Solution

Migration of Oracle RAC to Cloud

 Issue
 1.0.0

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Solution Overview

Scenarios

This solution enables you to easily deploy the basic environment for your core database. It helps speed up your digital transformation and provides a highly reliable and high-performance database. This solution can be used for migrating core database workloads to the cloud.

Architecture

This solution uses Elastic Cloud Server (ECS) and shared **Elastic Volume Service** (EVS) disks to provide secure and reliable compute, storage, and network resources for your core database. The following figure shows the deployment architecture.

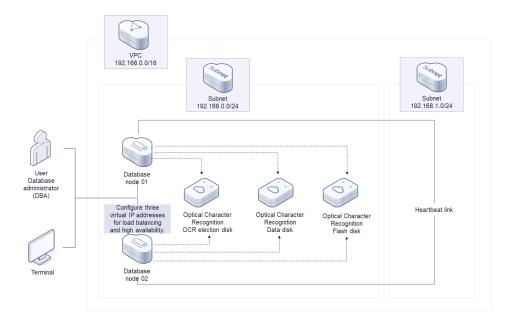


Figure 1-1 Architecture

This solution will:

- Create two ECSs for deploying database nodes.
- Attach two NICs to each ECS. One NIC is for public network communication and the other for private network communication.
- Create six shared SCSI EVS disks, three for OCR election, one for MGMTDB database, one for data disks, and the last one for flash disks.
- Attach the six shared SCSI EVS disks to the two database nodes.
- Create three virtual IP addresses and bind them to the two core database nodes.

Advantages

• Easy deployment

This solution helps you easily deploy a basic environment for your database and reduces the deployment period from two days to one hour.

- High availability
 Highly Available IP (HAIP) is enabled on the public and private networks to ensure stable running of your database on the cloud.
- High performance

A shared EVS disk supports concurrent access from different ECSs. The random IOPS of a shared EVS disk can reach up to 160,000.

Constraints

• Before deploying this solution, ensure that you have an account with access to the target region.

2 Resource Planning and Costs

This solution deploys the resources listed in **Deployment on ECSs (Yearly/ Monthly + Pay-per-use)**. The costs are estimates and may differ from the final prices. For details, see **Pricing details**.

Deployment on ECSs (Yearly/Monthly + Pay-per-use)

		5, 5,
Huawei Cloud Service	Description	Monthly Cost
Elastic Cloud Server (ECS)	 Region: AP-Singapore Billing Mode: Yearly/Monthly Type: General computing-plus c6.2xlarge.4 8 vCPUs 32 GiB System Disk: Ultra-high I/O 150 GB Required Duration: 1 month Quantity: 2 	\$272.38 USD x 2 = \$544.76 USD
Elastic IP (EIP)	 Pay-per-use: \$0.12 USD/GB Region: AP-Singapore Billing Mode: Pay-per-use Routing Type: Dynamic BGP Billed By: Traffic Bandwidth: 100 Mbit/s EIP Quantity: 2 	You are billed based on the total amount of traffic going out of the cloud. If an EIP is not released, it will still be billed even if it is not bound to an instance.

Table 2-1 Resource planning and prices — ECSs (yearly/monthly)

Elastic Volume Service (EVS)	 Region: AP-Singapore Billing Mode: Yearly/Monthly Disk Capacity: 200 GB Ultrahigh I/O Quantity: 1 	\$40.80 USD
Elastic Volume Service (shared)	 Billing Mode: Yearly/Monthly Disk Capacity: 10 GB Extreme SSD shared SCSI Quantity: 6 	\$4.48 USD x 6 = \$26.88 USD
Total	-	\$612.44 USD + Fees billed by actual traffic you use

Table 2-2 Resource	planning and prices -	 ECSs (pay-per-use)
--------------------	-----------------------	--

Huawei Cloud Service	Description	Monthly Cost
Elastic Cloud Server (ECS)	 Pay-per-use: \$0.50 USD/hour Region: AP-Singapore Billing Mode: Pay-per-use Type: General computing-plus c6.2xlarge.4 8 vCPUs 32 GiB System Disk: Ultra-high I/O 150 GB Quantity: 2 	\$0.50 USD x 24 x 30 x 2 = \$720 USD
Elastic IP (EIP)	 Pay-per-use: \$0.12 USD/GB Region: AP-Singapore Billing Mode: Pay-per-use Routing Type: Dynamic BGP Billed By: Traffic Bandwidth: 100 Mbit/s EIP Quantity: 2 	You are billed based on the total amount of traffic going out of the cloud. If an EIP is not released, it will still be billed even if it is not bound to an instance.
Elastic Volume Service (EVS)	 Region: AP-Singapore Billing Mode: Pay-per-use Disk Capacity: 200 GB Ultrahigh I/O Quantity: 1 	\$0.06 USD x 24 x 30 = \$43.2 USD

Elastic Volume Service (shared)	 Billing Mode: Pay-per-use Disk Capacity: 10 GB Extreme SSD shared SCSI Quantity: 6 	\$0.01 USD x 24 x 30 x 6 = \$43.2 USD
Total	-	\$806.4 USD + Fees billed by actual traffic you use

3_{Procedure}

- 3.1 Preparations
- 3.2 Quick Deployment
- 3.3 Getting Started
- 3.4 Quick Uninstallation

3.1 Preparations

Creating the rf_admin_trust Agency

Step 1 On the Huawei Cloud official website, log in to the **console**. Hover over the account name and choose **Identity and Access Management**.

