in to the management console, click ☰ and choose **Computing** > **Elastic Cloud Server**.

**Step 2** On the right side of the page, click **Buy ECS**.

**Step 3** Set the parameters as prompted.

**Table 4-4** Basic configuration

| Parameter | Description |
| --- | --- |
| Billing Mode | Select a billing mode based on the site requirements. The recommended billing mode is **Yearly/Monthly**. |
| AZ | Specifies the AZ where the ECS is located. |

| Parameter | Description |
| --- | --- |
| CPU Architecture | The value can be **x86** or **Kunpeng**.<br>• **x86**: The X86-based CPU architecture uses Complex Instruction Set Computing (CISC). Each instruction can be used to execute low-level hardware operations, and the length of each instruction is different. Therefore, the number of instructions is large and they are complex. Therefore, executing such an instruction is complex and time-consuming.<br>• **Kunpeng**: The Kunpeng-based CPU architecture uses Reduced Instruction Set Computing (RISC). RISC is a microprocessor that executes fewer types of computer instructions but at a higher speed than CISC. RISC simplifies the computer architecture and improves the running speed. Compared with the x86-based CPU architecture, the Kunpeng-based CPU architecture has a more balanced performance and power consumption ratio. Kunpeng features high density, low power consumption, high cost-effectiveness. |
| Specifications | Click **Large-memory**, **General computing-plus**, or **Memory-optimized**. Select a specification based on **3.1 Node Planning** or as required. |
| Image | Click **Marketplace image**. In the displayed **Select Marketplace Image** dialog box, enter **SAP** in the search box and select the target image. |
| System Disk | Plan the system disk and data disk by referring to section **3.1 Node Planning**. |

**Step 4** Click **Next: Configure Network**.

Configure the network information of the SAP HANA and SAP Business One node as prompted.

**Table 4-5** Network configuration

| Parameter | Description |
| --- | --- |
| Network | Choose the VPC and subnet in specified in Applying for a Subnet and Configuring a Security Group. |
| Extension NIC | Create an NIC by referring to section **3.2 Network Planning**. |
| Security Group | Use the security group in section Applying for a Subnet and Configuring a Security Group. |
| EIP | Select **Not required**. The SAP HANA and SAP Business One ECS on the private subnet can be accessed through the NAT server. |

**Step 5** Click **Next: Configure Advanced Settings**.

Configure parameters in advanced settings of the ECS as prompted.

**Table 4-6** Advanced configuration

| Parameter | Description |
| --- | --- |
| ECS Name | When you create ECSs in batches, the number in the **ECS Name** is generated automatically in ascending order based on the **Quality** value that you filled in. For example, if you fill **SAP-Dev** in **ECS Name**, the first ECS is **SAP-Dev-0001**, and the second ECS is **SAP-Dev-0002**. |
| Login Mode | Select **Key pair**. |
| Key Pair | An SSH key certificate will be used for authenticating users who attempt to log in to SAP HANA and SAP Business One ECS. Ensure that the ECSs where SAP HANA and SAP Business One as well as the NAT server are to be deployed use the same key. Otherwise, SAP HANA and SAP Business One installation will fail.<br>● If you choose an existing SSH key certificate from the drop-down list, make sure that you have saved the certificate locally. Otherwise, you may fail to log in to the ECS.<br>● Click **View Key Pair**. On the **Key Pair** page that is displayed, click **Create Key Pair**, specify the key pair name, and click **OK**. In the **Information** dialog box that is displayed, click **OK**. Then, you can query and save the private key as prompted. |

