

# 聚合服务器软件 安装手册 (ver2.1.4)





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# 第一章 安装说明

## 1.1. 关于聚合服务器

聚合服务器可以选择使用物理主机服务器，也可使用云平台或虚拟机。

## 1.2. 聚合服务器需开通的端口

序号	协议	端口	说明
1	TCP	65500	
2	TCP	65510	
3	TCP	65301	
4	TCP	65222	
5	TCP 和 UDP	65101	
6	UDP	123	NTP: 专网下需要

## 1.3. 聚合服务器操作系统要求

- Linux debian 9.0 64 位系统

# 第二章 聚合服务器操作系统安装

## 2.1. 准备工作

准备素材：

- 准备一台 64 位主机
- 随机 U 盘

## 2.2. 本地安装

### 2.2.1. 安装 deiban9

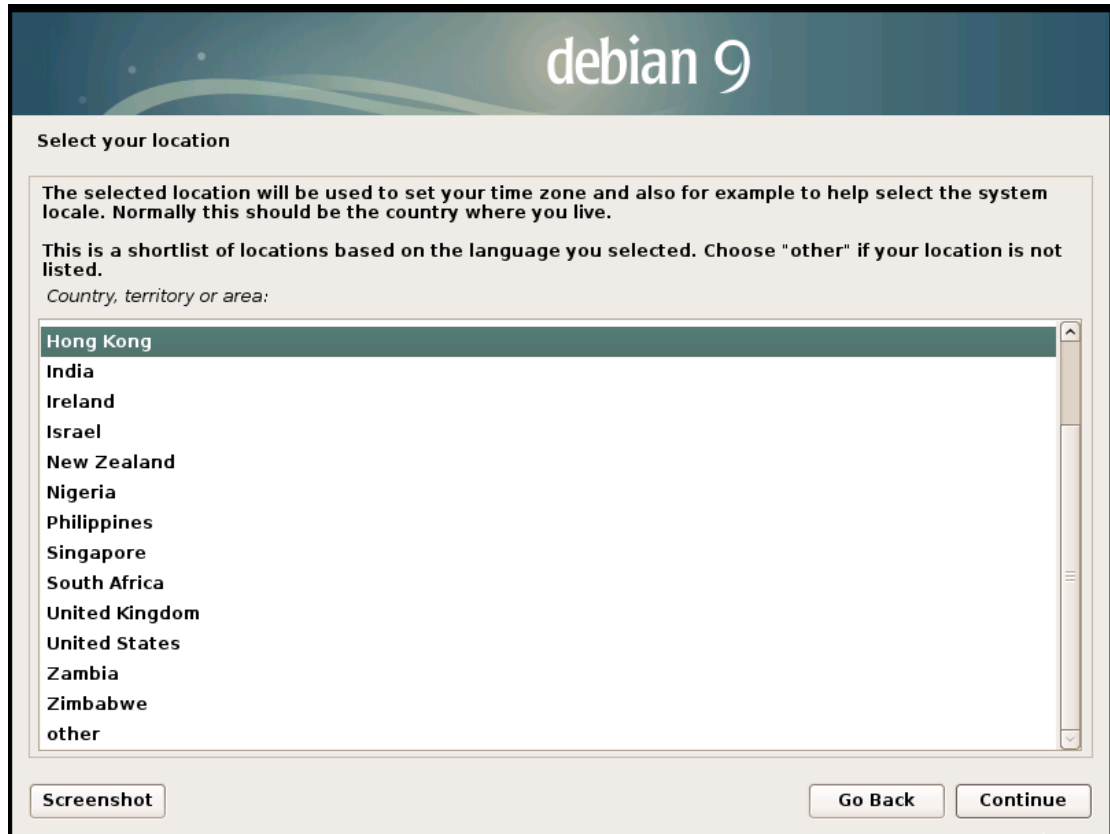
- 服务器插入随机 U 盘
- 设置 USB 启动
- 启动服务器
- 安装 debian9 操作系统步骤
  - (1) 选择图形安装 Graphical Install



(2) 语言选择: 选择 English



(3) 选择位置: 可以选择 Hong Kong



(4) 选择键盘，选择“Chinese”




