Elastic Compute Service

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Tutorials

Deploy LNMP

Build LNMP environment under CentOS 6

This article describes how to build LNMP environment under CentOS on an ECS instance with the basic configuration.

LNMP means:

- Linux: A family of free and open-source UNIX-like software operating systems (OS).
- Nginx: A lightweight HTTP and reverse proxy server.
- MySQL: A relational database management system.
- PHP: A scripting language that is especially suited for web development.

This method is applicable to individual users who are familiar with Linux, but new to website construction by using Alibaba Cloud ECS.

Follow these steps to build LNMP environment on an ECS instance:

1. Prepare the compiling environment
2. Install Nginx
3. Install MySQL
4. Install PHP-FPM
5. Test

Step 1. Prepare the compiling environment

Follow these steps to prepare the compiling environment.

Check the version of the operating system.

```
# cat /etc/redhat-release
CentOS release 6.5 (Final)
```

Note: This article is based on a Linux instance running CentOS 6.5. You may have different OS versions. The same is applicable to the Nginx, MySQL, and PHP versions mentioned in the following paragraphs.

Disable SELINUX: Run the command to modify the configuration file, which will permanently take effect after restarting the service.

```
# sed -i 's/SELINUX=.*/SELINUX=disabled/g' /etc/selinux/config
```

Run the command to make the configuration take effect immediately.

```
# setenforce 0
```

Add a security rule to accept Internet access to the Web server on the instance. For more information, see Add a security group rule.

Step 2: Install Nginx

Nginx is a small and highly-efficient Web server based on Linux. Follow these steps to install Nginx:

Add a user to run the Nginx service process.

```
# groupadd -r nginx
# useradd -r -g nginx nginx
```

Download the source code package, decompress it, and then compile.

```
# wget http://nginx.org/download/nginx-1.10.2.tar.gz
# tar xvf nginx-1.10.2.tar.gz -C /usr/local/src
# yum groupinstall "Development tools"
# yum -y install gcc wget gcc-c++ automake autoconf libtool libxml2-devel libxslt-devel perl-devel perl-ExtUtils-Embed pcre-devel openssl-devel
# cd /usr/local/src/nginx-1.10.2
# ./configure \
--prefix=/usr/local/nginx \
--sbin-path=/usr/sbin/nginx \
--conf-path=/etc/nginx/nginx.conf \
--error-log-path=/var/log/nginx/error.log \
--http-log-path=/var/log/nginx/access.log \
```

```
--pid-path=/var/run/nginx.pid \
--lock-path=/var/run/nginx.lock \
--http-client-body-temp-path=/var/tmp/nginx/client \
--http-proxy-temp-path=/var/tmp/nginx/proxy \
--http-fastcgi-temp-path=/var/tmp/nginx/fcgi \
--http-uwsgi-temp-path=/var/tmp/nginx/uwsgi \
--http-scgi-temp-path=/var/tmp/nginx/scgi \
--user=nginx \
--group=nginx \
--with-pcre \
--with-http_v2_module \
--with-http_ssl_module \
--with-http_realip_module \
--with-http_addition_module \
--with-http_sub_module \
--with-http_dav_module \
--with-http_flv_module \
--with-http_mp4_module \
--with-http_gunzip_module \
--with-http_gzip_static_module \
--with-http_random_index_module \
--with-http_secure_link_module \
--with-http_stub_status_module \
--with-http_auth_request_module \
--with-mail \
--with-mail_ssl_module \
--with-file-aio \
--with-ipv6 \
--with-http_v2_module \
--with-threads \
--with-stream \
--with-stream_ssl_module
# make && make install
# mkdir -pv /var/tmp/nginx/client
```

Add a SysV startup script.

```
# vim /etc/init.d/nginx
#!/bin/sh
#
# nginx - this script starts and stops the nginx daemon
#
# chkconfig: - 85 15
# description: Nginx is an HTTP(S) server, HTTP(S) reverse \
# proxy and IMAP/POP3 proxy server
# processname: nginx
# config: /etc/nginx/nginx.conf
# config: /etc/sysconfig/nginx
# pidfile: /var/run/nginx.pid
# Source function library.
. /etc/rc.d/init.d/functions
# Source networking configuration.
. /etc/sysconfig/network
# Check that networking is up.
[ "$NETWORKING" = "no" ] && exit 0
```

```
nginx="/usr/sbin/nginx"
prog=$(basename $nginx)
NGINX_CONF_FILE="/etc/nginx/nginx.conf"
[ -f /etc/sysconfig/nginx ] && . /etc/sysconfig/nginx
lockfile=/var/lock/subsys/nginx
start() {
[ -x $nginx ] || exit 5
[ -f $NGINX_CONF_FILE ] || exit 6
echo -n $"Starting $prog: "
daemon $nginx -c $NGINX_CONF_FILE
retval=$?
echo
[ $retval -eq 0 ] && touch $lockfile
return $retval
}
stop() {
echo -n $"Stopping $prog: "
killproc $prog -QUIT
retval=$?
echo
[ $retval -eq 0 ] && rm -f $lockfile
return $retval
killall -9 nginx
}
restart() {
configtest || return $?
stop
sleep 1
start
}
reload() {
configtest || return $?
echo -n $"Reloading $prog: "
killproc $nginx -HUP
RETVAL=$?
echo
}
force_reload() {
restart
}
configtest() {
$nginx -t -c $NGINX_CONF_FILE
}
rh_status() {
status $prog
}
rh_status_q() {
rh_status >/dev/null 2>&1
}
case "$1" in
start)
rh_status_q && exit 0
$1
;;
stop)
rh_status_q || exit 0
```

```
$1
;;
restart|configtest)
$1
;;
reload)
rh_status_q || exit 7
$1
;;
force-reload)
force_reload
;;
status)
rh_status
;;
condrestart|try-restart)
rh_status_q || exit 0
;;
*)
echo $"Usage: $0 {start|stop|status|restart|condrestart|try-restart|reload|force-reload|configtest}"
exit 2
esac
```

Grant the permission to run the script.

```
# chmod +x /etc/init.d/nginx
```

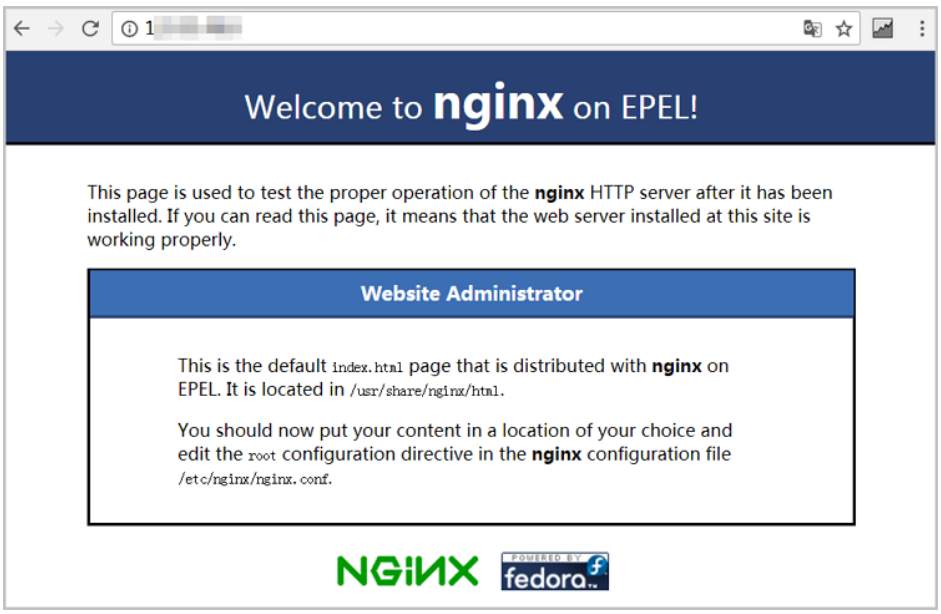
Add Nginx to the service management list, and set it to automatically start on startup.

```
# chkconfig --add nginx
# chkconfig nginx on
```

Start the service.

```
# service nginx start
```

Access the instance by using http://Public IP address. If the following page appears, Nginx is installed successfully.



Step3. Install MySQL

Follow these steps to install MySQL.