| Parameter | Description |
| --- | --- |
| Cloud Backup and Recovery | Cloud Backup and Recovery (CBR) provides backup protection for EVS disks and ECSs, and uses backups to restore the EVS disks and ECSs. After you set **Cloud Backup and Recovery**, the system binds the target ECS to the cloud backup vault and associates the ECS with the selected backup policy to periodically back up the ECS.<br>You can select one of the following three options for **EIP** as required:<br>● Auto assign<br>1. Set the name of the cloud backup vault, which is a character string consisting of 1 to 64 characters, including letters, digits, underscores (_), and hyphens (-). For example, **vault-f61e**. The default naming rule is **vault**_*xxxx*.<br>2. Enter the vault capacity, which is required for backing up the ECS. The vault capacity cannot be smaller than that of the ECS to be backed up. Its value ranges from the total capacity of the ECS to 10,485,760 in the unit of GB.<br>3. Select a backup policy from the drop-down list, or log in to the CBR console and configure a desired one.<br>● Use existing<br>1. Select an existing cloud backup vault from the drop-down list.<br>2. Select a backup policy from the drop-down list, or log in to the CBR console and configure a desired one.<br>● Not required: This function is not required. If you require this function after purchasing the ECS, log in to the CBR console and bind the desired cloud backup vault to your ECS. |
| ECS Group (Optional) | This parameter is displayed only after you click **Configure now** behind **Advanced Options**.<br>Specify an SAP HANA and SAP Business One ECS group. When you create ECSs, the system will allocate the ECSs in the same server group to different physical servers to ensure the running reliability of these ECSs.<br>Determine the policy of an SAP HANA and SAP Business One ECS group based on the deployment mode:<br>● Single-node scenarios: You do not need to specify an **ECS Group**.<br>● Cluster scenarios: All SAP HANA and SAP Business One ECSs must belong to the same **ECS Group**.<br>**NOTE**<br>Perform the following operations to create an ECS group:<br>Click **Create ECS Group**. On the page that is displayed, click **Create ECS Group**, specify the ECS group name, and click **OK**. |

**Step 6** Click **Next: Confirm**.

Confirm the configuration information of the SAP HANA and SAP Business One node as prompted.

**Table 4-7** Parameters of the SAP HANA and SAP Business One node

| Parameter | Description |
| --- | --- |
| Enterprise Project | Select the name of a created enterprise project, for example, SAP. |
| Required Duration | Set the duration based on your requirements. |
| Quantity | Set this parameter as required. |
| Agreement | Select **I have read and agree to Huawei Image Disclaimer.** |

**Step 7** Click **Next** and complete the payment as prompted.

**Step 8** On the displayed **Elastic Cloud Server** page, check the status of the created task in **Task Status** on the right of the page.

**Step 9** Change the password of user **root** for logging in to all HANA ECSs.

Securely keep the **root** password. In addition, ensure that all HANA ECSs use the same **root** password.

1. Use the key to log in to the SAP HANA ECSs.
2. Run the following command to change the password of user **root**:

   **passwd**

   Enter the new password as prompted and confirm it.

**----End**

# 4.6 Creating an ECS (Other Nodes)

## Scenarios

In the SAP Business One system, besides the SAP Business One ECS, you need to create the following ECSs:

- NAT server: allows you to access SAP Business One nodes using Secure Shell (SSH).
- SAP HANA Studio ECS: You can use the RDP or SSH to access the SAP HANA Studio ECS.
- SAP Business One Client: is used to install the SAP Business One (SAP HANA version) Client.

## Procedure

**Step 1** In the navigation plane on the left, click ☰ and choose **Computing** > **Elastic Cloud Server**.

**Step 2** On the right side of the page, click **Buy ECS**.

**Step 3** Create an ECS as prompted. For details, see section **3.1 Node Planning**.

Note the following:

- **EIP**: The SAP Business One Client ECS is not bound with an EIP, but the NAT server and SAP HANA Studio ECS need to be bound with an EIP.
- **Login Mode**: Select **Key pair**. Ensure that all nodes in the SAP system use the same key. Otherwise, the SAP software installation will fail.
- **Cloud Server Backup Service**: Select **Enable auto backup**.

**Step 4** Click **Next** and complete the payment as prompted.

**Step 5** On the displayed **Elastic Cloud Server** page, check the status of the created task in **Task Status** on the right of the page.

**Step 6** Create other ECSs as required.

**Step 7** Change the password of user **root** for logging in to all ECSs.

Securely keep the **root** password. In addition, ensure that the passwords of user **root** for logging in to all servers in SAP Business One system are the same.

1. Log in to an ECS.
2. Run the following command to switch to user **root**:

   **sudo su -**
3. Run the following command to change the password of user **root**:

   **passwd**

   Enter the new password as prompted and confirm it.

