

# **Coupay System Design Document Series**

# **Manual**

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# 1 Introduction

## 1.1 Purpose

This user manual is written to help users understand the Coupay Systems, and operations on the system. Readers of this user manual are: businesses that use the system, regular users, system maintenance personnel.

## 1.2 Background

Software name: Coupay

Project task: Citicorp software and technology services (China) limited

Project developers: 日昇昌 Team

User: General merchants and mobile payment groups

Software: 日昇昌 Team

Projects with other software, the system:

The system does not need any other system.

This system using mobile C/S Architecture, Microsoft windows server 2008 as develop operating system server, and MySQL community server 5.5.29 as Database server to develop software programs.

## 1.3 Definition

Null.

## 1.4 Reference

N.O: b100001 Name: Software requirements specification

N.O: b100011 Name: Database design specification

N.O: b100111 Name: Outline design specification

## 2 Use

### 2.1 Function

#### 2.1.1 Pay

You can use QR code and NFC for Payment.

- Pay through QR code

QR payment require users have a mobile phones with camera. when the user chooses to pay through QR codes, he can choose to pay by single person or pay by multi person. When pay by single person, the system automatically calculate the optimal payment scheme (calculates the total price after the coupon or discount).

If choosing to pay by multi people, the user can scan his friends phone or enter the circle of friends to choose friends to pay together. At this point, the system also automatically calculates optimal payment scheme (calculated total price after discount coupon or VIP cards).

- Pay through NFC

Pay through NFC requires a user's mobile phone has NFC function.

NFC Payment is suitable for micro-payments, such as the bus or a store. Users do not need to operate his phone. You can just put your phone close to assign area to complete the payment.

At the same time, NFC Can also be used to transfer transactions between users.

#### 2.1.2 Balance

You can check and manage account balances. And you can set the max amount paid without verifying.

And you can check and manage the information corresponding to each bank card's balance.

You can use small housekeeping embed to manage the available balance. You can also set up financial planning and receive consumer information and feedback this month.

#### 2.1.3 Coupon

To check features such as membership cards, coupon, account credits.

- Membership card

To view user-owned businesses membership card and the scores, rank, permissions corresponds to the card. User can easily manage membership card and transfer membership cards to account credits.

- Coupon

Display user-owned merchant coupons, including coupon details (time, offer content, conditions of use, business addresses, and so on). And user can manage coupons, such as exchanging coupon for account credits or gift coupons.

- Account credits  
Show the user's account credits information in this system.  
Users can change account credits to coupons, vouchers, loyalty cards and gifts. May also specify the points presented to friends.

## 2.1.4 Bill

Including checking bills, appending the evaluation reviews of merchants and so on.

- Historical billing query  
You can access historical billing. And you can get detail information of each historical billing.
- Consumption evaluation  
You can check information of businesses according to billing records, and evaluating businesses, or append, modify the assessment.

## 2.1.5 Community

Includes features such as circles of friends, favorite merchants.

- Circle of friends  
You can add friends, and check the consumer information they shared.  
You can share experiences, locate and check consumer information (such as where good fun).  
You can favor a store by clicking information shared by friends.  
You can send small gifts to friends directly, such as coupons, membership cards, points or vouchers, etc.
- Favorites  
You can manage and query the collection of business information, including access to commercial tenants find the latest product information, commercial tenants, the recent activity information, and so on.  
You can also delete a favorite or recommended to friends collection of businesses.

## 2.2 Performance

### 2.2.1 Accuracy

All kinds of transactions, amounts are retained in the Bill to two decimal places, units and amount is also kept to two decimal places.

### 2.2.2 Time characteristics

- Response time

Transaction response time is less than 2 Second, all query response time is less than 3 Second, pictures, street view data completed within 8 seconds of loading or tips relevant error information, major reports such as historical transaction statement should display in 10s or tips relevant error information.

➤ Data transfer time

All data are generally response within 3 seconds, but except for upload and download Street and docking operations.

➤ Calculating time

The total number of bills and the best choices of coupon is calculated within 1 Seconds.

### **2.2.3 Flexibility**

With mobile devices, user can connect to the network, all users are able to easily use the payment function, and, depending on the device, combined with positioning, recommend, share coupons and community functions.

Businesses can use this system to collection and manage cash flow, sales, stock information easily. It does not require additional purchase of a revenue management system.

It timely and convenient for user to the view the merchant information surrounding and access to other users' consumer evaluations. It can help user consumer responsibility.

It provides features such as automatically calls the best coupons to help users reduce consumer costs.

## **2.3 Security**

Security of e-commerce systems should take into account from different aspects. In terms of data security, we secure backups of databases, encrypting protection for critical data and users to access the data for various operations such as read, write, delete, modify, monitor data transfer. For transferring data, we apply AES Encryption.

In terms of network security, set up a network firewall. As for the client, use the login CAPTCHA, detect IP Send validation exception messages. For cash transaction authentication uses a pair of passwords, digital certificates: one is the logon password , another is pay password. It cannot make funds flow without any password.

From one hand, we should manage the system security from the technical aspects. From another hand, it is much more important to improve the quality of staff and improve employee safety awareness. To handle this problem from a social perspective.