Figure 3-1 Console page



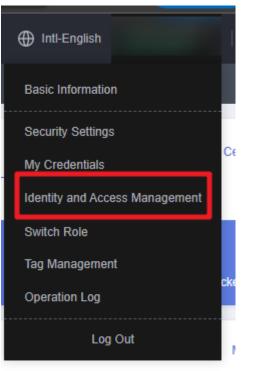


Figure 3-2 Identity and Access Management

Step 2 Choose **Agencies** and then search for the **rf_admin_trust** agency in the right pane.

Figure 3-3 Agencies

IAM	Age	ncies 🗇						Create Agency
Users User Groups		Delete Agencies available for cre	ation: 32			Al	▼ rf_admin_trust	× Q
		Agency NameID ↓≣	Delegated Party JE	Validity Period ↓≣	Created JF	Description J≣	Operation	
Permissions • Projects		rf_admin_trust	Account op_svc_IAC	Unlimited	Jan 16, 2023 17:57:41 GMT+08:00	Created by RF, Not delete.	Authorize Modify Delete	
Agencies								
Identity Providers								
Security Settings								

- If the agency is found, skip the following steps.
- If the agency is not found, perform the following steps.
- Step 3 Click Create Agency in the upper right corner of the page. On the displayed page, enter rf_admin_trust for Agency Name, select Cloud service for Agency Type, select RFS for Cloud Service, and click Next.

Figure 3-4 Creating an agency

ncies / Create Agen	су
* Agency Name	rf_admin_trust
★ Agency Type	 Account Delegate another HUAWEI CLOUD account to perform operations on your resources Cloud service Delegate a cloud service to access your resources in other cloud services.
* Cloud Service	RFS
* Validity Period	Unlimited -
Description	Enter a brief description.
	0/255
	Next Cancel

Step 4 Search for **Tenant Administrator**, select it in the search results, and click **Next**.

Figure 3-5 Selecting a policy

Authorize Agency	
Select Polcy/Role (2) Select Scope (3) Finish	
Assign selected permissions to rf_admin_trust1.	Create Policy
View Selected (1) Copy Permissions from Another Project	All policies/roles • All services • Tenant Administrator X Q,]
Policy/Role Name	Туре
WE AdministratorAccess Recommender Data Model Engine tenant administrator with full permissions.	System-defined policy
 Tenant Administrator Tenant Administrator (Exclude IAM) 	System-defined role
Citerant Admin Cloud Stream Service Tenant Administrator, can manage multiple CS users	System-defined role

Step 5 Select All resources and click OK.

Figure 3-6 Selecting a scope

< Authorize Agency
(1) Select Policy/Role (2) Select Scope (3) Finish
() The following are recommended scopes for the permissions you selected. Select the desired scope requiring minimum authorization.
Scope
All resources
IAM users will be able to use all resources, including those in enterprise projects, region-specific projects, and global services under your account based on assigned permissions.
Show More

Step 6 Check that the **rf_admin_trust** agency is displayed in the agency list.

IAM	Age	encies 💿					Creat	le Agency
Users User Groups		Delete Agencies available for cre	ation: 32			Al	▼ rf_admin_trust ×	Q
		Agency NameID ↓≣	Delegated Party ↓≣	Validity Period ↓≣	Created 4F	Description J≣	Operation	
Permissions v		rf_admin_trust	Account op_svc_IAC	Unlimited	Jan 16, 2023 17:57:41 GMT+08:00	Created by RF, Not delete.	Authorize Modify Delete	
Agencies								
Identity Providers								
Security Settings								

----End

Obtaining IDs of the Associated Subnets

Step 1 On the **Huawei Cloud console**, choose **Virtual Private Cloud**. In the navigation pane on the left, click **Subnets** and obtain IDs of the associated subnets.

Figure 3-8 Logging in to Virtual Private Cloud

Network Console	Vir	tual Private Cloud ③							(P Quick Links	Create VPC
Dashboard Virtual Private Cloud		Specify filter criteria.								QCB
My VPCs		Name/ID	IPv4 CIDR Block	Status	Subnets	Route Tables	Servers	Enterprise Project	Operation	
Subnets		e_commerce_shop_based_magento_entry_d 1f0cba0a-ed36-494d-bb77-83388cd23720	172.16.0.0/16 (Primary CIDR block)	Available	1	1	2 😾	default	Edit CIDR Block Delete	
VPC Peering Connections		vpc-for-aws b63b6897-460c-4860-8ef6-a95f6f732afd	192.168.0.0/16 (Primary CIDR block)	Available	2	1	1 🗑	default	Edit CIDR Block Delete	
Network Interfaces		terraform_vpc 17b98562-40a5-42b8-a999-4caeta5d11c8	172.16.0.012 (Primary CIDR block)	Available	0	1	0 H	default	Edit CIDR Block Delete	
Access Control •		vpc-testCY 75ca7efa-e3t9-486c-897b-911edfb4daca	10.0.0.0/11 (Primary CIDR block)	Available	1	1	3 🛱	default	Edit CIDR Block Delete	
Elastic IP and Bandwidth	4	vpc-default 9a14c085-36/6-4635-af99-1c8/0348a4c2	192.168.0.0/16 (Primary CIDR block)	Available	3	4	s 17	default	Edit CIDR Block Delete	
NAT Gateway 👻										

Figure 3-9 Obtaining the IDs of the associated subnets

letwork Console	Subnets ⑦ 🏘 Overv	iew 🏘 Process Fi	DW						Feedback Create Subnet
ashboard	Name: subn 🔘								X Q C E
My VPCs	Name/ID	VPC	IPv4 CIDR Block	IPv6 CIDR BI (?)	Status	AZ ⑦	Network ACL	Route Table	Operation
Subnets	subnet_private dc0cf884-31a3-41ce	oracle	192.168.1.0/24	Enable IPv6	Available	AZ1		rtb-oracle_old Default	Change Route Table Delete
Route Tables	subnet_public 62f05a04-2ca4-46da-	oracle	192.168.0.0/24	Enable IPv6	Available	AZ1		rtb-oracle_old Default	Change Route Table Delete
Connections									
Network Interfaces									

----End

3.2 Quick Deployment

This section describes how to deploy the **Migration of Oracle RAC to Cloud** solution.

