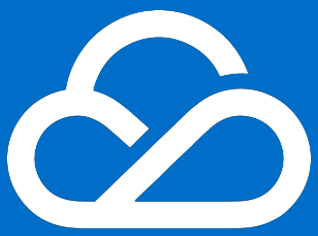
Cloud Virtual Machine

Linux CVM Operation Manual

Product Introduction



Tencent Cloud

Copyright Notice

Trademark Notice

Tencent Cloud

All trademarks associated with Tencent Cloud and its services are owned by Tencent Cloud Computing (Beijing) Company Limited and its affiliated companies. Trademarks of third parties referred to in this document are owned by their respective proprietors.

Service Statement

This document is intended to provide users with general information about Tencent Cloud's products and services only and does not form part of Tencent Cloud's terms and conditions. Tencent Cloud's products or services are subject to change. Specific products and services and the standards applicable to them are exclusively provided for in Tencent Cloud's applicable terms and conditions.

Contents

Linux CVM Operation Manual

Mounting Data Disks on Linux CVMs

Use MBR for partition and formatting

This method applies only to partitioning and formatting of hard disk less than 2TB. For any hard disk larger than 2TB, please use GPT mode.

For newly purchased Linux CVM, the data disk is unusable without being partitioned and formatted.

You can perform formatting of Linux CVM data disk by means of script formatting or manual formatting.

> Note:
>
> Once formatted, all the data in the disk will be cleared. Make sure that there is no data left in the disk or the important data has been backed up before formatting. To avoid any service exception, make sure that the CVM has stopped providing services before formatting.

1. Formatting of script (only for non-Ubuntu operating system)

The script formatting here applies only to the machine with a default user name of root. For any machine with a default user name of ubuntu, please use manual formatting.

1) Write the IP of the CVM to operate, ssh port number and the password for root account to the hosts.txt file, with each line representing one host, for example:

10.0.0.1 22 my_password

2) Click here to download formatting script.

3) Execute the following command at terminal

./batch-mkfs.py

In addition, if you want to perform the same operations in your own CVM shell, enter the following commands directly in the shell:

```
if grep -q /data /etc/fstab ; then uuid=notneed; echo /data already in fstab; else uuid=`mkfs.ext3
/dev/vdb
 > /dev/null 2>&1 && blkid /dev/vdb | awk '{print $2}'`;fi;if [[ $uuid == UUID* ]]; then echo $uuid
/data
ext3 noatime,acl,user_xattr 1 0 >> /etc/fstab; mount -a; else echo mkfs failed; fi;
```

2. Manual formatting

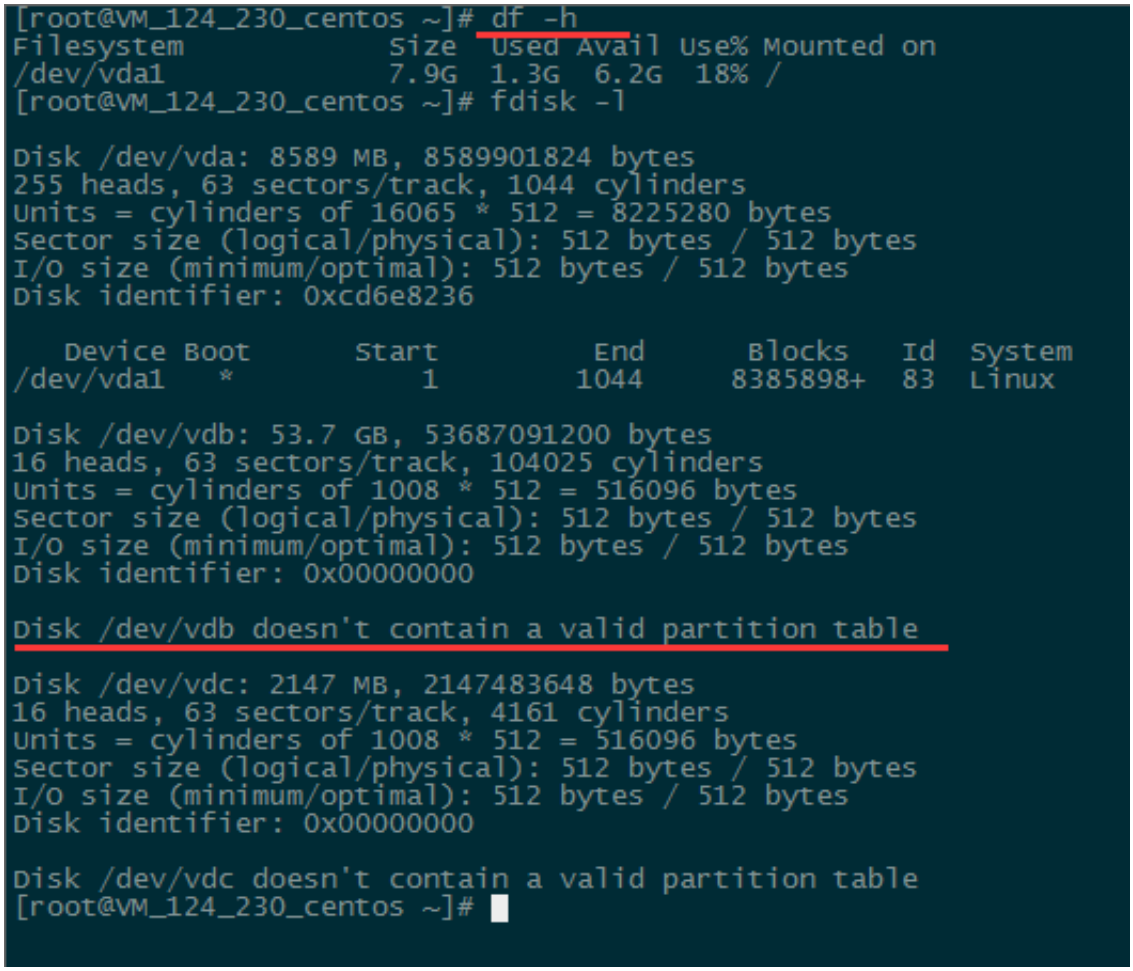
Please perform partitioning and formatting on data disk using the following steps, and mount partitions so that the data disk is usable.

> Note:
> -When executing the following commands, please remember to modify the data drive letter. You can use "fdisk -l" to check drive letter and other information. vdb is used in the following examples for illustration. To use another drive letter, simply replace vdb with the drive letter. For example, replace fdisk /dev/vdb with fdisk /dev/xvdb
>
> - Please verify that the path is “/dev/vdb”. The wrong entry of “/dev/vda” will lead to crash of CVM.

2.1. View data disk information

After logging in to Linux CVM, you can use “fdisk -l” command to view the information about data disk.

Note: Using "df- h" command will make it impossible to view unpartitioned or unformatted data disks.



2.2. Data disk partitioning

Execute the following command to partition data disk.

fdisk /dev/vdb

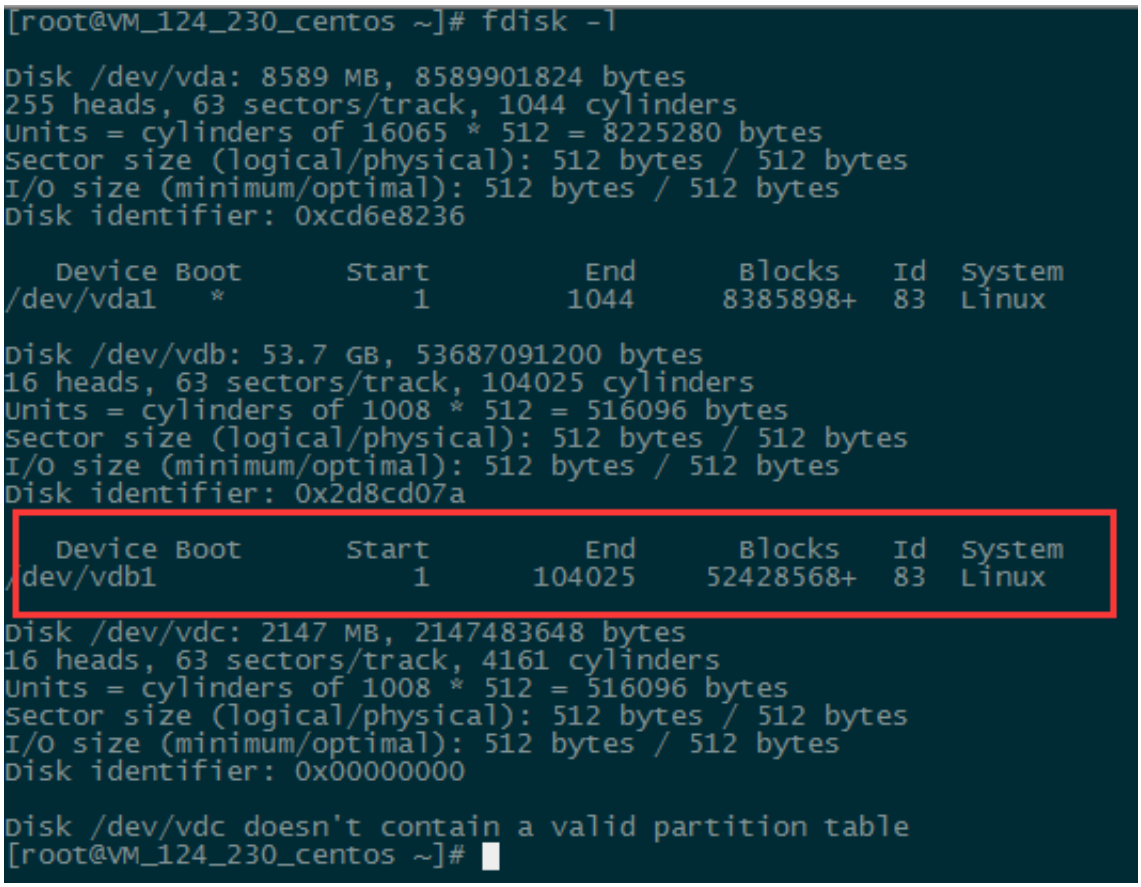
By following the instructions on the interface, enter “n” (create a new partition), “p” (create an extended partition), and “1” (use the first primary partition) in turn, press Enter twice (use default settings), and then enter “w” (save partition table) to start partitioning.

