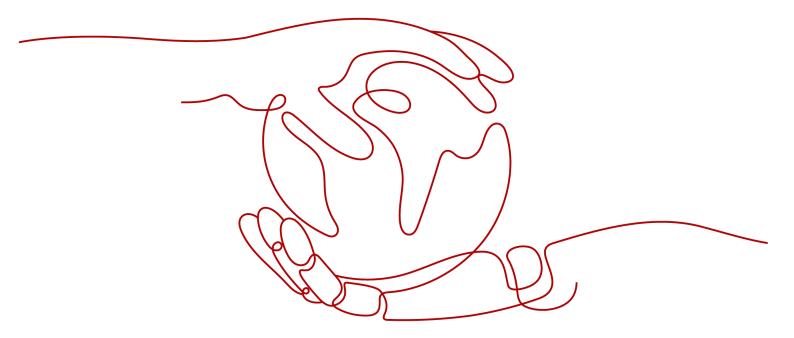
## **Huawei Cloud Flexus RDS**

# **Service Overview**

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# What Is FlexusRDS?

Huawei Cloud Flexus is a next-generation out-of-the-box cloud service family designed for small- and medium-sized enterprises (SMEs) and developers. Huawei Cloud Flexus RDS (FlexusRDS) is a product in the Huawei Cloud Flexus family. FlexusRDS supports the following DB engines:

- MySQL
- PostgreSQL

#### How to Use FlexusRDS

You can use FlexusRDS DB instances in either of the following ways:

- Management console: You can create and manage DB instances on the FlexusRDS console.
- API: You can invoke APIs to create and manage DB instances. For details, see *Huawei Cloud Flexus RDS API Reference*.

## FlexusRDS for MySQL

FlexusRDS for MySQL is a lightweight database based on the open-source MySQL kernel. It is designed for startups and individuals. It allows you to easily set up and manage DB instances and frees you to focus on your core business.

FlexusRDS for MySQL supports MySQL 8.0 and 5.7. For details about how to buy a FlexusRDS for MySQL DB instance, see **Buying and Connecting to a FlexusRDS for MySQL DB Instance**.

For more information, see the community documentation at <a href="https://dev.mysql.com/doc/">https://dev.mysql.com/doc/</a>.

## FlexusRDS for PostgreSQL

FlexusRDS for PostgreSQL is a user-friendly and lightweight database designed for startups and individuals. Built on the open-source PostgreSQL kernel, it offers an out-of-the-box experience, freeing you from the hassle of maintenance and allowing you to focus on developing your business efficiently and reliably.

FlexusRDS for PostgreSQL supports PostgreSQL 16, 15, 14, 13, and 12. For details about how to buy a FlexusRDS for PostgreSQL DB instance, see **Buying and Connecting to a FlexusRDS for PostgreSQL DB Instance**.

For more information, see the community documentation at <a href="https://www.postgresql.org/docs/">https://www.postgresql.org/docs/</a>.

#### **Basic Concepts**

#### **DB** Instance

The smallest management unit of FlexusRDS is DB instance. A DB instance is an isolated database environment on the cloud. You can create and manage DB instances in FlexusRDS.

### **DB Instance Type**

FlexusRDS DB instances are classified into single-node instances and primary/ standby instances.

Table 1-1 DB instance types

| Туре                | Description   | Notes   |
|---------------------|---|---|
| Single-<br>node     | A single-node architecture. It is less expensive than a primary/ standby DB pair.                                     | If a fault occurs on a single-<br>node instance, the instance<br>cannot recover in a timely<br>manner.  |
| Primary/<br>Standby | An HA architecture. The primary and standby instances share the same IP address and can be deployed in different AZs. | <ul> <li>When a primary instance is being created, a standby instance is provisioned synchronously to provide data redundancy. The standby instance is invisible to you after being created.</li> <li>If the primary instance fails, a failover occurs, during which database connection is interrupted. If there is a replication delay between the primary and standby instances, the failover takes an extended period of time. The client needs to be able to reconnect to the instance.</li> </ul> |

#### **Instance Class**

You can choose one of several database plans based on the vCPUs, memory, storage, and DB instance type you require. **Table 1-2** lists the available FlexusRDS for MySQL database plans.