Table 3-1 Parameters for a new VPC

Parameter Type	Man dato ry	Description	Default Value
----------------	-------------------	-------------	---------------

r				1
availability _zone	strin g	Yes	AZ where the solution is deployed. For details, see Regions and Endpoints .	ap-southeast-3a
oracle_vers ion	strin g	Yes	Oracle database version. Currently, 11g, 12c, and 19c are supported.	11g
vpc_name	strin g	Yes	VPC name. This template uses a newly created VPC and the VPC name must be unique. The name contains 1 to 56 characters, including letters, digits, underscores (_), hyphens (-), and periods (.).	oracle_rac_in_cloud _ecs_new_vpc_dem o
vpc_cidr	strin g	Yes	VPC CIDR block. Value range: 10.0.0.0/8-24, 172.16.0.0/12- 24, 192.168.0.0/16-24.	192.168.0.0/16
subnet_pu blic_cidr	strin g	Yes	Public subnet CIDR block. Value range: 10.0.0.0/8–24, 172.16.0.0/12–24, 192.168.0.0/16–24.	192.168.0.0/24
subnet_pri vate_cidr	strin g	Yes	Private subnet CIDR block. Value range: 10.0.0.0/8–24, 172.16.0.0/12–24, 192.168.0.0/16–24.	192.168.1.0/24
public_ip_1	strin g	Yes	Private IP address of the public subnet NIC of the first ECS. Value range: the IP addresses within the CIDR block of the public subnet.	192.168.0.2
public_ip_2	strin g	Yes	Private IP address of the public subnet NIC of the second ECS. Value range: the IP addresses within the CIDR block of the public subnet.	192.168.0.3
private_ip_ 1	strin g	Yes	Private IP address of the private subnet NIC of the first ECS. Value range: the IP addresses within the CIDR block of the private subnet.	192.168.1.2
private_ip_ 2	strin g	Yes	Private IP address of the private subnet NIC of the second ECS. Value range: the IP addresses within the CIDR block of the private subnet.	192.168.1.3

	1			1
scan_vip	strin g	Yes	Virtual IP address of the public subnet NIC of all ECSs. Value range: the IP addresses within the CIDR block of the public subnet.	192.168.0.4
vip_1	strin g	Yes	Virtual IP address of the public subnet NIC of all ECSs. Value range: the IP addresses within the CIDR block of the public subnet.	192.168.0.5
vip_2	strin g	Yes	Virtual IP address of the public subnet NIC of all ECSs. Value range: the IP addresses within the CIDR block of the public subnet.	192.168.0.6
security_gr oup_name	strin g	Yes	Security group name. This template uses a newly created security group. For details about how to modify security group rules, see (Optional) Modifying Security Group Rules. The name contains 1 to 64 characters, including letters, digits, underscores (_), hyphens (-), and periods (.).	oracle_rac_in_cloud _ecs_new_vpc_dem o
ecs_name	strin g	Yes	ECS name, which must be unique. The name consists of 1 to 52 characters, only including letters, digits, underscores (_), hyphens (-), and periods (.).	oracle_rac_in_cloud _ecs_new_vpc_dem o
ecs_image	strin g	Yes	ECS OS image. For more OS images, see OSs Supported by Different Types of ECSs.	CentOS 7.6 64bit
image_visi bility	strin g	Yes	Image type. The value can be public (public image), private (private image), or shared (shared image).	public
ecs_flavor	strin g	Yes	ECS flavor. For more flavors, see A Summary List of x86 ECS Specifications.	c6.2xlarge.4

password	strin g	Yes	Password for ECS login and Oracle user. After this solution is deployed, reset the password by following the operations provided in Resetting the Password for Logging In to an ECS on the Management Console . The password contains 8 to 26 characters, including at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@\$%^=+[{}:,./?). The password cannot contain any username or the username spelled backwards.	Left blank
system_dis k_size	num ber	Yes	System disk volume of the ECS. The value ranges from 40 to 1,024 in the unit of GB.	150
data_disk_ size	num ber	Yes	Dedicated data disk attached to the first ECS. The value ranges from 10 to 32,768 in the unit of GB.	200
charging_ mode	strin g	Yes	Billing mode of the ECS and EVS. The value can be prePaid (yearly/monthly) or postPaid (pay-per-use).	postPaid
period_uni t	strin g	Yes	Subscription period unit of ECSs and EVS disks. This parameter is valid only when charging_mode is set to prePaid (yearly/monthly). The value can be month or year.	month
period	num ber	Yes	Subscription period unit of ECSs and EVS disks. This parameter is valid only when charging_mode is set to prePaid (yearly/monthly). If period_unit is set to month, the value ranges from 1 to 9. If period_unit is set to year, the value ranges from 1 to 3.	1
evs_volum e_type	strin g	Yes	EVS data disk type. The value can be ESSD (Extreme SSD) or SSD (ultra-high I/O).	ESSD