**----End**

# 5 Configuration Before Installation

5.1 Configuring SSH Switching Permissions
5.2 Configuring Mapping Between Hostnames and IP Addresses
5.3 Modifying OS Configurations
5.4 Attaching an SFS File System to a Cloud Server
5.5 Formatting Disks

## 5.1 Configuring SSH Switching Permissions

### Scenarios

To switch to an SAP node from the NAT server and to allow SSH switchovers between SAP nodes, you must configure the nodes to be trusty.

### Procedure

**Step 1** Upload the key file to the NAT server.

1. Use WinSCP to log in to the NAT server as user **root** using the key file. Upload the certificate private key file (.pem file) to the directory **/usr** on the NAT server.
2. Copy the certificate private key file to the **/root/.ssh** directory and rename the file to **id_rsa**.

   For example, if the original file name is **private.pem**, run the following commands to rename it:

   **cp /usr/private.pem /root/.ssh/id_rsa**

   **cd /root/.ssh/**

   **chmod 600 id_rsa**
3. Run the following command to generate a public key file:

   **cat authorized_keys >>id_rsa.pub**

**Step 2** Use the server/backup plane IP address to allocate the locally stored public key file to a node on which SAP Business One is to be installed.

The command is in the following format:

**scp /root/.ssh/id_rsa.pub** *Peer IP address*:**/root/.ssh/**

**Step 3** Use the server/backup plane IP address to allocate the private key file and **authorized_keys** file to all nodes excepting the SAP HANA Studio node.

The command is in the following format:

**scp /root/.ssh/id_rsa *Peer IP address*:/root/.ssh/id_rsa**

**scp /root/.ssh/authorized_keys *Peer IP address*:/root/.ssh/**

**Step 4** Verify the switching.

Use SSH to switch from the NAT server to all nodes excepting the SAP HANA Studio node for verification.

For example, the server/backup plane IP address of the SAP Business One node is **10.0.3.2**. To switch from the NAT server to the SAP Business One node, run the following command:

**ssh 10.0.3.2**

NOTE

After the switching, you must switch back to the NAT server. Then, verify the switching from the NAT server to other nodes.

During the first switching, the system displays the fingerprint as well as the message "Are you sure you want to continue connecting (yes/no)?". In such a case, enter **yes** and continue the switching.

**----End**

# 5.2 Configuring Mapping Between Hostnames and IP Addresses

## Scenarios

During the SAP installation, installation programs use hostnames for communication. Therefore, you must configure the mapping between hostnames and IP addresses.

## Procedure

**Step 1** Log in to the NAT server as user **root** using the key file. Then, use SSH to switch to SAP Business One nodes.

**Step 2** Run the following command to open the hosts file:

**vi /etc/hosts**

**Step 3** Write the names and IP addresses of all SAP nodes into the **hosts** file.

- **IP-Address** is the IP address of the server or client plane in the single-node deployment mode.

- Both **Full-Qualified-Hostname** and **Short-Hostname** are the server name, for example, **businessone001**.

The format is **IP-Address Full-Qualified-Hostname Short-Hostname**.

NOTICE

In an SAP system, you must write the mapping between all SAP node IP addresses and node names into the **hosts** file.

**Step 4** You can copy the hosts configuration file to other SAP nodes to complete the configuration on these SAP nodes.

**----End**

# 5.3 Modifying OS Configurations

## Scenarios

To ensure the proper installation of the SAP system, disable the OS firewalls of all nodes before the installation.

## Procedure

**Step 1** Log in to the NAT server as user **root** using the key file. Then, use SSH to switch to SAP Business One nodes.

**Step 2** Run the following commands on the SAP Business One node to disable automatic firewall enabling and disable the firewall:

**chkconfig SuSEfirewall2_init off**

**chkconfig SuSEfirewall2 off**

**service SuSEfirewall2_init stop**

**service SuSEfirewall2 stop**

**Step 3** Repeat the preceding step to disable the firewalls of all nodes in the SAP system.

**----End**

# 5.4 Attaching an SFS File System to a Cloud Server

## Scenarios

After the SFS file system is created, attach it to the SAP HANA and SAP Business One node to provide the backup volume for SAP HANA. This section describes how to attach the SFS file system to a cloud server.