## 3 Environment

### 3.1 Hardware

- a. The system server hardware requirements are as follows:
  - Processor minimum : 1GHz
  - Memory minimum : 512MB RAM
  - Minimum hard disk space : 8GB
- b. Client hardware requirements for this system are as follows:
  - RAM Capacity:2GB
  - ROM Capacity:8GB
  - CPU Frequency:1000MHz

### 3.2 Software

- a. The system's client system requirements are as follows:
  - Android OS 4.2 Or above.
- The system server system requirements are as follows:
  - Windows server 2008 /Ubuntu Server 9.10.
- b. System programming language compiler/Assembly name and version number:
  - Java 1.7
- c. Name and version number of the database management system:
  - MySQL community server 5.5.29

## 4 Procedure

### 4.1 Install and configuration

#### 4.1.1 App

Click on the Apk Installation file, as shown in Figure 4-1 As shown in

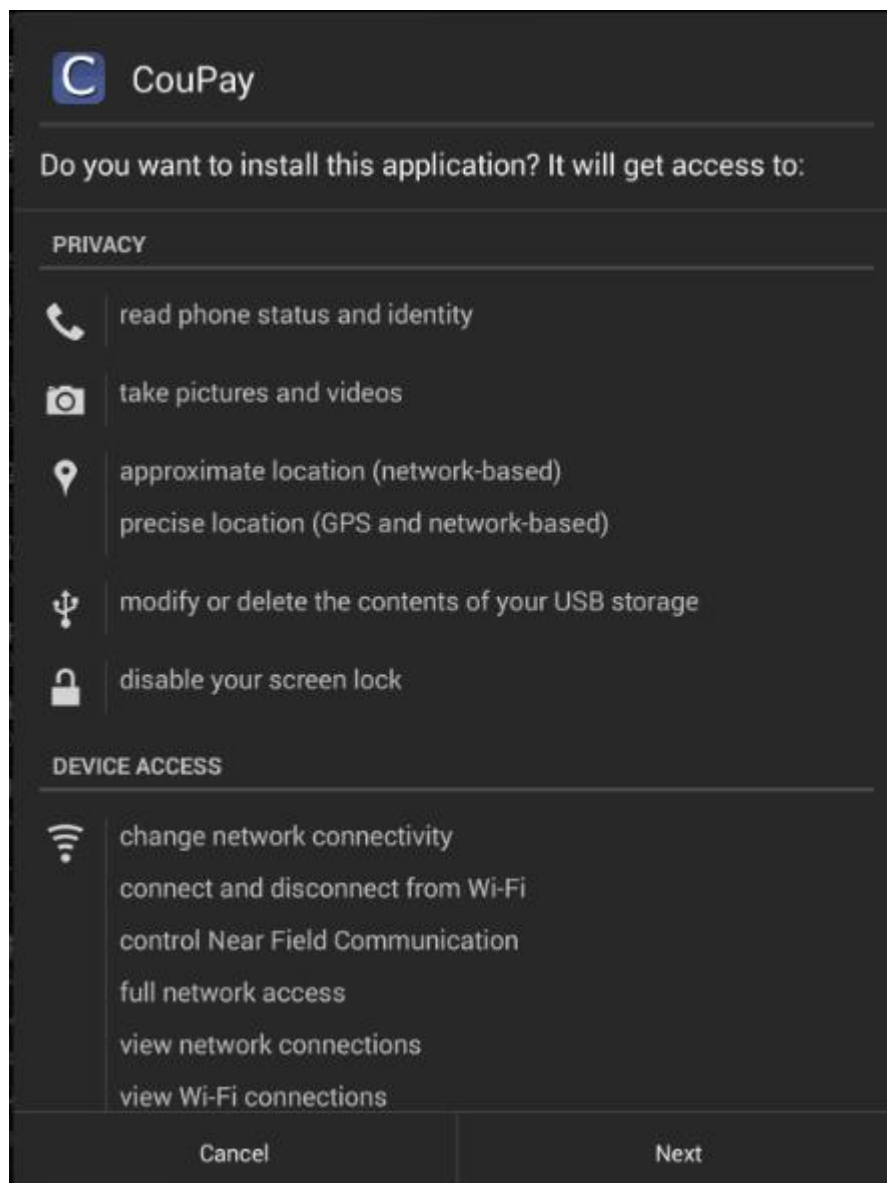


Figure 4- 1 Mobile client app Installation interface



Installation is complete, as shown in Figure 4-2 Shown in.

