

麦聪 DaaS 平台

安装文档

版本 : 3.6.1

麦聪软件

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1. 环境检查

检查系统是否已经安装配置 JDK 1.8 以上版本，以及 PostgreSQL 数据库（推荐 PostgreSQL12）。

1.1 检查是否安装 JDK

- 打开终端输入检查 Java 版本,需要 jdk1.8 版本:

```
java -version
```

```
[root@node1 java]# java -version
java version "1.8.0_251"
Java(TM) SE Runtime Environment (build 1.8.0_251-b08)
Java HotSpot(TM) 64-Bit Server VM (build 25.251-b08, mixed mode)
```

查看 java 安装文件:

```
rpm -qa | grep java
```

如果非 jdk1.8 版本删除 java 相关文件.

- 如果未安装 Java 参考 ([安装配置 jdk](#))

1.2 检查 PostgreSQL 安装情况

- 检查 PostgreSQL 是否安装成功，支持远程访问。

如未安装 PostgreSQL 参考 ([PostgreSQL12 安装指南](#))

2. 安装麦聪 DaaS 软件

2.1 下载安装包

- 访问下载页面 <http://www.maicongs.com/#/home/probation>
选择合适的软件版本，点击下载



2.2 复制解压缩软件

- 服务器上新建 software 文件夹

```
mkdir /software
```

```
[root@node1 ~]# cd ..
[root@node1 ~]# ls
bin dev home lib64 media opt root sbin sys usr
boot etc lib lost+found mnt proc run srv tmp var
[root@node1 ~]# mkdir /software
[root@node1 ~]# ls
bin dev home lib64 media opt root sbin     srv tmp var
boot etc lib lost+found mnt   proc run    software sys usr
```

将安装包复制到服务器上 software 文件夹

- 解压

```
unzip maicongsoftware_<实际版本号>.zip
```

```
[root@node1 software]# unzip maicongsoftware_3.1.0.zip
Archive:  maicongsoftware_3.1.0.zip
  creating: maicongsoftware_3.1.0/
  inflating: maicongsoftware_3.1.0/maicong-daas.sh
  inflating: maicongsoftware_3.1.0/Maicong-DaaS-3.1.0-release.jar
  creating: maicongsoftware_3.1.0/config/
  inflating: maicongsoftware_3.1.0/config/init metastore_pg.sql
  inflating: maicongsoftware_3.1.0/config/driver.conf
  inflating: maicongsoftware_3.1.0/config/maicong.yaml
  creating: maicongsoftware_3.1.0/lib/
  inflating: maicongsoftware_3.1.0/lib/mysql-connector-java-8.0.18.jar
  inflating: maicongsoftware_3.1.0/lib/ojdbc8-19.3.0.0.jar
  inflating: maicongsoftware_3.1.0/lib/postgresql-42.2.8.jar
  inflating: maicongsoftware_3.1.0/lib/ImpalaJDBC42.jar
  inflating: maicongsoftware_3.1.0/lib/mssql-jdbc-9.2.1.jre8.jar
```

Tip

若 unzip 未安装，可以按下列命令安装

```
yum install -y unzip zip
```

2.3 初始化数据库

以 PostgreSQL 和麦聪 DaaS 平台在同一台物理服务器为例。假设 PostgreSQL12 数据库已经安装完毕。

- 新建数据库: maicong (可用任何名字)

进入 psql

```
psql -h <本机 IP> -U postgres
```

```
[root@node1 software]# psql -h 172.17.82.137 -U postgres
用户 postgres 的口令：
psql (12.3)
输入 "help" 来获取帮助信息.
```

执行命令: create database maicong;

```
[bash-4.2$ psql
psql (12.3)
Type "help" for help.

postgres=# create database maicong;
CREATE DATABASE
postgres=#
```