	1			,
evs_data_c ount	num ber	Yes	Number of data disks. They are used as database data disks. The value ranges from 1 to 10 .	1
evs_data_si ze	num ber	Yes	Data disk volume. The value ranges from 10 to 32,768 in the unit of GB.	10
evs_flash_c ount	num ber	Yes	Number of flash disks. They are used as database flash disks. The value ranges from 1 to 10 .	1
evs_flash_s ize	num ber	Yes	Flash disk volume. The value ranges from 10 to 32,768 in the unit of GB.	10
evs_ocr_co unt	num ber	Yes	Number of OCR data disks. The OCR data disks are used for disk election. The value ranges from 1 to 10 .	3
evs_ocr_siz e	num ber	Yes	OCR data disk volume. The OCR data disks are used for disk election. The value ranges from 10 to 32,768 in the unit of GB.	10
evs_mgmt_ count	num ber	Yes	Number of MGMTDB data disks. The data disks are used by the MGMTDB database. The value ranges from 0 to 23 .	1
evs_mgmt_ size	num ber	Yes	MGMTDB data disk volume. The value ranges from 10 to 32,768 in the unit of GB.	10

Table 3-2 Parameters of an existing VPC

Parameter	Туре	Man dato ry	Description	Default Value
availability _zone	strin g	Yes	AZ where the solution is deployed. For details, see Regions and Endpoints .	ap-southeast-3a
oracle_vers ion	strin g	Yes	Oracle database version. Currently, 11g, 12c, and 19c are supported.	11g

subnet_pu blic_id	strin g	Yes	Existing subnet ID (public subnet), which is used for the public network of the Oracle RAC cluster. For details, see Obtaining IDs of the Associated Subnets .	Left blank
subnet_pri vate_id	strin g	Yes	Existing subnet ID (private subnet), which is used for the private network of the Oracle RAC cluster. For details, see Obtaining IDs of the Associated Subnets .	Left blank
public_ip_1	strin g	Yes	Private IP address of the public subnet NIC of the first ECS. Value range: the IP addresses within the CIDR block of the public subnet.	192.168.0.2
public_ip_2	strin g	Yes	Private IP address of the public subnet NIC of the second ECS. Value range: the IP addresses within the CIDR block of the public subnet.	192.168.0.3
private_ip_ 1	strin g	Yes	Private IP address of the private subnet NIC of the first ECS. Value range: the IP addresses within the CIDR block of the private subnet.	192.168.1.2
private_ip_ 2	strin g	Yes	Private IP address of the private subnet NIC of the second ECS. Value range: the IP addresses within the CIDR block of the private subnet.	192.168.1.3
scan_vip	strin g	Yes	Virtual IP address of the public subnet NIC of all ECSs. Value range: the IP addresses within the CIDR block of the public subnet.	192.168.0.4
vip_1	strin g	Yes	Virtual IP address of the public subnet NIC of all ECSs. Value range: the IP addresses within the CIDR block of the public subnet.	192.168.0.5
vip_2	strin g	Yes	Virtual IP address of the public subnet NIC of all ECSs. Value range: the IP addresses within the CIDR block of the public subnet.	192.168.0.6

security_gr oup_name	strin g	Yes	Existing security group name.	default
ecs_name	strin g	Yes	ECS name, which must be unique. The name consists of 1 to 52 characters, only including letters, digits, underscores (_), hyphens (-), and periods (.).	oracle_rac_in_clo ud_ecs_demo
ecs_image	strin g	Yes	ECS OS image. For more OS images, see OSs Supported by Different Types of ECSs.	CentOS 7.6 64bit
image_visi bility	strin g	Yes	Image type. The value can be public (public image), private (private image), or shared (shared image).	public
ecs_flavor	strin g	Yes	ECS flavor. For more flavors, see A Summary List of x86 ECS Specifications.	c6.2xlarge.4
password	strin g	Yes	Password for ECS login and Oracle user. After this solution is deployed, reset the password by following the operations provided in Resetting the Password for Logging In to an ECS on the Management Console . The password contains 8 to 26 characters, including at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@\$%^- _=+[{]:,./?). The password cannot contain any username or the username spelled backwards.	Left blank
system_dis k_size	num ber	Yes	System disk volume of the ECS. The value ranges from 40 to 1,024 in the unit of GB.	150
charging_ mode	strin g	Yes	Billing mode of the ECS and EVS. The value can be prePaid (yearly/monthly) or postPaid (pay-per-use).	postPaid
period_uni t	strin g	Yes	Subscription period unit of ECSs and EVS disks. This parameter is valid only when charging_mode is set to prePaid (yearly/ monthly). The value can be month or year .	month

