

附录 5：centOS7.6 上安装 openGauss2.1.0

从下面的路径中能下载 openGauss 最新版本以及相关工具

<https://opengauss.org/zh/download.html>

我们使用 openGauss_2.1.0 企业版进行安装

openGauss-2.1.0-CentOS-64bit-all.tar.gz。

使用到的工具有 putty（可以直接鼠标左键滑动选择复制，鼠标右键点击粘贴），WinSCP（用于上传安装包到服务器）

注意：安装过程中记得要做快照，成功完成几步后，记得做好备份快照。

启动虚拟机

登录（用户名 root，密码 openGauss），之后输入 ifconfig

```
openauss [正在运行] - Oracle VM VirtualBox
管理 控制 视图 热键 设备 帮助
你已打开了自动独占键盘 的选项。现在当该虚拟电脑窗
Kernel 3.10.0-957.el7.x86_64 on an x86_64

openauss login: root
Password:
[root@openauss ~]# ifconfig
-bash: ifconfig: command not found
[root@openauss ~]# _
```

步骤 1 安装 ipconfig

centos7.6 没有安装 ipconfig

我们装一下。

openauss [正在运行] - Oracle VM VirtualBox

管理 控制 视图 热键 设备 帮助

```
你已打开了自动独占键盘 的选项。现在当该虚拟电脑窗口处于活动状态时就将 完全独占 键盘，这时处于
Kernel 3.10.0-957.el7.x86_64 on an x86_64

openauss login: root
Password:
[root@openauss ~]# ifconfig
-bash: ifconfig: command not found
[root@openauss ~]# yum install net-tools.x86_64
```

自动下载安装包，安装。

openauss [正在运行] - Oracle VM VirtualBox

管理 控制 视图 热键 设备 帮助

```
openauss login: root
你已打开了 自动独占键盘 的选项。现在当该虚拟电脑窗口处于活动状态时就将 完全独占 键盘，这时处于
[root@openauss ~]# ifconfig
-bash: ifconfig: command not found
[root@openauss ~]# yum install net-tools.x86_64
Loaded plugins: fastestmirror
Determining fastest mirrors
 * base: mirrors.cn99.com
 * extras: mirrors.ustc.edu.cn
 * updates: mirrors.aliyun.com
base                                         | 3.6 kB  00:00:00
extras                                         | 2.9 kB  00:00:00
updates                                         | 2.9 kB  00:00:00
(1/4): base/7/x86_64/group_gz                | 153 kB  00:00:00
(2/4): extras/7/x86_64/primary_db             | 246 kB  00:00:00
(3/4): base/7/x86_64/primary_db               | 6.1 MB  00:00:03
(4/4): updates/7/x86_64/primary_db            | 14 MB   00:00:03
Resolving Dependencies
--> Running transaction check
--> Package net-tools.x86_64 0:2.0-0.25.20131004git.el7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package           Arch      Version          Repository      Size
=====
Installing:
net-tools         x86_64    2.0-0.25.20131004git.el7      base      306 k

Transaction Summary
=====
Install 1 Package

Total download size: 306 k
Installed size: 917 k
Is this ok [y/d/N]: _
```

全部选择 y

安装完成后，就可以用 ifconfig 了

```

opengauss (centos安装完成) [正在运行] - Oracle VM VirtualBox

管理 控制 视图 热键 设备 帮助

Running transaction
  Installing : net-tools-2.0-0.25.20131004git.el7.x86_64           1/1
    Verifying  : net-tools-2.0-0.25.20131004git.el7.x86_64           1/1

Installed:
  net-tools.x86_64 0:2.0-0.25.20131004git.el7

Complete!
[root@db123456 ~]# ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 192.168.56.103  netmask 255.255.255.0  broadcast 192.168.56.255
          inet6 fe80::173e:510c:aeef:f3e1  prefixlen 64  scopeid 0x20<link>
            ether 08:00:27:4e:05:b8  txqueuelen 1000  (Ethernet)
              RX packets 2 bytes 1180 (1.1 KiB)
              RX errors 0 dropped 0 overruns 0 frame 0
              TX packets 15 bytes 1706 (1.6 KiB)
              TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

enp0s8: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
        inet 10.0.3.15  netmask 255.255.255.0  broadcast 10.0.3.255
          inet6 fe80::34b1:6b00:bf02:3864  prefixlen 64  scopeid 0x20<link>
            ether 08:00:27:a5:f2:2d  txqueuelen 1000  (Ethernet)
              RX packets 16268 bytes 22813473 (21.7 MiB)
              RX errors 0 dropped 0 overruns 0 frame 0
              TX packets 6862 bytes 416138 (406.3 KiB)
              TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

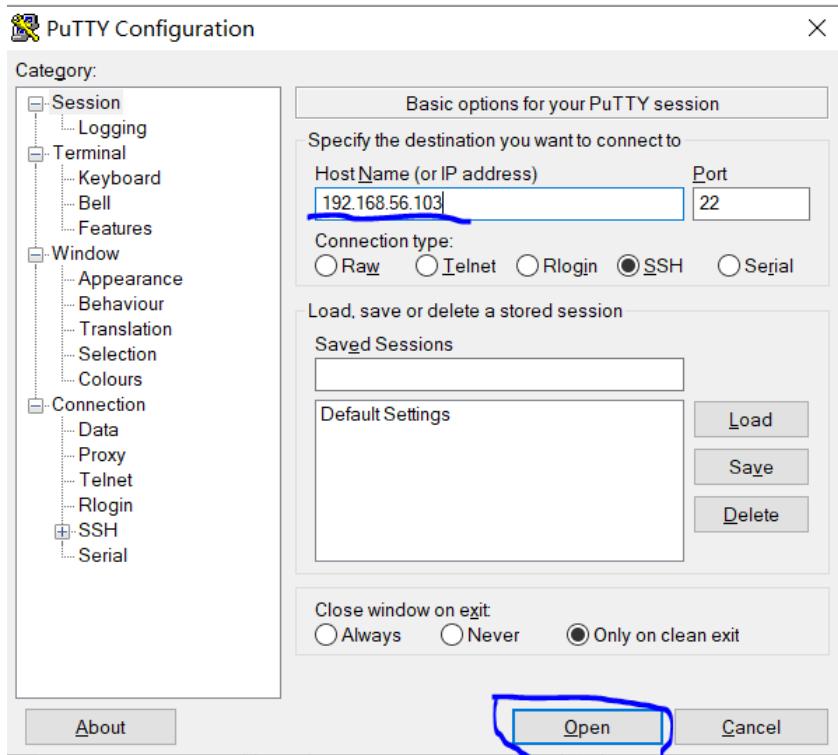
lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
          inet6 ::1  prefixlen 128  scopeid 0x10<host>
            loop  txqueuelen 1000  (Local Loopback)
              RX packets 0 bytes 0 (0.0 B)
              RX errors 0 dropped 0 overruns 0 frame 0
              TX packets 0 bytes 0 (0.0 B)
              TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