- 查看已经创建的数据库:

```
select * from pg_database;
```

```
postgres=# select * from pg_database;
   oid  | datname | datdba | encoding | datcollate | datctype | datistemplate | datallow
conn | datconnlimit | datlastsysoid | datfrozenxid | datminmxid | dattablespace |
     datacl
-----+-----+-----+-----+-----+-----+-----+-----+
-----+-----+-----+-----+-----+-----+-----+
-----+-----+-----+-----+-----+-----+-----+
14185 | postgres |     10 |       6 | en_US.UTF-8 | en_US.UTF-8 | f      | t
      |          -1 |    14184 |      479 |           1 |           1663 | t
16384 | maicong |     10 |       6 | en_US.UTF-8 | en_US.UTF-8 | f      | t
      |          -1 |    14184 |      479 |           1 |           1663 | t
      | template1 |     10 |       6 | en_US.UTF-8 | en_US.UTF-8 | t      | t
      |          -1 |    14184 |      479 |           1 |           1663 | {=c/postgre
s,postgres=CTc/postgres}
14184 | template0 |     10 |       6 | en_US.UTF-8 | en_US.UTF-8 | t      | f
      |          -1 |    14184 |      479 |           1 |           1663 | {=c/postgre
s,postgres=CTc/postgres
(4 rows)
```

- 初始化 PostgreSQL 的系统库, SQL 文件在 config/init_db.sql

(或 init_metastore_pg.sql)

执行数据库初始化

命令: psql -h <本机 IP> -d maicong -U postgres -f /<安装文件解压地址>/config/init_db.sql

```
[root@node1 software]# psql -h 172.17.82.137 -d maicong -U postgres -f /software/maicongsoftware_3.6.1/config/init_db.sql
用户 postgres 的口令:
CREATE TABLE
```

2.4 修改配置文件

2.4.1 修改 config/maicong.yaml 文件

进入 maicongsoftware_<实际版本号>目录, 按照示例更新配置文件。

```
vi config/maicong.yaml
```

文件中的冒号“：“后面要有一个英文的空格。

```
=====
# ===== MaiCongSoftWare Configuration =====
#
# NOTE: MAICONGSOFTWARE comes with reasonable defaults for most settings.
#       Before you set out to tweak and tune the configuration, make sure you
#       understand what are you trying to accomplish and the consequences.
#
# The primary way of configuring a node is via this file. This template lists
# the most important settings you may want to configure for a production cluster.
#
# Please consult the documentation for further information on configuration options:
# http://www.maicongs.com/#/listdocu
#
# -----
# ----- Network -----
# ----- API -----
# the parameter valid for user use restful api to create api and download, backend server ip
and port
# some times maybe virtual IP for cluster, fg nginx need to set to nginx server ip and port,
format: http://localhost:8080
# must
virtualIP: http://192.168.1.10:8083
# set the server run port for backend and frontend, this is backend port
# must
server.port: 8083
#
# ----- DB configuration -----
-
master.datasource.driverClassName: org.postgresql.Driver
master.datasource.initial-size: 10
master.datasource.max-active: 100
master.datasource.min-idle: 10
# set the username and password for db use
master.datasource.username: postgres
master.datasource.password: 123456
# set the connection url for db
master.datasource.url: jdbc:postgresql://192.168.1.10:5432/maicong
#master.datasource.url: jdbc:postgresql://192.168.1.10:5432/maicong
# -----
# ----- CUSTOM Only for Hadoop-----
-
hadoop.metastore.upperlow: 1
# set the hadoop db filter, if you don't want to get all hadoop dbs, you can set the parameter
# the format is: dbID1:dbName1,dbID2:dbName2;dbID2:dbName1,dbName2
config.hadoop.filter:
# set the filePath for hadoop kerberos certification files
filePath: /software/maicongsoftware/keytab
# set the server is master, if master, set 1, if not slave. one cluster only one master
master: 1
#
# ----- LOG -----
# log level, you can set info, error, warn, debug
logging.level.com.mc.dao: info
```

virtualIP: 服务器地址:端口

server.port: 默认系统启动端口

master.datasource.password: PostgreSQL 的连接密码 (冒号后需带空格)

master.datasource.url: PostgreSQL 数据库中相应的连接字符串: 有 IP, 端口和数据库名称 (此处为 maicong, 应为初次安装 POSTGRESQL12 步骤创建的数据库名称为"maicong")

filePath: Hadoop 存入 kerberos keytab 的路径 (如果连接 Hadoop Kerberos 需要配置, 否则不需要)。

2.4.2 修改 static/config.js 文件

BASE_URL= “本机后台地址：端口”

```
vi static/config.js
```

```
window_global_config = {  
    BASE_URL: "http://127.0.0.1:8083/",  
};  
~
```