The example here creates one partition. Developers can create multiple partitions according to their needs.

```
[root@VM_124_230_centos ~]# fdisk /dev/vdb
Device contains neither a valid DOS partition table, nor Sun, SGI or OSF disklabel
Building a new DOS disklabel with disk identifier 0x2d8cd07a.
Changes will remain in memory only, until you decide to write them.
After that, of course, the previous content won't be recoverable.

Warning: invalid flag 0x0000 of partition table 4 will be corrected by w(rite)

WARNING: DOS-compatible mode is deprecated. It's strongly recommended to
         switch off the mode (command 'c') and change display units to
         sectors (command 'u').

Command (m for help): n
Command action
   e   extended
   p   primary partition (1-4)
p
Partition number (1-4): 1
First cylinder (1-104025, default 1):
Using default value 1
Last cylinder, +cylinders or +size{K,M,G} (1-104025, default 104025):
Using default value 104025

Command (m for help): wq
The partition table has been altered!

Calling ioctl() to re-read partition table.
Syncing disks.
[root@VM_124_230_centos ~]#
```

2.3. Check new partitions

Use “fdisk -l” command to check that the new partition vdb1 has been created.



2.4. Formatting of new partitions

When formatting partitions, developers can decide the file system format on their own, such as ext2, ext3 and so on. The example here uses "ext3".

Use the following command to format the new partition.

mkfs.ext3 /dev/vdb1

```
[root@VM_124_230_centos ~]# mkfs.ext3 /dev/vdb1
mke2fs 1.41.12 (17-May-2010)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=0 blocks, Stripe width=0 blocks
3276800 inodes, 13107142 blocks
655357 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=4294967296
400 block groups
32768 blocks per group, 32768 fragments per group
8192 inodes per group
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
        4096000, 7962624, 11239424

Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done

This filesystem will be automatically checked every 35 mounts or
180 days, whichever comes first.  Use tune2fs -c or -i to override.
```

2.5. Mount new partitions

Use the following command to create mydata directory:

mkdir /mydata

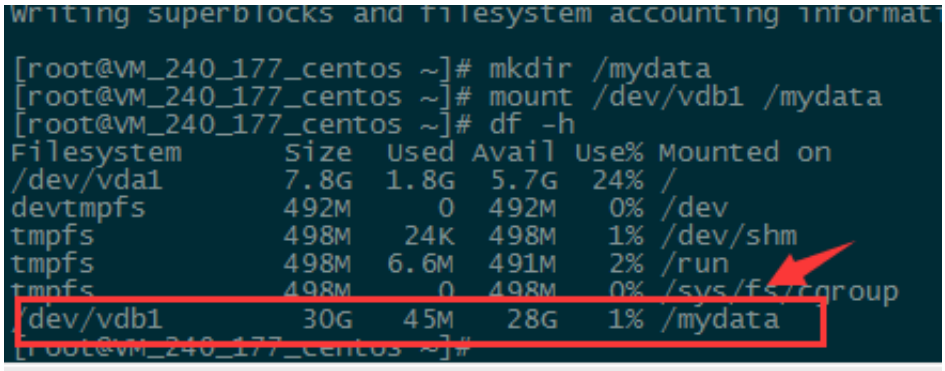
Then use the following command to manually mount the new partition:

mount /dev/vdb1 /mydata

Finally, use the following command to make a check

df -h

The appearance of the message as shown below indicates that the mounting is successful and you can view the data disk.



2.6. Add partition information

If you want the data disk to be automatically mounted to CVM when CVM is restarted or booted up, you need to add the partition information to /etc/fstab. If you do not, the data disk will not be automatically mounted to the CVM when the CVM is restarted or booted up.

> Note: Please verify whether the partition path is "/dev/vdb1" . Wrong path will lead to the failure of restarting of CVM.

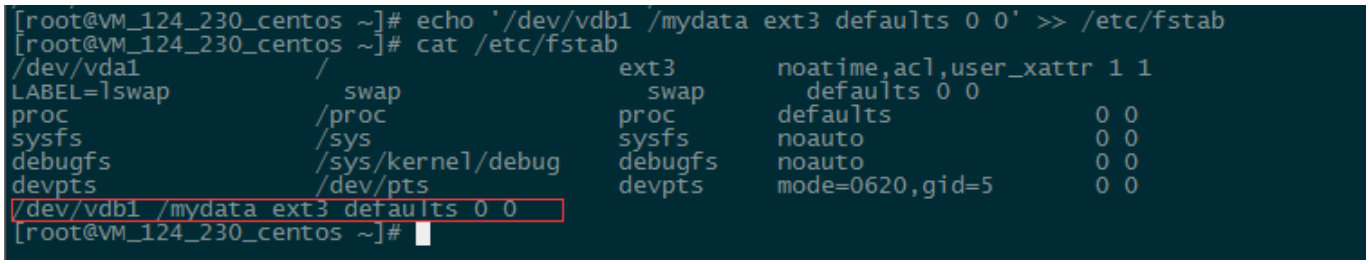
Use the following command to add partition information:

```
echo '/dev/vdb1 /mydata ext3 defaults 0 0' >> /etc/fstab
```

Use the following command to make a check.

```
cat /etc/fstab
```

The appearance of the message as shown below indicates that the partition information has been successfully added.



Use GPT for partition and formatting

For newly purchased Linux CVM, the data disk is unusable without being partitioned and formatted.

Note:

Once formatted, all the data in the disk will be cleared. Make sure that there is no data left in the disk or the important data has been backed up before formatting. To avoid any service exception, make sure that the CVM has stopped providing services before formatting.

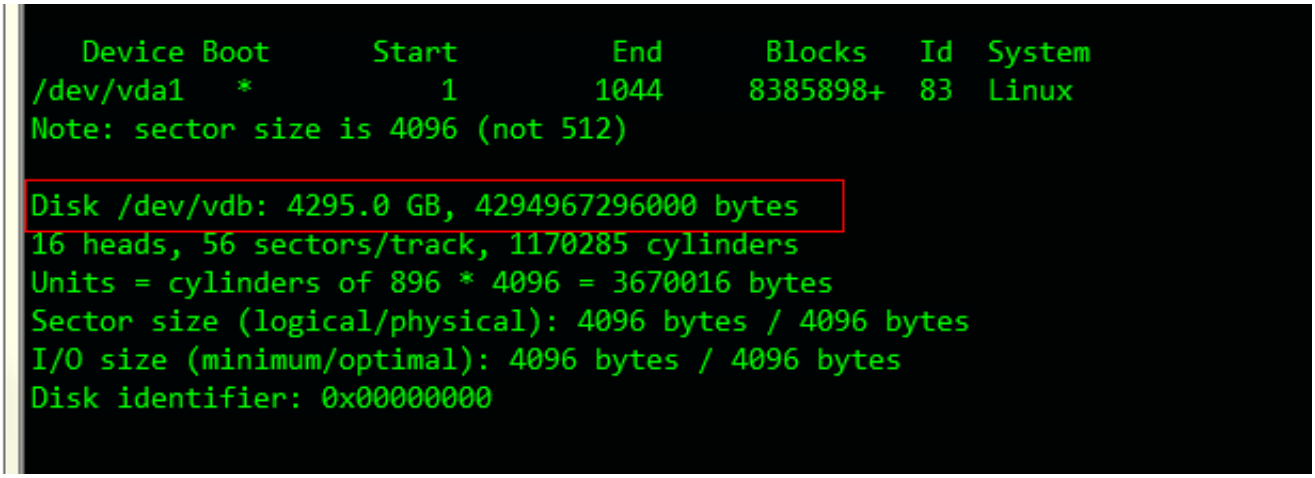
1. View the list of disks

Use the following command to view the disk device list:

fdisk –l

For FreeBSD system, please use the following command:

diskinfo -v /dev/vtbd1



```
root@VM_126_89_freebsd:~ # diskinfo -v /dev/vtbd1
/dev/vtbd1
        4096            # sectorsize
        10737418240     # mediasize in bytes (10G)
        2621440         # mediasize in sectors
        0               # stripesize
        0               # stripeoffset
        2925            # Cylinders according to firmware.
        16              # Heads according to firmware.
        56              # Sectors according to firmware.
                        # Disk ident.
```