```

从上图中可以看到 emp0s3 的 ip 为 192.168.56.103，注意必须是 192.168 开头的 ip，否则是有问题的。

而 emp0s8 的 ip 地址 10.0.3.15 在后面配置文件 clusterconfig.xml 中会使用。

获得 emp0s3 的 ip 后，我们就可以使用该 ip，用 putty 连接，进行后续 openGauss 的安装设置等工作。使用 putty 的好处就是可以直接复制粘贴命令了。



输入用户名为 root，密码为 openGauss@123，注意密码输入的时候，是看不到的

确认用户名和密码输入后，按回车键即可。

```
root@db123456:~$  
login as: root  
root@192.168.56.103's password:  
Last login: Thu Mar 31 12:11:10 2022  
[root@db123456 ~]#
```

步骤 2 关闭防火墙

在 putty 中复制下面的命令（复制，然后在 putty 界面中点击鼠标右键，即可粘贴在其上）

```
systemctl stop firewalld.service  
systemctl disable firewalld.service
```

具体如下

下面只用复制粘贴绿色的文字到 putty 上执行，后面也是如此，不再赘述。

```
[root@db123456 ~]# systemctl stop firewalld.service  
[root@db123456 ~]# systemctl disable firewalld.service
```

```
Removed symlink /etc/systemd/system/multi-  
user.target.wants/firewalld.service.
```

```
Removed symlink /etc/systemd/system/dbus-
org.fedoraproject.FirewallD1.service.
```

步骤 3 设置字符集及环境变量。

```
[root@db123456 ~]# cat >>/etc/profile<<EOF
> export LANG=en_US.UTF-8
> EOF
[root@db123456 ~]# cat >>/etc/profile<<EOF
> export packagePath=/opt/software/openGauss
> EOF
[root@db123456 ~]# source /etc/profile
[root@db123456 ~]# cat >>/etc/profile<<EOF
> export LD_LIBRARY_PATH=$packagePath/script/gspylib/clib:$LD_LIBRARY_PATH
> EOF
[root@db123456 ~]# source /etc/profile
验证变量是否生效
[root@db123456 ~]# echo $LD_LIBRARY_PATH
/opt/software/openGauss/script/gspylib/clib:
```

步骤 4 关闭 swap 交换内存。

```
[root@db123456 ~]# swapoff -a
```

步骤 5 准备 yum 环境。

备份原有的 yum 配置文件

```
[root@db123456 ~]# mv /etc/yum.repos.d/CentOS-Base.repo
/etc/yum.repos.d/CentOS-Base.repo.bak
```

下载可用源的 repo 文件

```
[root@db123456 ~]# curl -o /etc/yum.repos.d/CentOS-Base.repo
http://mirrors.aliyun.com/repo/Centos-7.repo
```

| % Total | % Received | % Xferd | Average Speed | Time | Time |
|---------|------------|---------|---------------|-------|--------|
| Time | Current | | | Dload | Upload |
| Left | Speed | | | Total | Spent |
| | | | | | |

```
100 2523 100 2523    0      0 13867      0 --:--:-- --:--:-- --:--  
--:-- 13939
```