Prepare the compiling environment.

```
# yum groupinstall "Server Platform Development"  "Development tools" -y
# yum install cmake -y
```

Create a directory to store the data of MySQL.

```
# mkdir /mnt/data
# groupadd -r mysql
# useradd -r -g mysql -s /sbin/nologin mysql
# id mysql
uid=497(mysql) gid=498(mysql) groups=498(mysql)
```

Change the owner and group of the data directory.

```
# chown -R mysql:mysql /mnt/data
```

Decompress and compile the stable source code package downloaded from MySQL official website. In this article, we use version 5.6.24.

```
# tar xvf mysql-5.6.24.tar.gz -C  /usr/local/src
```

```
# cd /usr/local/src/mysql-5.6.24
# cmake . -DCMAKE_INSTALL_PREFIX=/usr/local/mysql \
-DMYSQL_DATADIR=/mnt/data \
-DSYSCONFDIR=/etc \
-DWITH_INNOBASE_STORAGE_ENGINE=1 \
-DWITH_ARCHIVE_STORAGE_ENGINE=1 \
-DWITH_BLACKHOLE_STORAGE_ENGINE=1 \
-DWITH_READLINE=1 \
-DWITH_SSL=system \
-DWITH_ZLIB=system \
-DWITH_LIBWRAP=0 \
-DMYSQL_TCP_PORT=3306 \
-DMYSQL_UNIX_ADDR=/tmp/mysql.sock \
-DDEFAULT_CHARSET=utf8 \
-DDEFAULT_COLLATION=utf8_general_ci
# make && make install
```

Change the group of the installation directory to mysql.

```
# chown -R mysql:mysql /usr/local/mysql/
```

Initialize the database.

```
# /usr/local/mysql/scripts/mysql_install_db --user=mysql --datadir=/mnt/data/
```

Note: After completing the minimum installation of the CentOS 6.5 operating system, a my.cnf file is generated under the /etc directory. You must rename this file. For example, rename it as /etc/my.cnf.bak. Otherwise, this file will interfere with the correct configuration for MySQL source code installation, leading to MySQL start failure.

Copy the configuration file and startup script.

```
# cp /usr/local/mysql/support-files/mysql.server /etc/init.d/mysqld
# chmod +x /etc/init.d/mysqld
# cp support-files/my-default.cnf /etc/my.cnf
```

Set automatic start on startup.

```
# chkconfig mysqld  on
# chkconfig --add mysqld
```

Modify the installation path and data storage path in the configuration file.

```
# echo -e "basedir = /usr/local/mysql\ndatadir = /mnt/data\n" >> /etc/my.cnf
```

Set the PATH environment variable.

```
# echo "export PATH=$PATH:/usr/local/mysql/bin" > /etc/profile.d/mysql.sh
# source /etc/profile.d/mysql.sh
```

Start the service.

```
# service mysqld start
# mysql -h 127.0.0.1
```

Step 4. Install PHP-FPM

Nginx cannot process PHP. As a Web server, when Nginx receives a request, it does not support directly calling or parsing the external program. It must use FastCGI to call such programs. However, in case of PHP requests, Nginx will transfer the request to a PHP interpreter, and return the result to the client. PHP-FPM is a FastCGI process manager that supports parsing PHP code. PHP-FPM provides better PHP process management methods, which can effectively control the memory and process, and can support smoothly reloading PHP configuration.

Follow these steps to install PHP-FPM.

Install dependency package.

```
# yum install libmcrypt libmcrypt-devel mhash mhash-devel libxml2 libxml2-devel bzip2 bzip2-devel
```

Decompress the source code package downloaded from the official website, and then compile and install it.

```
# tar xvf php-5.6.23.tar.bz2 -C /usr/local/src
# cd /usr/local/src/php-5.6.23
# ./configure --prefix=/usr/local/php \
--with-config-file-scan-dir=/etc/php.d \
--with-config-file-path=/etc \
--with-mysql=/usr/local/mysql \
--with-mysqli=/usr/local/mysql/bin/mysql_config \
--enable-mbstring \
--with-freetype-dir \
--with-jpeg-dir \
--with-png-dir \
--with-zlib \
--with-libxml-dir=/usr \
--with-openssl \
```

```
--enable-xml \
--enable-sockets \
--enable-fpm \
--with-mcrypt \
--with-bz2
# make && make install
```

Add the PHP and PHP-FPM configuration files.

```
# cp /usr/local/src/php-5.6.23/php.ini-production /etc/php.ini
# cd /usr/local/php/etc/
# cp php-fpm.conf.default php-fpm.conf
# sed -i 's@;pid = run/php-fpm.pid@pid = /usr/local/php/var/run/php-fpm.pid@' php-fpm.conf
```

Add the PHP-FPM startup script.

```
# cp /usr/local/src/php-5.6.23/sapi/fpm/init.d.php-fpm /etc/init.d/php-fpm
# chmod +x /etc/init.d/php-fpm
```

Add PHP-FPM to the service list, and set it to automatically start on startup.

```
# chkconfig --add php-fpm
# chkconfig --list php-fpm
# chkconfig php-fpm on
```

Start the service.

```
# service php-fpm start
```

Follow these steps to configure Nginx to support fastcgi:

i. Back up the default configuration file.

```
# cp /etc/nginx/nginx.conf /etc/nginx/nginx.confbak
# cp /etc/nginx/nginx.conf.default /etc/nginx/nginx.conf
```

ii. Edit /etc/nginx/nginx.conf:

i. Add a home page in the PHP format into the supported home page formats as shown:

```
location / {
root /usr/local/nginx/html;
```

```
index index.php index.html index.htm;
}
```

ii. Delete comments in front of the following content:

```
location ~ \.php$ {
root /usr/local/nginx/html;
fastcgi_pass 127.0.0.1:9000;
fastcgi_index index.php;
fastcgi_param SCRIPT_FILENAME /usr/local/nginx/html/$fastcgi_script_name;
include fastcgi_params;
}
```

iii. Reload the Nginx configuration file.

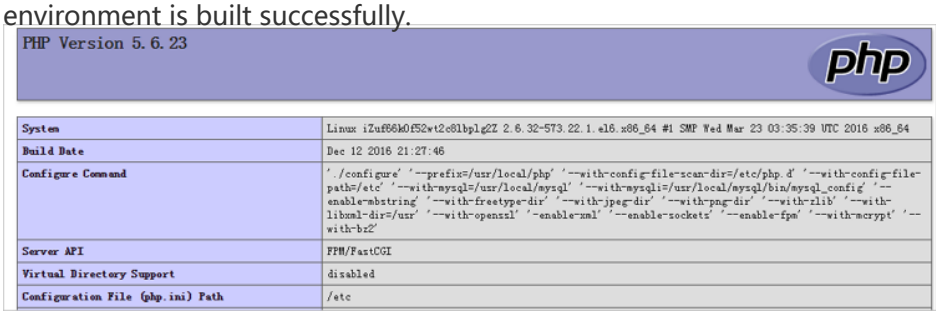
```
# service nginx reload
```

Create an index.php test page under /usr/local/nginx/html/, the content of which is shown as follows:

```
# cat index.php
<?php
$conn=mysql_connect('127.0.0.1','root','');
if ($conn){
echo "LNMP platform connect to mysql is successful!";
}else{
echo "LNMP platform connect to mysql is failed!";
}
phpinfo();
?>
```

Step 5. Test

Access the instance by using http://Public IP address/index.php. If the following page appears, LNMP environment is built successfully.



PHP Version 5.6.23

System	Linux iZuf66k0f52wt2c8lbplgZZ 2.6.32-573.22.1.el6.x86_64 #1 SMP Wed Mar 23 03:35:39 UTC 2016 x86_64
Build Date	Dec 12 2016 21:27:46
Configure Command	'./configure' '--prefix=/usr/local/php' '--with-config-file-scan-dir=/etc/php.d' '--with-config-file-path=/etc' '--with-mysql=/usr/local/mysql' '--with-mysqli=/usr/local/mysql/bin/mysql_config' '--enable-mbstring' '--with-freetype-dir' '--with-jpeg-dir' '--with-png-dir' '--with-zlib' '--with-libxml-dir=/usr' '--with-openssl' '--enable-xml' '--enable-sockets' '--enable-fpm' '--with-mcrypt' '--with-bz2'
Server API	FPM/FastCGI
Virtual Directory Support	disabled
Configuration File (php.ini) Path	/etc

Configure Java Web

Deploy a Java Web project

This article describes how to deploy a Java Web project on a Linux instance with the basic configuration. This method is applicable to individual users who are new to website construction by using ECS.

Configuration requirements

The following programs are used as examples to deploy the Java Web project:

- OS: CentOS 7.4
- Tomcat: Tomcat 8.5.23
- JDK: JDK 1.8.0_141

Preparations

The firewall is enabled by default for CentOS 7.4. You can disable the firewall, or add rules on the firewall by referring to official documents to open Ports 80, 443, or 8080 for inbound access.

- Disable the firewall.

```
systemctl stop firewalld.service
```

- Set the firewall not to be enabled automatically at startup.

```
systemctl disable firewalld.service
```

Create a user www to run Tomcat.

```
useradd www
```

Add a security group rule to open Port 8080 for HTTP access. For more information, see Add a security group rule.

Creates a root directory for the Java Web project.

```
mkdir -p /data/wwwroot/default
```

Create a Tomcat test page.

```
echo Tomcat test > /data/wwwroot/default/index.jsp
chown -R www.www /data/wwwroot
```

Download source code

Run the following command to download the tomcat package.

```
wget https://mirrors.aliyun.com/apache/tomcat/tomcat-8/v8.5.23/bin/apache-tomcat-8.5.23.tar.gz
```

> **Note**: The source code is constantly upgraded. You can find the installation package at: https://mirrors.aliyun.com/apache/tomcat/tomcat-8/.