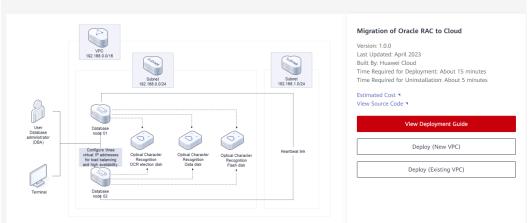
			1	
period	num ber	Yes	Subscription period unit of ECSs and EVS disks. This parameter is valid only when charging_mode is set to prePaid (yearly/ monthly). If period_unit is set to month , the value ranges from 1 to 9 . If period_unit is set to year , the value ranges from 1 to 3 .	1
evs_volum e_type	strin g	Yes	EVS data disk type. The value can be ESSD (Extreme SSD) or SSD (ultra-high I/O). Default value: ESSD (Extreme SSD)	ESSD
evs_data_c ount	num ber	Yes	Number of data disks. They are used as database data disks. The value ranges from 1 to 10 .	1
evs_data_si ze	num ber	Yes	Data disk volume. The value ranges from 10 to 32,768 in the unit of GB.	10
evs_flash_c ount	num ber	Yes	Number of flash disks. They are used as database flash disks. The value ranges from 1 to 10 .	1
evs_flash_s ize	num ber	Yes	Flash disk volume. The value ranges from 10 to 32,768 in the unit of GB.	10
evs_ocr_co unt	num ber	Yes	Number of OCR data disks. The OCR data disks are used for disk election. The value can be 3 , 5 , 7 , or 9 .	3
evs_ocr_siz e	num ber	Yes	OCR data disk volume. The OCR data disks are used for disk election. The value ranges from 10 to 32,768 in the unit of GB.	10
evs_mgmt_ count	num ber	Yes	Number of MGMTDB data disks. The data disks are used by the MGMTDB database. The value ranges from 0 to 23 .	1
evs_mgmt_ size	num ber	Yes	MGMTDB data disk volume. The value ranges from 10 to 32,768 in the unit of GB.	10

Step 1Log in to Huawei Cloud Solution Best Practices and choose Migration of Oracle
RAC to Cloud. Click Deploy (New VPC) or Deploy (Existing VPC).

Figure 3-10 Deploying the solution

Solution Architecture

This solution uses Elastic Cloud Server (ECS) and shared Elastic Volume Service (EVS) disks to provide secure and reliable compute, storage, and network resources for your core database.



Step 2 On the Select Template page, click Next.

Figure 3-11 Selecting a template

< Create Stack		
Select Template	Q Contigure Parameters ③ Configure Stack ④ Continue Contigurations	
* Creation Mode	Exoding temptates	
* Template Source	USA. Uplead temptate A stack to provided using a bengtisht. The temptate must contain the deployment code file which lite name extension is if or if junn.	
* Template URL	htps://documentation-sampler-4_dot.ap-sol/heat3_] The URL must contain at least the displayment code Bis, and the Bis size cannot exceed 1 MB. FR5 and yours the data you upload for resource management. Your template will not be encrypted. KMS and DEV are recommended for encryption of sensitive variables. Currently, the RFS conside can automatically use KMS to encrypt your sensitive variables.	
		((
		Next

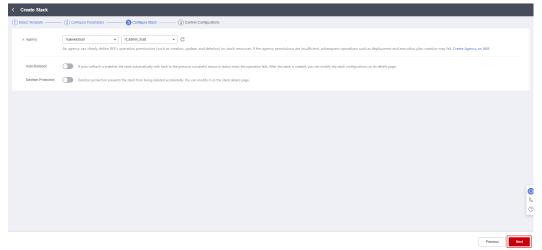
Step 3 On the **Configure Parameters** page, enter a stack name, configure parameters according to **Table 3-1**, and click **Next**.

Figure 3-12 Configure parameters

Create Stack			
Select Template	- 2 Configure Parameters 3 Configure Stack (a	Confirm Configurations	
	_rac_in_cloud_ecs_new_vpc_		
The stack	k name must start with a letter and can contain a maximum of 128 characters, inc	luding letters, digits, underscores	(_), and hyphens (-). The stack name must be unique. The stack name must be unique.
Description Enter a	a description of the stack.		
	0/255		
Configure Paran	Q Z Encrypt some resources based on	the template requirements.	
Parameter	Value	Туре	Description
* availability_zone	ap-southeast-3a 💌	string	AZ where the solution is to be deployed. For details about AZ information, see the regions and endpoints at https://developer.husweicbout.com/intilen-uslendpoint?all. Default valu
* oracle_version	11g *	string	Oracle database version. Currently, 11g, 12c, and 19c are supported. Default value: 11g
* vpc_name	oracle_rac_in_cloud_ecs_new_vpc_demo	string	Virtual Private Cloud (VPC) name. This template uses a newly created VPC and the VPC name must be unique. The value contains 1 to 56 characters, including digits, letters, un
* vpc_cidr	192.168.0.0/16	string	VPC CIDR block: Value range: 10.0.0.08-24, 172.16.0.012-24, 192.168.0.0116-24. Default value: 192.168.0.016.
* subnet_public_cidr	192.168.0.0/24	string	Public subnet CIDR block. Value range: 10.0.0.08-24, 172:16.0.012-24, 192:168.0.0116-24. Default value: 192:168.0.024.
* subnet_private_cidr	192.168.1.0/24	string	Private submet CIDR block. Value range: 10.0.0.08-24, 172.16.0.012-24, 192.168.0.016-24. Default value: 192.168.1.0/24.
* public_ip_1	192.168.0.2	string	Private IP address of the public subnet NIC of the first ECS. Value range: the IP addresses within the CIDR block of the public subnet. Default value: 192.168.0.2
			Previous Next

Step 4 On the **Configure Stack** page, select the **rf_admin_trust** agency and click **Next**.





Step 5 On the **Confirm Configurations** page, confirm the configurations and click **Create Execution Plan**.