查看 repo 文件内容是否正确

```
[root@db123456 ~]# cat /etc/yum.repos.d/CentOS-Base.repo  
# CentOS-Base.repo  
  
# The mirror system uses the connecting IP address of the client and  
the  
# update status of each mirror to pick mirrors that are updated to  
and  
# geographically close to the client. You should use this for CentOS  
updates  
# unless you are manually picking other mirrors.  
#  
# If the mirrorlist= does not work for you, as a fall back you can  
try the  
# remarked out baseurl= line instead.  
#  
#  
  
[base]  
name=CentOS-$releasever - Base - mirrors.aliyun.com  
failovermethod=priority  
baseurl=http://mirrors.aliyun.com/centos/$releasever/os/$basearch/  
http://mirrors.aliyuncs.com/centos/$releasever/os/$basearch/  
  
http://mirrors.cloud.aliyuncs.com/centos/$releasever/os/$basearch/  
gpgcheck=1  
gpgkey=http://mirrors.aliyun.com/centos/RPM-GPG-KEY-CentOS-7  
  
#released updates  
  
[updates]  
name=CentOS-$releasever - Updates - mirrors.aliyun.com  
failovermethod=priority  
baseurl=http://mirrors.aliyun.com/centos/$releasever/updates/$basearc  
h/
```

```
http://mirrors.aliyuncs.com/centos/$releasever/updates/$basearch/  
  
http://mirrors.cloud.aliyuncs.com/centos/$releasever/updates/$basearch/  
gpgcheck=1  
gpgkey=http://mirrors.aliyun.com/centos/RPM-GPG-KEY-CentOS-7  
  
#additional packages that may be useful  
[extras]  
name=CentOS-$releasever - Extras - mirrors.aliyun.com  
failovermethod=priority  
baseurl=http://mirrors.aliyun.com/centos/$releasever/extras/$basearch/  
  
http://mirrors.aliyuncs.com/centos/$releasever/extras/$basearch/  
  
http://mirrors.cloud.aliyuncs.com/centos/$releasever/extras/$basearch/  
gpgcheck=1  
gpgkey=http://mirrors.aliyun.com/centos/RPM-GPG-KEY-CentOS-7  
  
#additional packages that extend functionality of existing packages  
[centosplus]  
name=CentOS-$releasever - Plus - mirrors.aliyun.com  
failovermethod=priority  
baseurl=http://mirrors.aliyun.com/centos/$releasever/centosplus/$basearch/  
  
http://mirrors.aliyuncs.com/centos/$releasever/centosplus/$basearch/  
  
http://mirrors.cloud.aliyuncs.com/centos/$releasever/centosplus/$basearch/  
gpgcheck=1  
enabled=0  
gpgkey=http://mirrors.aliyun.com/centos/RPM-GPG-KEY-CentOS-7  
  
#contrib - packages by Centos Users
```

```
[contrib]
name=CentOS-$releasever - Contrib - mirrors.aliyun.com
failovermethod=priority
baseurl=http://mirrors.aliyun.com/centos/$releasever/contrib/$basearch/
http://mirrors.aliyuncs.com/centos/$releasever/contrib/$basearch/
http://mirrors.cloud.aliyuncs.com/centos/$releasever/contrib/$basearch/
gpgcheck=1
enabled=0
gpgkey=http://mirrors.aliyun.com/centos/RPM-GPG-KEY-CentOS-7
[root@db123456 ~]#
```

步骤 6 yum 安装相关包

执行以下命令，安装所需的包。

```
[root@db123456 ~]# yum install -y libaio-devel flex bison ncurses-devel glibc-devel patch lsb_release wget python3
```

Loaded plugins: fastestmirror

Loading mirror speeds from cached hostfile

```
* base: mirrors.aliyun.com  
* extras: mirrors.aliyun.com  
* updates: mirrors.aliyun.com
```

需要安装一段时间，安装成功后会显示 complete！

步骤 7 设置默认 Python 版本为 3.x。

```
[root@db123456 ~]# cd /usr/bin  
[root@db123456 bin]# mv python python.bak  
[root@db123456 bin]# ln -s python3 /usr/bin/python  
[root@db123456 bin]# python -V  
Python 3.6.8
```

用 `yum --help` 命令来验证 yum 是否能使用

```
[root@db123456 bin]# yum --help
```

File "/usr/bin/yum", line 30

except KeyboardInterrupt, e:

SyntaxError: invalid syntax

发现不可用

不能使用，则需要修改/usr/bin/yum文件，把文件中第一行#!/usr/bin/python修改为#!/usr/bin/python2.7（或者对应的python 2.x的版本）。通过vi打开文档后，输入“i”切换到编辑模式，通过键盘上下左右键移动光标到修改位置修改内容，修改完成后按下ESC键退出编辑模式，最后输入“:wq”退出并进行保存。如果不修改，则输入“:q!”。注意：必须是英文字符。

```
[root@db123456 bin]# vi /usr/bin/yum
```

打开文档，将下面用黄色标亮的文字修改一下

```
[root@db123456 bin]# vi /usr/bin/yum
```

```
#!/usr/bin/python
```

```
import sys
```

```
try:
```

```
    import yum
```

按键盘上的i，就可以修改，修改为

```
#!/usr/bin/python2.7
```

修改后，保存退出，先按键盘上的esc键退出编辑模式，然后输入:wq!进行保存

```
root@db123456:/usr/bin
#!/usr/bin/python2.7
import sys
try:
    import yum
except ImportError:
    print >> sys.stderr, """\
There was a problem importing one of the Python modules
required to run yum. The error leading to this problem was:

%s

Please install a package which provides this module, or
verify that the module is installed correctly.

It's possible that the above module doesn't match the
current version of Python, which is:
%s

If you cannot solve this problem yourself, please go to
the yum faq at:
http://yum.baseurl.org/wiki/Faq

""" % (sys.exc_value, sys.version)
-- INSERT --
```

再次用 yum --help 命令来验证 yum 是否能使用

```
[root@db123456 bin]# yum --help
```

Loaded plugins: fastestmirror

Usage: yum [options] COMMAND

List of Commands:

.....