2. Create GPT partitions

Use parted tool to create GPT partitions

```
[root@VM_74_161_centos ~]# parted /dev/vdb
GNU Parted 2.1
Using /dev/vdb
Welcome to GNU Parted! Type 'help' to view a list of commands.
(parted) mklabel gpt
(parted) print
Model: Virtio Block Device (virtblk)
Disk /dev/vdb: 4295GB
Sector size (logical/physical): 4096B/4096B
Partition Table: gpt

Number  Start  End  Size  File system  Name  Flags

(parted) mkpart primary 0 4295GB
Warning: The resulting partition is not properly aligned for best performance.
Ignore/Cancel? Ignore
(parted) print
Model: Virtio Block Device (virtblk)
Disk /dev/vdb: 4295GB
Sector size (logical/physical): 4096B/4096B
Partition Table: gpt

Number  Start   End     Size    File system  Name     Flags
 1      24.6kB  4295GB  4295GB               primary

(parted) quit
Information: You may need to update /etc/fstab.

[root@VM_74_161_centos ~]#
```

For FreeBSD system, please follow the following steps:

Execute ‘gpart create -s gpt vtbd1`command

```
root@VM_126_89_freebsd:~ # gpart create -s gpt vtbd1
vtbd1 created
```

Execute 'gpart add -t freebsd-ufs -a 1M vtbd1' command

```
root@VM_126_89_freebsd:~ # gpart add -t freebsd-ufs -a 1M vtbd1
vtbd1p1 added
```

3. View new partition information

You can use the following command to view the new partition information after a partition is created:

fdisk –l

```
Disk /dev/vdb: 4295.0 GB, 4294967296000 bytes
255 heads, 63 sectors/track, 65270 cylinders
Units = cylinders of 16065 * 4096 = 65802240 bytes
Sector size (logical/physical): 4096 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes
Disk identifier: 0x00000000

   Device Boot      Start         End      Blocks   Id  System
/dev/vdb1               1       65271  4194303996   ee  GPT
```

4. Formatting of partitions

Use mkfs tool to format partitions

```
[root@VM_74_161_centos ~]# mkfs.ext4 -T largefile /dev/vdb1
mke2fs 1.41.12 (17-May-2010)
Filesystem label=
OS type: Linux
Block size=4096 (log=2)
Fragment size=4096 (log=2)
Stride=1 blocks, Stripe width=0 blocks
4096000 inodes, 1048575989 blocks
52428799 blocks (5.00%) reserved for the super user
First data block=0
Maximum filesystem blocks=4294967296
32000 block groups
32768 blocks per group, 32768 fragments per group
128 inodes per group
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
        4096000, 7962624, 11239424, 20480000, 23887872, 71663616, 78675968,
        102400000, 214990848, 512000000, 550731776, 644972544

Writing inode tables: done
Creating journal (32768 blocks): done
Writing superblocks and filesystem accounting information: done

This filesystem will be automatically checked every 22 mounts or
180 days, whichever comes first.  Use tune2fs -c or -i to override.
```

For FreeBSD system, use newfs tool to format partitions. Enter the following command:

newfs -j /dev/vtbd1p1

5. Mount new partitions

Use the following command to mount a new partition after formatting is completed.

mount file system partition path mount point

Now use the following command to check the remaining capacity of disk.

df –h

```
[root@VM_74_161_centos ~]# mount -t ext4 /dev/vdb1 /data
[root@VM_74_161_centos ~]# df -h
Filesystem            Size  Used Avail Use% Mounted on
/dev/vda1             7.9G  926M  6.6G  13% /
/dev/vdb1             4.0T  195M  3.8T   1% /data
root@VM_126_89_freebsd:~ # mount /dev/vtbd1p1 /data/
root@VM_126_89_freebsd:~ # df -h
Filesystem      Size    Used   Avail Capacity  Mounted on
/dev/vtbd0p2    7.7G    1.6G    5.5G    23%    /
devfs           1.0K    1.0K      0B   100%    /dev
/dev/vtbd1p1    9.7G     32M    8.9G     0%    /data
```

6. Set up Auto Mount

Modify fstabl file to set it to mount the new partition automatically during system restart. Add the content in the last line as shown below.

```
[root@VM_74_161_centos ~]# vi /etc/fstab

/dev/vda1               /                       ext3       noatime,acl,user_xattr 1 1
/dev/vdc                swap                    swap       defaults 0 0
proc                    /proc                   proc       defaults               0 0
sysfs                   /sys                    sysfs      noauto                 0 0
debugfs                 /sys/kernel/debug       debugfs    noauto                 0 0
devpts                  /dev/pts                devpts     mode=0620,gid=5        0 0
/dev/vdb1               /data                   ext4       defaults               0 0
~
```

For FreeBSD system, modify /etc/fstab file to set it to mount the new partition automatically during system restart. Add the content in the last line as shown below.

```
# Device        Mountpoint      FStype  Options Dump    Pass#
/dev/vtbd0p2    /               ufs     rw      1       1
/dev/vtbd1p1    /               ufs     rw      0       0
```

Read/write NTFS Data Disks after Reinstalling a Windows CVM to Linux CVM

Windows file system typically uses NTFS or FAT32 format, while Linux file system often uses EXT series format. When the operating system is reinstalled and changed from Windows to Linux, its type has changed but the data disk remains the old format. Thus, denied access to the data disk file system may occur in the reinstalled system. You can perform the following operations on the reinstalled Linux CVM to read data from the data disk of the original Windows system:

1) Use the following command to install ntfsprogs software on the Linux system so that Linxu can support NTFS file system:

yum install ntfsprogs

2) Mount the data disk under Windows to Linux CVM. Skip this step if the data disk has already been mounted.

Log in to Tencent Cloud console, enter "Cloud Virtual Machine" - "Cloud Block Storage" tab, click on the Windows data disk to be mounted, and then click "More" - "Mount to Cloud Virtual Machine" button. Select reinstalled Linux CVM in the pop-up box, then click "Confirm".

3) Use

parted -l

command to check the data disk mounted from Windows:

```
Model: Virtio Block Device (virtblk)
Disk /dev/vde: 21.5GB
Sector size (logical/physical): 512B/512B
Partition Table: gpt

Number  Start   End     Size    File system  Name                          Flags
 1      17.4kB  134MB   134MB                Microsoft reserved partition  msftres
 2      135MB   3331MB  3196MB  ntfs         Basic data partition
```

4) Use `mount -t ntfs-3g data disk path mount point' command to mount the data disk:

```
[root@VM_127_193_centos ~]# mount -t ntfs-3g /dev/vde2 mnt/
[root@VM_127_193_centos ~]# ls mnt/
$RECYCLE.BIN  test.txt
```

5) Since the file system is identifiable, Linux system can directly perform read and write operations on the mounted data disk.

Environment Configurations

LNMP Environment Configurations for CentOS

Make sure that you have followed the steps in Installing Software via YUM in CentOS Environment to install the necessary software.

1. Configuration of nginx

1) Start nginx service

Start the nginx with the following command:

```
service nginx restart
```

2) Test whether nginx service is working properly

Test with the following command:

```
wget http://127.0.0.1
```

If the result is as shown below and displays "'index.html' saved" at the end, it means the nginx service is working properly.

```
--2013-02-20 17:07:26-- http://127.0.0.1/
Connecting to 127.0.0.1:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 151 [text/html]
Saving to: 'index.html'
100
%[==========================================================
============================>] 151 --.-K/s in 0s
2013-02-20 17:07:26 (37.9 MB/s) - 'index.html' saved [151/151]
```

3) In the browser, visit the Public IP of CentOS CVM to check if the nginx service is working properly.

The appearance of the following page indicates that nginx has been installed and configured successfully:

2. Configuration of PHP

2) Start php-fpm

Start php-fpm service with the following command

service php-fpm start

2) Modify the configurations of php-fpm and nginx to achieve the linkage between nginx and php.

View the php-fpm default configuration using the following command:

cat /etc/php-fpm.d/www.conf |grep -i 'listen ='

Returned results are:

listen = 127.0.0.1:9000

The above result suggests that the listener port of php-fpm by default is 9000. Now, you only need to modify the configuration and forward the request parsed by php to 127.0.0.0: 9000.

Use the following command to find nginx configuration file:

nginx -t

And use vi command to modify the configuration file:

```
[root@VM_198_149_centos conf.d]# nginx -t
nginx: the configuration file /etc/nginx/nginx.conf syntax is ok
nginx: configuration file /etc/nginx/nginx.conf test is successful
[root@VM_198_149_centos conf.d]# vi /etc/nginx/nginx.conf
```

Locate the following segment in the configuration file and modify the red part.

```
server {
  listen 80;
  root /usr/share/nginx/html;
  server_name localhost;

  #charset koi8-r;
  #access_log /var/log/nginx/log/host.access.log main;

  location / {
  index index.html index.htm;
  }

  #error_page 404 /404.html;

  # redirect server error pages to the static page /50x.html
  #
  error_page 500 502 503 504 /50x.html;
  location = /50x.html {
```

```
root /usr/share/nginx/html;
}

# pass the PHP scripts to FastCGI server listening on 127.0.0.1:9000
#
location ~ \.php$ {
fastcgi_pass 127.0.0.1:9000;
fastcgi_index index.php;
fastcgi_param SCRIPT_FILENAME $document_root$fastcgi_script_name;
include fastcgi_params;
}

}
```

After modification, press "Esc" key and enter ":wq", save the file and then return.