**Table 1-2** FlexusRDS for MySQL database plans

| Instance Class                            | DB Instance Type |
|---|------------------|
| Standard 2U4G, 120 GB of storage          | Single           |
| Standard 2U8G, 240 GB of storage          | Single           |
| Standard 4U8G, 240 GB of storage          | Single           |
| High-availability 2U4G, 120 GB of storage | Primary/Standby  |
| High-availability 2U8G, 240 GB of storage | Primary/Standby  |
| High-availability 4U8G, 240 GB of storage | Primary/Standby  |

You can choose one of several database plans based on the vCPUs, memory, storage, and DB instance type you require. **Table 1-3** lists the available FlexusRDS for PostgreSQL database plans.

Table 1-3 FlexusRDS for PostgreSQL database plans

| Instance Class                            | DB Instance Type |
|---|------------------|
| Standard 2U4G, 120 GB of storage          | Single           |
| Standard 2U8G, 240 GB of storage          | Single           |
| Standard 4U8G, 240 GB of storage          | Single           |
| High-availability 2U4G, 120 GB of storage | Primary/Standby  |
| High-availability 2U8G, 240 GB of storage | Primary/Standby  |
| High-availability 4U8G, 240 GB of storage | Primary/Standby  |

### **Automated Backup**

Automated backup is enabled by default when you create a FlexusRDS DB instance. The backup policy cannot be modified after instance creation.

## Manual Backup

Manual backups are user-initiated full backups of DB instances. You can download and delete manual backup as needed. Or if you want, you can keep the manual backups until you unsubscribe from your instance.

### **Differences Between FlexusRDS and RDS**

## Differences Between FlexusRDS for MySQL and RDS for MySQL

Table 1-4 Main differences

| Item                             | FlexusRDS for MySQL  | RDS for MySQL  |
|----------------------------------|--|--|
| Instance<br>class                | Minimum: 2 vCPUs and 4 GB of memory Maximum: 4 vCPUs and 8 GB of memory  | More high instance classes are supported. For details, see RDS for MySQL Instance Classes.   |
| Scalability                      | <ul> <li>Read replicas are not supported.</li> <li>The storage can autoscale up to 4 TB for an instance.</li> </ul>  | <ul> <li>Up to five read replicas can be added for a DB instance. The time required for adding read replicas depends on the data volume. Adding read replicas require additional storage.</li> <li>The storage can autoscale up to 4 TB for an instance.</li> </ul>  |
| Backup<br>and<br>restoratio<br>n | <ul> <li>Data can be restored to a specific point in time using full backups and binlog playback.</li> <li>Data can be restored to a new DB instance or the original DB instance.</li> </ul> | <ul> <li>Data can be restored to a specific point in time using full backups and binlog playback.</li> <li>Data can be restored to a new DB instance, the original DB instance, or any existing DB instance other than the original one.</li> <li>Database- and table-level recovery to any point in time is supported.</li> </ul> |
| DB engine version                | MySQL 5.7 and 8.0  | MySQL 5.6, 5.7, and 8.0  |
| Operation logs                   | Operation logs can be viewed on the FlexusRDS console.   | Operation logs cannot be viewed on the RDS console. For details about task records, see <b>Task Center</b> .   |

## Differences Between FlexusRDS for PostgreSQL and RDS for PostgreSQL

Table 1-5 Main differences

| Item                             | FlexusRDS for PostgreSQL   | RDS for PostgreSQL  |
|----------------------------------|--|---|
| Instance<br>class                | Minimum: 2 vCPUs and 4 GB of memory Maximum: 4 vCPUs and 8 GB of memory  | More high instance classes are supported. For details, see RDS for PostgreSQL Instance Classes.   |
| Scalability                      | <ul> <li>Read replicas are not supported.</li> <li>The storage can autoscale up to 4 TB for an instance.</li> </ul>  | <ul> <li>Up to five read replicas can be added for a DB instance. The time required for adding read replicas depends on the data volume. Adding read replicas require additional storage.</li> <li>The storage can autoscale up to 4 TB for an instance.</li> </ul>   |
| Backup<br>and<br>restoratio<br>n | <ul> <li>Data can be restored to a specific point in time using full backups and incremental backup playback.</li> <li>Data can be restored to a new DB instance.</li> </ul> | <ul> <li>Data can be restored to a specific point in time using full backups and incremental backup playback.</li> <li>Data can be restored to a new DB instance or any existing DB instance other than the original one.</li> <li>Database- and table-level recovery to any point in time is supported.</li> </ul> |
| DB engine<br>version             | PostgreSQL 16, 15, 14, 13, and 12  | PostgreSQL 16, 15, 14, 13, and 12 PostgreSQL 11, 10, 9.6, and 9.5 are only for installed base operations.   |
| Operation logs                   | Operation logs can be viewed on the FlexusRDS console.   | Operation logs cannot be viewed on the RDS console. For details about task records, see <b>Task Center</b> .  |