Run the following command to download the JDK package.

```
wget http://mirrors.linuxeye.com/jdk/jdk-8u141-linux-x64.tar.gz
```

> **Note**: The source code is constantly upgraded. You can find the installation package at: http://mirrors.linuxeye.com/jdk/.

Install JDK

To install JDK, follow these steps:

Run mkdir /usr/java to create a directory.

Run the following command to decompress jdk-8u141-linux-x64.tar.gz to the /usr/java directory.

```
tar xzf jdk-8u141-linux-x64.tar.gz -C /usr/java
```

Follow these steps to set environment variables:

i. Run vi /etc/profile.
ii. Press the i key to enter the Edit mode.
iii. Add the following lines into the /etc/profile file:

```
#set java environment
export JAVA_HOME=/usr/java/jdk1.8.0_141
export CLASSPATH=$JAVA_HOME/lib/tools.jar:$JAVA_HOME/lib/dt.jar:$JAVA_HOME/lib
export PATH=$JAVA_HOME/bin:$PATH
```

iv. Press the Esc key, and then type :wq to save and close the file.

Run source /etc/profile to load the new environment variable.

Check the version of JDK. When the JDK version is displayed, it indicates that JDK has been installed successfully.

```
java -version
java version "1.8.0_141"
Java(TM) SE Runtime Environment (build 1.8.0_141-b15)
Java HotSpot(TM) 64-Bit Server VM (build 25.141-b15, mixed mode)
```

Install Tomcat

To install Tomcat, follow these steps:

Run the following commands one by one to decompress apache-tomcat-8.5.23.tar.gz, rename the Tomcat directory, and set user permissions.

```
tar xzf apache-tomcat-8.5.23.tar.gz
mv apache-tomcat-8.5.23 /usr/local/tomcat/
chown -R www.www /usr/local/tomcat/
```

Note:
In the /usr/local/tomcat/ directory:

- The bin directory stores some Tomcat script files, including scripts for enabling and disabling Tomcat service.
- The conf directory stores various global configuration files for Tomcat server, the most important of which are server.xml and web.xml.
- The webapps directory is the main Web publishing directory of Tomcat, which stores Web application files by default.

- The logs directory stores Tomcat log files.

Follow these steps to configure the server.xml file:

i. Switch to the /usr/local/tomcat/conf/ directory: cd /usr/local/tomcat/conf/.
ii. Rename the server.xml file: mv server.xml server.xml_bk.
iii. Create a new server.xml file:
a. Run vi server.xml.
b. Press the i key to enter the Edit mode.
c. Add the following content.

```
<?xml version="1.0" encoding="UTF-8"?>
<Server port="8006" shutdown="SHUTDOWN">
<Listener className="org.apache.catalina.core.JreMemoryLeakPreventionListener"/>
<Listener className="org.apache.catalina.mbeans.GlobalResourcesLifecycleListener"/>
<Listener className="org.apache.catalina.core.ThreadLocalLeakPreventionListener"/>
<Listener className="org.apache.catalina.core.AprLifecycleListener"/>
<GlobalNamingResources>
<Resource name="UserDatabase" auth="Container"
type="org.apache.catalina.UserDatabase"
description="User database that can be updated and saved"
factory="org.apache.catalina.users.MemoryUserDatabaseFactory"
pathname="conf/tomcat-users.xml"/>
</GlobalNamingResources>
<Service name="Catalina">
<Connector port="8080"
protocol="HTTP/1.1"
connectionTimeout="20000"
redirectPort="8443"
maxThreads="1000"
minSpareThreads="20"
acceptCount="1000"
maxHttpHeaderSize="65536"
debug="0"
disableUploadTimeout="true"
useBodyEncodingForURI="true"
enableLookups="false"
URIEncoding="UTF-8"/>
<Engine name="Catalina" defaultHost="localhost">
<Realm className="org.apache.catalina.realm.LockOutRealm">
<Realm className="org.apache.catalina.realm.UserDatabaseRealm"
resourceName="UserDatabase"/>
</Realm>
<Host name="localhost" appBase="/data/wwwroot/default" unpackWARs="true" autoDeploy="true">
<Context path="" docBase="/data/wwwroot/default" debug="0" reloadable="false"
crossContext="true"/>
<Valve className="org.apache.catalina.valves.AccessLogValve" directory="logs"
prefix="localhost_access_log." suffix=".txt" pattern="%h %l %u %t &quot;%r&quot; %s %b" />
</Host>
</Engine>
</Service>
</Server>
```

Follow these steps to set JVM memory parameters:

i. Run vi /usr/local/tomcat/bin/setenv.sh.
ii. Press the i key to enter the Edit mode.
iii. Add the following content.

```
JAVA_OPTS=' -Djava.security.egd=file:/dev/./urandom -server -Xms256m -Xmx496m -Dfile.encoding=UTF-8'
```

iv. Press the Esc key, and then type :wq to save and close the file.

Follow these steps to set Tomcat automatic startup script:

i. Run the command to download the script.

```
wget https://github.com/lj2007331/oneinstack/raw/master/init.d/Tomcat-init
```

ii. Run the command to rename Tomcat-init.

```
mv Tomcat-init /etc/init.d/tomcat
```

iii. Add the permission.

```
chmod +x /etc/init.d/tomcat
```

iv. Set the startup script JAVA_HOME.

```
sed -i 's@^export JAVA_HOME=.*@export JAVA_HOME=/usr/java/jdk1.8.0_141@' /etc/init.d/tomcat
```

Set automatic startup.

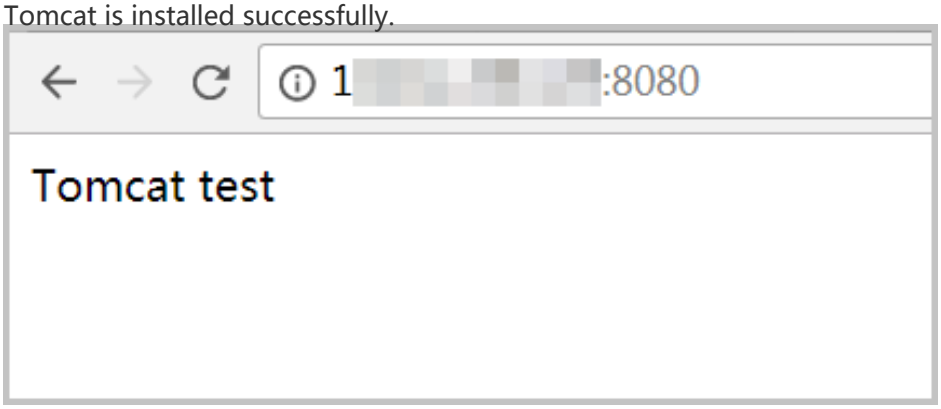
```
chkconfig --add tomcat
chkconfig tomcat on
```

Start Tomcat.

```
service tomcat start
```

Access the instance by using http://Public IP address:8080. If the following page appears,

Tomcat is installed successfully.



Build a Magento website on ECS

Magento is an open-source e-commerce platform written in PHP. Many customers use it to build their B2B or B2C e-commerce platforms. This tutorial explains how to build a Magento platform on a single ECS instance.

In this tutorial, we will install the following tools:

- MySQL version: 5.7
- PHP version: 7.0
- Magento version: 2.2

Prerequisites

Create an ECS instance. Make sure the instance meets the following requirements:

Operating system: CentOS 7.2 64bit.

Minimum specifications:

- 2 Core CPU
- 4 GiB RAM
- A 40 GiB Ultra Cloud Disk as the system disk

VPC-connected. If you do not have a VPC network, one will be created when you create an ECS instance.

A public IP address is assigned to the instance.

Inbound Internet traffic to the TCP Port 80 of the ECS instance is allowed. For more information, see Add a security group rule.

Step 1. Install LAMP (Linux, Apache, MySQL, and PHP) on ECS

Connect to the ECS instance and install Apache and MySQL.

```
[ECS]$ yum update -y
[ECS]$ yum install httpd –y
[ECS]$ rpm -Uvh http://dev.mysql.com/get/mysql57-community-release-el7-8.noarch.rpm
[ECS]$ yum -y install mysql-community-server
```

Start Apache and MySQL service and enable them at startup.

```
[ECS]$ systemctl start httpd
[ECS]$ systemctl enable httpd
[ECS]$ systemctl start mysqld
[ECS]$ systemctl enable mysqld
```

Configure the Apache configuration file: /etc/httpd/conf/httpd.conf.

i. Run vim /etc/httpd/conf/httpd.conf.
ii. Press the i key.
iii. Add the LoadModule rewrite_module modules/mod_rewrite.so line below Include conf.modules.d/*.conf, and replace AllowOverride None with AllowOverride all in the following section.

```
Options Indexes FollowSymLinks
#
# AllowOverride controls what directives may be placed in .htaccess files.
# It can be "All", "None", or any combination of the keywords:
# Options FileInfo AuthConfig Limit
#
AllowOverride all
```

iv. Press the Esc key and type :wq to save and exit the file.