Check whether the configuration is correct using the following command:

```
cat /etc/nginx/nginx.conf
```

3. Restart the service

Restart nginx using the following command to make the configuration effective:

```
service nginx restart
```

The results are as follows:

```
Stopping nginx: [ OK ]
Starting nginx: [ OK ]
```

4. Environment configuration validation

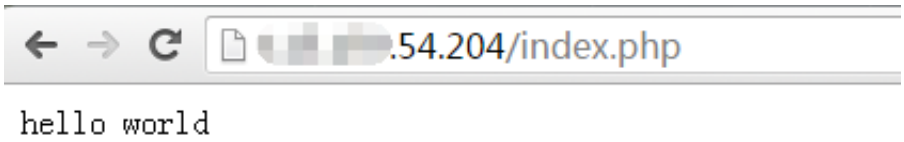
Create index.php under a web directory using the following command:

vim /usr/share/nginx/html/index.php

Write the following:

```
<?php
echo "<title>Test Page</title>";
echo "hello world";
?>
```

In the browser, visit the Public IP of CentOS CVM to check whether the environment configuration is successful. If the webpage shows "hello world", it means the configuration is successful.



LNMP Environment Configurations for SUSE

Make sure that you have followed the steps in Installing Software via YAST in SUSE Environment install the necessary software.

1. Configuration of nginx

1) Start nginx service

Start the nginx with the following command:

```
service nginx restart
```

2) Test whether nginx service is working properly

Test with the following command:

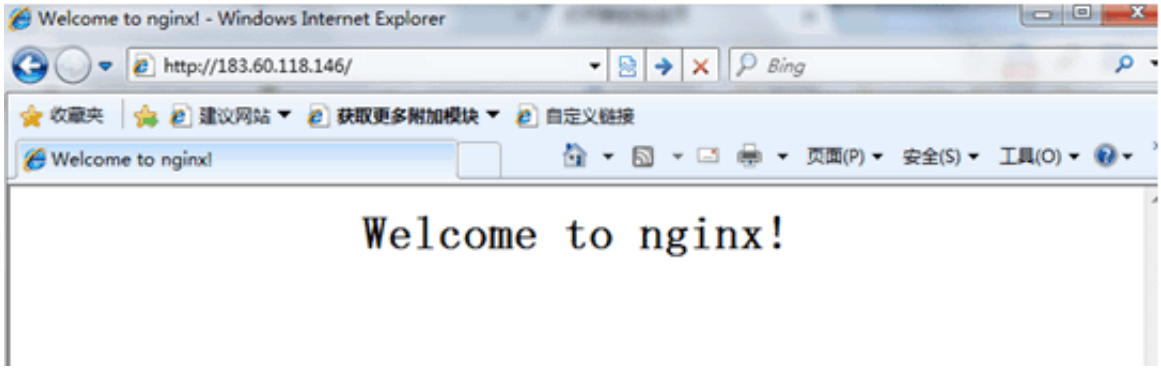
```
wget http://127.0.0.1
```

If the result is as shown below and displays "'index.html' saved" at the end, it means the nginx service is working properly.

```
--2013-02-20 17:07:26-- http://127.0.0.1/
Connecting to 127.0.0.1:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 151 [text/html]
Saving to: 'index.html'
100
%[==========================================================
============================>] 151 --.-K/s in 0s
2013-02-20 17:07:26 (37.9 MB/s) - 'index.html' saved [151/151]
```

3) In the browser, visit the Public IP of CentOS CVM to check if the nginx service is working properly.

The appearance of the following page indicates that nginx has been installed and configured successfully:



2. Configuration of PHP

1) Create a new configuration file php-fpm.conf with the following command:

vim /etc/php5/fpm/php-fpm.conf

Write the following:

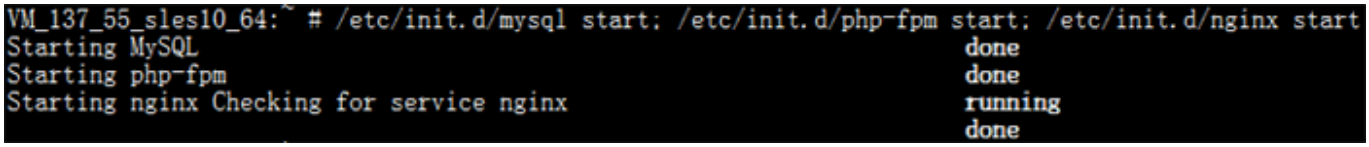
```
[global]
error_log = /var/log/php-fpm.log
[www]
user = nobody
group = nobody
listen = 127.0.0.1:9000
pm = dynamic
pm.max_children = 5
pm.start_servers = 2
pm.min_spare_servers = 1
pm.max_spare_servers = 3
```

3. Start services

Start all services with the following commands:

/etc/init.d/mysql start; /etc/init.d/php-fpm start; /etc/init.d/nginx start

Example:



4. Environment configuration validation

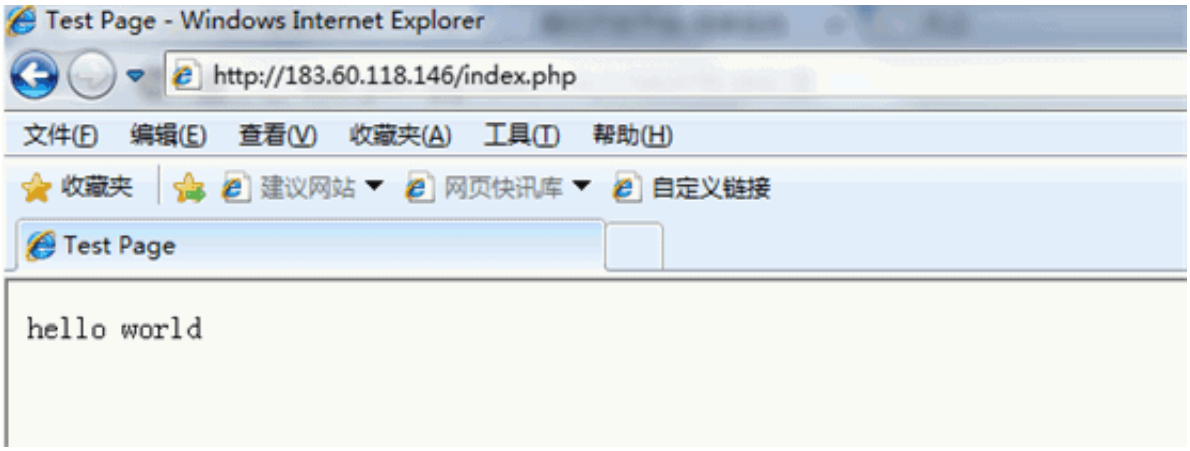
Create index.php under a web directory using the following command:

vim /usr/share/nginx/html/index.php

Write the following:

```
<?php
echo "<title>Test Page</title>";
echo "hello world";
?>
```

In the browser, visit the Public IP of SUSE CVM to check whether the environment configuration is successful. If the webpage shows "hello world", it means the configuration is successful.



LNMP Environment Configurations for Ubuntu

Make sure that you have followed the steps in Installing Software via Apt-get in Ubuntu Environment to install the necessary software.

1. Configuration of nginx

1) Start nginx service

Start the nginx with the following command:

sudo /etc/init.d/nginx start

2) Test whether nginx service is working properly

Test with the following command:

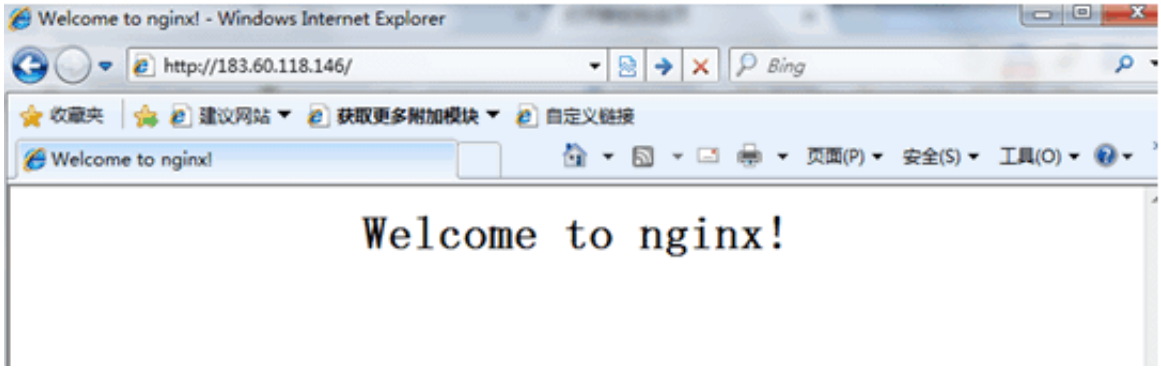
wget http://127.0.0.1

If the result is as shown below and displays "'index.html' saved" at the end, it means the nginx service is working properly.

--2013-02-20 17:07:26-- http://127.0.0.1/
Connecting to 127.0.0.1:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 151 [text/html]
Saving to: 'index.html'
100
%[==========>] 151 --.-K/s in 0s
2013-02-20 17:07:26 (37.9 MB/s) - 'index.html' saved [151/151]

3) In the browser, visit the Public IP of Ubuntu CVM to check if nginx service is working properly.

The appearance of the following page indicates that nginx has been installed and configured successfully:



2. Configuration of PHP

1) Confirm the starting mode of php
Confirm the starting mode in /etc/php5/fpm/pool.d/www.conf (The example environment is ubuntu12, php5.3, and the php configuration path may vary with different versions), and check the listener method of php by searching with the keyword listen:

listen = /var/run/php5-fpm.sock
Listen = 127.0.0.1:9000; can listen into the sock method above, and please add the line separately when using ip:port

2) Start php-fpm

Here, no configuration modifications are made to php under ubuntu12. Use the following command to start php-fpm service:

sudo /etc/init.d/php5-fpm start

3) Modify the configurations of php-fpm and nginx to achieve the linkage between nginx and php.