2.5 启动软件

- 添加启动文件 app.sh 的执行权限

```
chmod +x maicong-daas.sh
```

- 配置 java 启动内存

```
vi maicong-daas.sh
```

修改-xms 和 -xmx 为启动内存和最大内存（根据实际服务器情况修改）

```
#!/bin/bash  
SIGNAL=${SIGNAL:-TERM}  
SHELL_FOLDER=$(cd "$(dirname "$0")";pwd)  
APP_JAR=$(cd $SHELL_FOLDER;ls Maicong-DaaS-*.jar)  
LOG_PATH=$SHELL_FOLDER/log  
PID=""  
CMD=""  
  
JAVA_OPTS="  
-server  
-Xms2g  
-Xmx4g  
-XX:+UseG1GC  
-XX:+UseStringDeduplication  
-XX:+AlwaysPreTouch  
-XX:+PrintGCDetails  
-XX:+PrintGCTimeStamps  
-XX:+PrintGCCause  
-Xloggc:$LOG_PATH/maicong-daas-gc.log  
-XX:+HeapDumpOnOutOfMemoryError  
-XX:HeapDumpPath=$LOG_PATH/maicong-daas-heapdump  
-Dfile.encoding=utf-8"  
  
start(){  
    if [ -n "$PID" ]; then  
        echo -e "\e[31mmaicong-daas server is running \e[39m"  
    fi  
}
```

- 启动应用： ./maicong-daas.sh start

Tip

系统启动目前需要在 `maiCong-daas.sh` 所在的文件夹下执行。

- 停止应用: `./maicong-daas.sh stop`
 - 附:日志文件在 `log/maicong-daas-console.log`

```
2022-05-23 17:00:56.830 [main] INFO com.mc.MainApplication - Starting MainApplication v3.1.0-  
.1-release on node1 with PID 2371 (/software/maicongsoftware_3.1.0.2/Maicong-DaaS-3.1.0.1-rel-  
ease.jar started by root in /software/maicongsoftware_3.1.0.2)  
2022-05-23 17:00:56.834 [main] INFO com.mc.MainApplication - No active profile set, falling  
back to default profiles: default  
2022-05-23 17:00:58.918 [main] INFO o.s.boot.web.embedded.tomcat.TomcatWebServer - Tomcat in-  
itialized with port(s): 8083 (http)  
2022-05-23 17:00:58.936 [main] INFO org.apache.coyote.http11.Http11NioProtocol - Initializ-  
ing ProtocolHandler ["http-nio-8083"]  
2022-05-23 17:00:58.937 [main] INFO org.apache.catalina.core.StandardService - Starting serv-  
ice [Tomcat]  
2022-05-23 17:00:58.937 [main] INFO org.apache.catalina.core.StandardEngine - Starting Servl-  
et engine: [Apache Tomcat/9.0.27]  
2022-05-23 17:00:59.034 [main] INFO o.a.c.core.ContainerBase.[Tomcat].[localhost].[/] - Init-  
ializing Spring embedded WebApplicationContext  
2022-05-23 17:00:59.034 [main] INFO org.springframework.web.context.ContextLoader - Root Web  
ApplicationContext: initialization completed in 2132 ms  
2022-05-23 17:01:00.851 [main] INFO o.s.scheduling.concurrent.ThreadPoolTaskExecutor - Initi-  
alizing ExecutorService  
2022-05-23 17:01:00.852 [main] INFO o.s.scheduling.concurrent.ThreadPoolTaskExecutor - Initi-  
alizing ExecutorService 'exportExecutor'  
2022-05-23 17:01:01.191 [main] INFO o.s.b.a.web.servlet.WelcomePageHandlerMapping - Adding W  
elcome page: ServletContext resource [/index.html]  
2022-05-23 17:01:01.497 [main] INFO o.s.scheduling.concurrent.ThreadPoolTaskScheduler - Initi-  
alizing ExecutorService 'taskScheduler'  
2022-05-23 17:01:01.572 [main] INFO org.apache.coyote.http11.Http11NioProtocol - Starting Pr  
otocolHandler ["http-nio-8083"]  
2022-05-23 17:01:01.621 [main] INFO org.mortbay.log - Logging to Logger[org.mortbay.log] via  
org.mortbay.log.Slf4jLog  
2022-05-23 17:01:01.647 [main] INFO o.s.boot.web.embedded.tomcat.TomcatWebServer - Tomcat st-  
arted on port(s): 8083 (http) with context path ''  
2022-05-23 17:01:01.652 [main] INFO com.mc.MainApplication - Started MainApplication in 6.32  
3 seconds (JVM running for 8.028)  
2022-05-23 17:01:02.012 [main] INFO com.alibaba.druid.pool.DruidDataSource - {dataSource-1}  
initiated  
maicong-daaS.log (END)
```