Run grep 'temporary password' /var/log/mysqld.log to obtain the temporary password of the root account at the installation of MySQL. The password returns in the result.

Note: Record this password. You will need it during the next step.

```
2018-03-16T02:23:32.142427Z 1 [Note] A temporary password is generated for root@localhost:
pj?eyd6nH!:B
```

Finish the MySQL security configuration, including:

- Resetting the root account password
- Disabling remote root login
- Removing anonymous users

Removing test database and test database access

> **Note**: In this step, you are asked several questions to enable or disable features. Answer Y to all of them.

```
[ECS]$ mysql_secure_installation
Securing the MySQL server deployment.
Enter password for user root: # Enter your temporary root password that is recorded in the previous step
The existing password for the user account root has expired. Please set a new password.
New password: # Enter a new strong password, which must be a minimum of 8 characters in length and
must include a special character
Re-enter new password: # Repeat the new password to confirm it
Estimated strength of the password: 100
Do you wish to continue with the password provided?(Press y|Y for Yes, any other key for No) : Y
By default, a MySQL installation has an anonymous user,
allowing anyone to log into MySQL without having to have
a user account created for them. This is intended only for
testing, and to make the installation go a bit smoother.
You should remove them before moving into a production
environment.
Remove anonymous users? (Press y|Y for Yes, any other key for No) : Y
Success.
Normally, root should only be allowed to connect from
'localhost'. This ensures that someone cannot guess at
the root password from the network.
Disallow root login remotely? (Press y|Y for Yes, any other key for No) : Y
Success.
By default, MySQL comes with a database named 'test' that
anyone can access. This is also intended only for testing,
and should be removed before moving into a production
environment.
Remove test database and access to it? (Press y|Y for Yes, any other key for No) : Y
- Dropping test database...
Success.
- Removing privileges on test database...
Success.
Reloading the privilege tables will ensure that all changes
made so far will take effect immediately.
Reload privilege tables now? (Press y|Y for Yes, any other key for No) : Y
Success.
All done!
```

Install PHP 7.

```
[ECS]$ yum install –y http://dl.iuscommunity.org/pub/ius/stable/CentOS/7/x86_64/ius-release-1.0-14.ius.centos7.noarch.rpm
[ECS]$ yum -y update
[ECS]$ yum -y install php70u php70u-pdo php70u-mysqlnd php70u-opcache php70u-xml php70u-gd php70u-mcrypt php70u-devel php70u-intl php70u-mbstring php70u-bcmath php70u-json php70u-iconv
```

Validate PHP installation.

```
[ECS]$ php –v
PHP 7.0.28 (cli) (built: Mar 1 2018 10:03:25) ( NTS )
Copyright (c) 1997-2017 The PHP Group
Zend Engine v3.0.0, Copyright (c) 1998-2017 Zend Technologies
with Zend OPcache v7.0.28, Copyright (c) 1999-2017, by Zend Technologies
```

Edit the /etc/php.ini file to set your time zone:

i. Run vim /etc/php.ini.
ii. Press the i key.
iii. Find the line starting with date.timezone, which is commented out by default, and add the correct time zone. If your site is in China, add date.timezone = Asia/Shanghai.
iv. Press the Esc key and type :wq to save and exit the file.

Run systemctl restart httpd to restart httpd.

Step 2. Configure the database

Create a database and a user. Run the following commands, including those typed in the mysql> prompt.

> **Note**: You must replace YourRootPass with a password. Make sure that you have recorded the password you set here. You need it later. Once you have run FLUSH PRIVILEGES;, type exit; and then press the Enter key to quit the MySQL shell.

```
[ECS]$ mysql -u root -p
Enter password:
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 5
Server version: 5.7.21 MySQL Community Server (GPL)
Copyright (c) 2000, 2018, Oracle and/or its affiliates. All rights reserved.
Oracle is a registered trademark of Oracle Corporation and/or its
```

```
affiliates. Other names may be trademarks of their respective
owners.
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
mysql> CREATE DATABASE magento;
Query OK, 1 row affected (0.00 sec)
mysql> GRANT ALL ON magento.* TO test@localhost IDENTIFIED BY 'YourRootPass';
Query OK, 0 rows affected, 1 warning (0.00 sec)
mysql> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.01 sec)
```

Test the new user.

```
[ECS]$ mysql -u test –p
Enter password: # Enter the password you set for the `YourRootPass` in the preceding step
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 6
Server version: 5.7.21 MySQL Community Server (GPL)
Copyright (c) 2000, 2018, Oracle and/or its affiliates. All rights reserved.
Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
mysql>
```

Test the new database: At the mysql> prompt, type show databases;, and you can view the following database listing.

```
mysql> show databases;
+--------------------+
| Database |
+--------------------+
| information_schema |
| magento |
+--------------------+
2 rows in set (0.00 sec)
mysql>
```

Type “exit;” and then press the Enter key to quit the MySQL shell.

Step 3. Install and configure Composer

Install Composer.

```
[ECS]$ curl -sS https://getcomposer.org/installer | php
```

Configure Composer.

```
[ECS]$ mv /root/composer.phar /usr/bin/composer
```

Test Composer.

```
[ECS]$ composer -V
```

You will obtain the following result, if the steps are successfully completed.

```
Composer version 1.6.3 2018-01-31 16:28:17
```

Step 4. Install and configure Magento

Download Magento from github.

```
[ECS]$ yum -y install git
[ECS]$ cd /var/www/html/
[ECS]$ git clone https://github.com/magento/magento2.git
```

Switch the version of Magento to the stable production version.

```
[ECS]$ cd magento2 && git checkout tags/2.1.0 -b 2.1.0
```

Move the installation files to the Apache root directory.

> **Note**: If you skip this step, you will only be able to access your Magento service at http://your-server-ip /magento2.

```
[ECS]$ shopt -s dotglob nullglob && mv /var/www/html/magento2/* /var/www/html/ && cd ..
```

Set Magento file permissions.

```
[ECS]$ chown -R :apache /var/www/html
[ECS]$ find /var/www/html -type f -print0 | xargs -r0 chmod 640
[ECS]$ find /var/www/html -type d -print0 | xargs -r0 chmod 750
[ECS]$ chmod -R g+w /var/www/html/{pub,var}
```

```
[ECS]$ chmod -R g+w /var/www/html/{app/etc,vendor}
[ECS]$ chmod 750 /var/www/html/bin/magento
```

Install Magento.

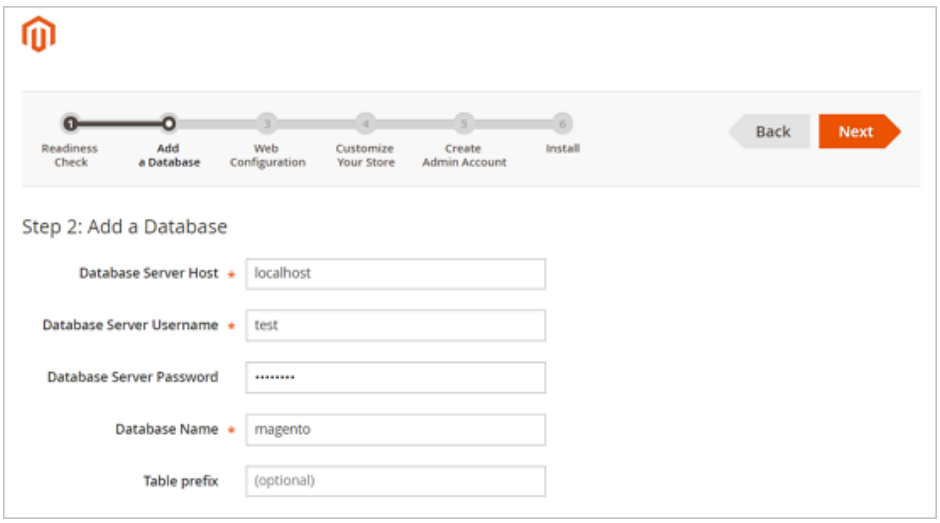
```
[ECS]$ composer install
```

Step 5. Test the installation

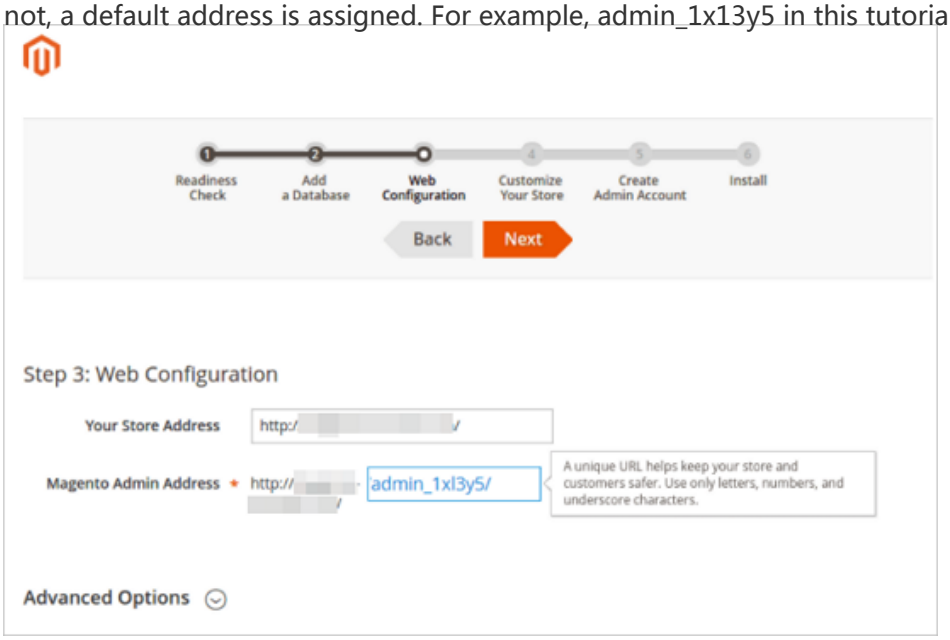
Use your browser to access your server at http://public IP address of your ECS instance. You will see a welcome screen like this one.