View the php-fpm default configuration using the following command:

sudo netstat -tunpl | grep php-fpm

Example:

```
root@VM-139-150-ubuntu:~# sudo netstat -tunpl | grep php-fpm
tcp        0      0 127.0.0.1:9000          0.0.0.0:*               LISTEN      2698/php-fpm.conf)
root@VM-139-150-ubuntu:~#
```

The above result suggests that the listener port of php-fpm by default is 9000. Now, you only need to modify the configuration and forward the request parsed by php to 127.0.0.0: 9000.

Modify the configuration of nginx with the following command:

sudo vim /etc/nginx/sites-available/default

Locate the following contents, and add supported file type. After addition, it is shown as follows:

```
server {
        #listen   80; ## listen for ipv4; this line is default and implied
        #listen   [::]:80 default ipv6only=on; ## listen for ipv6

        root /usr/share/nginx/www;
        index index.html index.htm index.php;
```

Enter the following content at the end of the configuration file:

```
location ~ \.php$ {
  fastcgi_pass 127.0.0.1:9000;
  #Fastcgi_pass unix:/var/run/php5-fpm.sock; # select the starting mode of php based on the actual listening result of php
  fastcgi_index index.php;
  include fastcgi_params;
}
```

After modification, press "Esc" key and enter ":wq", save the file and then return.

Check whether the configuration is correct using the following command:

sudo cat /etc/nginx/sites-available/default

3. Restart the service

1) Use the following command to restart php-fpm:

sudo /etc/init.d/php5-fpm restart

The results are as follows:

* Restarting PHP5 FastCGI Process Manager php5-fpm
...done.

2) Restart nginx using the following command to make the configuration effective:

sudo /etc/init.d/nginx restart

The results are as follows:

Restarting nginx: nginx.

4. Environment configuration validation

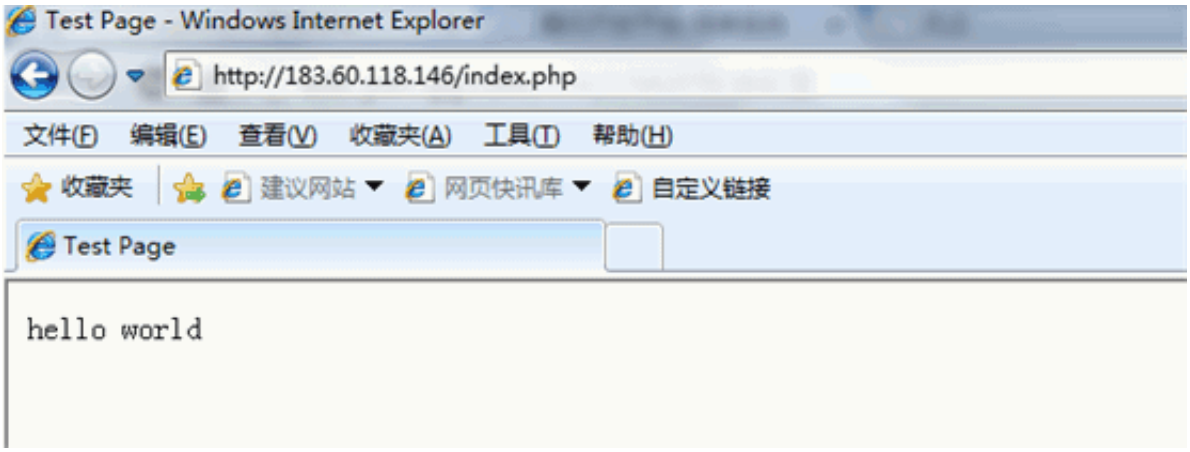
Create index.php under a web directory using the following command:

sudovim /usr/share/nginx/www/index.php

Write the following:

```
<?php
echo "<title>Test Page</title>";
echo "hello world";
?>
```

In the browser, visit the Public IP of Ubuntu CVM to check whether the environment configuration is successful. If the webpage shows "hello world", it means the configuration is successful.



Linux Power Management Configuration

A Linux system without an acpi management program will suffer failures of soft shutdown. Therefore, make sure that the acpi (power management for Linux) module has been installed on your CVM.

Checking method

Check whether the acpi has been installed using the following command:

ps -ef|grep -w "acpid"|grep -v "grep"

If there's no such process, it hasn't been installed. Then you need to follow the next step to install the module. If there's such process, the next step can be ignored.

Installation method

Use the following command to install the acpi module.

1) For Ubuntu/Debian system

sudo apt-get install acpid

2) For Redhat/CentOS system

yum install acpid

3) For SUSE system

in apcid

Note: The CoreOS system doesn't have such problem.

Reset Passwords of Activated Linux CVMs

If you need to reset password for a batch of Linux CVMs without shutting them down, you can download the reset script (Click here to download) to batch reset password online.

> Note: If you run the script on a machine of public network, the ip added to the hosts.txt file must be the Public IP of the host. If the script is run on the private network CVM of Tencent Cloud, you can fill in the Private IP of the host.

The using method of script is as follows.

Input the ip of CVM to be operate on, ssh port, account, old and new passwords into the hosts.txt file. Each line represents a host, for example:

10.0.0.1 22 root old_passwd new_passwd
10.0.0.2 22 root old_passwd new_passwd

Run the following code:

./batch-chpasswd.py

Example of returned results:

---

change password for root@10.0.0.1
spawn ssh root@10.0.0.1 -p 22
root's password:
Authentication successful.
Last login: Tue Nov 17 20:22:25 2015 from 10.181.225.39
[root@VM_18_18_centos ~]# echo root:root | chpasswd

[root@VM_18_18_centos ~]# exit

logout

---

change password for root@10.0.0.2

spawn ssh root@10.0.0.2 -p 22

root's password:

Authentication successful.

Last login: Mon Nov 9 15:19:22 2015 from 10.181.225.39

[root@VM_19_150_centos ~]# echo root:root | chpasswd

[root@VM_19_150_centos ~]# exit

logout

Code Deployment

Upload Files via WinSCP

WinSCP is an open source graphical SFTP client that uses SSH in Windows environment and supports SCP protocol. Its main function is to copy files between the local and remote computers safely. Instead of using FTP to upload code, you can use the server account and password to access the server directly via WinSCP, without any configuration on the server side. Download address: Official Download Download at Pacific Download Center

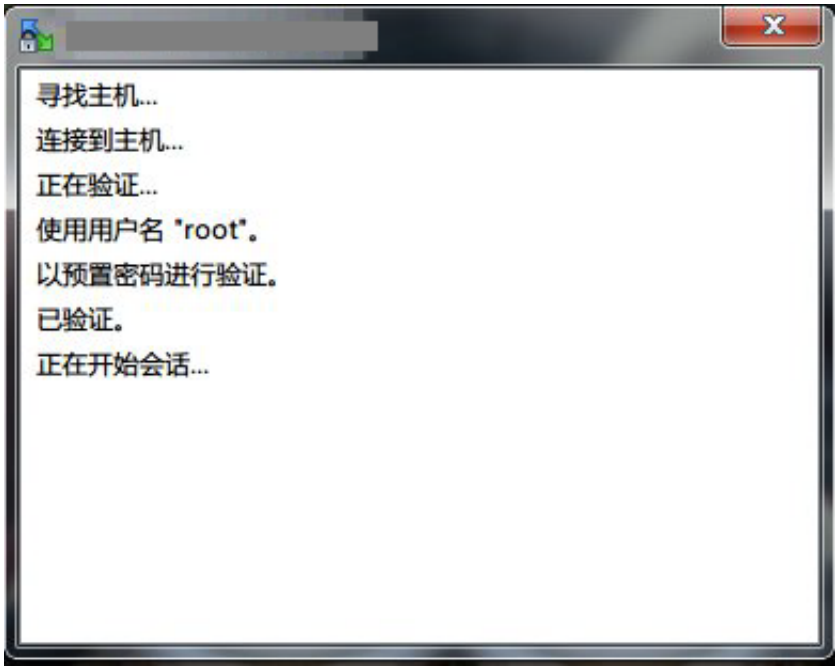
Start WinSCP after installation. The interface is as follows. Fill in the information as shown and log in.