## **Product Advantages**

Quick Setup

You can create a FlexusRDS DB instance anytime you want to on the console. You are advised to use Data Admin Service (DAS) to connect to your DB instance. DAS enables you to manage databases on a web-based console and provides you with database development, O&M, and intelligent diagnosis to make it easy to use and maintain your databases.

#### Solid Reliability

FlexusRDS automatically backs up data every day and stores backups as packages in Object Storage Service (OBS). Automated backups are retained for seven days and can be used to restore data within that period. This can meet your requirements for data restoration in most cases.

Point-in-time recovery (PITR) is supported. You can restore data to a new or original instance.

#### • Storage Autoscaling

Storage autoscaling is disabled by default. You can enable it after purchasing a DB instance. With storage autoscaling enabled, FlexusRDS automatically scales up the storage of your instance when the storage usage reaches your preset limit. You can configure the upper limit and increment for autoscaling to keep up with your workload growth at a low cost.

#### High Security

FlexusRDS is protected by multiple layers of firewalls to defend against various malicious attacks, such as DDoS attacks and SQL injections.

#### Simplified O&M

With a web-based console, you can reboot DB instances, reset passwords, modify parameters, view error logs and slow query logs, and restore data. Instance metrics like CPU usage, IOPS, connections, and storage usage are monitored in real time, and an alarm is reported once any of the metrics becomes abnormal. You can always keep aware of your instance health.

 $\mathbf{2}$  Billing

FlexusRDS supports only yearly/monthly billing.

## **Billing Items**

You will be billed for your instance class, backup storage (optional), and public network traffic (optional).

Table 2-1 Billing items

| Billing Item                            | Description  |
|---|--|
| Instance class                          | Yearly/Monthly billing is used. The actual prices are displayed on the console.  |
| (Optional)<br>Backup storage            | FlexusRDS for MySQL provides free backup storage of the same size as your purchased database storage. If the backup storage usage exceeds your purchased database storage, the billing starts. |
| (Optional)<br>Public network<br>traffic | FlexusRDS for MySQL instances are accessible from public networks. Traffic from public networks is billed.   |

## **Specification Changes**

Autoscaling up storage space: You can enable storage autoscaling as required. You will be billed for new storage space.

#### Renewal

An upfront payment is required when you purchase yearly/monthly instances. No additional fees are incurred as you use the instances.

To renew a subscription, see **Renewing DB Instances**.

### **Expiration**

When a yearly/monthly instance expires, no operations can be performed on the console. The monitoring, alarm reporting, and other O&M operations will also be unavailable. If your account is not topped up or the resource package is not renewed before the retention period expires, the DB instance will become unavailable and data stored in the DB instance will be deleted and cannot be recovered.

# **3** Permissions

If you need to assign different permissions to personnel in your enterprise to access your FlexusRDS resources, Identity and Access Management (IAM) is a good choice for fine-grained permissions management. IAM provides identity authentication, permissions management, and access control, helping you to securely access your Huawei Cloud resources.

With IAM, you can create IAM users and assign permissions to control their access to specific resources. For example, if you want some software developers in your enterprise to use FlexusRDS resources but do not want them to delete FlexusRDS instances or perform any other high-risk operations, you can create IAM users and grant permission to use FlexusRDS instances but not permission to delete them.

If your Huawei account does not require individual IAM users for permissions management, you can skip this section.

IAM is a free service. You only pay for the resources in your account. For more information about IAM, see IAM Service Overview.