经过测试，这次 ok

步骤 8 创建存放数据库的安装目录。

```
[root@db123456 bin]# mkdir -p /opt/software/openGauss
```

```
[root@db123456 bin]# cd /opt/software/openGauss
```

```
[root@db123456 openGauss]#
```

步骤 9 创建 XML 配置文件，用于数据库安装。

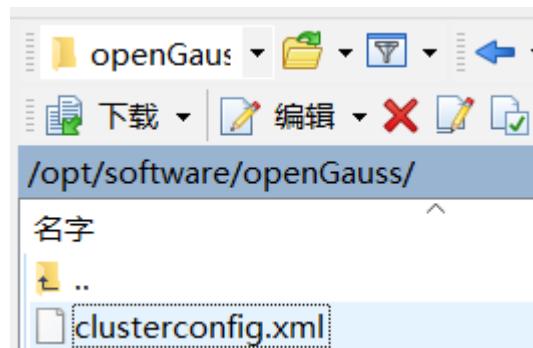
```
[root@db123456 openGauss]# vi clusterconfig.xml
```

将以下内容添加进 clusterconfig.xml 文件中。输入 " i " 切换到编辑模式，复制内容粘贴到文档中，然后按下 ESC 键退出编辑模式，然后输入 " :wq " 退出并进行保存。

下面的文档中黄色标出的地方，需要根据 centos 安装时的主机名和 ip 地址进行设置(主机名可以见命令提示符中的名字)。下面这个文件直接复制粘贴后，记得一定要核对一下，特别是前面两行，是否有问题。如有问题直接根据下面的样子进行编辑输入。

clusterconfig.xml 配置文件的生成中，除了上面给出的直接复制文档的方案外，也可以自己新建记事本文件，将下面的内容复制过去修改，然后保存再使用 winSCP 上传到下面所示正确的位置。