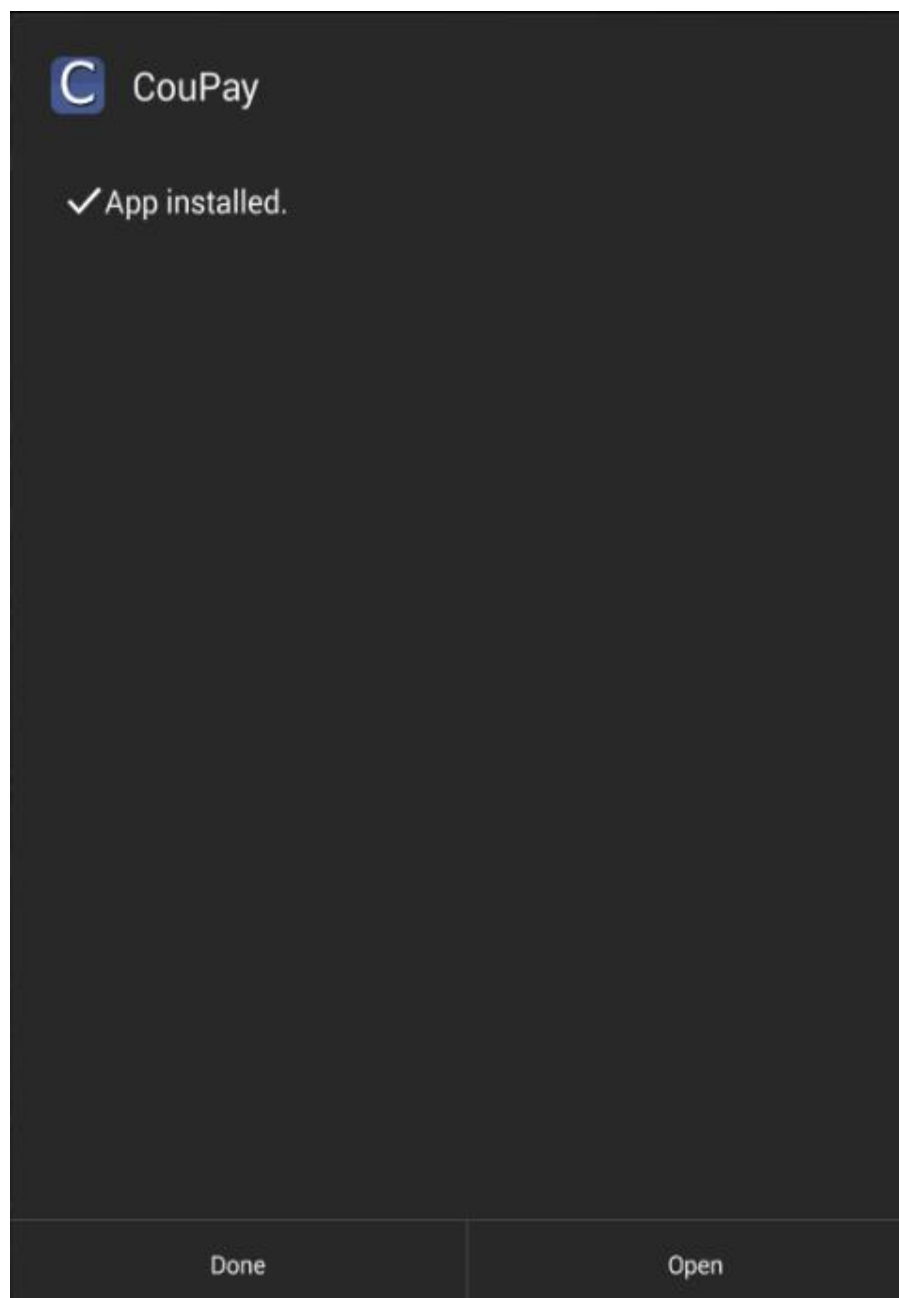


Figure 4- 2 Installation is complete

Simply use after Setup is complete.

### 4.1.2 Service

- a) My SQL database installation  
Open the downloaded MySQL Setup files, run " setup.exe "With the following interface



Figure 4- 3

MySQL Installation Wizard starts, press "Next" Continue



Figure 4- 4

Select the type of installation, "Typical (Default)" 、 "Complete (Full)" 、 "Custom (User-defined)" The three options. Select the options you want to install.

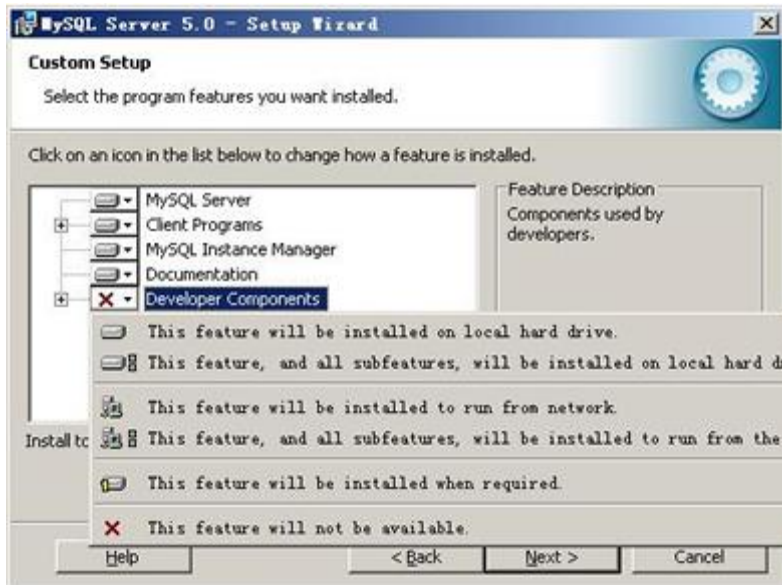


Figure 4- 5

"Developer Components (Developers section) " Left click on, select "This feature, and all sub features, will be installed on local hard drive." , That is, " In this section, and subordinate parts, all installed on the local hard drive " 。 In the above , "MySQL Server(MySQL Server)"and the"Client Programs(MySQL The client program)", and" Documentation(documentation)" does this in order to guarantee the installation of all files. Click "Change ...", manually specify the installation directory.