#### FlexusRDS Permissions

New IAM users do not have any permissions assigned by default. You need to first add them to one or more groups and attach policies or roles to these groups. The users then inherit permissions from the groups and can perform specified operations on cloud services based on the permissions they have been assigned.

FlexusRDS is a project-level service deployed in specific physical regions. When you set **Scope** to **Region-specific projects** and select the specified projects (for example, **cn-north-1**) in the specified regions (for example, **CN North-Beijing1**), the users only have permissions for FlexusRDS instances in the selected projects. If you set **Scope** to **All resources**, the users have permissions for FlexusRDS instances in all region-specific projects. When accessing FlexusRDS instances, the users need to switch to the authorized region.

You can grant permissions by using roles and policies.

Roles: A coarse-grained authorization strategy provided by IAM to assign
permissions based on users' job responsibilities. Only a limited number of
service-level roles are available for authorization. Cloud services depend on
each other. When you grant permissions using roles, you also need to attach

- any existing role dependencies. Roles are not ideal for fine-grained authorization and least privilege access.
- Policies: A fine-grained authorization strategy that defines permissions required to perform operations on specific cloud resources under certain conditions. This type of authorization is more flexible and is ideal for least privilege access. For example, you can grant users only permissions to manage database resources of a certain type.

Table 3-1 lists all the system-defined permissions for FlexusRDS.

**Table 3-1** System-defined permissions for FlexusRDS

| Role/Policy<br>Name | Description                       | Туре                  | Dependencies  |
|---------------------|-----------------------------------|-----------------------|---|
| RDS FullAccess      | Full permissions<br>for FlexusRDS | System-defined policy | To purchase a yearly/monthly DB instance, configure the following actions:  |
|                     |                                   |                       | bss:order:update  |
|                     |                                   |                       | bss:order:pay   |
|                     |                                   |                       | To use storage autoscaling, configure the following actions for IAM users:  |
|                     |                                   |                       | Creating a custom policy:   |
|                     |                                   |                       | <ul><li>iam:agencies:<br/>listAgencies</li></ul>  |
|                     |                                   |                       | - iam:agencies:<br>createAgency   |
|                     |                                   |                       | <ul><li>iam:permissi<br/>ons:listRolesF<br/>orAgencyOn<br/>Project</li></ul>  |
|                     |                                   |                       | <ul><li>iam:permissi</li><li>ons:grantRol</li><li>eToGroupOn</li><li>Project</li></ul>  |
|                     |                                   |                       | <ul><li>iam:roles:list</li><li>Roles</li></ul>  |
|                     |                                   |                       | <ul><li>cors:productl</li><li>nstance:creat</li><li>eDefault</li></ul>  |
|                     |                                   |                       | <ul> <li>Adding system<br/>role Security</li> <li>Administrator:</li> <li>Select a user<br/>group to which<br/>the user<br/>belongs.</li> </ul> |
|                     |                                   |                       | Click <b>Authorize</b> in the <b>Operation</b> column.  |
|                     |                                   |                       | Add the<br><b>Security</b>  |

| Role/Policy<br>Name       | Description   | Туре                  | Dependencies   |
|---------------------------|---|-----------------------|--|
|                           |   |                       | Administrator role.  |
| RDS<br>ReadOnlyAcce<br>ss | Read-only<br>permissions for<br>FlexusRDS<br>resources  | System-defined policy | N/A  |
| RDS<br>ManageAccess       | Database<br>administrator<br>permissions for all<br>operations except<br>deleting<br>FlexusRDS<br>resources | System-defined policy | N/A  |
| RDS<br>Administrator      | Administrator<br>permissions for<br>FlexusRDS   | System-defined role   | Tenant Guest and<br>Server<br>Administrator<br>roles, which must<br>be attached in the<br>same project as<br>the RDS<br>Administrator role |

**Table 3-2** lists the common operations supported by system-defined permissions for FlexusRDS.

**Table 3-2** Common operations supported by system-defined permissions

| Operation                           | RDS<br>FullAccess | RDS<br>ReadOnlyAcces<br>s | RDS<br>ManageAcces<br>s | RDS<br>Administrat<br>or |
|-------------------------------------|-------------------|---------------------------|-------------------------|--------------------------|
| Creating a<br>FlexusRDS<br>instance | √                 | x                         | <b>√</b>                | √                        |
| Deleting a<br>FlexusRDS<br>instance | √                 | х                         | х                       | √                        |
| Querying<br>FlexusRDS<br>instances  | √                 | √                         | √                       | √                        |