Figure 3-14 Confirming configurations

Ŭ	Configure Parameters (3) Configure Stack	Confirm Configurations n plan (free of charge) to obtain the e	stimated price.					
mplate Info								
ack Name	oracle_rac_in_cloud_ecs_new_vpc_		Description					
arameters 🖉								
Parameter Name	Value	Туре	Description					
svailability_zone	ap-southeast-3a	string	AZ where the solution is to be deployed. For details about AZ information, see the regions and endpoints at https://developer.huaweicloud.com/intl/en-us/endpoint?all. Default					
oracle_version	11g	string	Oracle database version. Currently, 11g, 12c, and 19c are supported. Default value: 11g					
ipc_name	oracle_rac_in_cloud_ecs_new_vpc_demo	string	Virtual Private Cloud (VPC) name. This template uses a newly created VPC and the VPC name must be unique. The value contains 1 to 56 characters, including digits, letters					
rpc_cidr	192.168.0.0/16	string	VPC CIDR block: Value range: 10.0.0.08-24, 172.16.0.012-24, 192.168.0.016-24. Default value: 192.168.0.016.					
subnet_public_cidr	192.168.0.0/24	string	Public subnet CIDR block. Value range: 10.0.0.0/8-24, 172:16.0.0/12-24, 192:168.0.0/16-24. Default value: 192:168.0.0/24.					
ubnet_private_cidr	192.168.1.0/24	string	Private subnet CIDR block. Value range: 10.0.0.0/6-24, 172.16.0.0/12-24, 192.188.0.0/16-24. Default value: 192.188.1.0/24.					
oublic_ip_1	192.168.0.2	string	Private IP address of the public subnet NIC of the first ECS. Value range: the IP addresses within the CIDR block of the public subnet. Default value: 192.168.0.2					
oublic_ip_2	192.168.0.3	string	Private in a potates in the policit, solvers into on the first ECS- value range, the IP addresses within the CIDR block of the public submit. Default value: 192, 168.0.3					
private_ip_1	192.168.1.2	string	Private IP address of the private subnet NIC of the first ECS. Value range: the IP addresses within the CIDR block of the private subnet. Default value: 192, 168, 1.2					
private_ip_2	192.168.1.3	string	Private IP address of the private subnet NIC of the second ECS. Value range: the IP addresses within the CIDR block of the private subnet. Default value: 192.168.1.3					

Step 6 In the displayed **Create Execution Plan** dialog box, enter an execution plan name and click **OK**.

Figure 3-15 Creating an execution plan

information and check resources.RFS is free of charge, plan is created, a stack	ck, you can create an execution plan to preview the stack its configurations to evaluate the impact on running but the resources in the stack are not. After the execution (occupies the stack quota) for which no resource is and the estimated price is displayed in the execution plan
* Execution Plan Name	executionPlan_20230320_1729_jz33
Description	Enter a description of the execution plan.
	0/25
	OK Cancel

Step 7 Wait until the status of the execution plan changes to **Available** and click **Deploy** in the **Operation** column. In the displayed dialog box, click **Execute**.

. .

Figure 3-16 Execution plan

< oracle_rac_in_cloud_ecs				Delete Updat	te Template/Parameter C
Basic Information Resources Outputs Events	Template Execution Plans				
Deploy				Enter a keyword.	QC
Execution Plan Name/ID	Status	Estimated Price 💿	Created	Description	Operation
executionPlan_20230320_1729_t233 10763ced-3b01-4ace-87d0-d537c82918ee	Available	View Details	2023/03/20 17:30:47 GMT+08:00		Delete Deploy



Execution Plan			X
Are you sure you want to execute the	e plan?		
Execution Plan Name	Status	Created	
executionPlan_20230320_172	Available	2023/03/20 17:30:47 GMT+08	
After the plan is executed, the template are enabled, which requirements.		accordingly, and resources in the sed on resource payment	
Exe	cute Car	ncel	

Step 8 Click the **Events** tab and check whether the message "Apply required resource success" is displayed. If so, the solution is successfully deployed.