How to fill in the fields:

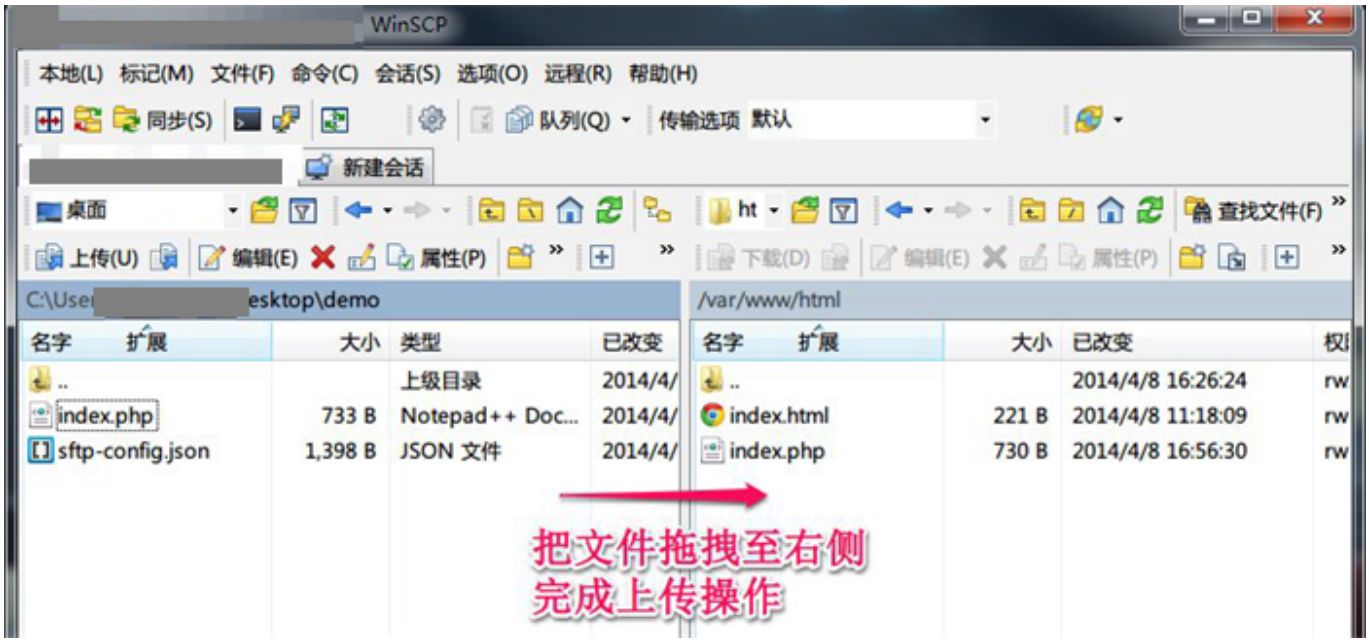
- Protocol: either SFTP or SCP is OK
- Host Name: Public IP of CVM (Log into CVM Console to view the Public IP of CVM)
- Username: the system username for CVM (SUSE/CentOS/Debian: root, Windows: Administrator, Ubuntu: ubuntu)

- Password: the password corresponding to the username of CVM
- Port: 22 by default

Click on Log In after completing the information. The interface is as follows:



After successful login, select a local file and drag it to the remote site on the right, and then you can upload the file to the Linux CVM.



Upload Files via FTP

You can use FTP channel to upload application from your own server to CVM.

1. Configure FTP service on CVM

1) Run the following commands as root to install Vsftp (take CentOS system as an example):

yum install vsftpd

2) Before starting the vsftpd service, you need to log into the CVM to modify configuration files to disable anonymous login.

Open the configuration file with the following command:

vim /etc/vsftpd/vsftpd.conf

Change

anonymous_enable=YES (on the 11th line in the configuration file)

to

anonymous_enable=NO

to disable anonymous login.

3) Read the effective configuration.

cat /etc/vsftpd/vsftpd.conf |grep ^[^#]

The following results will be returned:

local_enable=YES
write_enable=YES
local_umask=022
anon_upload_enable=YES
anon_mkdir_write_enable=YES
anon_umask=022
dirmessage_enable=YES
xferlog_enable=YES
connect_from_port_20=YES
xferlog_std_format=YES
listen=YES
pam_service_name=vsftpd
userlist_enable=YES
tcp_wrappers=YES

4) Start vsftpd service.

service vsftpd start

5) Set up an FTP user account.
Set up an FTP user account by running the following command:

useradd

For example, if the account is "ftpuser1", the directory is /home/ftpuser1, and login via ssh is not allowed:

useradd -m -d /home/ftpuser1 -s /sbin/nologin ftpuser1

And set a password for the account using the following command:

passwd

For example, setting the password for the above account as "ftpuser1":

passwd ftpuser1

After setting these up, you can log on to the FTP server using the account.

6) Modify the pam configuration of vsftpd, so that users can connect to the CVM via the account and password they set by themselves.

Use the following command to modify the pam:

vim /etc/pam.d/vsftpd

Modify to:

#%PAM-1.0
auth required /lib64/security/pam_listfile.so item=user sense=deny file=/etc/ftpusers onerr=succeed
auth required /lib64/security/pam_unix.so shadow nullok
auth required /lib64/security/pam_shells.so
account required /lib64/security/pam_unix.so
session required /lib64/security/pam_unix.so

Confirm whether the modified file is correct using the following command:

cat /etc/pam.d/vsftpd

Returned results are:

auth required /lib64/security/pam_listfile.so item=user sense=deny file=/etc/ftpusers onerr=succeed
auth required /lib64/security/pam_unix.so shadow nullok
auth required /lib64/security/pam_shells.so
account required /lib64/security/pam_unix.so
session required /lib64/security/pam_unix.so

Restart the vsftpd service using the following command to make the modification effective:

service vsftpd restart

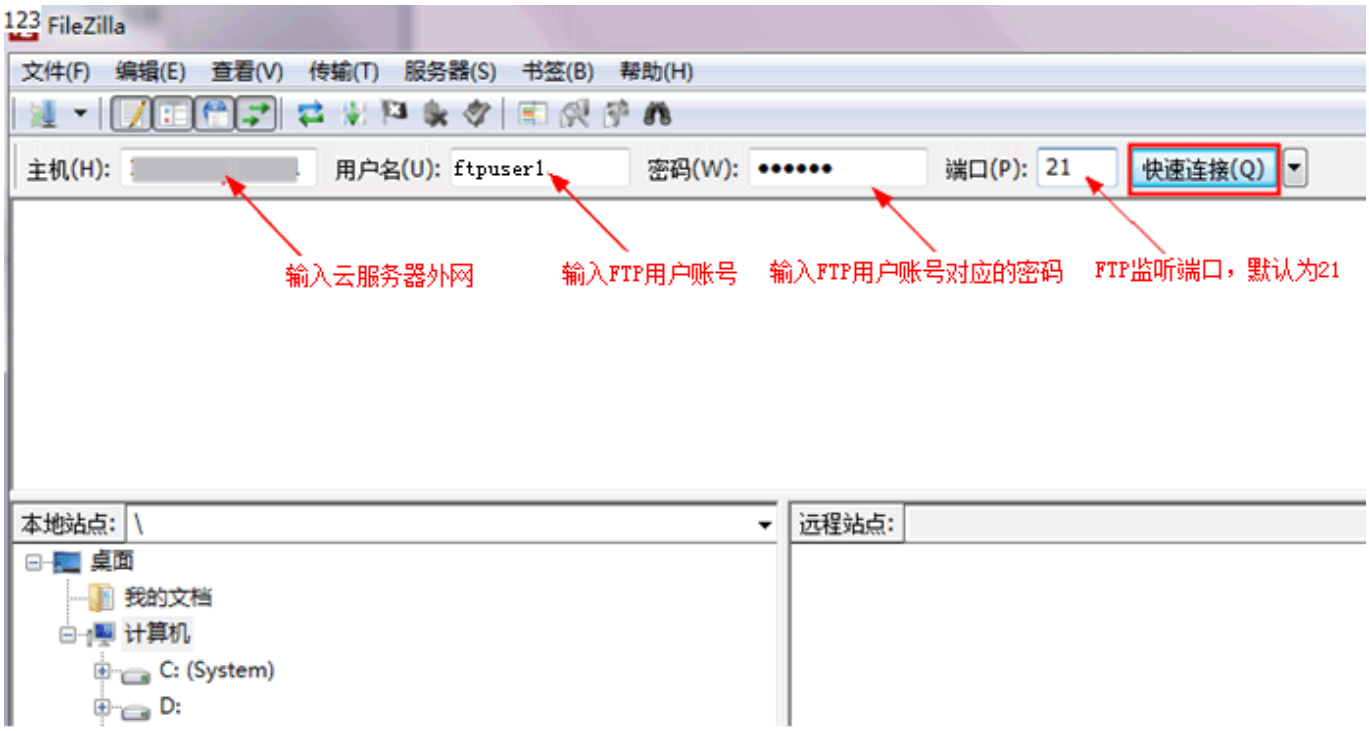
The results are:

Shutting down vsftpd: [OK]
Starting vsftpd for vsftpd: [OK]

2. Upload files to Linux CVM

1) Download and install open source software FileZilla
Please use FileZilla Ver. 3.5.1 or 3.5.2 (Using FileZilla Ver. 3.5.3 for FTP uploading will lead to problems).
Since FileZilla official site only provides the latest Ver.3.5.3 for download, you are recommended to search for download links for Ver.3.5.1 or 3.5.2 on your own. Recommended download link for Ver. 3.5.1: http://www.oldapps.com/filezilla.php?old_filezilla=6350

2) Connect to FTP
Run FileZilla, make settings as shown below, and then click "Quick Links".



Description of the settings:

- Host: Public network IP of CVM (Log in to CVM Console page to view the public network IP of CVM).
- User Name: ID of the FTP user account set in the previous step (here “ftpuser1” is used as example).
- Password: Password of the FTP user account set in the previous step (here “ftpuser1” is used as example).
- Port: FTP listener port, default is "21".