**Table 3-3** Common operations and supported actions

| Operation                                    | Actions                               | Remarks   |
|--|---------------------------------------|---|
| Creating a DB instance                       | rds:instance:create<br>rds:param:list | To select a VPC, subnet, and security group, configure the following actions:   |
|  |                                       | vpc:vpcs:list   |
|  |                                       | vpc:vpcs:get  |
|  |                                       | vpc:subnets:get   |
|  |                                       | vpc:securityGroups:get  |
|  |                                       | To purchase a yearly/<br>monthly DB instance,<br>configure the following<br>actions:  |
|  |                                       | bss:order:update  |
|  |                                       | bss:order:pay   |
|  |                                       | cors:productInstance:cr<br>eateDefault  |
| Rebooting a DB instance                      | rds:instance:restart                  | N/A   |
| Querying a DB instance list                  | rds:instance:list                     | N/A   |
| Querying DB instance details                 | rds:instance:list                     | If the VPC, subnet, and security group are displayed in the DB instance list, you need to configure vpc:*:get and vpc:*:list. |
| Changing a DB instance password              | rds:password:update                   | N/A   |
| Changing a DB instance name                  | rds:instance:modify                   | N/A   |
| Binding or<br>unbinding an EIP               | rds:instance:modifyPublicAccess       | To query public IP addresses, configure the following actions: vpc:publicIps:get vpc:publicIps:list                           |
| Modifying parameters in a parameter template | rds:param:modify                      | N/A   |
| Creating a manual backup                     | rds:backup:create                     | N/A   |

| Operation  | Actions                     | Remarks   |
|--|-----------------------------|---|
| Obtaining the link for downloading a backup file     | rds:backup:download         | N/A   |
| Deleting a manual backup                             | rds:backup:delete           | N/A   |
| Querying the restoration time range                  | rds:instance:list           | N/A   |
| Restoring data to a new DB instance                  | rds:instance:create         | To select a VPC, subnet, and security group, configure the following actions: vpc:vpcs:list vpc:vpcs:get vpc:subnets:get vpc:securityGroups:get cors:productInstance:cr eateDefault |
| Restoring data to<br>the original DB<br>instance     | rds:instance:restoreInPlace | N/A   |
| Obtaining a database backup file list                | rds:backup:list             | N/A   |
| Querying a database error log                        | rds:log:list                | N/A   |
| Querying a database slow log                         | rds:log:list                | N/A   |
| Submitting an order for a yearly/monthly DB instance | bss:order:update            | To purchase a yearly/monthly DB instance, configure the following actions: bss:order:pay  |
| Managing a tag                                       | rds:instance:modify         | Tag-related operations depend on the tms:resourceTags:* permission.   |

| Operation               | Actions                  | Remarks  |
|-------------------------|--------------------------|--|
| Configuring autoscaling | rds:instance:extendSpace | To enable autoscaling, configure the following actions for the IAM users instead of your Huawei account:   |
|                         |                          | <ul> <li>Creating a custom policy</li> </ul>   |
|                         |                          | <ul><li>iam:agencies:list</li><li>Agencies</li></ul>   |
|                         |                          | – iam:agencies:crea<br>teAgency  |
|                         |                          | <ul> <li>iam:permissions:l<br/>istRolesForAgen-<br/>cyOnProject</li> </ul>   |
|                         |                          | <ul><li>iam:permissions:<br/>grantRoleToGrou<br/>pOnProject</li></ul>  |
|                         |                          | <ul><li>iam:roles:listRole</li><li>s</li></ul>   |
|                         |                          | <ul> <li>Adding system role         Security         Administrator:         Select a user group         to which the user         belongs.         Click Authorize in         the Operation         column.</li> </ul> |
|                         |                          | Add the <b>Security Administrator</b> role.  |

# 4 FlexusRDS for MySQL Constraints

The following tables list the constraints designed to ensure the stability and security of FlexusRDS for MySQL instances.