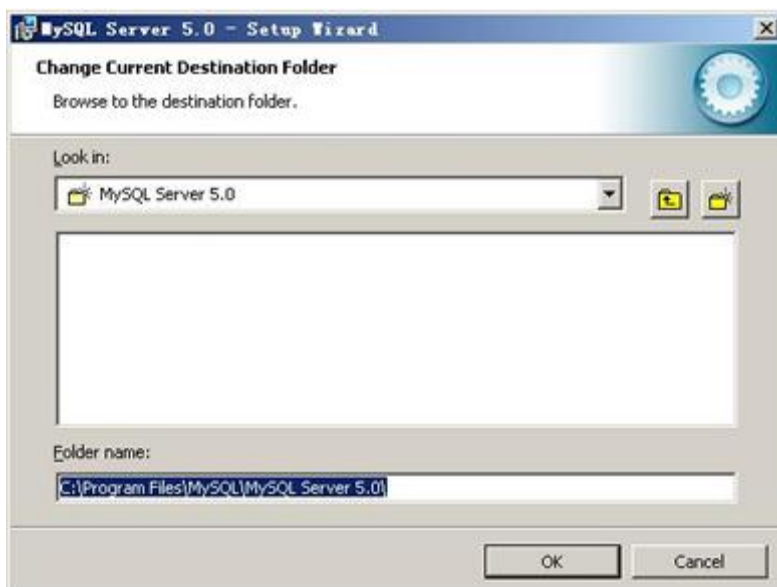


Figure 4- 6

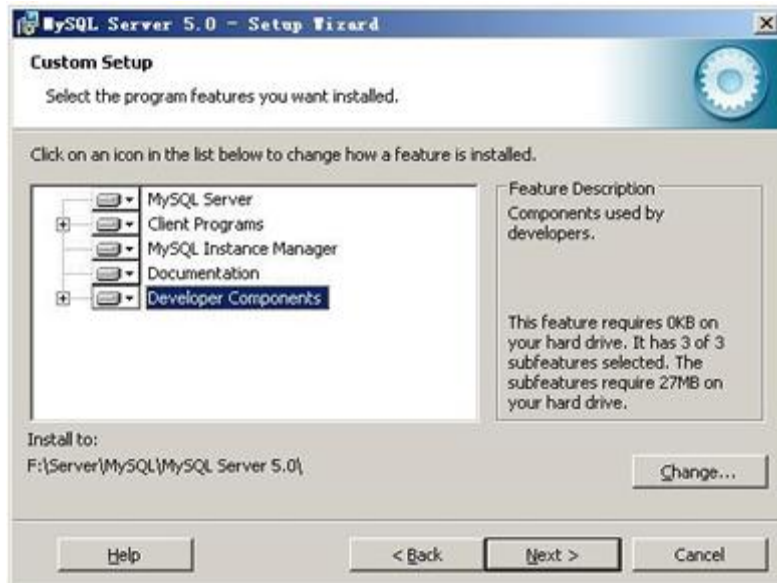


Figure 4- 7

Returns the interface, press "Next" Continue



Figure 4- 8

Check previous settings, if I make a mistake, press "Back" Return to do it again. Press "Install" to start the installation.

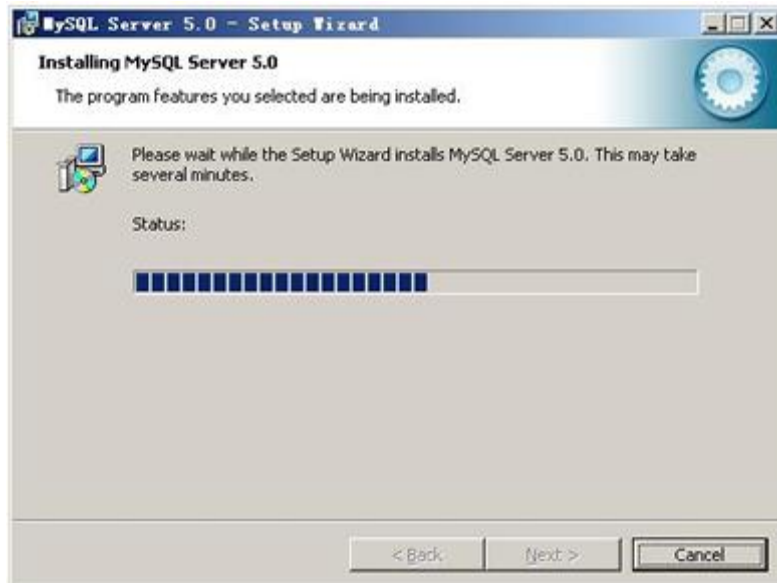


Figure 4- 9

Installing, please wait until you see the following interface



Figure 4- 10

Click "Skip Sign-Up" According to "Next" To skip this step.



Figure 4- 11

Now, the software installation is complete, "Configure the MySQL Server now" On the hook in front, "Finish" Complete the software installation and start MySQL The Configuration Wizard.

b) MySQL configuration

MySQL Configuration Wizard start screen, press "Next" Continue

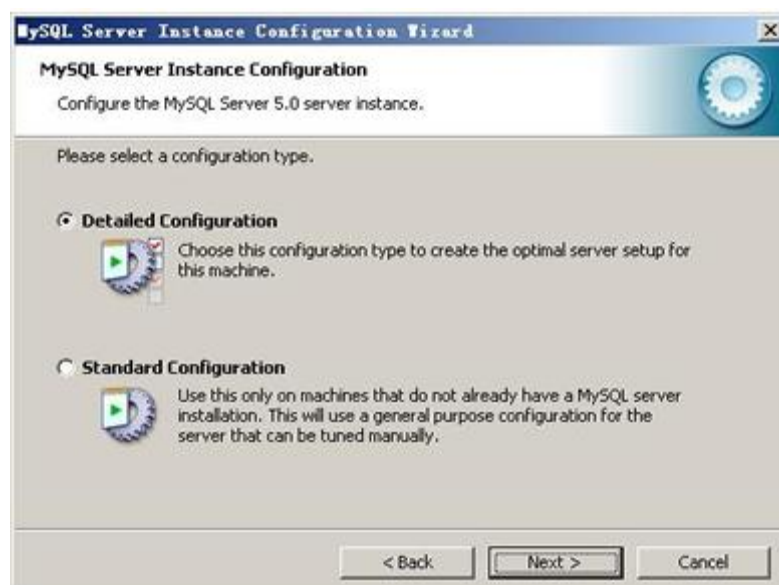


Figure 4- 12

Select configuration settings, "Detailed Configuration (Exact configuration manual) " 、 "Standard Configuration (Standard) " 。 Choose the configuration you want.



Figure 4- 13

Select the server type, "Developer Machine (Development test classes MySQL Uses very little resources) " 、 "Server Machine (Server type MySQL Consume more resources) " 、 "Dedicated MySQL Server Machine (Dedicated database servers, MySQL Uses all available resources) " , Choose according to their type.