## Prerequisites

- You have created a file system and have obtained the shared path of the file system.
- The IP addresses of the DNS server used to resolve the file system domain name have been configured on the cloud servers.

## Procedure

**Step 1** Use PuTTY to log in to the NAT server with an EIP bound. Ensure that user **root** and the key file (.ppk file) are used for authentication. Then, use SSH to switch to the SAP HANA and SAP Business One nodes.

**Step 2** Run the following command to check whether the NFS software package has been installed:

**rpm -qa|grep nfs**

Information similar to the following is displayed:

```
nfsidmap
nfs-client
```

- If yes, go to **Step 3**.
- If no, run the **zypper install nfs-client** command to install the package.

**Step 3** Run the following command to check whether the domain name in the file system shared path can be resolved:

**nslookup** *File system domain name*

**Step 4** Run the following command to create a local path for attaching the file system:

**mkdir** *Local path*

For example: **mkdir /hana/backup**

**Step 5** Run the following command to attach the file system to the SAP Business One node:

**mount -t nfs** *Shared path Local path*

**Step 6** Run the following command to view the attached file system:

**mount -l**

**Step 7** Write the disk attaching information to the **/etc/fstab** file so that disks can be automatically attached when the cloud server is restarted.

**vi /etc/fstab**

**Step 8** Enter the path information.

Enter the path based on the actual condition.

NOTE

- The **/etc/fstab** format is **Disk ID or partition Attached directory Disk format defaults 0 0**.
- In the preceding format, the recommended value of the last field is **0**. In this case, the disk can be attached to the other instance if required.

For example,

*Shared path* **/hana/backup** nfs defaults 0 0

Save the changes and exit.

**----End**

# 5.5 Formatting Disks

## Scenarios

The data volumes of SAP HANA and SAP Business One nodes can be used only after they are formatted and attached to required directories.

## Procedure

**Step 1** Log in to an SAP HANA and SAP Business One node.

Use PuTTY to log in to the NAT server with an EIP bound. Ensure that user **root** and the key file (.ppk file) are used for authentication. Then, use SSH to switch to the SAP HANA and SAP Business One nodes.

**Step 2** Format disks.

1. Run the following command to query the disks to be formatted:

   **fdisk -l**

2. Determine the disks of the /usr/sap, data, log, and shared volumes according to the disk capacity.
3. Download the configuration script.

   NOTE

   Taking CN-Hong Kong as an example, you can download the **readme.txt** file from **https://obs-sap-ap-southeast-1.obs.ap-southeast-1myhuaweicloud.com/readme.txt** on the local PC. Then, obtain the paths where the software and installation configuration scripts are stored.

   The download address of the configuration script varies depending on the region. Run the following commands based on the region:

   - **CN-Hong Kong**: **wget https://obs-sap-ap-southeast-1.obs.ap-southeast-1.myhuaweicloud.com/ha_auto_script/ha_auto_script.zip -P ~**
   - **AP-Bangkok**: **wget https://obs-sap-ap-southeast-2.obs.ap-southeast-2.myhuaweicloud.com/ha_auto_script/ha_auto_script.zip -P ~**

4. Run the following commands to switch to the folder and decompress the software package:

   **cd ~**

   **unzip scale_out_script.zip**

5. Run the following command to modify the **soh.cfg** file:

   **vi ~/scale_out_script/soh.cfg**

6. Enter **i** to enter editing mode and write the disk information into the file.

   The parameters are as follows:

   - **usrsap**: You do not need to configure this parameter.
   - **shared**: specifies the disk of the shared volume.
   - **backup**: specifies the disk of the backup volume. If the backup volume if provided by SFS, its path is the shared path of SFS.
   - **uselvm**: Set this parameter to **False**.
   - **log**: specifies the disk of the log volume.
   - **data**: specifies the disk of the data volume.
   - **disks**: You do not need to configure this parameter.
   - **dataSize**: You do not need to configure this parameter.
   - **logSize**: You do not need to configure this parameter.