## **Specifications**

Table 4-1 Specifications

| Item          | Constraints   | Description   |
|---------------|---|---|
| Storage space | The purchased storage space depends on the selected instance class. | You can enable storage autoscaling for your instance after the instance is created. Storage can autoscale to no more than 4 TB. |

## Quotas

Table 4-2 Quotas

| Item                 | Constraints  | Description   |
|----------------------|--|---|
| Tags                 | A maximum of 20 tags can be added for a DB instance.   | For more information, see  Managing Tags.   |
| Free backup<br>space | FlexusRDS for MySQL provides free backup space of the same size as your purchased storage space. | After you pay for the storage space of your instance, you will get a backup space of the same size for free. For more information, see How Is FlexusRDS Backup Data Billed? |

| Item   | Constraints   | Description  |
|--|---|--|
| Retention<br>period of<br>automated<br>backups | The default value is seven days and cannot be changed.                              | The 7-day retention can meet your requirements in most cases. If you want to retain backups for more than seven days, create manual backups. |
| Log retention period                           | <ul><li>Error log details: 30 days</li><li>Slow query log details: 7 days</li></ul> | For more information, see <b>Logs</b> .  |

# Naming

Table 4-3 Naming

| Item          | Constraints  |  |
|---------------|--|--|
| Instance name | <ul> <li>4 to 64 characters long</li> <li>Must start with a letter. Only letters (case sensitive), digits, hyphens (-), underscores (_), and periods (.) are allowed.</li> </ul> |  |
| Backup name   | <ul> <li>Must be 4 to 64 characters long.</li> <li>Must start with a letter. Only letters (case sensitive), digits, hyphens (-), and underscores (_) are allowed.</li> </ul>     |  |

## Security

Table 4-4 Security

| Item             | Constraints  |  |
|------------------|--|--|
| root permissions | Only the administrator account <b>root</b> is provided on the instance creation page. For details about the supported permissions, see <b>root Permissions</b> .                 |  |
|                  | NOTE Running revoke, drop user, or rename user on root may cause service interruption. Exercise caution when running any of these statements.                                    |  |
| root password    | 8 to 32 characters long  |  |
|                  | <ul> <li>Must contain at least three types of the following<br/>characters: uppercase letters, lowercase letters, digits,<br/>and special characters (~!@#\$%^*=+?,).</li> </ul> |  |
|                  | For more information, see <b>Resetting the Administrator Password</b> .  |  |

| Item           | Constraints  |  |
|----------------|--|--|
| Database port  | 3306   |  |
| System account | To provide O&M services, the system automatically creates system accounts when you create FlexusRDS instances. These system accounts are unavailable to you.       |  |
|                | • rdsAdmin: a management account with the highest permission. It is used to query and modify instance information, rectify faults, migrate data, and restore data. |  |
|                | <ul> <li>rdsRepl: a replication account, used to synchronize<br/>data from the primary instance to the standby<br/>instance.</li> </ul>                            |  |
|                | <ul> <li>rdsBackup: a backup account, used for backend<br/>backup.</li> </ul>  |  |
|                | rdsMetric: a metric monitoring account used by watchdog to collect database status data.   |  |

## **Instance Operations**

**Table 4-5** Instance operations

| Item                        | Constraints   |
|-----------------------------|---|
| Storage engine              | Only the InnoDB storage engine is supported.  |
| Instance<br>deployment      | Cloud servers where DB instances are deployed are not directly visible to you. You can only access the DB instances through IP addresses or domain names and database ports.  |
| Data migration              | Data Replication Service (DRS) can be used to migrate data. It is easy to use and can complete a migration task in minutes. DRS facilitates data transfer between databases, helping you reduce DBA labor costs and hardware costs. |
| Primary/Standby replication | FlexusRDS for MySQL uses a primary/standby dual-node replication cluster. You do not need to set up replication additionally. The standby instance is not visible to you and therefore you cannot access it directly.               |
| Rebooting a DB instance     | DB instances cannot be rebooted through commands. They must be rebooted on the management console.  |
| Viewing backups             | You can download automated and manual backups for local storage. To download a backup, you can use OBS Browser+, the current browser, or the download URL.  |
|                             | For more information, see <b>Downloading a Full Backup</b> .  |

| Item              | Constraints   |
|-------------------|---|
| Log<br>management | <ul><li>Logging is enabled by default and cannot be disabled.</li><li>Binary logging is enabled by default.</li></ul> |