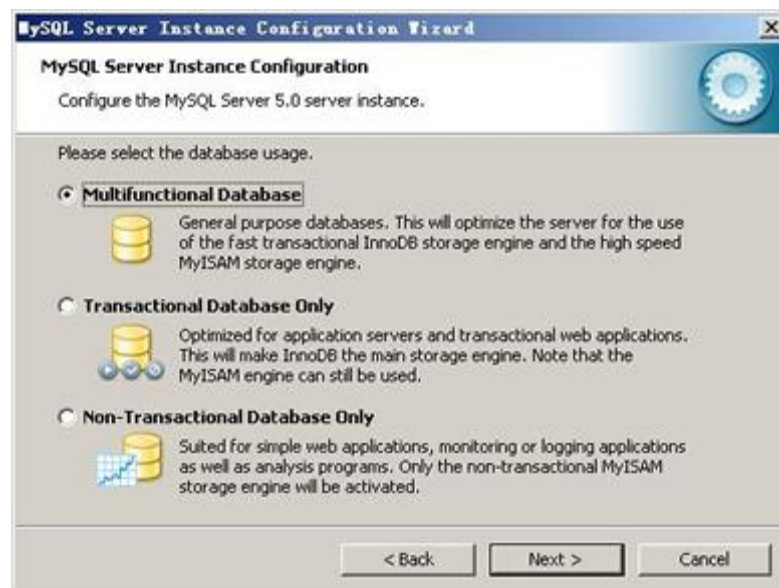


Figure 4- 14

Select MySQL General use of the database, "Multifunctional Database (Universal multi-functional, good) "、 "Transactional Database Only (Server type, focusing on the transaction, General) "、 "Non-Transactional Database Only (Non-transaction type, relatively simple, mainly to do some monitoring, count, My ISAM Data type support is limited to non-transactional ) , Choose according to their type.



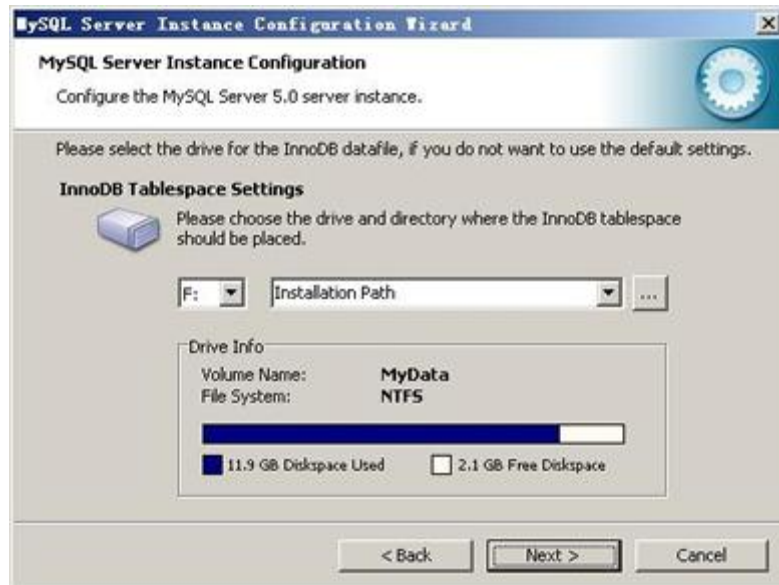


Figure 4- 15  
InnoDB Table space To be configured.

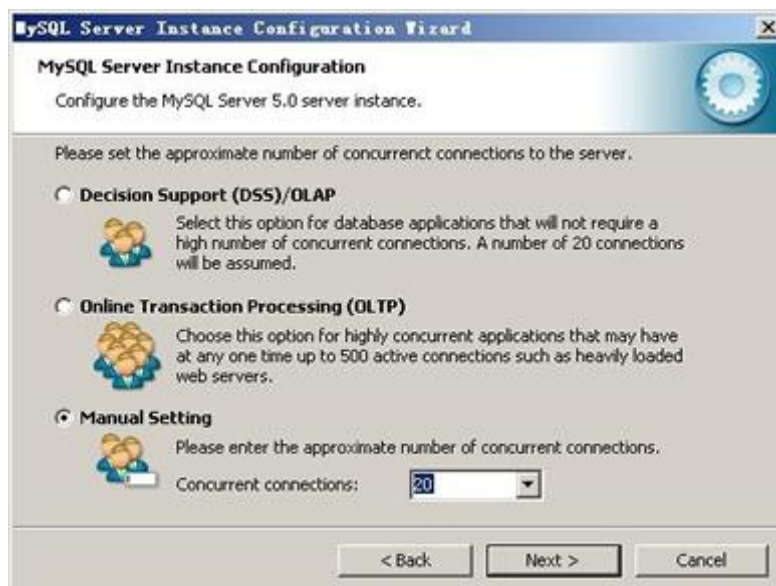


Figure 4- 16

Choose your site MySQL Traffic, the number of simultaneous connections, "Decision Support(DSS)/OLAP (20 Left-right)" 、 "Online Transaction Processing(OLTP) (500 Or so)" 、 "Manual Setting (Manual setting)"



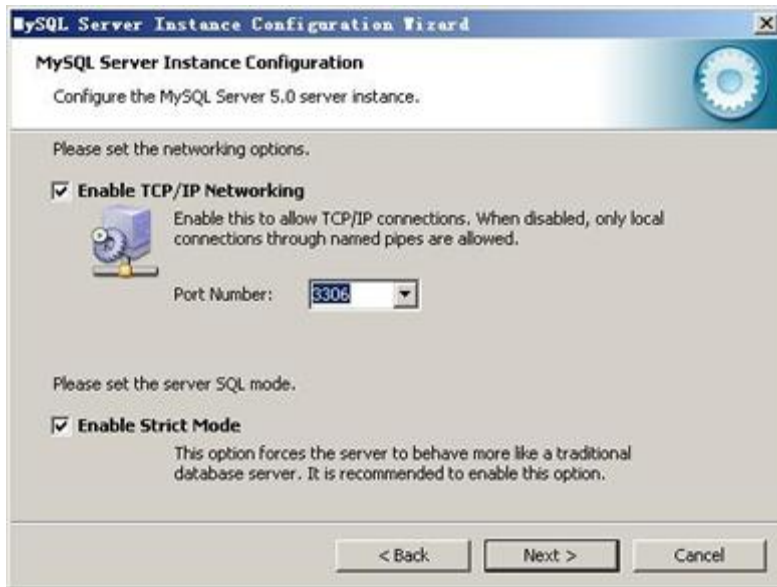


Figure 4- 17

Whether to enable TCP/IP Connection set port enable. In this page, you can also select "enable standards mode "(Enable Strict Mode), so that MySQL won't allow a small syntax error. If you're a beginner, I recommend that you cancel the standard models to reduce the problem. But people familiar with MySQL, try to use standards mode, because it reduces the possibility of unwanted data into the database. Press "Next" to continue.