(5) 开始安装基础系统

debian 9

Load installer components from CD

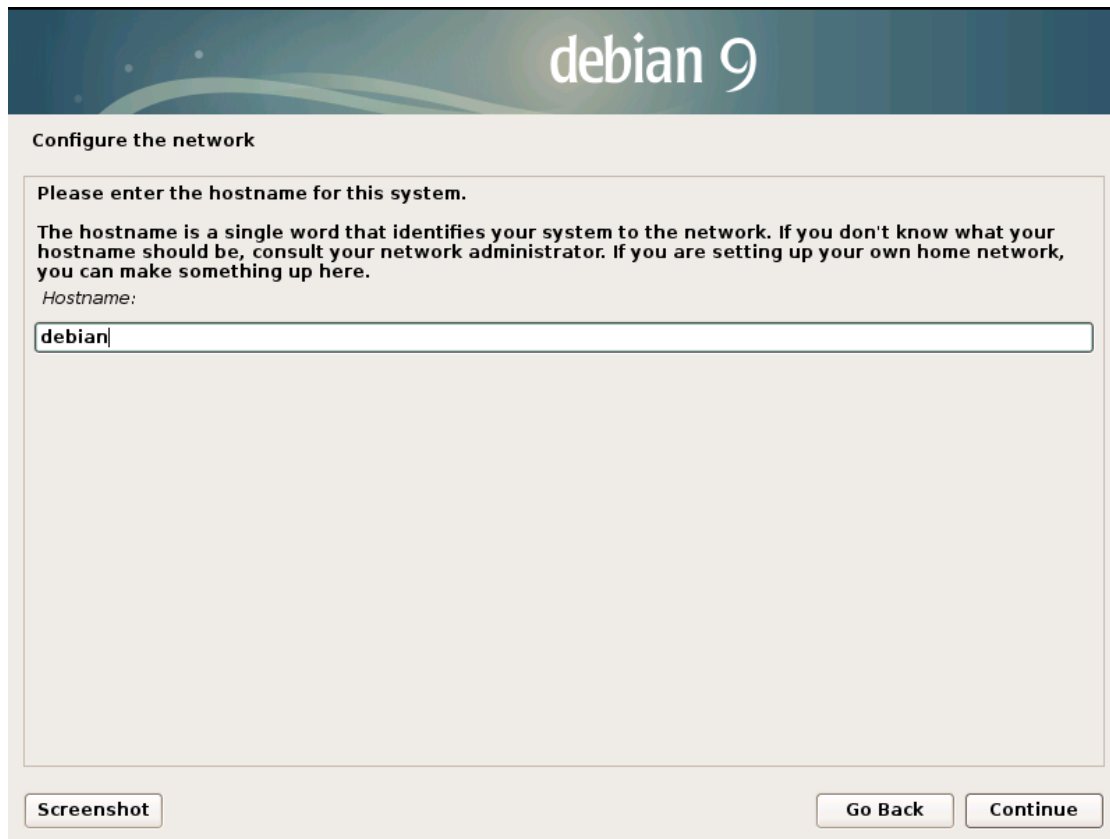
Retrieving lilo-installer

Loading additional components



(6) 配置网络，根据具体网口接线位置进行配置

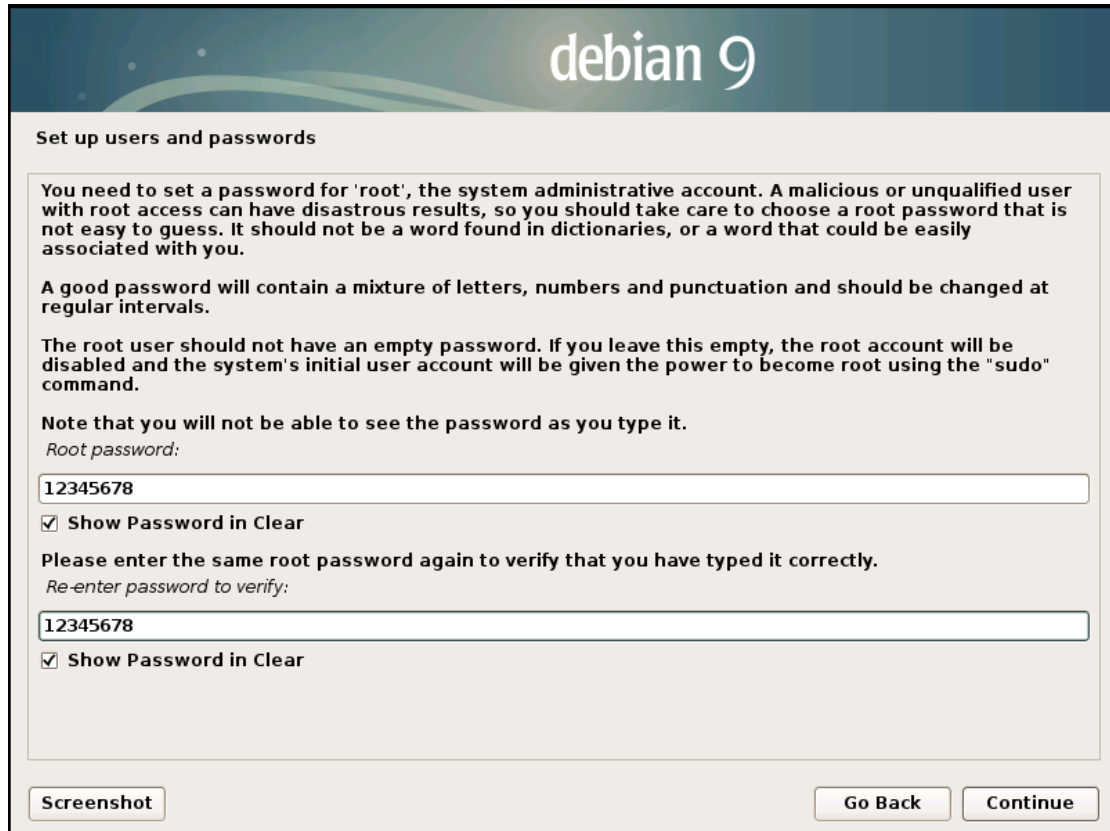
(7) 主机名



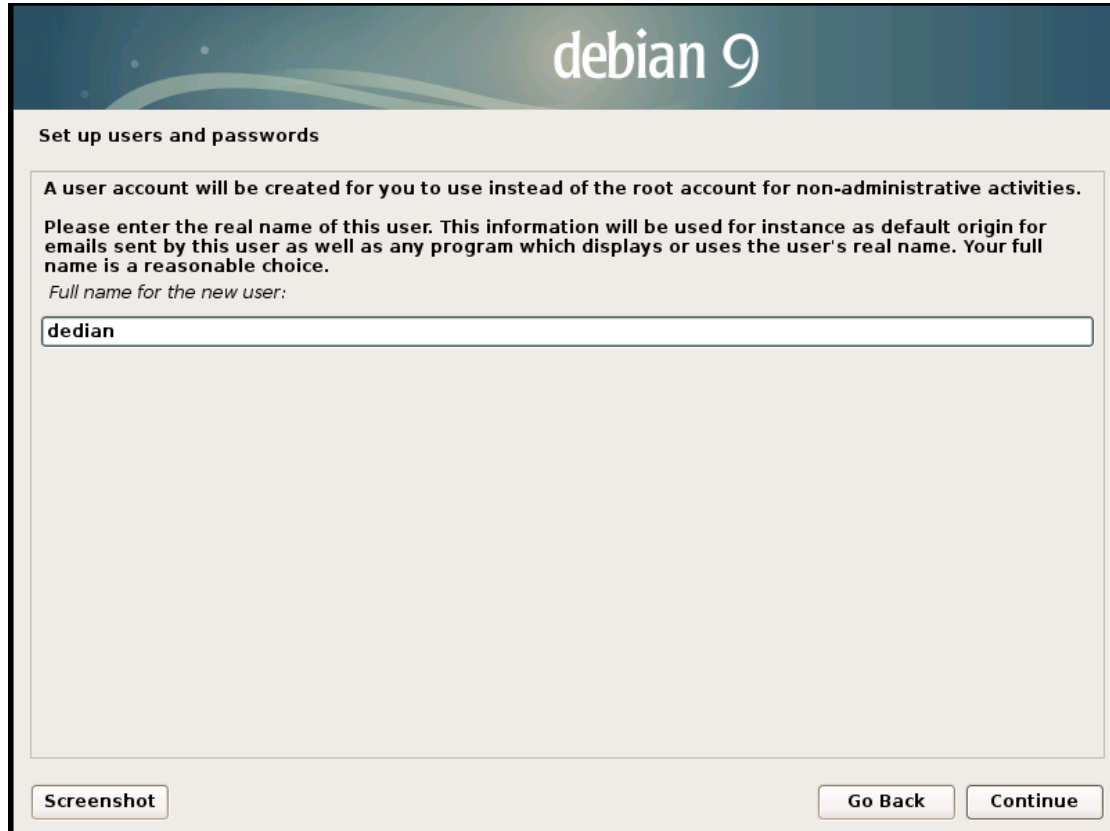
(8) 域名：可以自己命名



(9) 设置 root 用户密码



(9) 创建其他用户

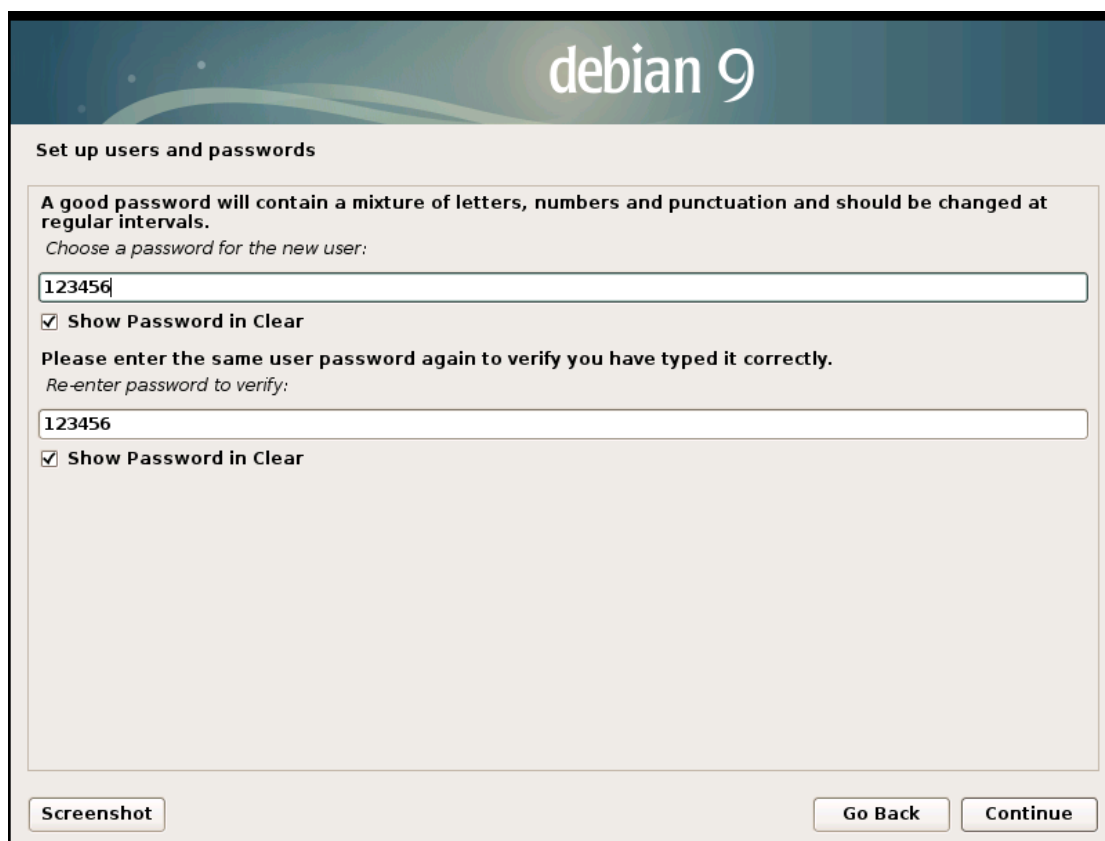


(10) 设置用户全名

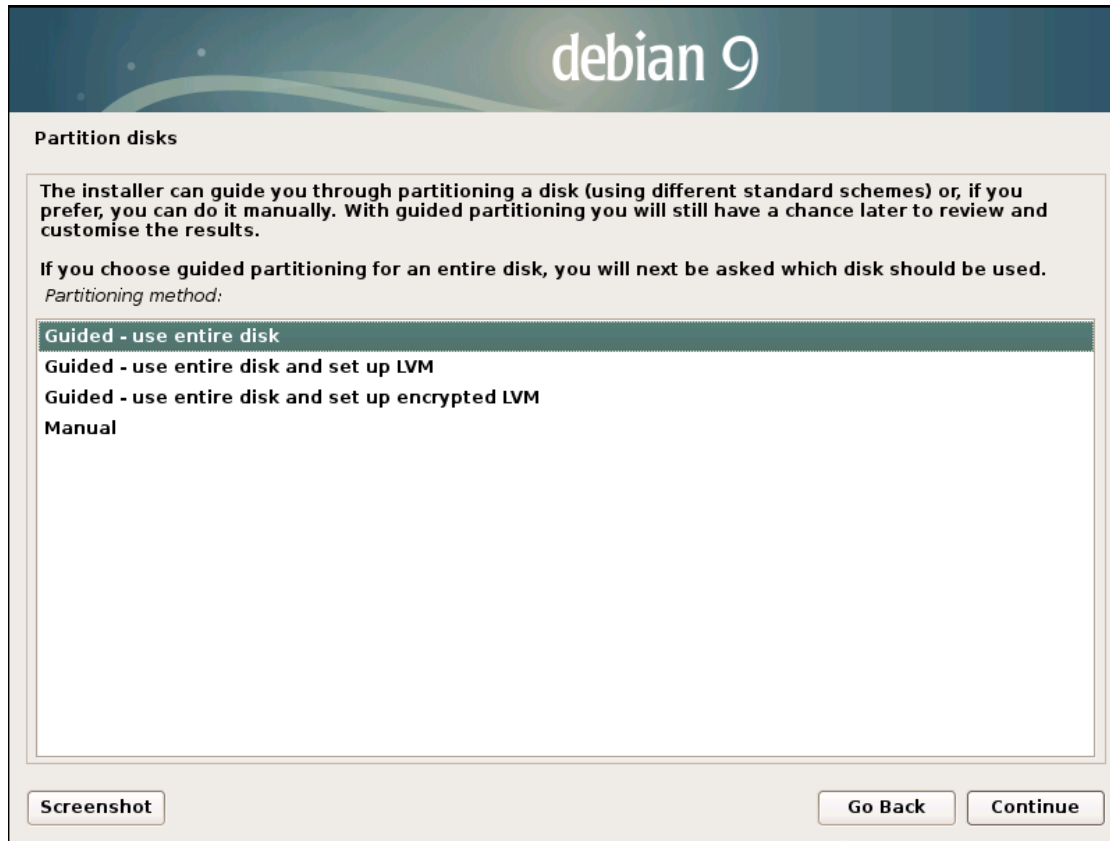