## root Permissions

**Table 4-6** root permissions

| Permission | Level                                       | Description  | Supported |
|------------|---|--|-----------|
| Select     | Table                                       | Query permissions  | Yes       |
| Insert     | Table                                       | Insert permissions   |           |
| Update     | Table                                       | Update permissions   |           |
| Delete     | Table                                       | Delete permissions   |           |
| Create     | Database,<br>table, or<br>index             | Permissions of creating databases, tables, or indexes  |           |
| Drop       | Database<br>or table                        | Permissions of deleting databases or tables  |           |
| Reload     | Server<br>managem<br>ent                    | Permissions of running<br>the following<br>commands: flush-<br>hosts, flush-logs, flush-<br>privileges, flush-status,<br>flush-tables, flush-<br>threads, refresh, and<br>reload |           |
| Process    | Server<br>managem<br>ent                    | Permissions of viewing processes   |           |
| Grant      | Database,<br>table, or<br>stored<br>program | Permissions of granting access control   |           |
| References | Database<br>or table                        | Foreign key operation permissions  |           |
| Index      | Table                                       | Index permissions  |           |
| Alter      | Table                                       | Permissions of altering tables, such as adding fields or indexes   |           |

| Permission       | Level                    | Description   | Supported   |
|------------------|--------------------------|---|---|
| Show_db          | Server<br>managem<br>ent | Permissions of viewing database connections             |   |
| Create_tmp_table | Server<br>managem<br>ent | Permissions of creating temporary tables                |   |
| Lock_tables      | Server<br>managem<br>ent | Permissions of locking tables                           |   |
| Execute          | Stored<br>procedure      | Permissions of executing storage procedures             |   |
| Repl_slave       | Server<br>managem<br>ent | Replication permissions                                 |   |
| Repl_client      | Server<br>managem<br>ent | Replication permissions                                 |   |
| Create_view      | View                     | Permissions of creating views                           |   |
| Show_view        | View                     | Permissions of viewing views                            |   |
| Create_routine   | Stored procedure         | Permissions of creating storage procedures              |   |
| Alter_routine    | Stored procedure         | Permissions of altering storage procedures              |   |
| Create_user      | Server<br>managem<br>ent | Permissions of creating users                           |   |
| Event            | Database                 | Event triggers  |   |
| Trigger          | Database                 | Triggers  |   |
| Super            | Server<br>managem<br>ent | Permissions of killing<br>threads                       | No NOTE For more information, see Why Does the Root User Not Have the Super Permission? |
| File             | File on the server       | Permissions of accessing files on database server nodes | No  |

| Permission        | Level                    | Description                            | Supported |
|-------------------|--------------------------|--|-----------|
| Shutdown          | Server<br>managem<br>ent | Permissions of shutting down databases |           |
| Create_tablespace | Server<br>managem<br>ent | Permissions of creating tablespaces    |           |

# 5 FlexusRDS for PostgreSQL Constraints

The following tables list the constraints designed to ensure the stability and security of FlexusRDS for PostgreSQL instances.

## **Specifications and Performance**

Table 5-1 Specifications

| Item          | Constraints   | Description   |
|---------------|---|---|
| Storage space | The purchased storage space depends on the selected instance class. | You can enable storage autoscaling for your instance after the instance is created. Storage can autoscale to no more than 4 TB. |

#### Quotas

Table 5-2 Quotas

| Item                 | Constraints   | Description   |
|----------------------|---|---|
| Tags                 | A maximum of 20 tags can be added for a DB instance.  | For more information, see  Managing Tags.   |
| Free backup<br>space | FlexusRDS provides free<br>backup space of the<br>same size as your<br>purchased storage space. | After you pay for the storage space of your instance, you will get a backup space of the same size for free. For more information, see How Is FlexusRDS Backup Data Billed? |

| Item   | Constraints  | Description                             |
|--|--|---|
| Retention<br>period of<br>automated<br>backups | The default value is seven days and cannot be changed. | -                                       |
| Log query                                      | • Error log records: 2,000                             | For more information, see <b>Logs</b> . |
|  | Slow query log<br>records: 2,000                       |   |