2.6 验证安装

- 测试登录

访问 ip:port



登录

欢迎登陆

用户名

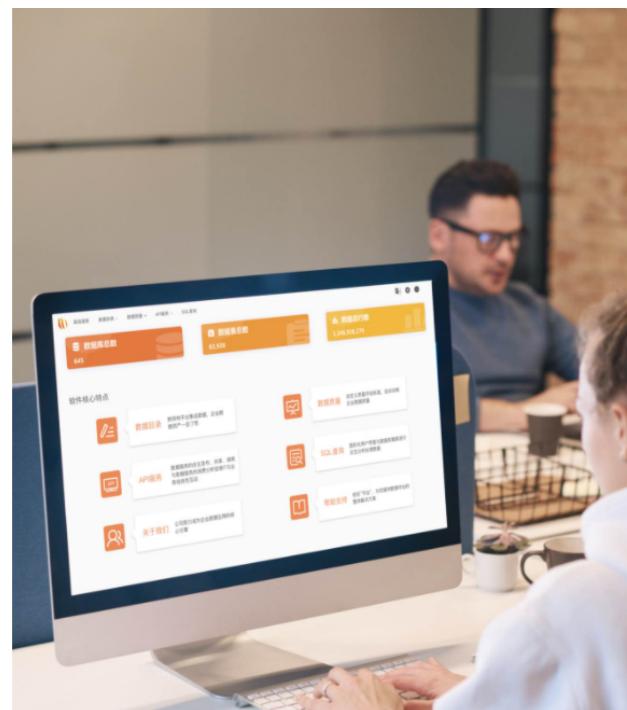
admin

密码

123456

记住密码

登录



显示该界面代表登录成功



输入初始用户名和密码: admin/123456 登陆进行后续配置。

3. 附录

3.1 安装 JDK

- 新建文件夹并复制 jdk 安装包

新建文件夹 /usr/java

```
mkdir /usr/java
```

- 复制 jdk 安装包到/usr/java 目录下

```
cp /software/jdk_8u251_linux_x64.tar.gz /usr/java
```

移动到/usr/java 目录下

```
cd /usr/java/
```

- 解压

```
tar zxvf jdk_8u251_linux_x64.tar.gz
```

```
[root@node1 ~]# mkdir /usr/java
[root@node1 ~]# cp /software/jdk-8u251-linux-x64.tar.gz /usr/java
[root@node1 ~]# cd /usr/java
[root@node1 java]# tar zxvf jdk-8u251-linux-x64.tar.gz
jdk1.8.0_251/
jdk1.8.0_251/jre/
jdk1.8.0_251/jre/plugin/
jdk1.8.0_251/jre/plugin/desktop/
jdk1.8.0_251/jre/plugin/desktop/sun_java.png
jdk1.8.0_251/jre/plugin/desktop/sun_java.desktop
jdk1.8.0_251/jre/Welcome.html
```