Click **Agree and Setup Magento** and fill in the database information, web configuration, and accounts as follows.

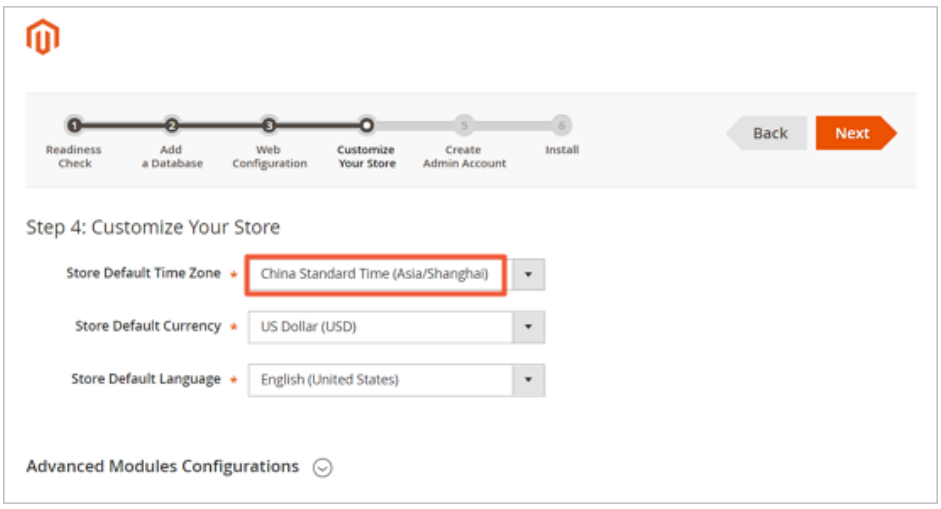
Add a database.



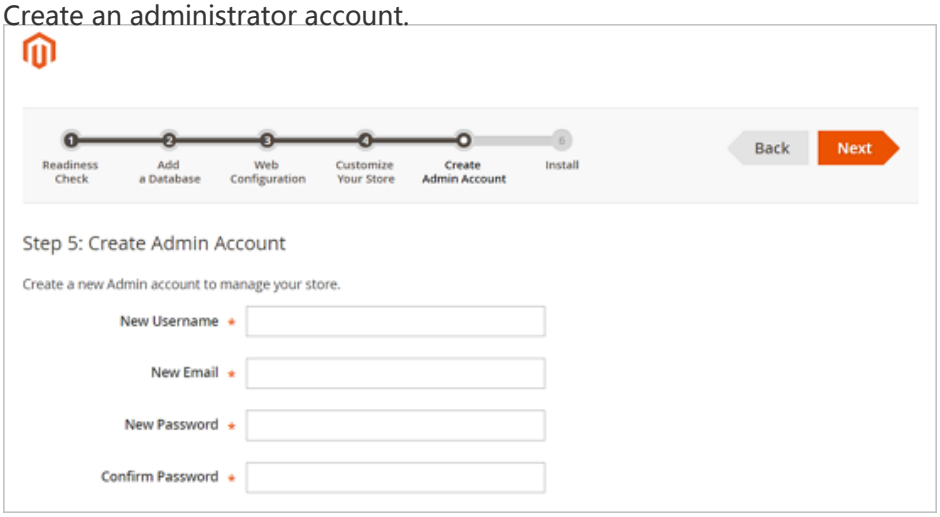
Configure the web. You can customize your Magento admin address in this step. If not, a default address is assigned. For example, admin_1x13y5 in this tutorial.



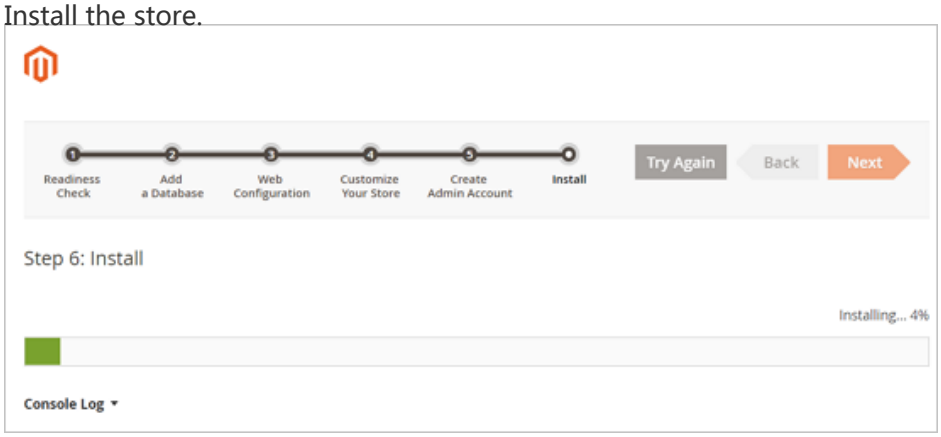
Customize your store. Set the time zone of the site.



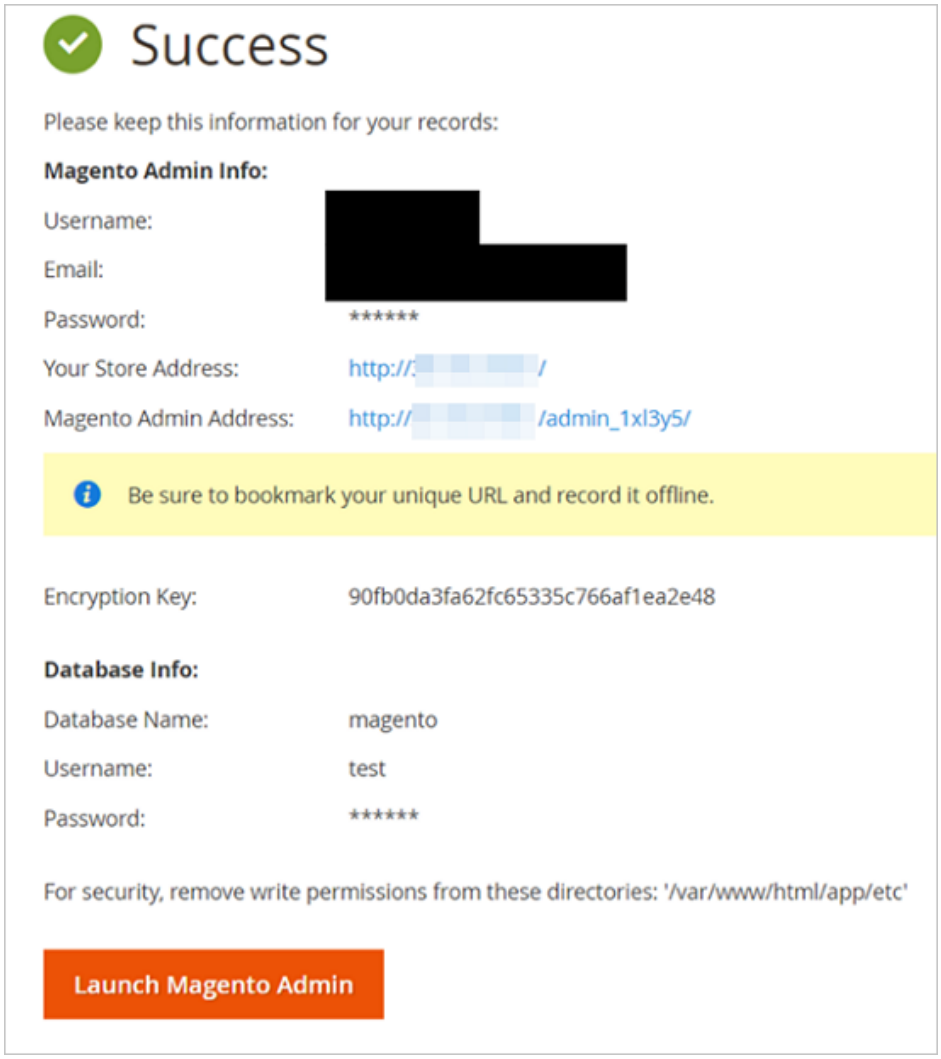
Create an administrator account.