   An example is provided as follows:

   ```
   usrsap=
   shared=/dev/xvdb
   backup=/dev/xvdc
   uselvm=False
   #Set log and data if not using lvm
   log=/dev/sdd
   data=/dev/sde
   #Set disks, dataSize and logSize if using lvm
   disks=
   dataSize=
   logSize=
   ```

7. After you complete editing, press **Esc**, enter **:x**, and press **Enter** to exit the **soh.cfg** file.
8. Run the following commands to switch to the directory where the **soh.cfg** file is stored and convert the file format:

   **cd ~/scale_out_script**

   **dos2unix installSoh.sh soh.cfg**
9. Assign operation permissions to the **soh.cfg** file and run **installSoh.sh** to format disks.

   **chmod 777 installSoh.sh soh.cfg**

   **sh installSoh.sh**

**----End**

# 6 Installing Software

6.1 Installing the SAP Software

## 6.1 Installing the SAP Software

### Installing SAP HANA

For details about how to install and deploy SAP HANA, see the SAP standard documents.

### Installing SAP Business One

Before installing SAP Business One, modify the configurations on the target server. For details, see **7.1 What Should I Do If an SAP Application on an ECS Cannot Be Started?**.

For details about how to install SAP Business One, see standard SAP documents. For more information, visit **https://support.sap.com/en/offerings-programs/support-small-medium-enterprises/business-one.html**.

# 7 FAQs

7.1 What Should I Do If an SAP Application on an ECS Cannot Be Started?

## 7.1 What Should I Do If an SAP Application on an ECS Cannot Be Started?

### Symptom

The **/etc/hosts** file contains "**127.0.0.1** *host name host name*". As a result, the SAP application installed on the ECS cannot be started. You need to log in to the ECS where the SAP application is deployed to modify the configurations.

NOTE

You only need to perform this operation on the ECS where the SAP application software is deployed.

### Procedure

**Step 1** Log in to the ECS where the SAP application software is deployed as user **root**.

**Step 2** Comment out **manage_etc_hosts: localhost** in the configuration file.

1. Run the following command to open the Cloud-Init configuration file **/etc/cloud/cloud.cfg**:

   **vi /etc/cloud/cloud.cfg**

2. Comment out **manage_etc_hosts: localhost** in the configuration file and save the modification.

   Example: #manage_etc_hosts: localhost

```
datasource_list: ['OpenStack']
manage_etc_hosts: localhost

datasource:
  OpenStack:
    # timeout: the timeout value for a request at metadata service
    timeout : 50
    # The length in seconds to wait before giving up on the metadata
    # service.  The actual total wait could be up to
    #   len(resolvable_metadata_urls)*timeout
    max_wait : 120
```

**Step 3** Delete "**127.0.0.1** *host name host name*" from the **/etc/hosts** file.

1. Run the following command to open the **/etc/hosts** file:

   **vi /etc/hosts**

2. Delete "**127.0.0.1** *host name host name*" from the **/etc/hosts** file and save the modification.

```
#
# hosts         This file describes a number of hostname-to-address
#               mappings for the TCP/IP subsystem.  It is mostly
#               used at boot time, when no name servers are running.
#               On small systems, this file can be used instead of a
#               "named" name server.
# Syntax:
#
# IP-Address  Full-Qualified-Hostname  Short-Hostname
#


# special IPv6 addresses
::1     localhost       ipv6-localhost  ipv6-loopback

fe00::0 ipv6-localnet

ff00::0 ipv6-mcastprefix
ff02::1 ipv6-allnodes
ff02::2 ipv6-allrouters
ff02::3 ipv6-allhosts


127.0.0.1       localhost
127.0.0.1       localhost       localhost
127.0.0.1       test-xiongp     test-xiongp

~
```

**Step 4** Restart the SAP application on the ECS where the SAP application has been installed. If the SAP application has not been installed on the ECS, perform the preceding operations and install the SAP software.

**----End**

# A Change History

| Change History | Release On |
| --- | --- |
| This issue is the first official release. | 2020-07-06 |