注意： clusterconfig.xml 如果是直接复制的话，请一定核对没有问题才保存。一般这样直接复制，可能会少一部分内容。。自己补全就好。



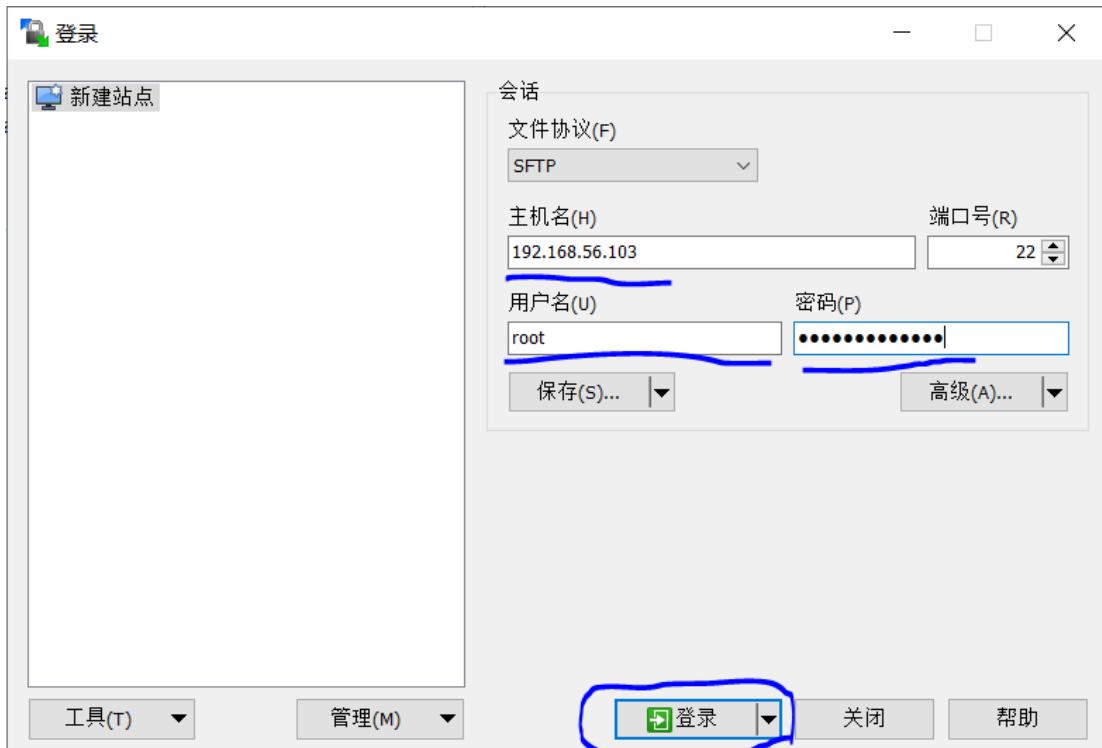
```

<ROOT>
    <!-- openGauss 整体信息 -->
    <CLUSTER>
        <PARAM name="clusterName" value="dbCluster" />
        <PARAM name="nodeNames" value="db123456" />
        <PARAM name="backIp1s" value="10.0.3.15"/>
        <PARAM name="gaussdbAppPath" value="/opt/gaussdb/app" />
        <PARAM name="gaussdbLogPath" value="/var/log/gaussdb" />
        <PARAM name="gaussdbToolPath" value="/opt/huawei/wisequery" />
        <PARAM name="corePath" value="/opt/opengauss/corefile"/>
        <PARAM name="clusterType" value="single-inst"/>
    </CLUSTER>
    <!-- 每台服务器上的节点部署信息 -->
    <DEVICELIST>
        <!-- node1 上的节点部署信息 -->
        <DEVICE sn="1000001">
            <PARAM name="name" value="db123456"/>
            <PARAM name="azName" value="AZ1"/>
            <PARAM name="azPriority" value="1"/>
            <!-- 如果服务器只有一个网卡可用，将 backIP1 和 sshIP1 配置成同一个 IP -->
            <PARAM name="backIp1" value="10.0.3.15"/>
            <PARAM name="sshIp1" value="10.0.3.15"/>
            <!--dbnode-->
            <PARAM name="dataNum" value="1"/>
            <PARAM name="dataPortBase" value="26000"/>
            <PARAM name="dataNode1" value="/gaussdb/data/db123456"/>
        </DEVICE>
    </DEVICELIST>
</ROOT>

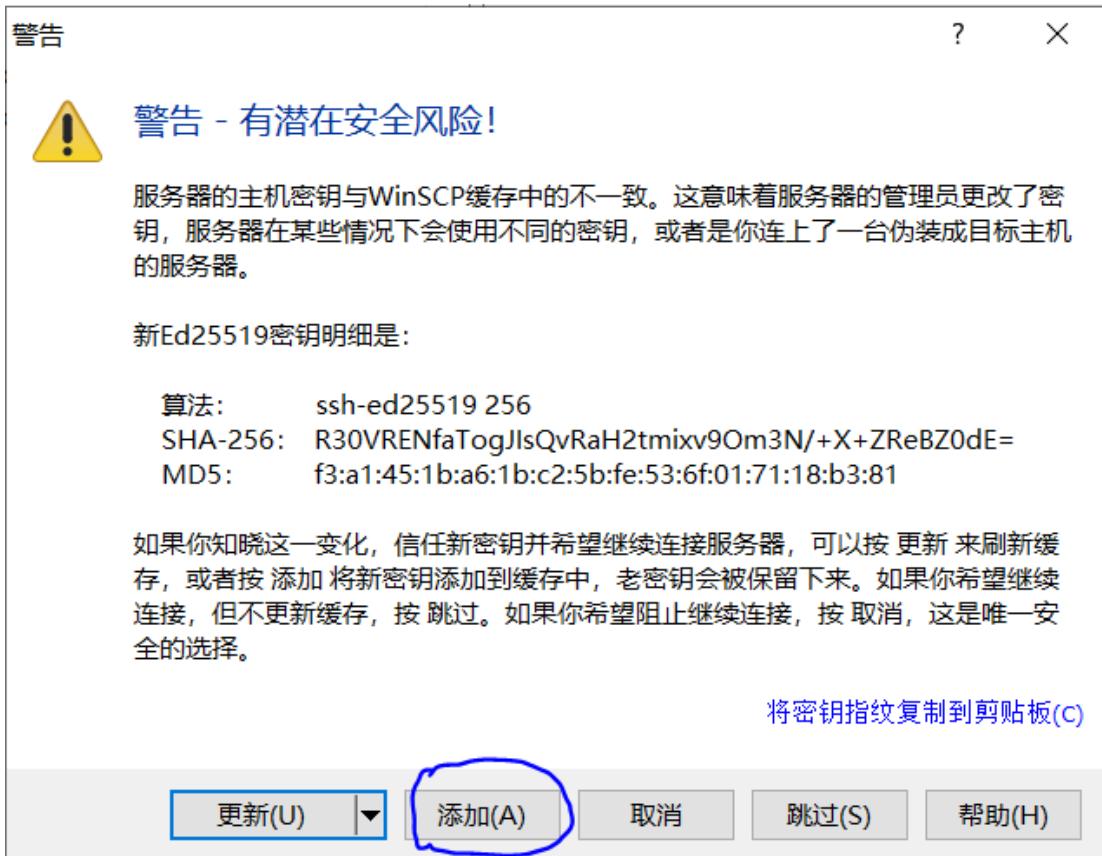
```

步骤 10 将安装包解压至存放目录

使用 openGauss-2.1.0-CentOS-64bit-all.tar.gz，已经提前下载
使用 winSCP 连接服务器，上传该安装包

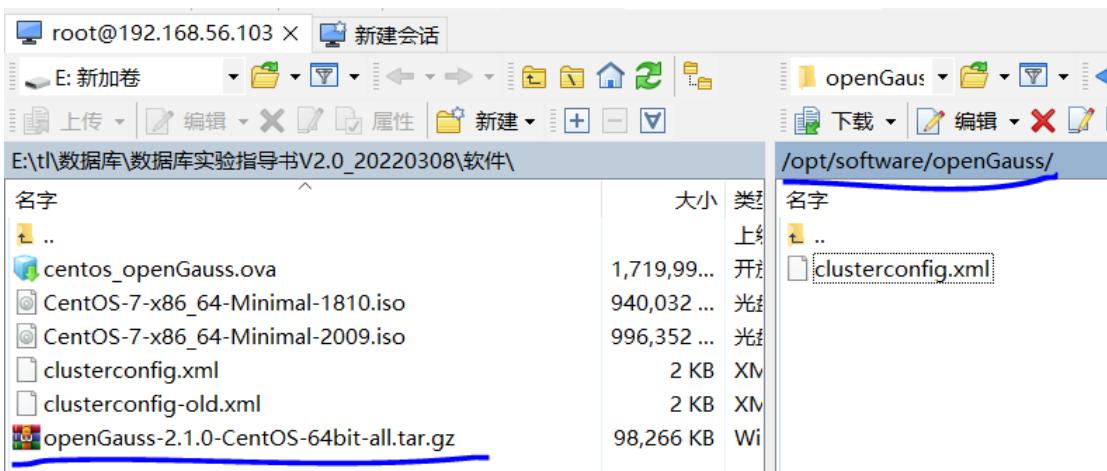


这里主机名是通过 ifconfig 获得的。用户名和密码是安装 centOS 时设置的，但是设置的用户名为 root，密码是 openGauss@123，输入后，点击登录