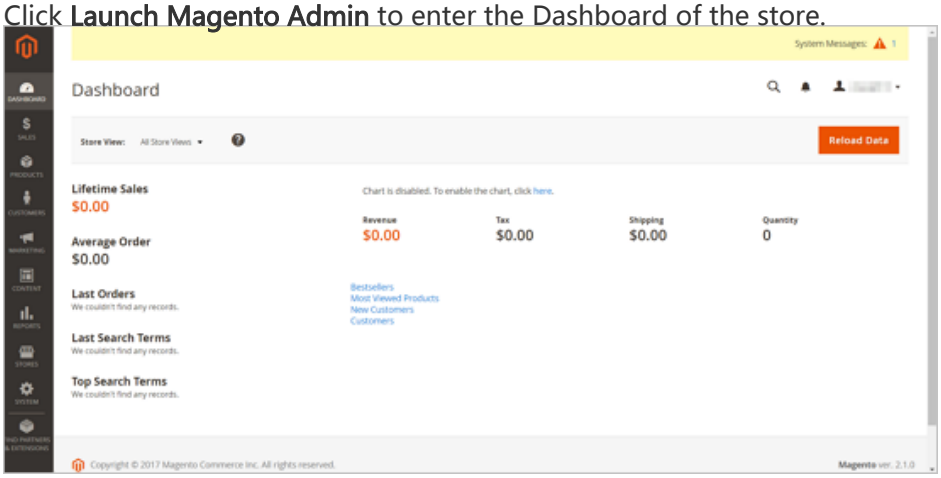
Install the store.



When you get a page like this, the store is installed successfully.



Click **Launch Magento Admin** to enter the Dashboard of the store.



As an administrator of the store, you can access the Dashboard at the Magento admin address to manage it. For example, http://public IP address of your ECS instance/admin_1xl3y5/ in this tutorial. And your users can access your site at the http://public IP address of your ECS instance.

Step 6. Configure the cron job

Run crontab -u apache -e.

Add the following in the /etc/crontab file.

```
*/10 * * * * php -c /etc /var/www/html/bin/magento cron:run
*/10 * * * * php -c /etc /var/www/html/update/cron.php
*/10 * * * * php -c /etc /var/www/html/bin/magento setup:cron:run
```

Now you have a functional e-commerce site.

For more information about Magento configuration, see the official documentation.

Build a WordPress website

This document describes how to create a WordPress website by using an image available on the Alibaba Cloud Marketplace. The image contains both an operating system and all applications required to start your WordPress website, including CentOS, Nginx, MySQL, PHPWind, and phpMyAdmin.

WordPress is a popular personal blog and website builder. Alibaba Cloud Elastic Compute Service (ECS) makes publishing a WordPress site simple and straightforward. You can build a WordPress by creating an ECS instance and performing a few simple configurations.

As your business develops and your website attracts more visitors, you can scale your service capacity, both vertically and horizontally, by combining other Alibaba Cloud products. For example:

- Adding ECS instances and using Server Load Balancer to more evenly process your workload.
- Using Auto Scaling to automatically add or remove instances according to traffic conditions.
- Using Object Storage Service (OSS) to store static web pages, massive pictures, and videos.

Software and versions

The applications in the image include:

- Nginx 1.10.1: high-performance web server software
- MySQL 5.7.13: a relational database management system
- PHP 5.4.45: a popular server-side scripting language

- phpMyAdmin 4.4.15.7: a web GUI for the administration of MySQL
- OpenSSH-server 6.6: a secure remote console for server management
- OpenSSH-sftp-server 6.6: a secure FTP for file uploading
- WordPress 4.5.3: a content management system for building websites

Note: The versions listed are included as of the publishing date of this document. Your versions may be different.

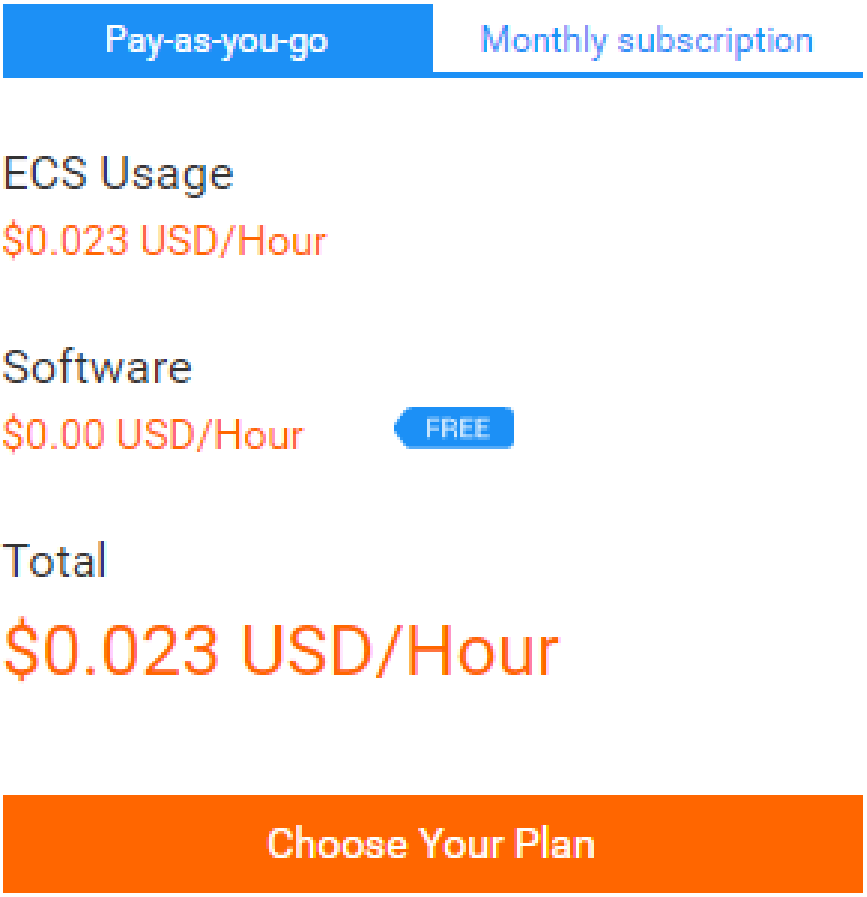
Install the WordPress image

Log on to the **ECS console**.

Go to **Alibaba Cloud Marketplace**.

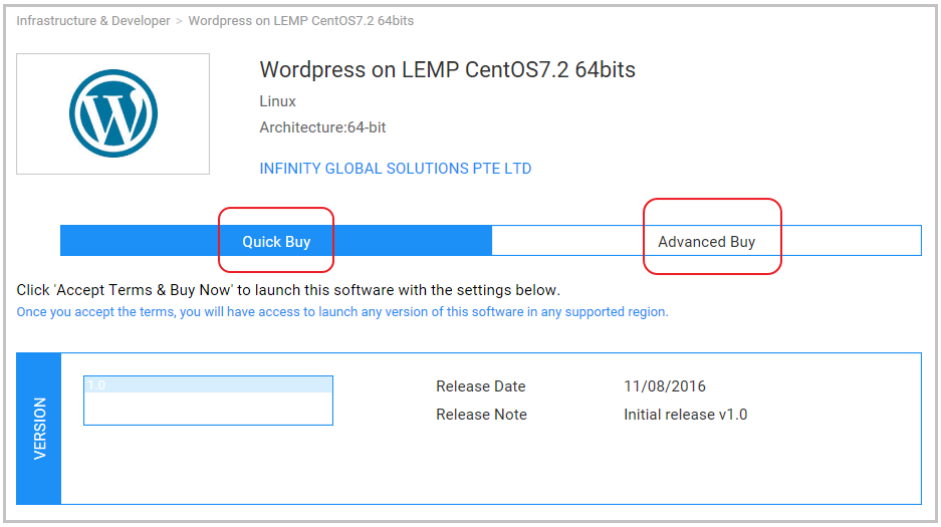
Click **LEMP on CentOS7.2 64bits**.

Click **Choose Your Plan**.

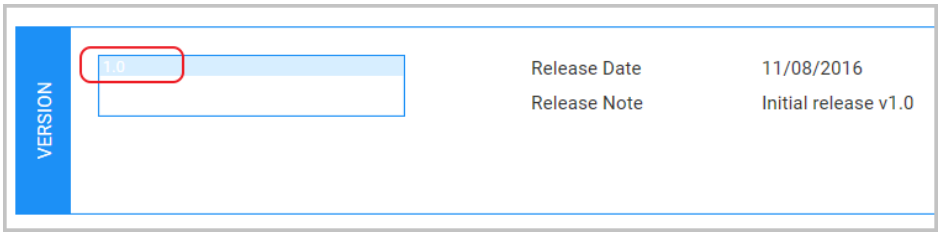


Choose initial configuration mode.