## Naming

Table 5-3 Naming

| Item          | Constraints  |  |
|---------------|--|--|
| Instance name | <ul> <li>4 to 64 characters long</li> <li>Must start with a letter. Only letters (case sensitive), digits, hyphens (-), underscores (_), and periods (.) are allowed.</li> </ul> |  |
| Backup name   | <ul> <li>4 to 64 characters long</li> <li>Must start with a letter. Only letters (case sensitive), digits, hyphens (-), and underscores (_) are allowed.</li> </ul>              |  |

# Security

Table 5-4 Security

| Item          | Constraints  |
|---------------|--|
| root password | 8 to 32 characters long  |
|               | <ul> <li>Must contain at least three types of the following<br/>characters: uppercase letters, lowercase letters, digits,<br/>and special characters (~!@#%^*=+?,).</li> </ul> |
|               | For more information, see <b>Resetting the Administrator Password to Restore root Access</b> .   |
| Database port | 5432   |

| Item           | Constraints   |  |
|----------------|---|--|
| System account | To provide O&M services, the system automatically creates system accounts when you create FlexusRDS for PostgreSQL DB instances. These system accounts are unavailable to you.  |  |
|                | • rdsAdmin: a management account with the highest permission. It is used to query and modify instance information, rectify faults, migrate data, and restore data.  |  |
|                | <ul> <li>pg_execute_server_program: an account that allows<br/>executing programs on the database server as the<br/>user the database runs as with COPY and other<br/>functions which allow executing a server-side<br/>program.</li> </ul> |  |
|                | <ul> <li>pg_read_all_settings: an account that reads all<br/>configuration variables.</li> </ul>  |  |
|                | <ul> <li>pg_read_all_stats: an account that reads all<br/>pg_stat_* views and uses various extension-related<br/>statistics.</li> </ul>   |  |
|                | <ul> <li>pg_stat_scan_tables: an account that executes<br/>monitoring functions that may take ACCESS SHARE<br/>locks on tables, potentially for a long time.</li> </ul>   |  |
|                | • <b>pg_signal_backend</b> : an account that signals another backend to cancel a query or terminate its session.  |  |
|                | <ul> <li>pg_read_server_files: an account that allows reading<br/>files from any location the database can access on<br/>the server with COPY and other file-access functions.</li> </ul>   |  |
|                | • pg_write_server_files: an account that allows writing to files in any location the database can access on the server with COPY and other file-access functions.   |  |
|                | <ul> <li>pg_monitor: an account that reads and executes<br/>various monitoring views and functions. This role is a<br/>member of pg_read_all_settings, pg_read_all_stats,<br/>and pg_stat_scan_tables.</li> </ul>                           |  |
|                | <ul> <li>rdsRepl: a replication account, used to synchronize<br/>data from the primary instance to the standby<br/>instance or read replicas.</li> </ul>  |  |
|                | <ul> <li>rdsBackup: a backup account, used for backend<br/>backup.</li> </ul>   |  |
|                | rdsMetric: a metric monitoring account used by watchdog to collect database status data.  |  |

## **Instance Operations**

**Table 5-5** Instance operations

| Item                        | Constraints   |
|-----------------------------|---|
| Instance<br>deployment      | Cloud servers where DB instances are deployed are not directly visible to you. You can only access the DB instances through IP addresses and database ports.  |
| Data migration              | Data Replication Service (DRS) can be used to migrate data. It is easy to use and can complete a migration task in minutes. DRS facilitates data transfer between databases, helping you reduce DBA labor costs and hardware costs. |
| Primary/Standby replication | FlexusRDS for PostgreSQL uses a primary/standby dual-node replication cluster. You do not need to set up replication additionally. The standby DB instance is not visible to you and therefore you cannot access it directly.       |
| Rebooting a DB instance     | DB instances cannot be rebooted through commands. They must be rebooted on the management console.  |
| Viewing backups             | You can download automated and manual backups for local storage. To download a backup, you can use OBS Browser+, the current browser, or the download URL.  For more information, see <b>Downloading a Full Backup File</b> .       |
| Log<br>management           | Logging is enabled by default and cannot be disabled.   |