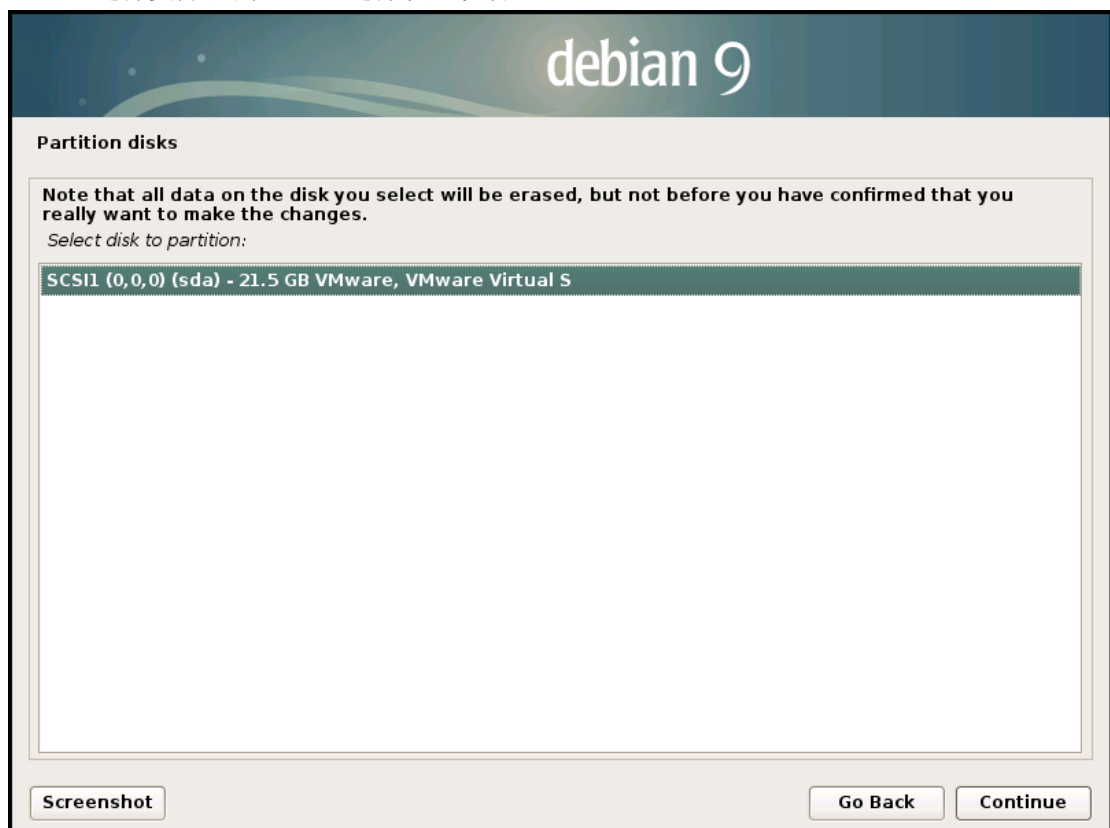
(11) 设置用户密码



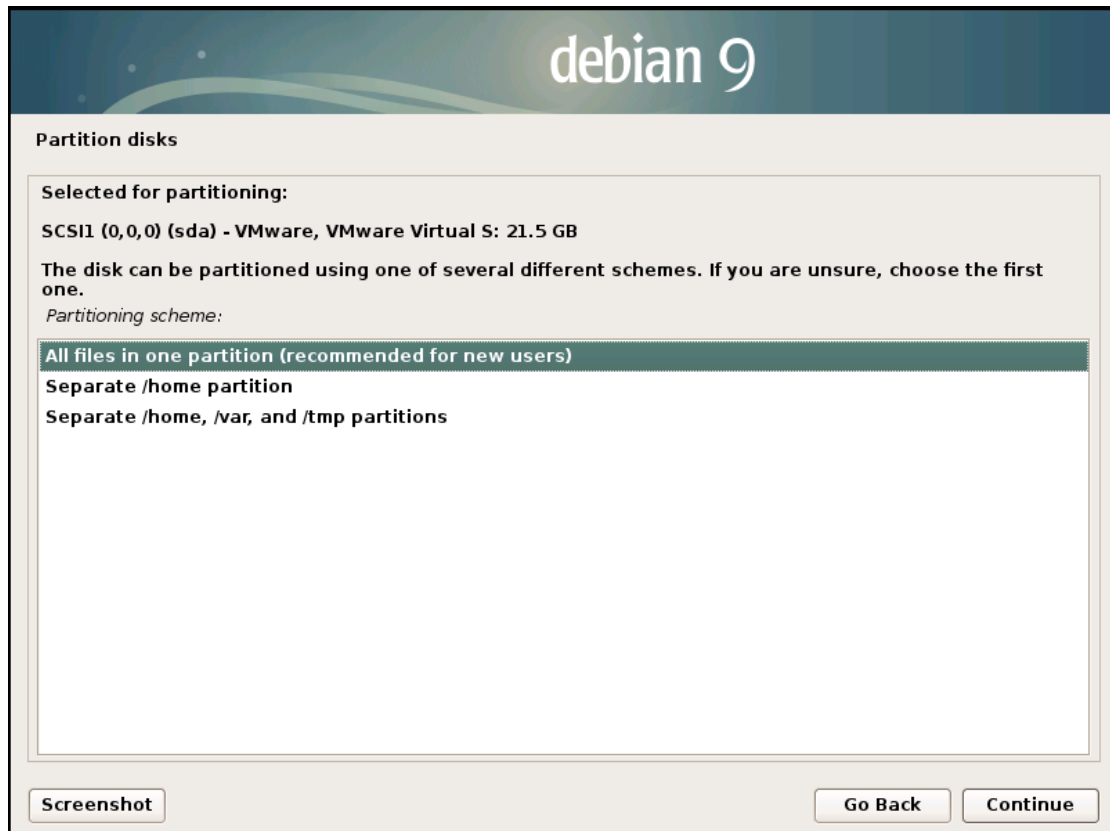
(12) 磁盘分区设置：用整个磁盘



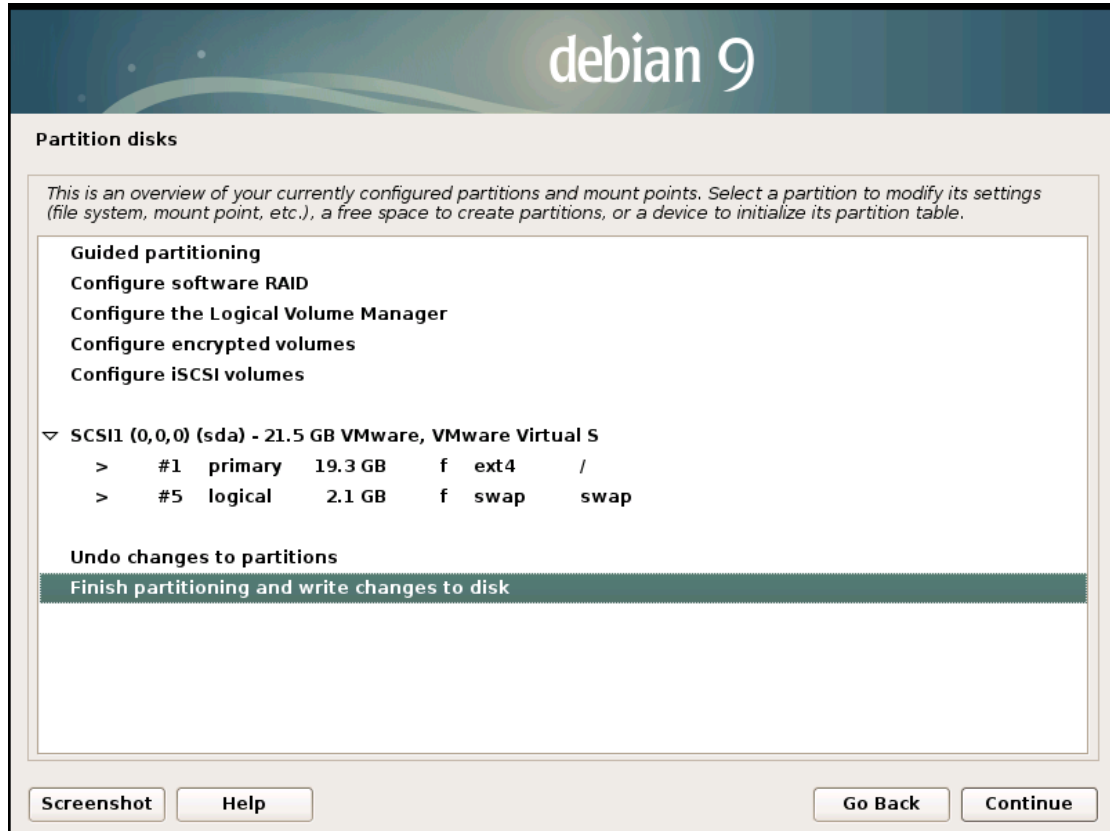
(13) 选择要分区的磁盘：选择硬盘设备



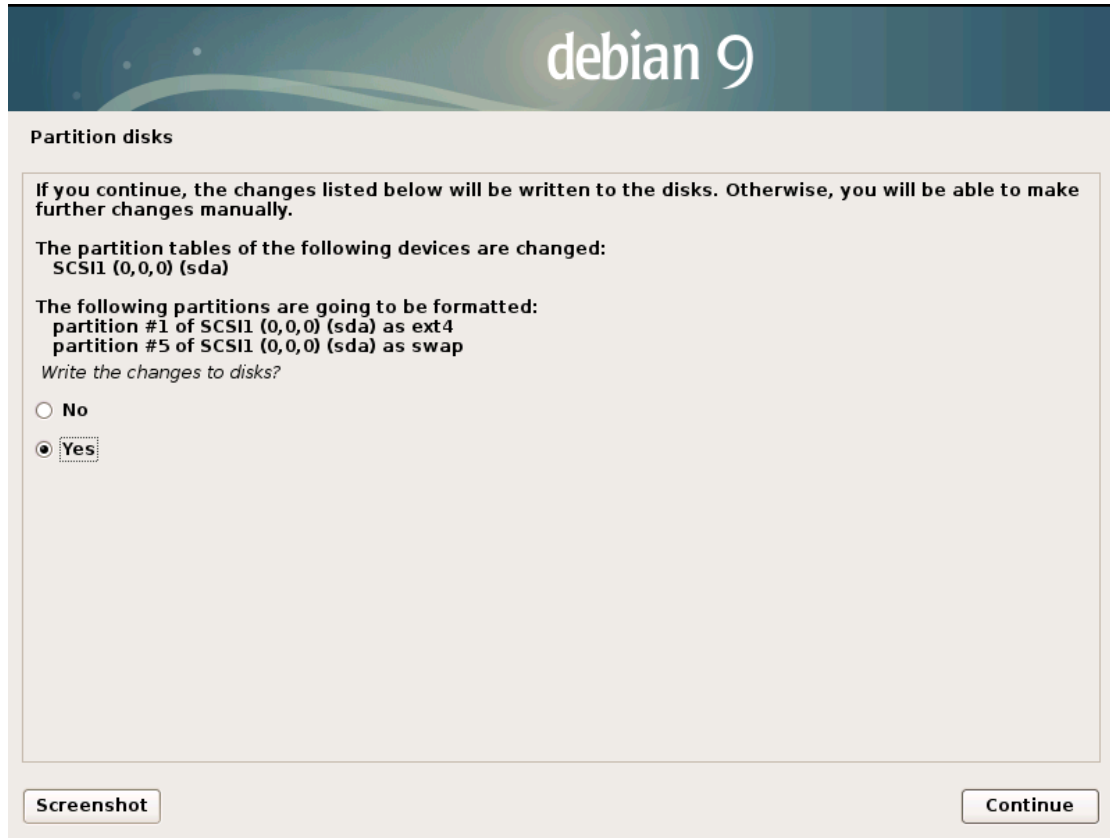
(14) 选择推荐方式分区



(15) 选择 “Finish partitioning and write changes to disk”



(16) 选择 yes, 写磁盘分区



(17) 开始安装系统



(18) 配置安装资源



(以上这个步骤非虚拟机时没有)

(19) 选择一个具体的镜像源

# debian 9

## Configure the package manager

A network mirror can be used to supplement the software that is included on the CD-ROM. This may also make newer versions of software available.

You are installing from a DVD. Even though the DVD contains a large selection of packages, some may be missing. If you have a reasonably good Internet connection, use of a mirror is suggested if you plan to install a graphical desktop environment.

Use a network mirror?