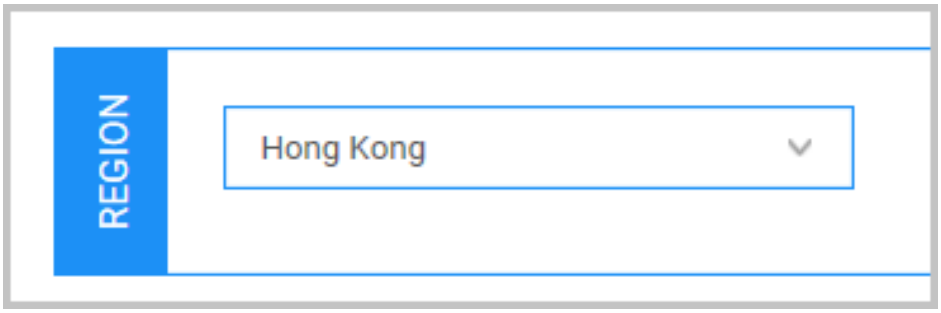
If you want to configure only essential parameters of the instance and use the default settings for others, click **Quick Buy**. If you want to configure all parameters, click **Advanced Buy**. In this document we use **Quick Buy** as an example.



Choose an image version.

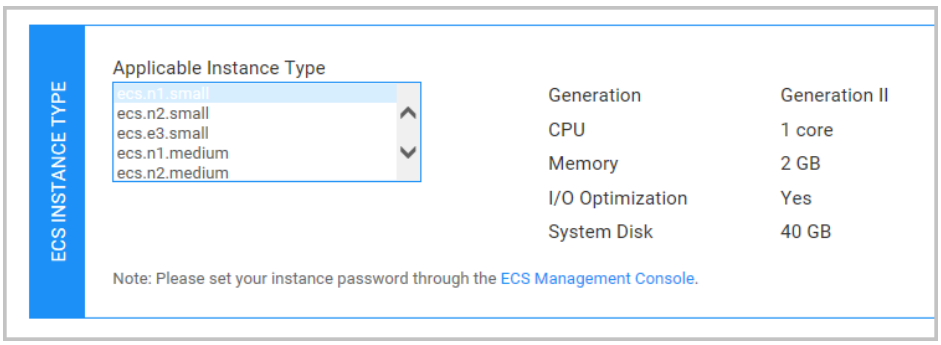


Choose a region. For more information about these parameters, see **Create an instance running Linux**.



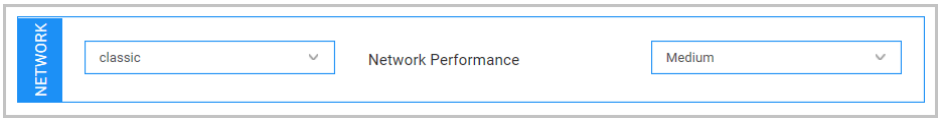
Choose an ECS instance type.

After choosing a type, you can see the corresponding details.



Choose a network type.

Network Type varies for different ECS features, but both of these network access services are BGP lines.



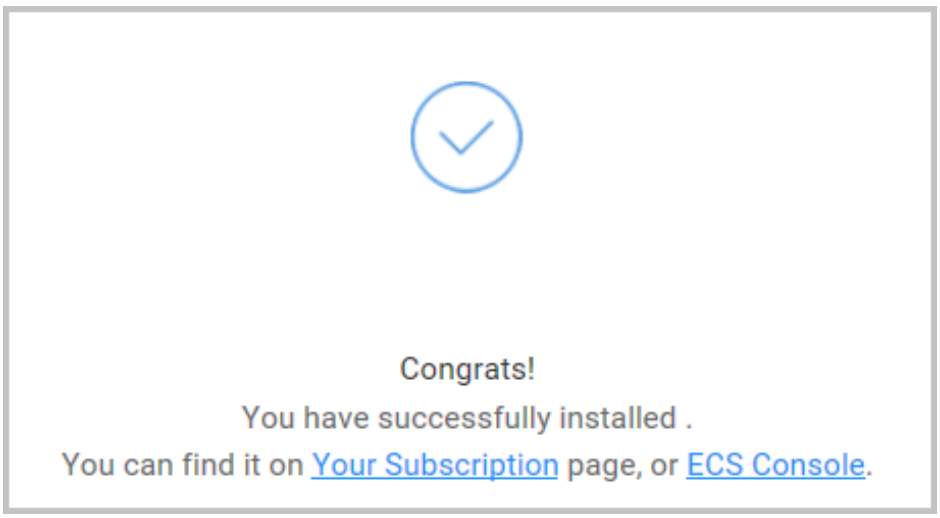
Choose the network performance.

Choose a purchasing plan: **Subscription** or **Pay-As-You-Go**.

Click **Agree Terms and Buy Now** to buy the instance.

Wait several minutes for the image to install.

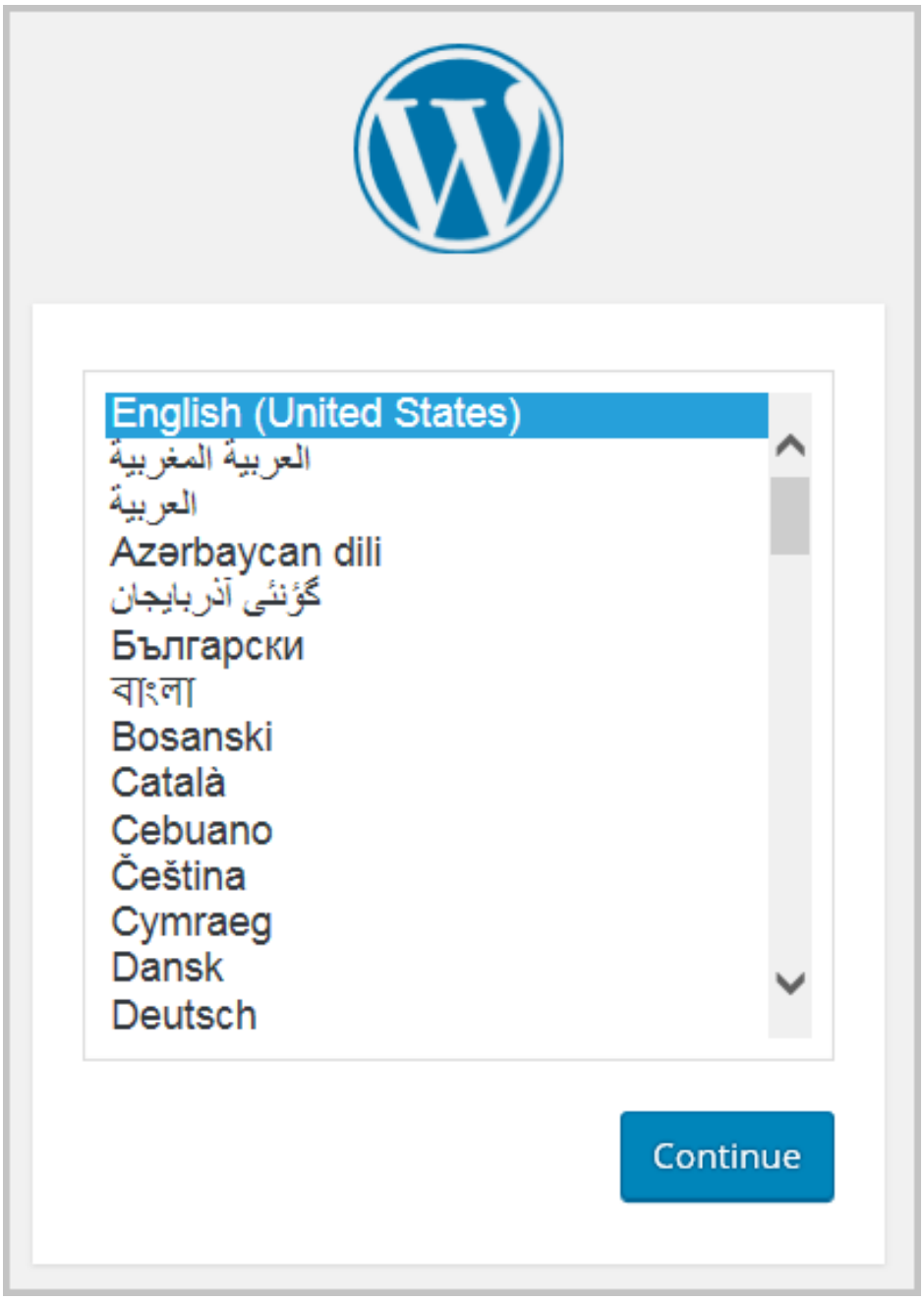
When the image is installed, the following message appears:



Log on to the **ECS console**, locate the instance you bought, and note down the public IP address. You must change the password and then restart the instance.