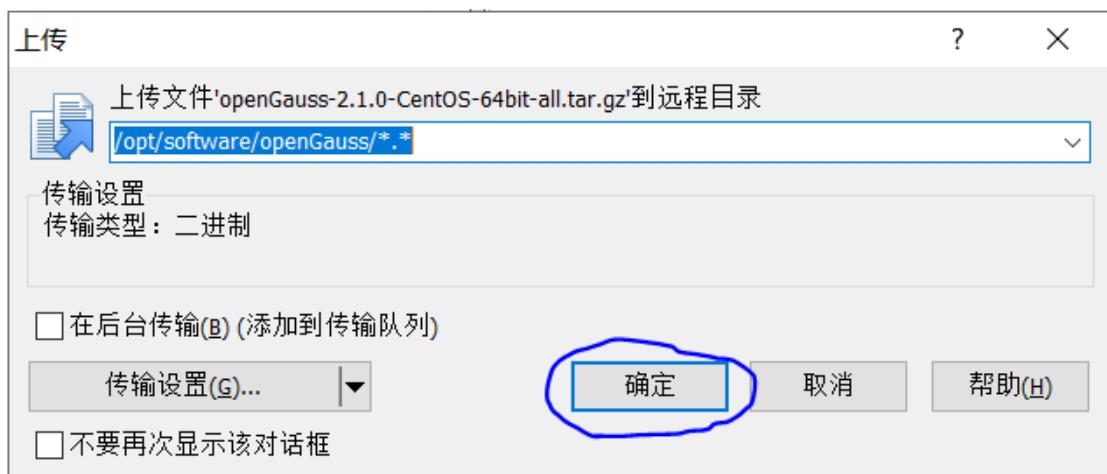
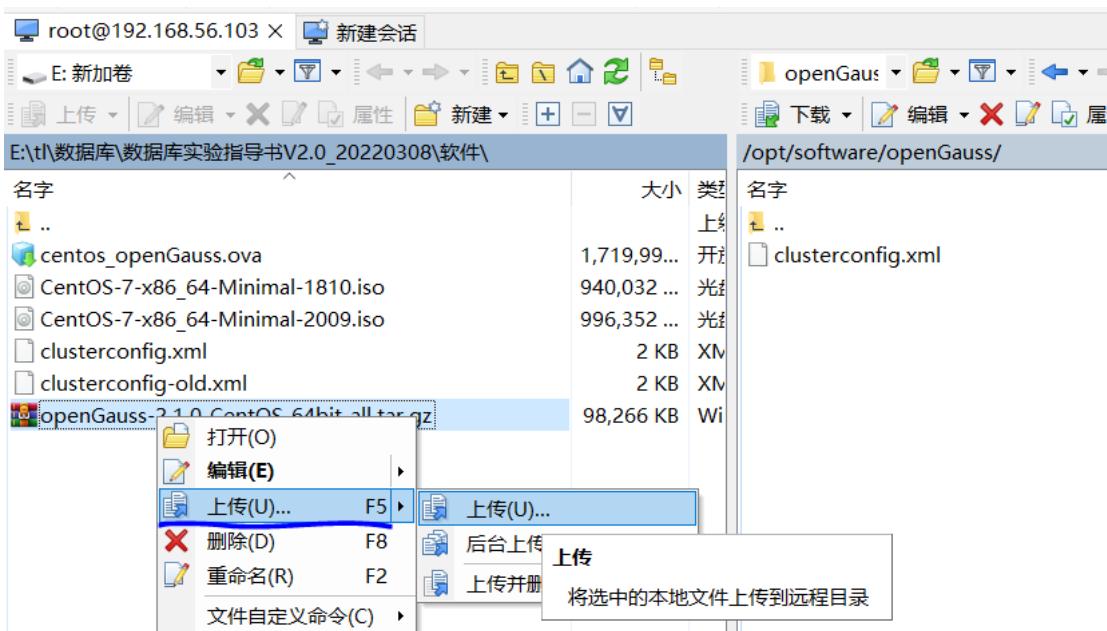


登录后，在左边选择自己电脑中存放安装包的位置

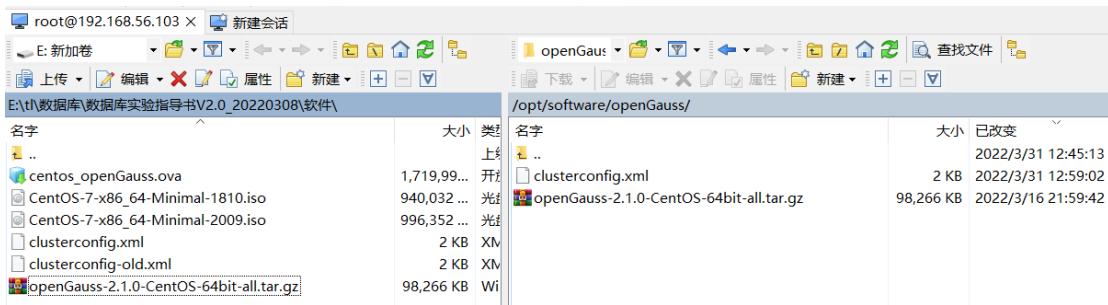
右边就是服务器中，要上传安装包的位置



在左侧的压缩包中点击鼠标右键，在出现的菜单中选择上传



上传成功



步骤 11 将下载好的安装包解压至存放目录。

先解压 openGauss-2.1.0-CentOS-64bit-all.tar.gz 包。

```
[root@db123456 openGauss]# tar -zxvf openGauss-2.1.0-CentOS-64bit-all.tar.gz
```