- No
- Yes

Screenshot

Go Back

Continue

(20) 选择 continue

(21) 开始下载安装包

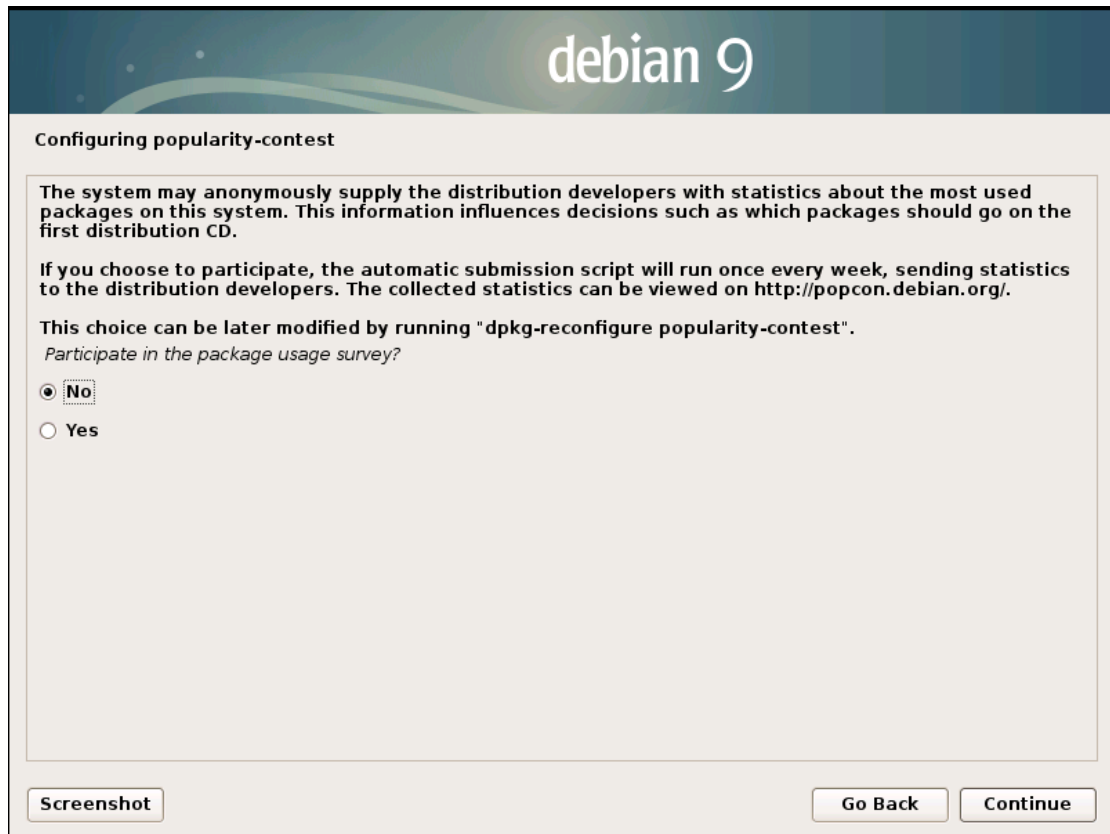
# debian 9

## Select and install software

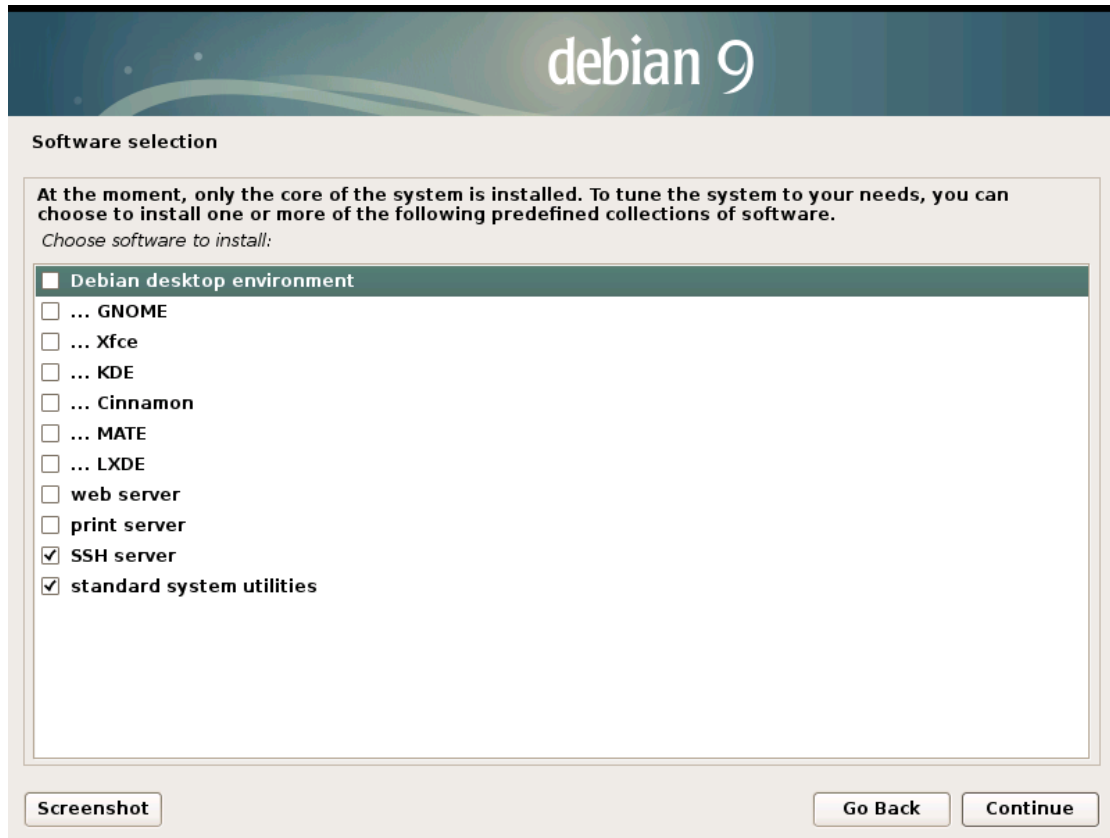
Select and install software

Retrieving file 3 of 50 (13min 5s remaining)

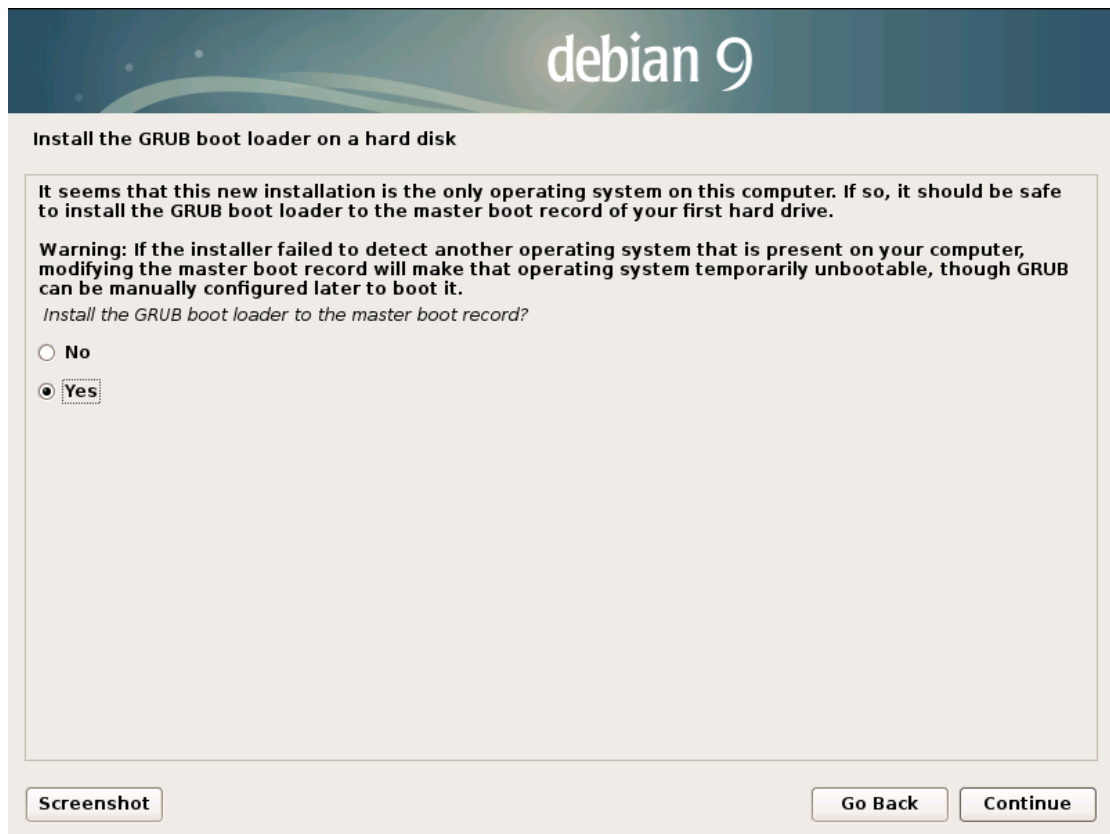
(22) 选择 No



(23) 安装软件选择, 选择 SSH Server 和 Standard system utilities 即可



(24) 选择 Yes, 安装 GRUB



(25) 选择安装 GRUB 的硬盘设备



(26) 完成安装, 拔掉 U 盘, 重启即可



Finish the installation



*Installation complete*

Installation is complete, so it is time to boot into your new system. Make sure to remove the installation media, so that you boot into the new system rather than restarting the installation.

Screenshot

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Continue

## 第三章 聚合服务器软件安装

### 3.1. 准备工作

- 服务器已经安装好 debian 9,并获取 root 账号密码和普通账号的密码
- 现场安装人员准备一台电脑

- 服务器预先配置好 IP，接入本地网络
- 随机安装 U 盘，目录 soft，包含以下：  
安装包 grass-router-vps-2.1.2.tar.gz  
安装包 packages  
WinSCP 工具软件  
puTTY 工具软件

## 3.2. 安装步骤

### 3.2.1. 电脑安装工具软件

随机 U 盘插入电脑，安装工具软件（U 盘 soft 目录下）

- 安装 WinSCP 工具软件。
- 安装 puTTY 工具软件。

### 3.2.2. 安装服务器软件

- 步骤 1：以 root 登录服务器，用普通账号 ssh 方式登录服务器后切换到 root 执行 su - root 命令回车后，输入 root 的密码

```
Debian GNU/Linux 9 debian tty1

debian login: root
Password:
Linux debian 4.9.0-18-amd64 #1 SMP Debian 4.9.303-1 (2022-03-07) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
root@debian:~#
root@debian:~#
```

- 步骤 2：执行命令 echo "PermitRootLogin yes">> /etc/ssh/sshd\_config

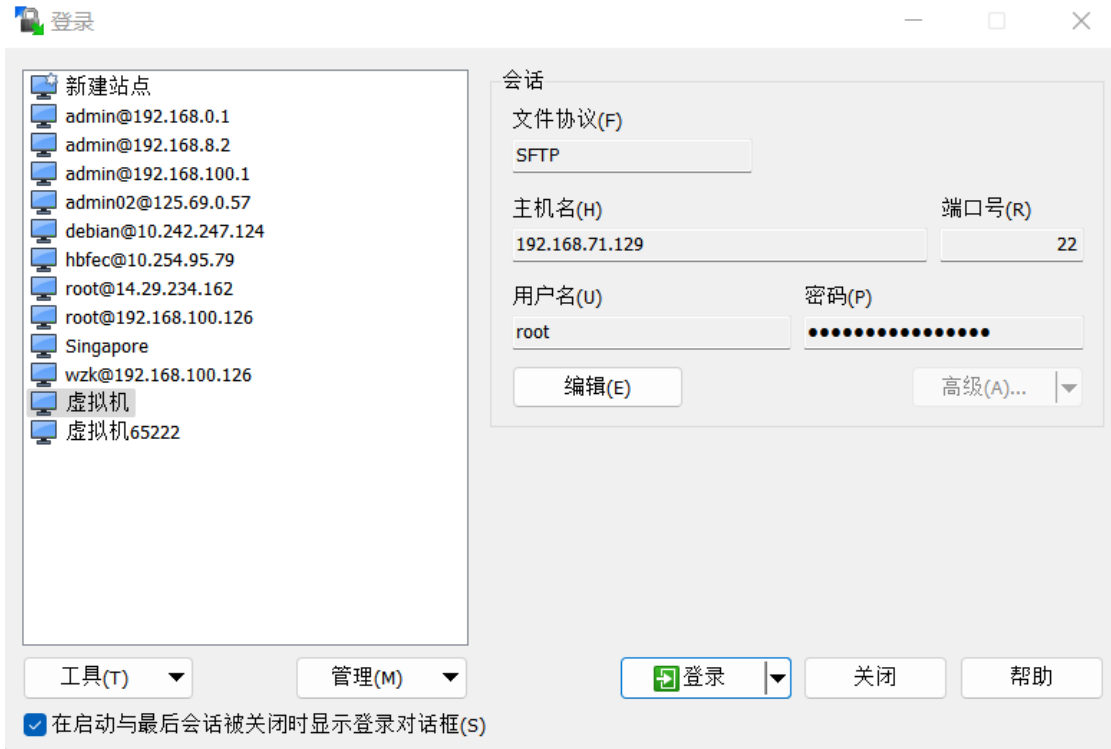
```
root@debian:~# echo "PermitRootLogin yes" >> /etc/ssh/sshd_config
root@debian:~#
root@debian:~# _
```

