

实验一

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1. 实现两台机器无密码互连:

1. 在腾讯云上租借两台云服务器，一台用作 server, 一台用作 client;



2. 登录到远程系统，执行以下命令更新包管理工具 `sudo apt-get update`, 下载 vim 和 openssh 用于远程连接: `sudo apt-get install vim openssh`
3. 在 server 上输入 `ssh-keygen -t rsa -C "2814388011@qq.com"`, 生成密钥对命令。

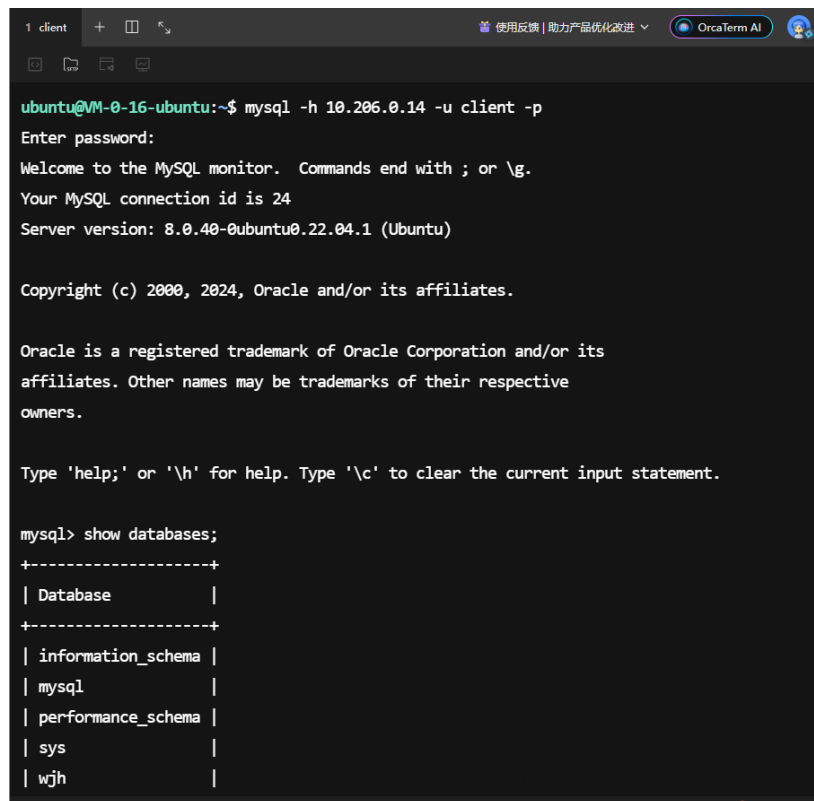
```
ubuntu@VM-0-14-ubuntu:~$ ssh-keygen -t rsa -C "2814388011@qq.com"
Generating public/private rsa key pair.
Enter file in which to save the key (/home/ubuntu/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/ubuntu/.ssh/id_rsa
Your public key has been saved in /home/ubuntu/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:e72rP54pTb5qOzyyV9B7QeAQ5xN0sLSZdowp4010Kbo 2814388011@qq.com
The key's randomart image is:
+---[RSA 3072]-----+
|
|  o*o
|  o.^...
|  o.XoB.
|  ..*....
|  S... .
|  E. .+ .
|  ...=.
|  ..B ++
|  .+=XO+
+---[SHA256]-----+
```

4. 输入 `cd .ssh`
`cat id_rsa.pub >> authorized_keys`
将公钥添加到受信任者名单中
5. 输入 `scp id_rsa ubuntu@10.206.16:~/.ssh/id_rsa`
`scp id_rsa.pub ubuntu@10.206.16:~/.ssh/id_rsa.pub`
将公钥私钥分享给 client
6. 在 client 端, 输入 `cat id_rsa.pub >> authorized_keys`, 使客户端和服务端都共用一把锁和钥匙。
7. Client 端输入 `ssh ubuntu@10.206.0.14`, 尝试无密码登录到 server, 显示成功, 随后 `exit` 退出登录, 结果如图。

```
ubuntu@VM-0-14-ubuntu:~$ exit
logout
Connection to 10.206.0.14 closed.
ubuntu@VM-0-16-ubuntu:~/ssh$
```

2. 数据库实验:

1. 两台机器输入 `sudo apt-get install mysql-server`, 安装数据库服务器软件包。
2. Server 端, 输入 `cd /etc/mysql/mysql.conf.d/`, 再输入 `Sudo vim mysqld.cnf`, 修改 `bind address` 为 `0.0.0.0` 所有地址可访问数据库。
3. 输入 `sudo mysql -u root -p` 进入数据库。
4. 输入 `CREATE DATABASE wjh`; 创建数据库
5. 输入 `CREATE USER 'client' @' 10.206.0.16' IDENTIFIED BY 'password'`; 添加可访问数据库的成员 `client`, 地址为 `10.206.0.16`, 登录密码为 `password`。
6. 输入 `GRANT ALL ON *.* to 'client' @' 10.206.0.16'`; 为 `client` 获取所有数据库的所有权限。
7. 输入 `FLUSH PRIVILEGES`; 应用所有配置后, `exit` 退出, `sudo reboot` 重启, 应用数据库修改后的配置文件。
8. Client 端, 输入 `mysql -h 10.206.0.14 -u client -p` 回车, 输入密码 `password` 显示如图, 表明成功连接到 server 端的数据库。
9. 输入 `SHOW DATABASES`; 可以看到之前在 server 端创建的数据库 `wjh`, 实验成功。



```
1 client + [ ] ^
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ubuntu@VM-0-16-ubuntu:~$ mysql -h 10.206.0.14 -u client -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 24
Server version: 8.0.40-0ubuntu0.22.04.1 (Ubuntu)

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Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
| wjh |
+-----+
```