openGauss-2.1.0-CentOS-64bit-all.tar.gz

openGauss-2.1.0-CentOS-64bit.tar.bz2

openGauss-2.1.0-CentOS-64bit-all.sha256

openGauss-2.1.0-CentOS-64bit.sha256

upgrade_sql.tar.gz

upgrade_sql.sha256

再解压 openGauss-2.1.0-CentOS-64bit-all.tar.gz

```
[root@db123456 openGauss]# tar -zxvf openGauss-2.1.0-CentOS-64bit-all.tar.gz
```

./lib/

./lib/pyasn1/

./lib/pyasn1/codec/

./lib/pyasn1/codec/cer/

.....

解压后如下，用 ls 命令查看如下：

```
[root@ db123456 openGauss]# ls
clusterconfig.xml          openGauss-2.1.0-CentOS-
64bit-all.tar.gz  simpleInstall
lib                         openGauss-2.1.0-CentOS-
64bit.sha256    upgrade_sql.sha256
openGauss-2.1.0-CentOS-64bit-all.tar.gz  openGauss-2.1.0-CentOS-
64bit.tar.bz2    upgrade_sql.tar.gz
openGauss-2.1.0-CentOS-64bit-all.sha256  script
version.cfg
```

安装包解压后，会在/opt/software/openGauss 路径下自动生成 script 子目录，并且在 script 目录下生成 gs_preinstall 等各种 OM 工具脚本。

这些是我们后续安装需要使用的。

更改权限。

```
[root@db123456 openGauss]# chmod 755 -R /opt/software  
[root@db123456 openGauss]# cd /opt/software/openGauss/script
```

步骤 12 执行初始化脚本。

```
[root@db123456 script]# python gs_preinstall -U omm -G dbgrp -X  
/opt/software/openGauss/clusterconfig.xml
```

```
[GAUSS-50217] : Failed to decompress version.cfg. The cmd is cd  
/opt/software/openGauss/script/.../ && tar -xpf `head -1 version.  
cfg`*.tar.bz2 ./version.cfg. The output is tar (child): lbzip2:  
Cannot exec: No such file or directory
```

tar (child): Error is not recoverable: exiting now

tar: Child returned status 2

tar: Error is not recoverable: exiting now.

出现错误，因为少解压软件，安装。。

```
[root@db123456 script]# yum install bzip2
```

报错，无法安装

Downloading packages:

```
File "/usr/libexec/urlgrabber-ext-down", line 28  
except OSError, e:  
^
```

SyntaxError: invalid syntax

从网上查找解决方案

```
[root@db123456 script]# vi /usr/libexec/urlgrabber-ext-down
```

将第一行”#!/usr/bin/python” 改为 ”#!/usr/bin/python2.7”即可。

修改后，重新安装

```
[root@db123456 script]# yum install bzip2
```

这次安装成功！

继续执行初始化脚本

```
[root@db123456 script]# python gs_preinstall -U omm -G dbgrp -X  
/opt/software/openGauss/clusterconfig.xml
```

Parsing the configuration file.

Successfully parsed the configuration file.

Installing the tools on the local node.

Successfully installed the tools on the local node.

Setting pssh path

Successfully set core path.

Are you sure you want to create the user[omm] and create trust for it
(yes/no)? **yes**

Please enter password for cluster user.

Password: **这里输入密码为 openGauss@123，但是输入的时候是看不到的**

Please enter password for cluster user again.

Password: **这里输入密码为 openGauss@123，但是输入的时候是看不到的**

Successfully created [omm] user on all nodes.

Preparing SSH service.

Successfully prepared SSH service.

Checking OS software.

Successfully check os software.

Checking OS version.

Successfully checked OS version.

Creating cluster's path.

Successfully created cluster's path.

Set and check OS parameter.

Setting OS parameters.

Successfully set OS parameters.

Warning: Installation environment contains some warning messages.

Please get more details by "/opt/software/openGauss/script/gs_checkos -i A -h opengauss --detail".

Set and check OS parameter completed.

Preparing CRON service.

Successfully prepared CRON service.

Setting user environmental variables.

Successfully set user environmental variables.

Setting the dynamic link library.

Successfully set the dynamic link library.

Setting Core file

Successfully set core path.

Setting pssh path

Successfully set pssh path.

Setting Cgroup.