- 步骤 3：执行命令：service ssh restart

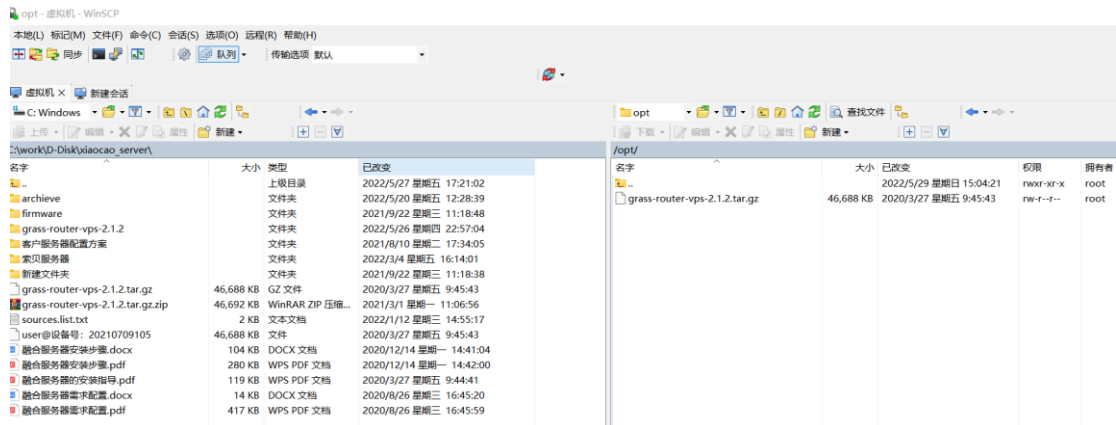
```
root@debian:~#
root@debian:~# service ssh restart
root@debian:~#
root@debian:~# _
```

完成上述步骤后，服务器端操作完成，后续步骤使用笔记本完成。将随机 U 盘插入笔记本。

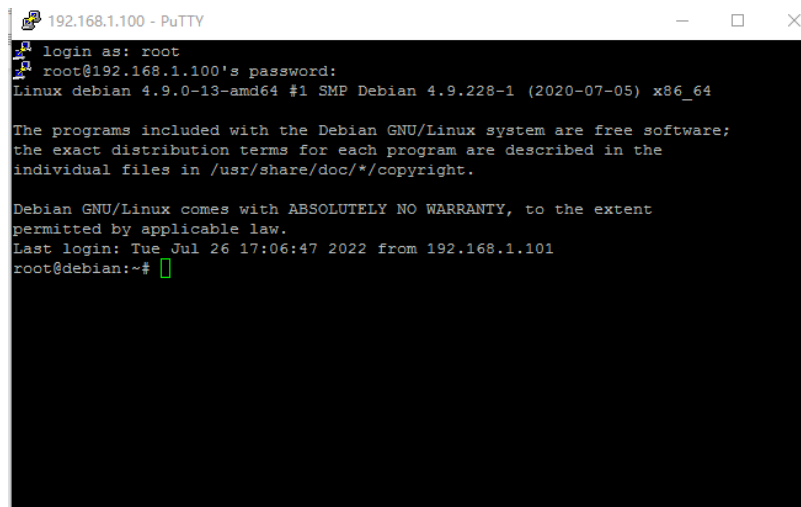
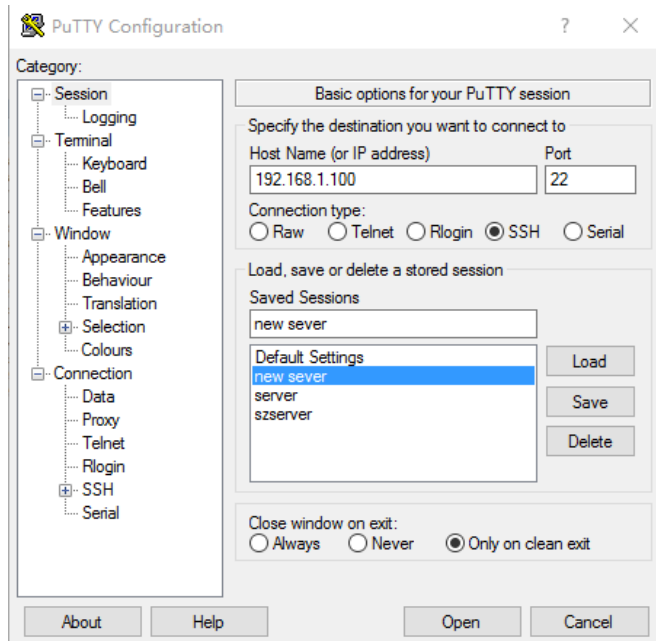
- 步骤 4：笔记本安装 WinSCP，用 WinSCP 将安装包传到服务器的/opt 目录  
WinSCP 创建到服务器的连接（服务器 root 账号，密码，如下图）



通过 WinSCP 工具传输安装包到服务器：如下图，右栏为服务器端文件目录，转至 opt 目录下；左栏为笔记本端文件目录，将随机 U 盘中安装包内容，grass-router-vps-2.1.2.tar 及 packages 拖拽至右栏（服务器端目录），完成文件传输。

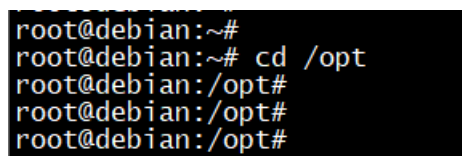


安装 Putty 软件，输入服务器地址，登录。



- 步骤 5: 解压缩安装包

执行命令 `cd /opt`



执行命令: `tar xzvf grass-router-vps-2.1.2.tar.gz`

```

root@debian:/opt#
root@debian:/opt# tar zxvf grass-router-vps-2.1.2.tar.gz
grass-router-vps-2.1.2/
grass-router-vps-2.1.2/README.md
grass-router-vps-2.1.2/apt-install.sh
grass-router-vps-2.1.2/debian9-x86_64.sh
grass-router-vps-2.1.2/patches/
grass-router-vps-2.1.2/patches/010-dump-fix.patch
grass-router-vps-2.1.2/patches/010-packet-pad-fix.patch
grass-router-vps-2.1.2/pkgs/
grass-router-vps-2.1.2/pkgs/admin/
grass-router-vps-2.1.2/pkgs/admin/omr-admin-config.json
grass-router-vps-2.1.2/pkgs/admin/omr-admin.py
grass-router-vps-2.1.2/pkgs/admin/omr-admin.service
grass-router-vps-2.1.2/pkgs/flask/
grass-router-vps-2.1.2/pkgs/flask/grassweb.py
grass-router-vps-2.1.2/pkgs/flask/grassweb.service
grass-router-vps-2.1.2/pkgs/flask/static/
grass-router-vps-2.1.2/pkgs/flask/static/css/
grass-router-vps-2.1.2/pkgs/flask/static/css/bootstrap-datepicker3.css
grass-router-vps-2.1.2/pkgs/flask/static/css/bulma.min.css
grass-router-vps-2.1.2/pkgs/flask/static/css/custom.css
grass-router-vps-2.1.2/pkgs/flask/static/favicon.png
grass-router-vps-2.1.2/pkgs/flask/static/js/
grass-router-vps-2.1.2/pkgs/flask/static/js/all.js
grass-router-vps-2.1.2/pkgs/flask/static/js/bootstrap-datepicker.min.js
grass-router-vps-2.1.2/pkgs/flask/templates/
grass-router-vps-2.1.2/pkgs/flask/templates/details.html
grass-router-vps-2.1.2/pkgs/flask/templates/layout.html
grass-router-vps-2.1.2/pkgs/flask/templates/login.html
grass-router-vps-2.1.2/pkgs/flask/templates/loglist.html
grass-router-vps-2.1.2/pkgs/glorytun_tcp/
grass-router-vps-2.1.2/pkgs/glorytun_tcp/glorytun