- 配置 java 环境，修改/etc/profile 文件

```
vi /etc/profile
```

在文件末尾添加如下

```
export JAVA_HOME=/usr/java/jdk1.8.0_251
export
CLASSPATH=.:${JAVA_HOME}/jre/lib/rt.jar:${JAVA_HOME}/lib/dt.jar:${JAVA_HOME}/lib/tools.jar
export PATH=$PATH:${JAVA_HOME}/bin
```

```
unset i
unset -f pathmunge

export JAVA_HOME=/usr/java/jdk1.8.0_251
export CLASSPATH=.:${JAVA_HOME}/jre/lib/rt.jar:${JAVA_HOME}/lib/dt.jar:${JAVA_HOME}/lib/tools.jar
export PATH=$PATH:${JAVA_HOME}/bin
```

- 使环境变量生效，执行命令如下

```
source /etc/profile
```

- 测试 java 安装效果

```
java -version
```

```
[root@node1 java]# java -version
java version "1.8.0_251"
Java(TM) SE Runtime Environment (build 1.8.0_251-b08)
Java HotSpot(TM) 64-Bit Server VM (build 25.251-b08, mixed mode)
```

若出现上图信息，则代表安装成功。

3.2 安装 POSTGRESQL12

3.2.1 安装包准备工作

- 解压 pg12.zip

解压

```
unzip pg12.zip
```

```
[root@node1 software]# unzip pg12.zip
Archive: pg12.zip
  inflating: libicu-50.2-3.el7.x86_64.rpm
  inflating: pgadmin4-4.22-x86.exe
  inflating: postgresql12-12.3-1PGDG.rhel7.x86_64.rpm
  inflating: postgresql12-contrib-12.3-1PGDG.rhel7.x86_64.rpm
  inflating: postgresql12-devel-12.3-1PGDG.rhel7.x86_64.rpm
  inflating: postgresql12-libs-12.3-1PGDG.rhel7.x86_64.rpm
  inflating: postgresql12-plperl-12.3-1PGDG.rhel7.x86_64.rpm
  inflating: postgresql12-plpython-12.3-1PGDG.rhel7.x86_64.rpm
  inflating: postgresql12-plpython3-12.3-1PGDG.rhel7.x86_64.rpm
  inflating: postgresql12-pltcl-12.3-1PGDG.rhel7.x86_64.rpm
  inflating: postgresql12-server-12.3-1PGDG.rhel7.x86_64.rpm
  inflating: postgresql12-test-12.3-1PGDG.rhel7.x86_64.rpm
```