Figure 3-18 Solution deployed

Information Resources Output	s Events Template E	xecution Plans		
				Enter a keyword. Q
ime ↓≣	Туре	Description	Resource Name/Type	Associated Resource ID
023/03/20 17:35:58 GMT+08:00	LOG	Apply required resource success.	-	-
023/03/20 17:35:52 GMT+08:00	-	Apply completel Resources: 39 added, 0 changed, 0 destroyed.		-
023/03/20 17:35:52 GMT+08:00	Creation Complete	huzweicloud_compute_volume_attach.ocr_ecs1_attachments[2]: Creation complete after 12s [id=ecd4109a=9eb2=4d9b=8fac= 51e279e4b8fcliac4e171b=05dd=48cf=6d01=42c961df1e61]	ocr_ecs1_attachments ECS2EVS	ecd4109a-9eb2-4d9b-8tac-51e279a4b8tclac4e171b-05dd-48
023/03/20 17:35:51 GMT+08:00	Creation Complete	huzweicloud_compute_volume_attach.ocr_ecs2_attachments[0]; Creation complete atter 12s [id+18c3ded5-c35e-41b3-8b8a- 8b0304758049b199cd0-b320-46ee-8cb2-50721992bce7]	ocr_ecs2_attachments ECS2EVS	18c3ded6-c35e-41b3-8b8a-8b03047580a9/b199cdc0-b320-4
023/03/20 17:35:51 GMT+08:00	Creation Complete	huzweicloud_compute_volume_affach.ocr_ecs2_atfachments[1] Creation complete after 23s [id=18c3ded5-c35e-41b3-888a- 8b03047580861fe64bde4-751b-4075-9686-5573888cc76d]	ocr_ecs2_attachments ECS2EVS	18c3ded6-c35e-41b3-8b8a-8b03047580a9/fe84bde4-751b-40
023/03/20 17:35:51 GMT+08:00	Creation Complete	huzwecioud_compute_volume_aflach.flash_ecs1_atlachments[0] Creation complete after 22s [id=ecd4109e-9eb2-4d9b-8fac- 51e279s4b8bc0066624-715b-4a3c-ade8-3583ab70edd66]	flash_ecs1_attachments ECS2EVS	ecd4109a-9eb2-4d9b-8fac-51e279a4b8fc/00fe6624-715b-4a3
023/03/20 17:35:51 GMT+08:00	Creation Complete	husweidoud_compute_volume_stach.dsta_ecc2_stlachments(0): Creation complete after 22s jid=19c3ded5-c35e-41t3-8b8a- 8b03047880x9h935953d-0e6e-42c9-abe4-e36653a10f7]	data_ecs2_attachments ECS2EVS	18c3ded6-c35e-41b3-8b8a-8b03047580a9/b938953d-0e6e-4
023/03/20 17:35:51 GMT+08:00	Creation Complete	husweicloud_compute_volume_sifach.mgmLeci2_sifachments(0); Creation complete after 23s (id=16c3ded6-c35e-41b3-8b8a- Bb0304758038/IS4daace-f34e-492d-89ee-c2at87c5565d)	mgmt_ecs2_attachments ECS2EVS	18c3ded5-c35e-41b3-8b8a-8b03047580a9/584daace-134e-49
023/03/20 17:35:49 GMT+08:00	Creation In Progress	huaweicloud_compute_volume_attach.ocr_ecs2_attachments[0]; Still creating[10s elapsed]	ocr_ecs2_attachments ECS2EVS	
023/03/20 17:35:49 GMT+08:00	Creation In Progress	huaweicloud_compute_volume_attach.ccr_ecs1_attachments[2]: Still creating [10s elapsed]	ocr_ecs1_attachments ECS2EVS	

3.3 Getting Started

(Optional) Modifying Security Group Rules

NOTICE

• In this solution, ICMP packets and traffic from port 22 and port 1521 are not allowed to pass through by default. You can add a security group rule to allow access from them.

A security group is a collection of access control rules for cloud resources, such as cloud servers, containers, and databases, to control inbound and outbound traffic. Cloud resources associated with the same security group have the same security requirements and are mutually trusted within a VPC.

If the rules of the security group associated with your instance cannot meet your requirements, for example, you need to add, modify, or delete a TCP port, do as follows:

- Adding a security group rule: Add an inbound rule and enable a TCP port if needed.
- Modifying a security group rule: Inappropriate security group settings can be a serious security risk. You can modify security group rules to ensure the network security of your ECSs.
- Deleting a security group rule: If the source or destination IP address of an inbound or outbound security group rule changes, or a port does not need to be enabled, you can delete the security group rule.

(Optional) Releasing Temporary EIPs

D NOTE

The EIPs created in this solution are used for downloading software and can be released if they are no longer required.

Step 1 Log in to the **EIP console**, locate the target EIP, and click **Unbind** in the **Operation** column.

Network Console		EIPs ⑦									Quick Links Buy EIP
Dashboard		Unbind Modify Bandwidth	Renew More +								C 🗉 🐵
Virtual Private Cloud	*	Specify filter criteria.									Q
Access Control	*	EIP	Monitoring	₩ Status		T Bandwidth		T Associated Inst	₩ Billing Mode	Enterprise Project	Operation
VPC Flow Logs			Ø				Traffic	oracle_rac_in_cloud	Pay-per-use		Bind Unbind More -
Elastic IP and Bandwidth	•		μ.	Bound	Dynamic BGP	oracle_rac_in_cloud	100 Mbib's	ECS	Created on Mar 20,	default	Bind Unbind More +
EIPs			₫	Bound	Dynamic BGP	oracle_rac_in_cloud	Traffic	oracle_rac_in_cloud	Pay-per-use	default	Bind Unbind More -
Shared Bandwidths				-			100 Mbib/s	ECS	Created on Mar 20,		



letwork Console		EIP	s (2)									Quick Links Buy
ashboard irtual Private Cloud	Ţ		Unbind Modify Bandwidth Renew	More *								CG
ccess Control	+		Specity filter criteria.	Monitoring	⊤ Status	팟 EIP Type	₩ Bandwidth	T Bandwidth Det	▼ Associated Inst	波 Billing Mode	Enterprise Project	Operation
PC Flow Logs lastic IP and andwidth			49.0.202.85 7#107d9-ad80-431d-a9f3-3094482c54e7	Ø	Unbound	Dynamic BGP	oracle_rac_in_cloud	Traffic 100 Mbit/s	Not bound, billed	Pay-per-use Created on Mar 20	dəfəult	Bind Unbind More -
EIPs Shared Bandwidths			119.8.160.236 8tce51f2-22d3-4853-b92e-daedtd741a5a	Ø	O Unbound	Dynamic BGP	oracle_rac_in_cloud	Traffic 100 Mbit/s	Not bound, billed	Pay-per-use Created on Mar 20	default	Release Add to Shared Bandwidth Change Billing Mode
Shared Data												

----End

Viewing Deployed Resources

Step 1 Log in to the ECS console and view the newly created ECSs.