Figure 4- 18

Latin encoding, select the third and Character Set Select or enter "GBK"—— MySQL When before you perform data manipulation commands run on a "SET NAMES GBK;" (Run once on the line, GBK Can be replaced by other values, depending on the settings), works just fine using the Chinese characters (or other text), you cannot display Chinese characters correctly. Press "Next" to continue.



Figure 4- 19

Select whether to MySQL Installed as a windows Service, you can also specify the Service Name (Service ID name), MySQL bin Directories added to the Windows PATH , All on the hook, Service Name Unchanged. Press "Next" to continue.



Figure 4- 20

This step asks whether you want to modify the default root User (admin) password (default is blank), "New root password" If you want to modify, and fill in the new password here (if it is reloaded, and has already set a password, change password may be wrong here, please leave blank, and "Modify Security Settings" Front hook removed and installed and configured when you are finished modifying the password), "Confirm (Again again) " Filling in time to prevent wrong. "Enable root access from remote machines(whether to allow root user login on other machines)". Finally , "Create An Anonymous Account(create a new anonymous user)", generally do not check setting is completed, press "Next" to continue.

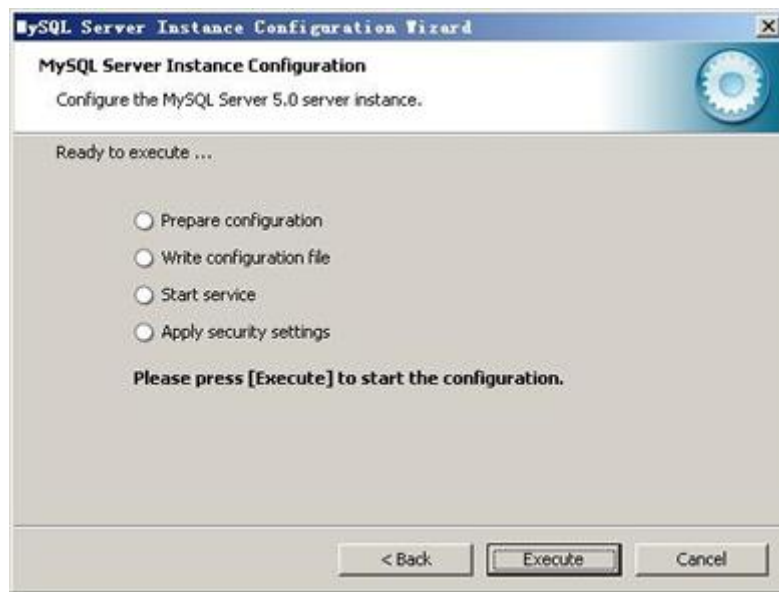


Figure 4- 19

Confirm the setting is correct, if I make a mistake, press "Back" Returned checks. According to "Execute" the settings to take effect.

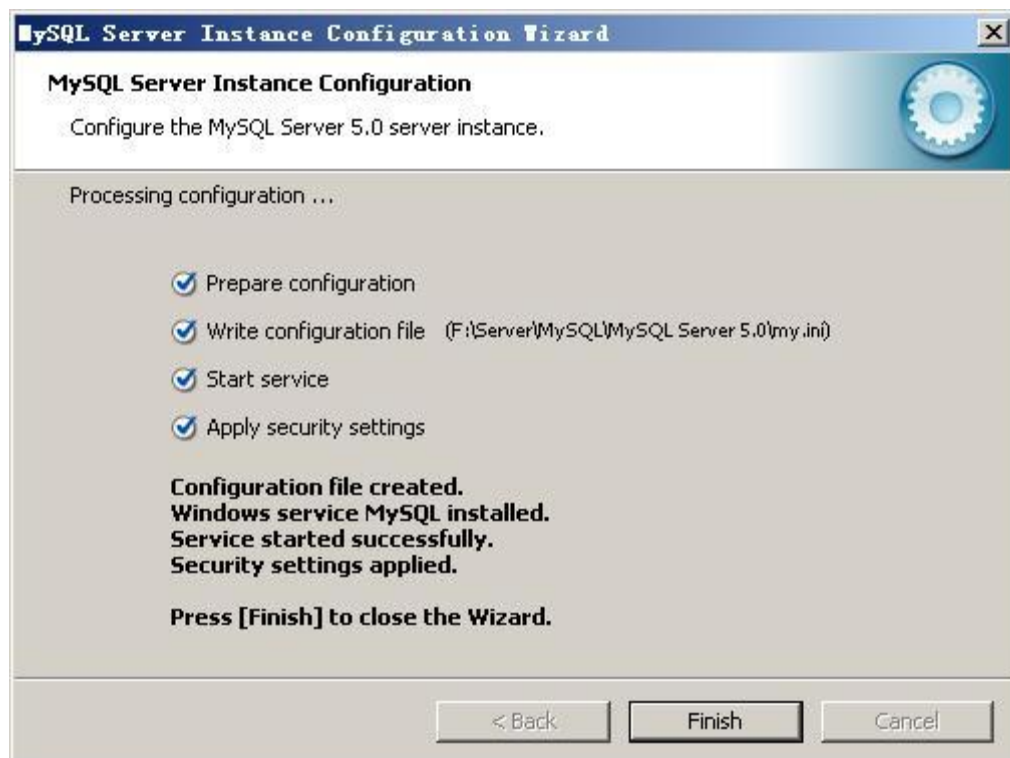


Figure 4- 20

Is set, press "Finish" End MySQL Installation and configuration.