Successfully set Cgroup.
Set ARM Optimization.
No need to set ARM Optimization.
Fixing server package owner.
Setting finish flag.
Successfully set finish flag.
Preinstallation succeeded.
初始化安装成功！

步骤 13 初始化数据库

用 init 6 重启下虚拟机（主要是为了释放一些内存资源）。

```
[root@db123456 script]# init 6  
root@db123456:~  
login as: root  
root@192.168.56.103's password:  
Last login: Thu Mar 31 13:17:56 2022  
[root@db123456 ~]#
```

等虚拟机重启后，再重新打开 putty 连接

输入用户名 root，密码 openGauss@123

先更新下权限。

```
[root@db123456 ~]# chmod 755 -R /opt/software
```

使用 omm 用户进行数据库初始化。

```
[root@db123456 ~]# su - omm  
Last login: Thu Mar 31 13:16:05 CST 2022 on pts/0  
[omm@db123456 ~]$  
[omm@db123456 ~]$ cd /opt/software/openGauss/script
```

为防止意外发生，做下面这一步前，最好做个快照。

```
[omm@db123456 script]$ gs_install -X  
/opt/software/openGauss/clusterconfig.xml --gsinit-parameter="--  
encoding=UTF8" --dn-guc="max_process_memory=4GB" --dn-  
guc="shared_buffers=128MB" --dn-guc="bulk_write_ring_size=128MB" --  
dn-guc="cstore_buffers=16MB"
```

Parsing the configuration file.

Check preinstall on every node.

Successfully checked preinstall on every node.

Creating the backup directory.
Successfully created the backup directory.
begin deploy..
Installing the cluster.
begin prepare Install Cluster..
Checking the installation environment on all nodes.
begin install Cluster..
Installing applications on all nodes.
Successfully installed APP.
begin init Instance..
encrypt cipher and rand files for database.
Please enter password for database: 这里输入密码为 openGauss@123, 但输入时看不到
Please repeat for database: 这里输入密码为 openGauss@123, 但是输入的时候是看不到的
begin to create CA cert files
The sslcert will be generated in /opt/gaussdb/app/share/sslcert/om
Cluster installation is completed.
Configuring.
Deleting instances from all nodes.
Successfully deleted instances from all nodes.
Checking node configuration on all nodes.
Initializing instances on all nodes.
Updating instance configuration on all nodes.
Check consistence of memCheck and coresCheck on database nodes.
Configuring pg_hba on all nodes.
Configuration is completed.
Successfully started cluster.
Successfully installed application.
end deploy..
安装成功！

步骤 14 测试!!

```
[omm@db123456 script]$ su - omm
```

```
Password: 这里输入密码为 openGauss@123
[omm@db123456 ~]$ gs_om -t start
Starting cluster.
=====
[SUCCESS] db123456
2022-03-31 16:07:45.993 62456151.1 [unknown] 140641864811456
[unknown] 0 dn_6001 01000 0 [BACKEND] WARNING: could not create any
HA TCP/IP sockets
=====
Successfully started.
[omm@db123456 ~]$ gsql -d postgres -p 26000 -r
gsql ((openGauss 2.1.0 build 590b0f8e) compiled at 2021-09-30
14:29:04 commit 0 last mr )
Non-SSL connection (SSL connection is recommended when requiring
high-security)
Type "help" for help.
```

openGauss=#

步骤 15 清理软件安装包 (不清理也可以)

```
[omm@db123456 ~]$ exit
logout
[root@db123456 ~]# cd /opt/software/openGauss/
[root@db123456 openGauss]# ll
total 296180
-rwxr-xr-x. 1 omm dbgrp 1364 Mar 31 12:59 clusterconfig.xml
drwxr-xr-x. 15 root root 4096 Mar 31 13:15 lib
drwxr-xr-x. 9 root root 118 Mar 31 13:16 libcgroup
-rwxr-xr-x. 1 root root 100623501 Mar 16 21:59 openGauss-2.1.0-
CentOS-64bit-all.tar.gz
-rwxr-xr-x. 1 root root 65 Sep 30 14:40 openGauss-2.1.0-
CentOS-64bit-om.sha256
-rwxr-xr-x. 1 root root 13672565 Sep 30 14:40 openGauss-2.1.0-
CentOS-64bit-om.tar.gz
```

```
-rwxr-xr-x. 1 root root          65 Sep 30 14:41 openGauss-2.1.0-
CentOS-64bit.sha256
-rwxr-xr-x. 1 root root  87531625 Sep 30 14:41 openGauss-2.1.0-
CentOS-64bit.tar.bz2
-rwxr-xr-x. 1 root root 101189534 Mar 31 13:15 openGauss-Package-
bak_compiled.tar.gz
drwxr-xr-x. 6 root root      4096 Sep 30 14:40 script
drwxr-xr-x. 2 root root      4096 Sep 30 14:40 simpleInstall
-rwxr-xr-x. 1 root root       65 Sep 30 14:39 upgrade_sql.sha256
-rwxr-xr-x. 1 root root  224994 Sep 30 14:39 upgrade_sql.tar.gz
-rwxr-xr-x. 1 root root      32 Sep 30 14:39 version.cfg
[root@db123456 openGauss]# rm -rf openGauss-2.1.0-CentOS-64bit-
all.tar.gz
[root@db123456 openGauss]# rm -rf openGauss-2.1.0-CentOS-64bit-
om.tar.gz
```

附录 6：建库建表 SQL 示例（表名、字段名最好改为英文）

下面仅仅为示例，数据库名称，数据表名称以及表中字段名称都最好使用英文。

```
CREATE DATABASE dingdan_db OWNER tang;

--创建名为客户的数据表--
CREATE TABLE 客户
(
    客户编号 char(4) ,
    姓名 varchar(10) ,
    地址 varchar(20),
    邮政编码 varchar(6),
    收支差额 money,
    贷款限额 money,
    代理商编号 char(4),
    PRIMARY KEY(客户编号), --在表级定义实体完整性
);
--插入数据到名为客户的数据表中--
```