```

步骤 6: 配置/etc/apt/sources.list 文件

备份 apt 配置文件: `cp /etc/apt/sources.list /etc/apt/sources.list.org`

```

root@debian:~#
root@debian:~# cp /etc/apt/sources.list /etc/apt/sources.list.org
root@debian:~#

```

更新 apt 配置文件, 执行命令: `cp /opt/packages/sources.list /etc/apt/`

```

root@debian:~#
root@debian:~# cp /opt/packages/sources.list /etc/apt/
root@debian:~#
root@debian:~#

```

检查 apt 配置文件: `cat /etc/apt/sources.list`

```

root@debian:~# cat /etc/apt/sources.list
#
# deb cdrom:[Debian GNU/Linux 9.13.0 _stretch_ - Official amd64 DVD Binary-1 20200718-11:07]/ stretch contrib main
# stretch-updates, previously known as 'volatile'
# A network mirror was not selected during install. The following entries
# are provided as examples, but you should amend them as appropriate
# for your mirror of choice.
#
# deb http://deb.debian.org/debian/ stretch-updates main contrib
# deb-src http://deb.debian.org/debian/ stretch-updates main contrib
deb [trusted=true] file:///opt packages/
root@debian:~#

```

- 步骤 8: 运行系统安装包脚本

进入/opt/packages 目录: `cd /opt/packages`

```

root@debian:~#
root@debian:~# cd /opt/packages/
root@debian:/opt/packages#
root@debian:/opt/packages#

```

```
sed -i 's/^M//g' local-apt-install.sh
```

说明：^M 输入方法：ctrl+V 和 ctrl+M，此处需手动输入。

```
root@debian:/opt/packages#
root@debian:/opt/packages# sed -i 's/^M//g' local-apt-install.sh
root@debian:/opt/packages#
root@debian:/opt/packages#
```

执行命令：chmod +x local-apt-install.sh

```
root@debian:/opt/packages#
root@debian:/opt/packages#
root@debian:/opt/packages# chmod +x local-apt-install.sh
root@debian:/opt/packages#
root@debian:/opt/packages#
```

执行命令：./local-apt-install.sh

```
root@debian:/opt/packages#
root@debian:/opt/packages#
root@debian:/opt/packages# ./local-apt-install.sh
=====BEGIN=====
Get:1 file:/opt/packages/ InRelease
Ign:1 file:/opt/packages/ InRelease
Get:2 file:/opt/packages/ Release
Ign:2 file:/opt/packages/ Release
Get:3 file:/opt/packages/ Packages
Ign:3 file:/opt/packages/ Packages
Get:4 file:/opt/packages/ Translation-en
Ign:4 file:/opt/packages/ Translation-en
Get:5 file:/opt/packages/ Translation-en_HK
Ign:5 file:/opt/packages/ Translation-en_HK
Get:3 file:/opt/packages/ Packages
Ign:3 file:/opt/packages/ Packages
Get:4 file:/opt/packages/ Translation-en
Ign:4 file:/opt/packages/ Translation-en
Get:5 file:/opt/packages/ Translation-en_HK
Ign:5 file:/opt/packages/ Translation-en_HK
Get:3 file:/opt/packages/ Packages
Ign:3 file:/opt/packages/ Packages
Get:4 file:/opt/packages/ Translation-en
Ign:4 file:/opt/packages/ Translation-en
Get:5 file:/opt/packages/ Translation-en_HK
Ign:5 file:/opt/packages/ Translation-en_HK
Get:3 file:/opt/packages/ Packages [145 kB]
Get:4 file:/opt/packages/ Translation-en
Ign:4 file:/opt/packages/ Translation-en
Get:5 file:/opt/packages/ Translation-en_HK
Ign:5 file:/opt/packages/ Translation-en_HK
Get:4 file:/opt/packages/ Translation-en
Ign:4 file:/opt/packages/ Translation-en
Get:5 file:/opt/packages/ Translation-en_HK
Ign:5 file:/opt/packages/ Translation-en_HK
Get:4 file:/opt/packages/ Translation-en
Ign:4 file:/opt/packages/ Translation-en
Get:5 file:/opt/packages/ Translation-en_HK
Ign:5 file:/opt/packages/ Translation-en_HK
Reading package lists... Done
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  apt-transport-https
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 0 B/171 kB of archives.
After this operation, 243 kB of additional disk space will be used.
Get:1 file:/opt/packages/ apt-transport-https 1.4.11 [171 kB]
Selecting previously unselected package apt-transport-https.
```

```
Preparing to unpack .../bc_1.06.95-9+b3_amd64.deb ...
Unpacking bc (1.06.95-9+b3) ...
Selecting previously unselected package shorewall-core.
Preparing to unpack .../shorewall-core_5.0.15.6-1_all.deb ...
Unpacking shorewall-core (5.0.15.6-1) ...
Selecting previously unselected package shorewall.
Preparing to unpack .../shorewall_5.0.15.6-1_all.deb ...
Unpacking shorewall (5.0.15.6-1) ...
Processing triggers for systemd (232-25+deb9u13) ...
Processing triggers for man-db (2.7.6.1-2) ...
Setting up bc (1.06.95-9+b3) ...
Setting up libnetfilter-cthelper0:amd64 (1.0.0-1) ...
Setting up shorewall-core (5.0.15.6-1) ...
Setting up shorewall (5.0.15.6-1) ...
Processing triggers for systemd (232-25+deb9u13) ...
=====00007=====
--- done ---
```

再执行一遍安命令： ./local-apt-install.sh

```
root@debian:/opt/packages#
root@debian:/opt/packages#
root@debian:/opt/packages# ./local-apt-install.sh
=====BEGIN=====
Get:1 file:/opt packages/ InRelease
Ign:1 file:/opt packages/ InRelease
Get:2 file:/opt packages/ Release
Ign:2 file:/opt packages/ Release
Get:3 file:/opt packages/ Packages
Ign:3 file:/opt packages/ Packages
Get:4 file:/opt packages/ Translation-en_HK
Ign:4 file:/opt packages/ Translation-en_HK
Get:5 file:/opt packages/ Translation-en
Ign:5 file:/opt packages/ Translation-en
Get:3 file:/opt packages/ Packages
```

检查错误：除了 tracebox 之外，不允许有其他错误，错误示例：

```
Preparing to unpack dh-autoreconf_14_all.deb ...
Unpacking dh-autoreconf (14) ...
dpkg: dependency problems prevent configuration of dh-autoreconf:
dh-autoreconf depends on debhelper; however:
Package debhelper is not installed.

dpkg: error processing package dh-autoreconf (--install):
dependency problems - leaving unconfigured
Processing triggers for man-db (2.7.6.1-2) ...
Errors were encountered while processing:
 dh-autoreconf
```

● 步骤 9：执行安装包脚本：

进入安装包目录： cd /opt/grass-router-vps-2.1.2

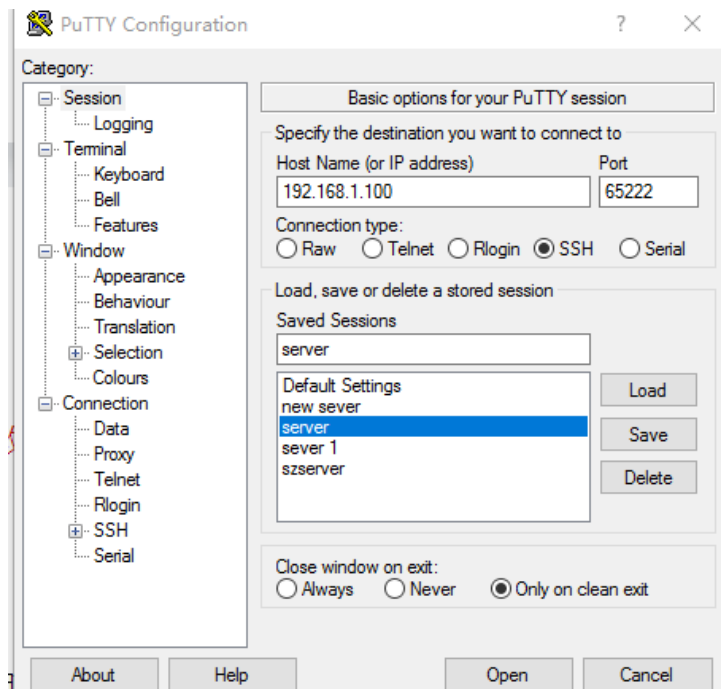
```
root@debian:~#
root@debian:~#
root@debian:~# cd /opt/grass-router-vps-2.1.2/
root@debian:/opt/grass-router-vps-2.1.2#
root@debian:/opt/grass-router-vps-2.1.2#
root@debian:/opt/grass-router-vps-2.1.2#
root@debian:/opt/grass-router-vps-2.1.2#
```