Here is one of the more common error is a failure to "Start service" Generally appear in the previously installed MySQL On the server, the solution approaches, make sure a previously installed MySQL Completely uninstall the server; it doesn't work, check if above step has said,

before the password is modified, according to the above action; if still doesn't work, you will MySQL Installation directory data Folder backup, then deleted after the installation is complete, install build data Folder delete, backup data Folder is moved back, then restart MySQL Services can, in this case, the database may need to be checked, and then fix to prevent an error in the data.

c) Tomcat installation

Double-click apache-tomcat-6.0.14.exe Start JSP Installation of the container, as shown in Figure 4-22

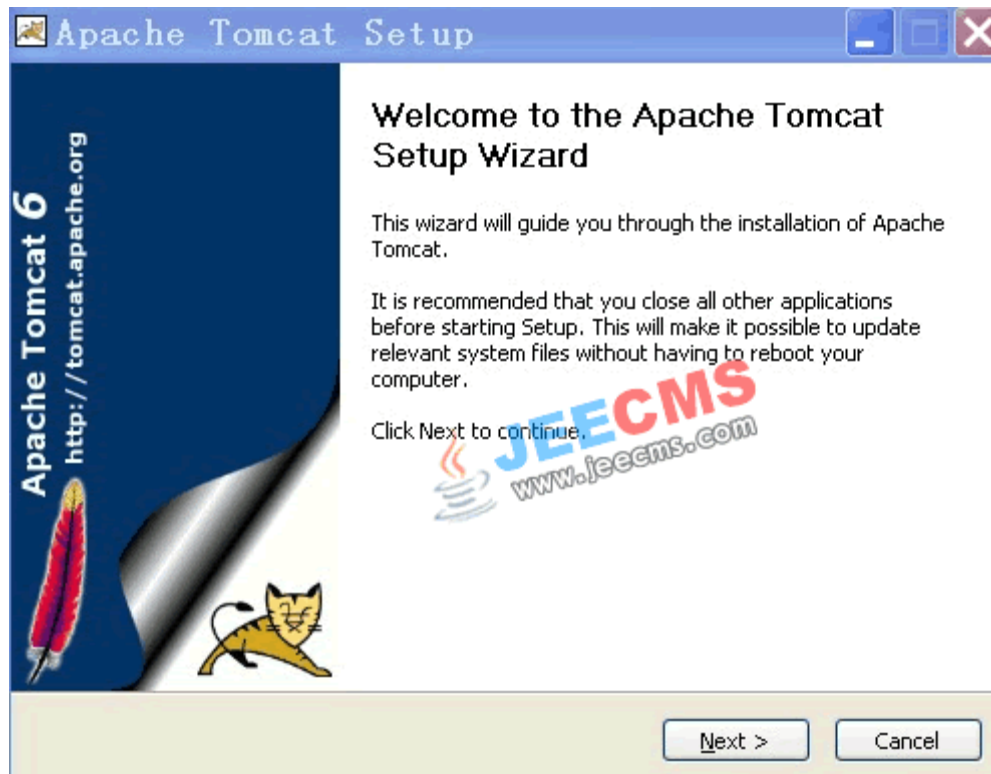


Figure 4- 21

Click on the Next , Proceed to the second step, agreed to the terms it's installed protocols, as shown in Figure 4-23 , Click on the I Agree To continue the installation.

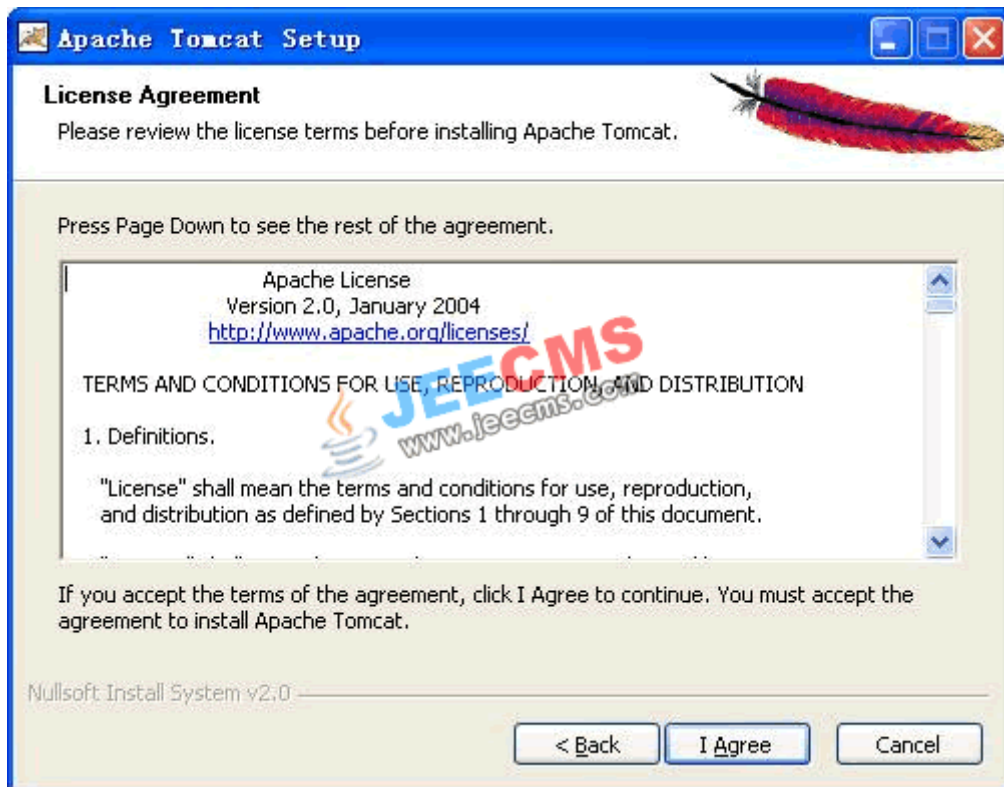


Figure 4- 22

Select an installation option, the default is Normal , You can see map 4-24 , And click on Tomcat , Select the Service And later will be able to manage the service startup and shutdown Tomcat , When selected, you can see figure 4-24.