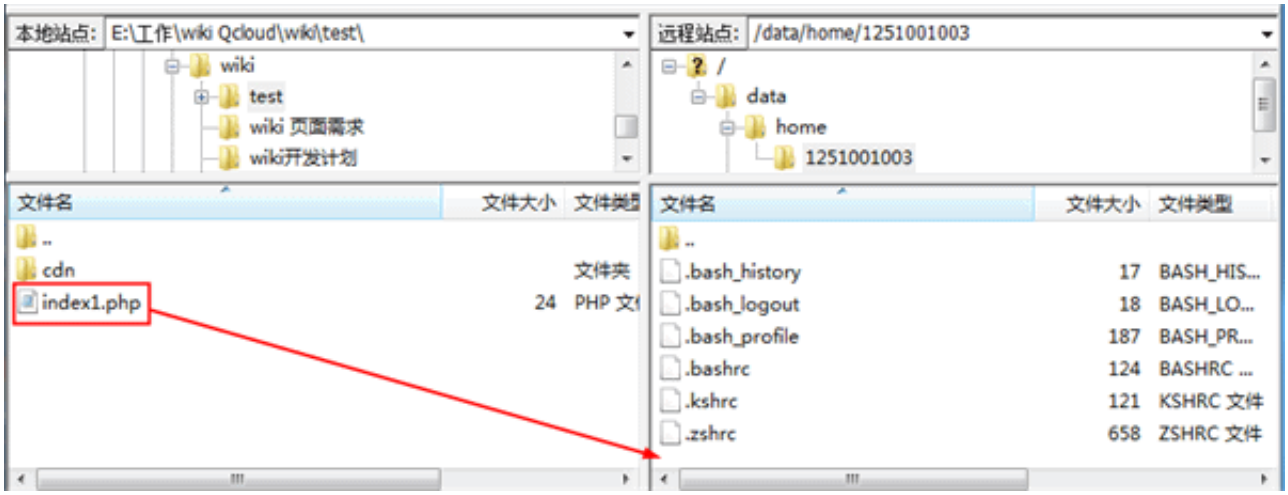
3) Upload files to Linux CCVM

When uploading a file, select the local file with the mouse and drag it to the remote site to upload it to Linux CVM.

Note: CVM FTP path does not support automatic unzipping or deletion of uploaded tar zip

files.

The following figure shows how to upload the files:



Upload Files via SCP

Linux machine can upload files to Linux CVM with the following commands:

scp local file address CVM login name@CVM public network IP/domain name CVM file location

For example, upload local file "/home/lnmp0.4.tar.gz" to the directory for the CentOS CVM with IP of 129.20.0.2:

scp /home/Inmp0.4.tar.gz root@129.20.0.2 /home/Inmp0.4.tar.gz

Press "Enter" and type in login password to complete the upload.

Installing Software

Install Software via Apt-get under Ubuntu Environment

Make sure that you have followed the steps in Installing Software via Apt-get in Ubuntu Environment to install the necessary software.

1. Configuration of nginx

1) Start nginx service

Start the nginx with the following command:

sudo /etc/init.d/nginx start

2) Test whether nginx service is working properly

Test with the following command:

wget http://127.0.0.1

If the result is as shown below and displays "'index.html' saved" at the end, it means the nginx service is working properly.

--2013-02-20 17:07:26-- http://127.0.0.1/
Connecting to 127.0.0.1:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 151 [text/html]
Saving to: 'index.html'
100
%[==========>] 151 --.-K/s in 0s
2013-02-20 17:07:26 (37.9 MB/s) - 'index.html' saved [151/151]

3) In the browser, visit the Public IP of Ubuntu CVM to check if nginx service is working properly.

The appearance of the following page indicates that nginx has been installed and configured successfully:

2. Configuration of PHP

1) Confirm the starting mode of php
Confirm the starting mode in /etc/php5/fpm/pool.d/www.conf (The example environment is ubuntu12, php5.3, and the php configuration path may vary with different versions), and check the listener method of php by searching with the keyword listen:

listen = /var/run/php5-fpm.sock
Listen = 127.0.0.1:9000; can listen into the sock method above, and please add the line separately when using ip:port

2) Start php-fpm

Here, no configuration modifications are made to php under ubuntu12. Use the following command to start php-fpm service:

sudo /etc/init.d/php5-fpm start

3) Modify the configurations of php-fpm and nginx to achieve the linkage between nginx and php.

View the php-fpm default configuration using the following command:

sudo netstat -tunpl | grep php-fpm

Example:

```
root@VM-139-150-ubuntu:~# sudo netstat -tunpl | grep php-fpm
tcp        0      0 127.0.0.1:9000          0.0.0.0:*               LISTEN      2698/php-fpm.conf)
root@VM-139-150-ubuntu:~#
```

The above result suggests that the listener port of php-fpm by default is 9000. Now, you only need to modify the configuration and forward the request parsed by php to 127.0.0.0: 9000.

Modify the configuration of nginx with the following command:

sudo vim /etc/nginx/sites-available/default

Locate the following contents, and add supported file type. After addition, it is shown as follows:

```
server {
        #listen   80; ## listen for ipv4; this line is default and implied
        #listen   [::]:80 default ipv6only=on; ## listen for ipv6

        root /usr/share/nginx/www;
        index index.html index.htm index.php;
```

Enter the following content at the end of the configuration file:

```
location ~ \.php$ {
  fastcgi_pass 127.0.0.1:9000;
  #Fastcgi_pass unix:/var/run/php5-fpm.sock; # select the starting mode of php based on the actual listening result of php
  fastcgi_index index.php;
  include fastcgi_params;
```

}

After modification, press "Esc" key and enter ":wq", save the file and then return.

Check whether the configuration is correct using the following command:

sudo cat /etc/nginx/sites-available/default

3. Restart the service

1) Use the following command to restart php-fpm:

sudo /etc/init.d/php5-fpm restart

The results are as follows:

* Restarting PHP5 FastCGI Process Manager php5-fpm
...done.

2) Restart nginx using the following command to make the configuration effective:

sudo /etc/init.d/nginx restart

The results are as follows:

Restarting nginx: nginx.

4. Environment configuration validation

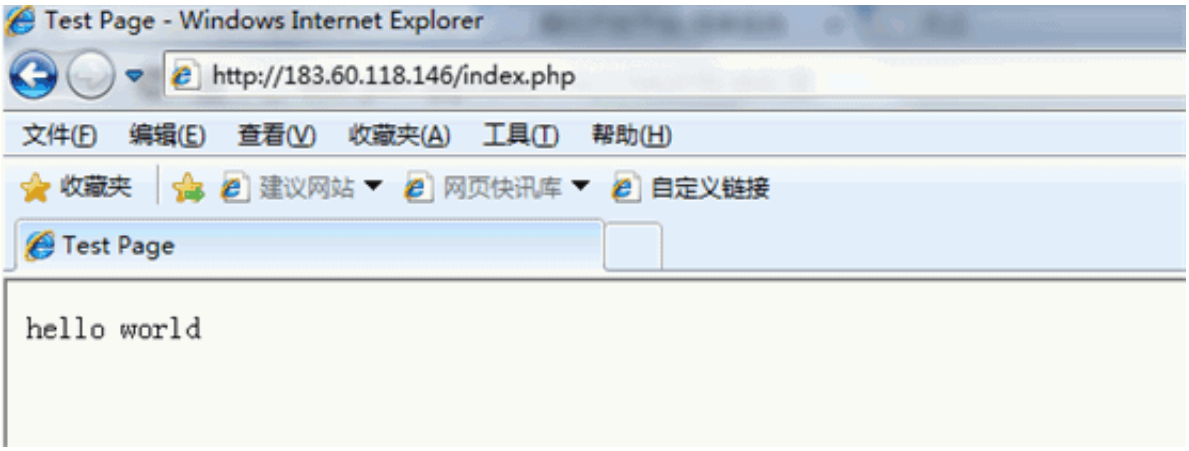
Create index.php under a web directory using the following command:

sudo vim /usr/share/nginx/www/index.php

Write the following:

```
<?php
echo "<title>Test Page</title>";
echo "hello world";
?>
```

In the browser, visit the Public IP of Ubuntu CVM to check whether the environment configuration is successful. If the webpage shows "hello world", it means the configuration is successful.



Install Software via YUM under CentOS Environment

Make sure that you have followed the steps in Installing Software via YUM in CentOS Environment to install the necessary software.

1. Configuration of nginx

1) Start nginx service

Start the nginx with the following command:

```
service nginx restart
```

2) Test whether nginx service is working properly

Test with the following command:

```
wget http://127.0.0.1
```

If the result is as shown below and displays "'index.html' saved" at the end, it means the nginx service is working properly.

```
--2013-02-20 17:07:26-- http://127.0.0.1/
Connecting to 127.0.0.1:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 151 [text/html]
Saving to: 'index.html'
100
%[==========================================================
============================>] 151 --.-K/s in 0s
2013-02-20 17:07:26 (37.9 MB/s) - 'index.html' saved [151/151]
```

3) In the browser, visit the Public IP of CentOS CVM to check if the nginx service is working properly.

The appearance of the following page indicates that nginx has been installed and configured successfully:

2. Configuration of PHP

2) Start php-fpm

Start php-fpm service with the following command

service php-fpm start

2) Modify the configurations of php-fpm and nginx to achieve the linkage between nginx and php.

View the php-fpm default configuration using the following command:

cat /etc/php-fpm.d/www.conf |grep -i 'listen ='

Returned results are:

listen = 127.0.0.1:9000

The above result suggests that the listener port of php-fpm by default is 9000. Now, you only need

to modify the configuration and forward the request parsed by php to 127.0.0.0: 9000.