Figure 3-19 ECS console

Cloud Server Console	Elastic Cloud Server ③										GP Quick Links	Buy ECS
Dashboard Elastic Cloud Server	The password reset plug-in can now be installed in Start Stop Reset Password	after creating an More 🔻	ECS. Learn how to ins	tall the plug-in.							С	@ C
Dedicated Host Bare Metal Server	Search by name by default. Name/ID	Monitori	Security	AZ 🔽	Status 🔽	Specifications/Image	IP Address	Billing Mode 🖓	Enterprise Project	Tag	Operation	@ Q
Elastic Volume Service	oracle_rac_in_cloud_ecs_ne 98efb23d-c10e-4314-93bF1a31fb	ø	¢	AZ1	 Running 	8 vCPUs 32 GIB c CentOS 7.6 64bit		Pay-per-use Created on Mar 2	default	-	Remote Login	More +
Storage Service	oracle_rac_in_cloud_ecs_ne 2ec0f413-89c2-48e7-ac13-588b3	Ø	¢	AZ1	Running	8 vCPUs 32 GIB c CentOS 7.6 64bit		Pay-per-use Created on Mar 2	default		Remote Login	More 💌

Step 2 Log in to the **EVS console** and view the six shared EVS disks that have been created.

Figure 3-20 EVS console

ou can create 374 more disks with 31,258 GB of storage sp o renew multiple disks at a time, switch to the Renewals pay Delete	ge.				A	All projects 👻	All statuses	▼ Disk na	ime 🔻		Q Search by Tag 🗧 C 🚺 🛞
Disk Name	Status	Disk Sp 7	Function	Server Na	Disk Sh	₽ Device ₽	Encrypt 🍞	AZ 🏹	Billing 🍞	Enterprise	Operation
oracle_rac_in_cloud_ecs_new_vpc_d 8da0a952-ec43-4910-823c-1d685881b3e8	 In-use 	Extreme SSD 10 GB	Data disk	oracle_rac View More(1)	Enabled	SCSI	No	AZ1	Pay-per-use Created on	default	Attach Expand Capacity Create Backup More 👻
oracle_rac_in_cloud_ecs_new_vpc_d 2216c1e5-d006-410Fa011-e80ba7a758c9	🕘 In-use	Extreme SSD 10 GB	Data disk	oracle_rac View More(1)	Enabled	SCSI	No	AZ1	Pay-per-use Created on	default	Attach Expand Capacity Create Backup More 💌
oracle_rac_in_cloud_ecs_new_vpc_d a0f6be68-9ccd-453b-b556-5ae88628657b	😏 In-use	Extreme SSD 10 GB	Data disk	oracle_rac View More(1)	Enabled	SCSI	No	AZ1	Pay-per-use Created on	default	Attach Expand Capacity Create Backup More 👻
oracle_rac_in_cloud_ecs_new_vpc_d d4dc4b39-1291-4060-81d1-a2a8c9822ea6	🕘 In-use	Extreme SSD 10 GB	Data disk	oracle_rac View More(1)	Enabled	SCSI	No	AZ1	Pay-per-use Created on	default	Attach Expand Capacity Create Backup More 👻
oracle_rac_in_cloud_ecs_new_vpc_d 67d3bfa2-811a-4ef5-b126-e6ea4fd74e7f	😏 In-use	Extreme SSD 10 GB	Data disk	oracle_rac View More(1)	Enabled	SCSI	No	AZ1	Pay-per-use Created on	default	Attach Expand Capacity Create Backup More 👻
oracle_rac_in_cloud_ecs_new_vpc_d 2 9a83a4e3-86aa-46ae-aa59-1cf79f0a122a	 In-use 	Extreme SSD 10 GB	Data disk	oracle_rac View More(1)	Enabled	SCSI	No	AZ1	Pay-per-use Created on	default	Attach Expand Capacity Create Backup More 🔻

----End

3.4 Quick Uninstallation

Step 1 Click **Delete** in the row where the solution stack is.

Figure 3-21	Deleting the	solution
-------------	--------------	----------

RFS OBT	Stacks ⑦					🕼 User Guid	Create Stack
Dashboard Stacks					oracle_rac_in_clour	1_ecs_new_vpd	X Q C
0000	Stack Name	Status 🖓	Description	Created 4F	Updated 4≣	Operation	
	oracle_rac_in_cloud_ecs_new_vpc 4aa81366-9113-4e21-974b-9bre39ar2e9c	Deployment Complete	-	2023/03/20 16:50:47 GMT+08:00	2023/03/20 16:56:42 GMT+08:00	Delete Update	



Figure 3-22 Confirming the deletion

Delete Stack			
be restored after being deleted. Exercis Stack Name	Status	Created	
oracle_rac_in_cloud_ecs_ne	Deployment	2023/03/20 16:50:47 GMT+08:00	
Enter Delete to delete the stack and res	sources.		
	OK	ł	

----End

4 Appendix

Terms

- Elastic Cloud Server (ECS): ECS provides secure, scalable, on-demand compute resources, enabling you to flexibly deploy applications and workloads.
- Elastic Volume Service (EVS): EVS provides highly durable block storage for Huawei Cloud servers such as Elastic Cloud Servers (ECSs) and Bare Metal Servers (BMSs). EVS offers 99.9999999% durability and as little as submillisecond read/write latency for a broad range of mission-critical applications.
- **Elastic IP (EIP)**: EIP provides static public IP addresses and scalable bandwidths that enable your cloud resources to communicate with the Internet. You can easily bind an EIP to an ECS, BMS, virtual IP address, NAT gateway, or load balancer, enabling immediate Internet access.

5 Change History

Table 5-1 Change history

Released On	Change History		
2023-04-30	This issue is the first official release.		