3.2.2 安装依赖

```
yum -y install libicu
yum -y install libxslt
```

按顺序安装 rpm 包

```
rpm -ivh postgresql12-libs-12.3-1PGDG.rhel7.x86_64.rpm
rpm -ivh postgresql12-12.3-1PGDG.rhel7.x86_64.rpm
rpm -ivh postgresql12-server-12.3-1PGDG.rhel7.x86_64.rpm
rpm -ivh postgresql12-contrib-12.3-1PGDG.rhel7.x86_64.rpm
```

```
[root@node1 software]# rpm -ivh postgresql12-libs-12.3-1PGDG.rhel7.x86_64.rpm
警告：postgresql12-libs-12.3-1PGDG.rhel7.x86_64.rpm: 头 V4 DSA/SHA1 Signature, 密钥 ID 442df0f8: NOKEY
准备中... #####
正在升级/安装... #####
1:postgresql12-libs-12.3-1PGDG.rhel7.x86_64 #####
[root@node1 software]# rpm -ivh postgresql12-12.3-1PGDG.rhel7.x86_64.rpm
警告：postgresql12-12.3-1PGDG.rhel7.x86_64.rpm: 头 V4 DSA/SHA1 Signature, 密钥 ID 442df0f8: NOKEY
准备中... #####
正在升级/安装... #####
1:postgresql12-12.3-1PGDG.rhel7.x86_64 #####
[root@node1 software]# rpm -ivh postgresql12-server-12.3-1PGDG.rhel7.x86_64.rpm
警告：postgresql12-server-12.3-1PGDG.rhel7.x86_64.rpm: 头 V4 DSA/SHA1 Signature, 密钥 ID 442df0f8: NOKEY
准备中... #####
正在升级/安装... #####
1:postgresql12-server-12.3-1PGDG.rhel7.x86_64 #####
[root@node1 software]# rpm -ivh postgresql12-contrib-12.3-1PGDG.rhel7.x86_64.rpm
警告：postgresql12-contrib-12.3-1PGDG.rhel7.x86_64.rpm: 头 V4 DSA/SHA1 Signature, 密钥 ID 442df0f8: NOKEY
准备中... #####
正在升级/安装... #####
1:postgresql12-contrib-12.3-1PGDG.rhel7.x86_64 #####
[root@node1 software]#
```

3.2.3 数据库的初始化具体操作

```
/usr/pgsql-12/bin/postgresql-12-setup initdb
```

```
[root@node1 software]# /usr/pgsql-12/bin/postgresql-12-setup initdb
Initializing database ... OK
[root@node1 software]#
```

- 配置开机启动与启动

```
systemctl enable postgresql-12
```

```
systemctl start postgresql-12
```

```
[root@node1 software]# systemctl enable postgresql-12
Created symlink from /etc/systemd/system/multi-user.target.wants/postgresql-12.service to /us
r/lib/systemd/system/postgresql-12.service.
[root@node1 software]# systemctl start postgresql-12
[root@node1 software]# systemctl status postgresql-12
● postgresql-12.service - PostgreSQL 12 database server
   Loaded: loaded (/usr/lib/systemd/system/postgresql-12.service; enabled; vendor preset: dis
abled)
     Active: active (running) since — 2022-05-23 15:44:58 CST; 16s ago
       Docs: https://www.postgresql.org/docs/12/static/
    Process: 1654 ExecStartPre=/usr/pgsql-12/bin/postgresql-12-check-db-dir ${PGDATA} (code=ex
ited, status=0/SUCCESS)
   Main PID: 1660 (postmaster)
      CGroup: /system.slice/postgresql-12.service
              ├─1660 /usr/pgsql-12/bin/postmaster -D /var/lib/pgsql/12/data/
              ├─1662 postgres: logger
              ├─1664 postgres: checkpointer
              ├─1665 postgres: background writer
              ├─1666 postgres: walwriter
              ├─1667 postgres: autovacuum launcher
              ├─1668 postgres: stats collector
              └─1669 postgres: logical replication launcher

5月 23 15:44:58 node1 systemd[1]: Starting PostgreSQL 12 database server...
5月 23 15:44:58 node1 postmaster[1660]: 2022-05-23 15:44:58.860 CST [1660] LOG:  start...bit
5月 23 15:44:58 node1 postmaster[1660]: 2022-05-23 15:44:58.860 CST [1660] LOG: liste...432
5月 23 15:44:58 node1 postmaster[1660]: 2022-05-23 15:44:58.860 CST [1660] LOG: could...ess
5月 23 15:44:58 node1 postmaster[1660]: 2022-05-23 15:44:58.860 CST [1660] HINT:  Is a...ry.
5月 23 15:44:58 node1 postmaster[1660]: 2022-05-23 15:44:58.861 CST [1660] LOG:  liste...32"
5月 23 15:44:58 node1 postmaster[1660]: 2022-05-23 15:44:58.863 CST [1660] LOG:  liste...32"
5月 23 15:44:58 node1 postmaster[1660]: 2022-05-23 15:44:58.871 CST [1660] LOG:  redir...ess
5月 23 15:44:58 node1 postmaster[1660]: 2022-05-23 15:44:58.871 CST [1660] HINT:  Futu...g".
5月 23 15:44:58 node1 systemd[1]: Started PostgreSQL 12 database server.
Hint: Some lines were ellipsized, use -l to show in full.
```