执行脚本： ./vps\_install.sh （此命令如果报错请从安装操作系统开始）





再次通过 Putty 软件登录服务器，端口号改为 65222。



进入命令行界面时，如软件弹窗提示注册改变，选 yes，进入命令行界面。

- 步骤 11: 配置 NTP 时间服务器（说明：如果部署在公网上，则 NTP 部分省略）

执行命令 `vi /etc/ntp.conf`

```
# pool.ntp.org maps to about 1000 low-stratum NTP servers. Your server will
# pick a different set every time it starts up. Please consider joining the
# pool: <http://www.pool.ntp.org/join.html>
pool 0.debian.pool.ntp.org iburst
pool 1.debian.pool.ntp.org iburst
pool 2.debian.pool.ntp.org iburst
pool 3.debian.pool.ntp.org iburst
server 127.127.1.0
fudge 127.127.1.0 stratum 0
```

将光标移到 Pool 0 这一行（使用键盘），手动按“d4d”将以下内容删掉：

```
pool 0.debian.pool.ntp.org iburst
```

```
pool 1.debian.pool.ntp.org iburst
```

```
pool 2.debian.pool.ntp.org iburst
```

```
pool 3.debian.pool.ntp.org iburst
```

再按“i”，然后输入：

```
server 127.127.1.0
```

```
fudge 127.127.1.0 stratum 0
```

然后按“ESC”键，退出输入模式，

最后，再手动输入“:x”，回车，保存修改并退出。

```
# pool.ntp.org maps to about 1000 low-stratum NTP servers. Your server will
# pick a different set every time it starts up. Please consider joining the
# pool: <http://www.pool.ntp.org/join.html>

server 127.127.1.0
fudge 127.127.1.0 stratum 0

# Access control configuration; see /usr/share/doc/ntp-doc/html/acopt.html for
```

- 步骤 12: 重启 Ntp

执行命令: `systemctl restart ntp`

```
root@debian:/etc/shorewall#
root@debian:/etc/shorewall# systemctl restart ntp
root@debian:/etc/shorewall#
root@debian:/etc/shorewall#
```

- 步骤 13: 配置 shorewall 防火墙, 允许 123 的 udp 端口

执行命令: `echo 'ACCEPT net $FW udp 123' >> /etc/shorewall/rules`

```
root@debian:/etc/shorewall# echo 'ACCEPT net $FW udp 123' >> /etc/shorewall/rules
root@debian:/etc/shorewall#
```

执行命令: `shorewall check`

```
root@debian:/etc/shorewall# shorewall check
Checking using Shorewall 5.0.15.6...
Processing /etc/shorewall/params ...
Processing /etc/shorewall/shorewall.conf...
Loading Modules...
Checking /etc/shorewall/zones...
Checking /etc/shorewall/interfaces...
Determining Hosts in Zones...
Locating Action Files...
Checking /etc/shorewall/policy...
Adding Anti-smurf Rules
Adding rules for DHCP
Checking TCP Flags filtering...
Checking Kernel Route Filtering...
Checking Martian Logging...
Checking Accept Source Routing...
Checking /etc/shorewall/tcinterfaces...
Checking /etc/shorewall/snat...
Checking MAC Filtration -- Phase 1...
Checking /etc/shorewall/rules...
Checking /etc/shorewall/contrack...
Checking MAC Filtration -- Phase 2...
Applying Policies...
Checking /usr/share/shorewall/action.Drop for chain Drop...
Checking /usr/share/shorewall/action.Broadcast for chain Broadcast...
Checking /etc/shorewall/stoppedrules...
Shorewall configuration verified
root@debian:/etc/shorewall#
```

执行命令: `shorewall save`

```
root@debian:/etc/shorewall#
root@debian:/etc/shorewall# shorewall save
Currently-running Configuration Saved to /var/lib/shorewall/restore
root@debian:/etc/shorewall#
root@debian:/etc/shorewall#
```

执行命令: `shorewall reload`

```

root@debian:/etc/shorewall# shorewall reload
Compiling using Shorewall 5.0.15.6...
Processing /etc/shorewall/params ...
Processing /etc/shorewall/shorewall.conf...
Loading Modules...
Compiling /etc/shorewall/zones...
Compiling /etc/shorewall/interfaces...
Determining Hosts in Zones...
Locating Action Files...
Compiling /etc/shorewall/policy...
Adding Anti-smurf Rules
Adding rules for DHCP
Compiling TCP Flags filtering...
Compiling Kernel Route Filtering...
Compiling Martian Logging...
Compiling Accept Source Routing...
Compiling /etc/shorewall/tcinterfaces...
Compiling /etc/shorewall/snat...
Compiling MAC Filtration -- Phase 1...
Compiling /etc/shorewall/rules...
Compiling /etc/shorewall/contrack...
Compiling MAC Filtration -- Phase 2...
Applying Policies...
Compiling /usr/share/shorewall/action.Drop for chain Drop...
Compiling /usr/share/shorewall/action.Broadcast for chain Broadcast...
Generating Rule Matrix...
Compiling /usr/share/shorewall/action.Reject for chain Reject...
Creating iptables-restore input...
Compiling /etc/shorewall/stoppedrules...
Shorewall configuration compiled to /var/lib/shorewall/.reload
Reloading Shorewall...
Initializing...
Setting up Route Filtering...
Setting up Martian Logging...
Setting up Accept Source Routing...
Setting up Traffic Control...
Preparing iptables-restore input...
Running /sbin/iptables-restore ...
IPv4 Forwarding Enabled
done.
root@debian:/etc/shorewall#

```

- 步骤 13: 检查服务器的服务应用: netstat -nulp

```

root@debian:/etc/shorewall# netstat -nulp
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State       PID/Program name
tcp        0      0 0.0.0.0:65510           0.0.0.0:*                LISTEN      366/python3
tcp        0      0 0.0.0.0:65222           0.0.0.0:*                LISTEN      413/sshd
tcp        0      0 0.0.0.0:65301           0.0.0.0:*                LISTEN      376/openvpn
tcp        0      0 127.0.0.1:25            0.0.0.0:*                LISTEN      1104/exim4
tcp        0      0 0.0.0.0:65500           0.0.0.0:*                LISTEN      544/python3
tcp6       0      0 :::65222                :::*                    LISTEN      413/sshd
tcp6       0      0 :::65101                :::*                    LISTEN      358/ss-server
tcp6       0      0 :::1:25                 :::*                    LISTEN      1104/exim4
udp        0      0 0.0.0.0:68             0.0.0.0:*                *          774/dhclient
udp        0      0 10.8.0.1:123           0.0.0.0:*                *          1568/ntpd
udp        0      0 192.168.71.129:123     0.0.0.0:*                *          1568/ntpd
udp        0      0 127.0.0.1:123          0.0.0.0:*                *          1568/ntpd
udp        0      0 0.0.0.0:123            0.0.0.0:*                *          1568/ntpd
udp6       0      0 fe80::3413:8ccf:b8b:123 :::*                    *          1568/ntpd
udp6       0      0 fe80::20c:29ff:fefc:123 :::*                    *          1568/ntpd
udp6       0      0 :::1:123                :::*                    *          1568/ntpd
udp6       0      0 :::123                  :::*                    *          1568/ntpd
udp6       0      0 :::65101                :::*                    *          358/ss-server
root@debian:/etc/shorewall#

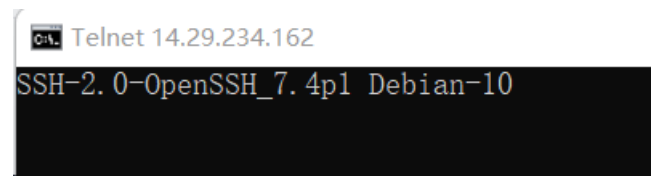
```

- 步骤 14: 配置服务器的 IP 并重启服务器
- 步骤 15: 联系网管开启服务器所需的端口
- 步骤 16: 从外部测试服务器开启的端口情况

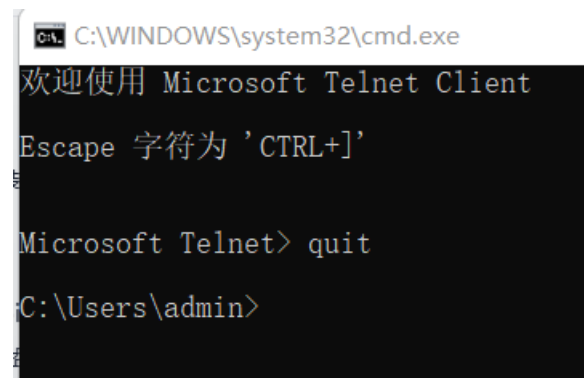
telnet 服务器 IP 65500

telnet 服务器 IP 65222

如果结果不是 timed out，即为该服务可用，如下示例，退出方法：输入“Ctrl-]”和 quit



```
C:\> Telnet 14.29.234.162
SSH-2.0-OpenSSH_7.4p1 Debian-10
```



```
C:\WINDOWS\system32\cmd.exe
欢迎使用 Microsoft Telnet Client
Escape 字符为 'CTRL+]'
Microsoft Telnet> quit
C:\Users\admin>
```

telnet 服务器 IP 65301

telnet 服务器 IP 65101

telnet 服务器 IP 65510