Use the following command to find nginx configuration file:

nginx -t

And use vi command to modify the configuration file:

```
[root@VM_198_149_centos conf.d]# nginx -t
nginx: the configuration file /etc/nginx/nginx.conf syntax is ok
nginx: configuration file /etc/nginx/nginx.conf test is successful
[root@VM_198_149_centos conf.d]# vi /etc/nginx/nginx.conf
```

Locate the following segment in the configuration file and modify the red part.

```
server {
  listen 80;
  root /usr/share/nginx/html;
  server_name localhost;

  #charset koi8-r;
  #access_log /var/log/nginx/log/host.access.log main;

  location / {
  index index.html index.htm;
  }

  #error_page 404 /404.html;

  # redirect server error pages to the static page /50x.html
  #
  error_page 500 502 503 504 /50x.html;
  location = /50x.html {
  root /usr/share/nginx/html;
```

```
 }

 # pass the PHP scripts to FastCGI server listening on 127.0.0.1:9000
 #
 location ~ \.php$ {
 fastcgi_pass 127.0.0.1:9000;
 fastcgi_index index.php;
 fastcgi_param SCRIPT_FILENAME $document_root$fastcgi_script_name;
 include fastcgi_params;
 }

}
```

After modification, press "Esc" key and enter ":wq", save the file and then return.

Check whether the configuration is correct using the following command:

```
cat /etc/nginx/nginx.conf
```

3. Restart the service

Restart nginx using the following command to make the configuration effective:

```
service nginx restart
```

The results are as follows:

```
Stopping nginx:  [ OK ]
Starting nginx:  [ OK ]
```

4. Environment configuration validation

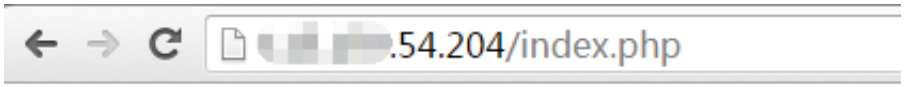
Create index.php under a web directory using the following command:

vim /usr/share/nginx/html/index.php

Write the following:

```
<?php
echo "<title>Test Page</title>";
echo "hello world";
?>
```

In the browser, visit the Public IP of CentOS CVM to check whether the environment configuration is successful. If the webpage shows "hello world", it means the configuration is successful.



hello world

Install Software via zypper under SUSE Environment

Make sure that you have followed the steps in Installing Software via YAST in SUSE Environment install the necessary software.

1. Configuration of nginx

1) Start nginx service

Start the nginx with the following command:

```
service nginx restart
```

2) Test whether nginx service is working properly

Test with the following command:

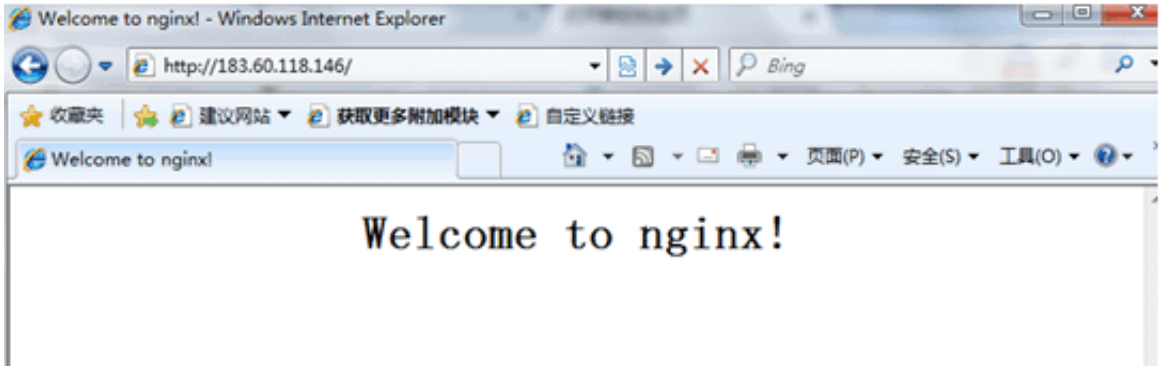
```
wget http://127.0.0.1
```

If the result is as shown below and displays "'index.html' saved" at the end, it means the nginx service is working properly.

```
--2013-02-20 17:07:26-- http://127.0.0.1/
Connecting to 127.0.0.1:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 151 [text/html]
Saving to: 'index.html'
100
%[==========================================================
==========================>] 151 --.-K/s in 0s
2013-02-20 17:07:26 (37.9 MB/s) - 'index.html' saved [151/151]
```

3) In the browser, visit the Public IP of CentOS CVM to check if the nginx service is working properly.

The appearance of the following page indicates that nginx has been installed and configured successfully:



2. Configuration of PHP

1) Create a new configuration file php-fpm.conf with the following command:

vim /etc/php5/fpm/php-fpm.conf

Write the following:

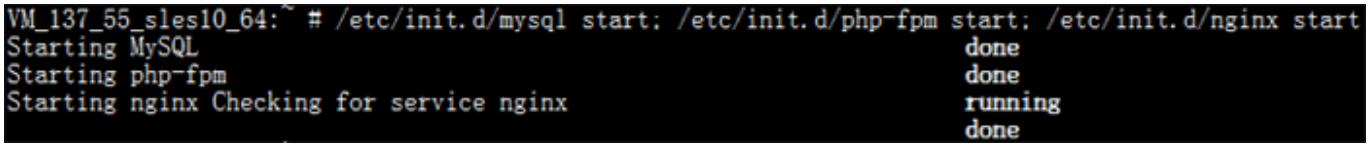
```
[global]
error_log = /var/log/php-fpm.log
[www]
user = nobody
group = nobody
listen = 127.0.0.1:9000
pm = dynamic
pm.max_children = 5
pm.start_servers = 2
pm.min_spare_servers = 1
pm.max_spare_servers = 3
```

3. Start services

Start all services with the following commands:

/etc/init.d/mysql start; /etc/init.d/php-fpm start; /etc/init.d/nginx start

Example:



4. Environment configuration validation

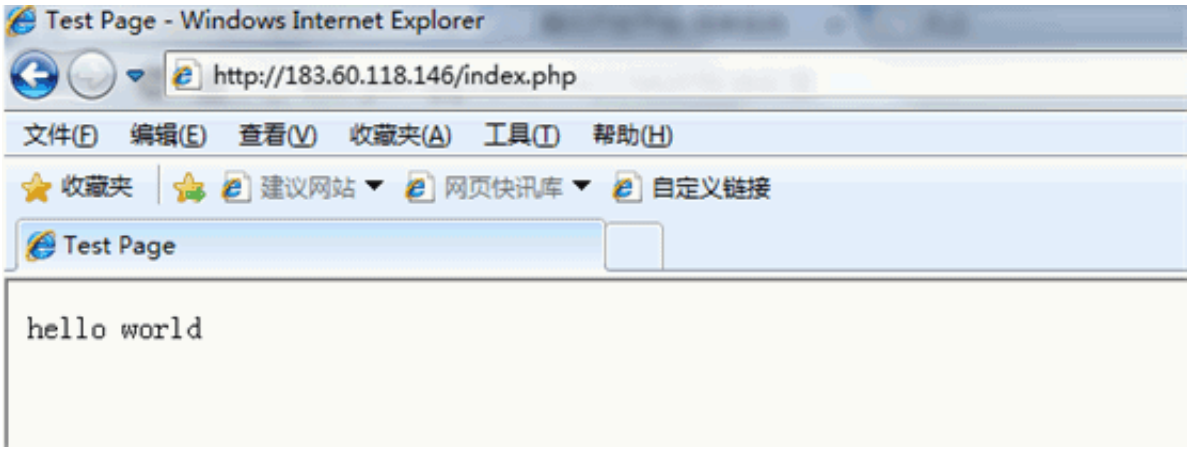
Create index.php under a web directory using the following command:

vim /usr/share/nginx/html/index.php

Write the following:

```
<?php
echo "<title>Test Page</title>";
echo "hello world";
?>
```

In the browser, visit the Public IP of SUSE CVM to check whether the environment configuration is successful. If the webpage shows "hello world", it means the configuration is successful.



Access Internet

Allow CVMs withtout Internet access to access Internet

When the CVM chooses 0Mbps bandwidth, the public network cannot be accessed. The CVM can only access the external network through a CVM with a Public IP.

1. Principle

- A CVM without a Public IP can access the public network through a CVM with a Public IP by using proxy on a CVM with a Public IP or via vpn.
- The proxy is easy to configure but complicated to use. It is suggested that you use pptp vpn to do this. (i.e., A CVM without a Public IP can be connected with a CVM with a Public IP through pptp protocol, and the CVM with a Public IP will be set to the gateway in pptp network)

2. Configuration

Assume that a CVM with a Public IP is A, and a CVM without a Public IP is B.

1) Install pptpd on A, on CentOS for example (other Linux release versions are similar) using the following command:

yum install pptpd

2) Modify the configuration file /etc/pptpd.conf by adding the following two lines

localip 192.168.0.1
remoteip 192.168.0.234-238,192.168.0.245

3) Modify the configuration file /etc/ppp/chap-secrets by adding the username and password (the 1st column indicates the username, and the 3rd column indicates the password)

userpptpd pass *

4) Start services

service pptpd start

5) Enable the forward capability

echo 1 > /proc/sys/net/ipv4/ip_forward
iptables -t nat -A POSTROUTING -o eth0 -s 192.168.0.0/24 -j MASQUERADE

6) Install the client on B, on CentOS for example, using the following command:

yum install pptp pptp-setup

7) Create a configuration file

pptpsetup --create pptp --server 10.10.10.10 --username user --password pass --encrypt

Note: --server is followed by A's IP address.

8) Connect pptpd

pppd call pptp

9) Set the route:

route add -net 10.0.0.0/8 dev eth0

route add -net 172.16.0.0/12 dev eth0

route add -net 192.168.0.0/16 dev eth0

route add -net 0.0.0.0 dev ppp0

In addition, if B is Windows CVM, a network "Connecting to Workspace" can be created to connect to the pptpd server