- 修改密码

```
切换到 postgres 用户执行
```

```
su - postgres
```

```
psql
```

```
alter user postgres with password '123456';
```

```
\q
```

```
[root@node1 software]# su - postgres
上一次登录： — 5月 23 15:41:55 CST 2022 pts/1 上
[-bash-4.2$ psql
psql (12.3)
Type "help" for help.

[postgres=# alter user postgres with password '123456';
ALTER ROLE
[postgres=# \q
```

3.2.3 数据库其他配置

使用 root 用户执行

- 关闭防火墙
停止 firewall

```
systemctl stop firewalld.service
```

禁止 开机启动

```
systemctl disable firewalld.service
```

查看防火墙状态

```
firewall -cmd -state
```

- 修改配置文件 postgresql.conf
修改 IP 绑定，将监听地址修改为“*”

打开并编辑文件 “/var/lib/pgsql/12/data/postgresql.conf” 将
“#listen_addresses = ‘localhost’ ” 改为 “listen_addresses = * ”

```
vi /var/lib/pgsql/12/data/postgresql.conf
```

```
#-----
# CONNECTIONS AND AUTHENTICATION
#-----

# - Connection Settings -
listen_addresses = '*' # what IP address(es) to listen on;
# comma-separated list of addresses;
# defaults to 'localhost'; use '*' for all
# (change requires restart)
#port = 5432 # (change requires restart)
max_connections = 100 # (change requires restart)
#superuser_reserved_connections = 3 # (change requires restart)
#unix_socket_directories = '/var/run/postgresql, /tmp' # comma-separated list of directories
# (change requires restart)
#unix_socket_group = '' # (change requires restart)
#unix_socket_permissions = 0777 # begin with 0 to use octal notation
# (change requires restart)
#Bonjour = off # advertise server via Bonjour
# (change requires restart)
#Bonjour_name = '' # defaults to the computer name
# (change requires restart)
```

- 修改配置文件 pg_hba.conf

允许所有 IP 访问

打开并编辑文件 “/var/lib/pgsql/12/data/pg_hba.conf”

```
vi /var/lib/pgsql/12/data/pg_hba.conf
```

在文件的末尾添加

```
host all all 0.0.0.0/0 md5
```

```
# replication privilege.  
local  replication    all  
host   replication    all          127.0.0.1/32      trust  
host   replication    all          ::1/128        trust  
host   all            all          0.0.0.0/0       md5
```

3.2.4 重启 postgresql 服务器使设置生效

```
sudo systemctl restart postgresql-12
```

```
[root@node1 software]# sudo systemctl restart postgresql-12  
[root@node1 software]# systemctl status postgresql-12  
● postgresql-12.service - PostgreSQL 12 database server  
  Loaded: loaded (/usr/lib/systemd/system/postgresql-12.service; enabled; vendor preset: disabled)  
  Active: active (running) since — 2022-05-23 16:00:40 CST; 29s ago  
    Docs: https://www.postgresql.org/docs/12/static/  
  Process: 1759 ExecStartPre=/usr/pgsql-12/bin/postgresql-12-check-db-dir ${PGDATA} (code=exited, status=0/SUCCESS)  
 Main PID: 1767 (postmaster)  
  CGroup: /system.slice/postgresql-12.service  
          └─1767 /usr/pgsql-12/bin/postmaster -D /var/lib/pgsql/12/data/  
              ├─1769 postgres: logger  
              ├─1771 postgres: checkpointer  
              ├─1772 postgres: background writer  
              ├─1773 postgres: walwriter  
              ├─1774 postgres: autovacuum launcher  
              ├─1775 postgres: stats collector  
              └─1776 postgres: logical replication launcher
```