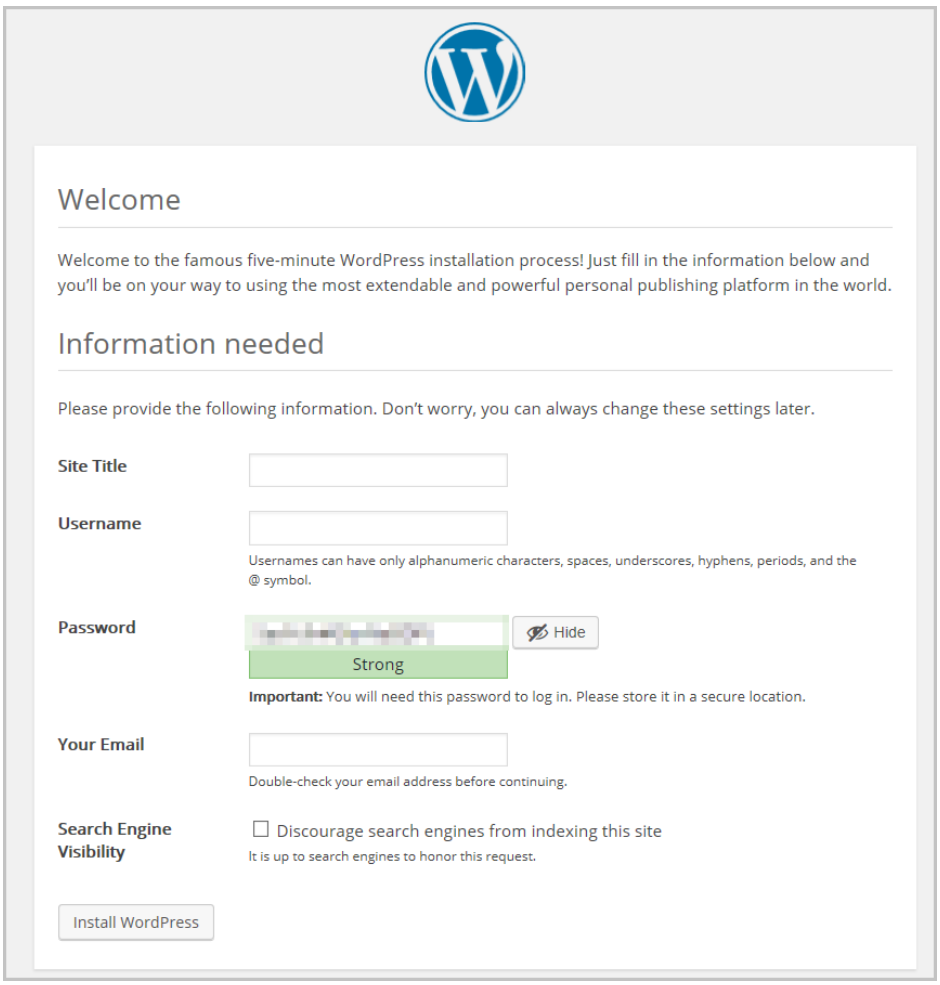
Enter the public IP address in the browser, for example, http://47.89.30.144.You are redirected to install WordPress.

Choose a language, and then click **Continue**.



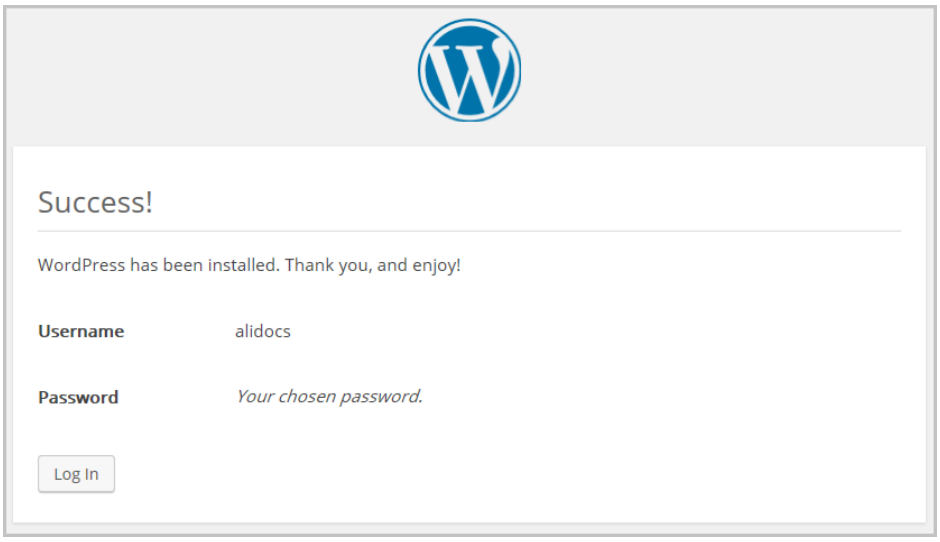
Enter the following configurations for WordPress:

- Site title: Specify the title of your website.
- User name: Specify your user name for WordPress.
- Password: Specify your password for WordPress.
- Your Email: Specify your email address.

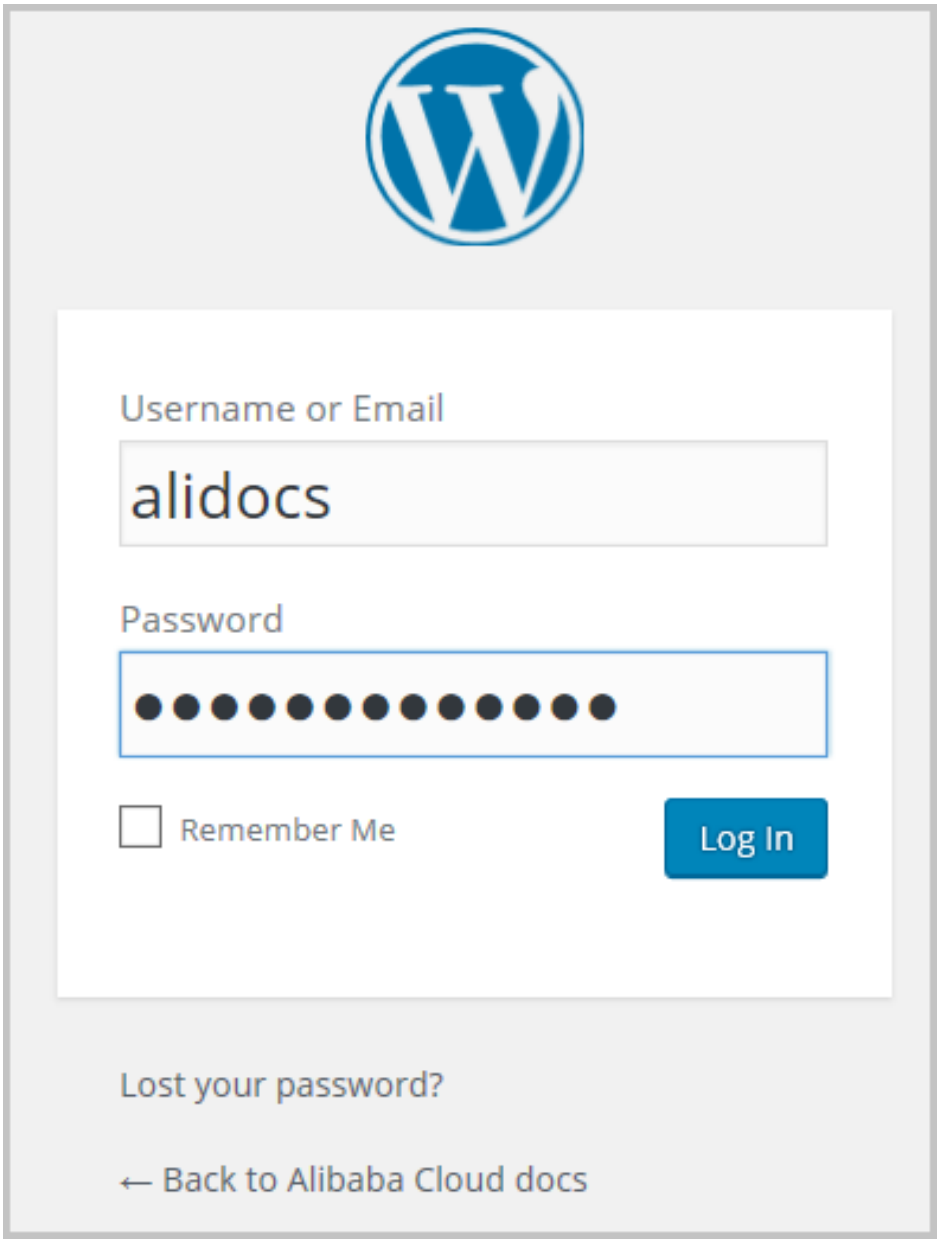


Click **Install WordPress**.

When installation is finished, the following page appears. Click **Log In**.



Enter the configured user name and password to log on to WordPress.



You can now customize your website on the WordPress Dashboard.

Congratulations! You have successfully created your WordPress site on Alibaba Cloud! You can now start designing and using your site.

For more instructions on how to use WordPress, go to https://wordpress.org.

ICP Filing

If your website is hosted in mainland China, you must complete ICP filing before users can access your website. For more information on ICP filing, see the ICP Filing Guide.