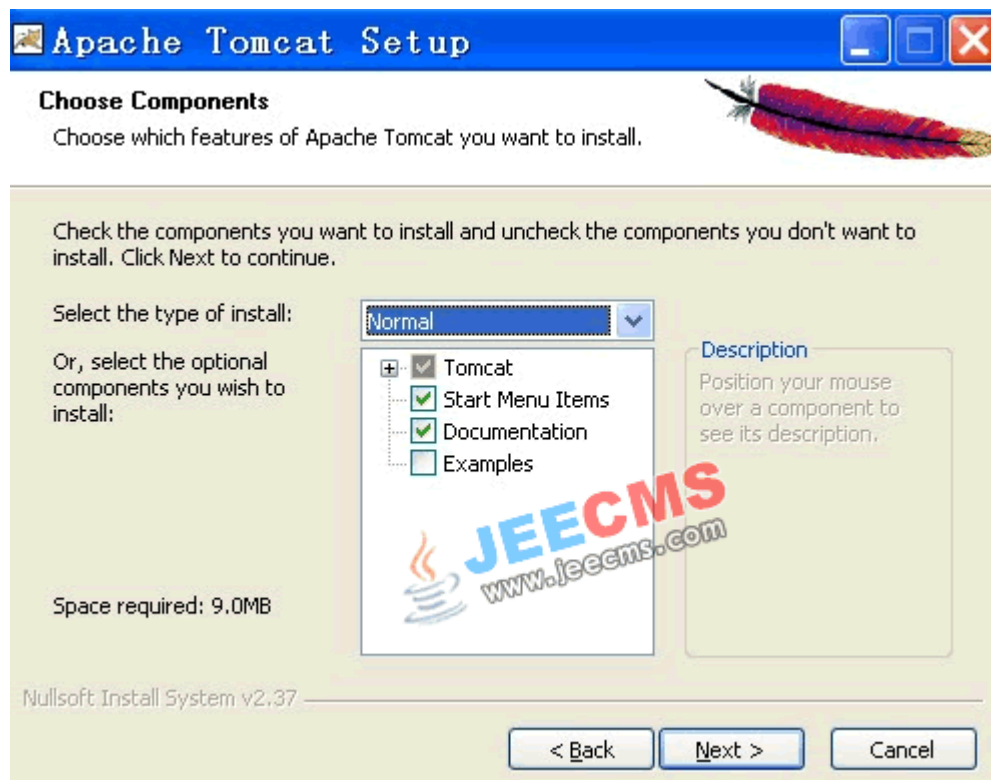


Figure 4- 23

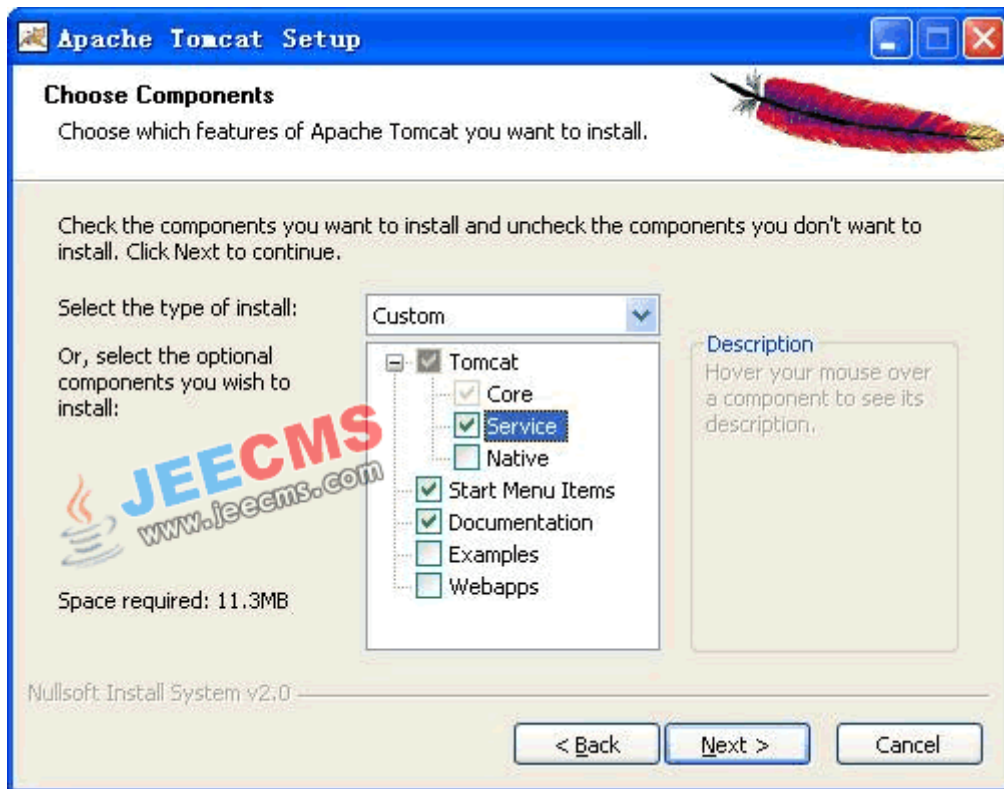


Figure 4- 24

Click on the Next Begin the next step of the installation path, default is C:\Program Files\Apache Software Foundation\Tomcat 6.0 , Click on the Browse.. Select the new installation path, click Next To continue, see figure 4-26.



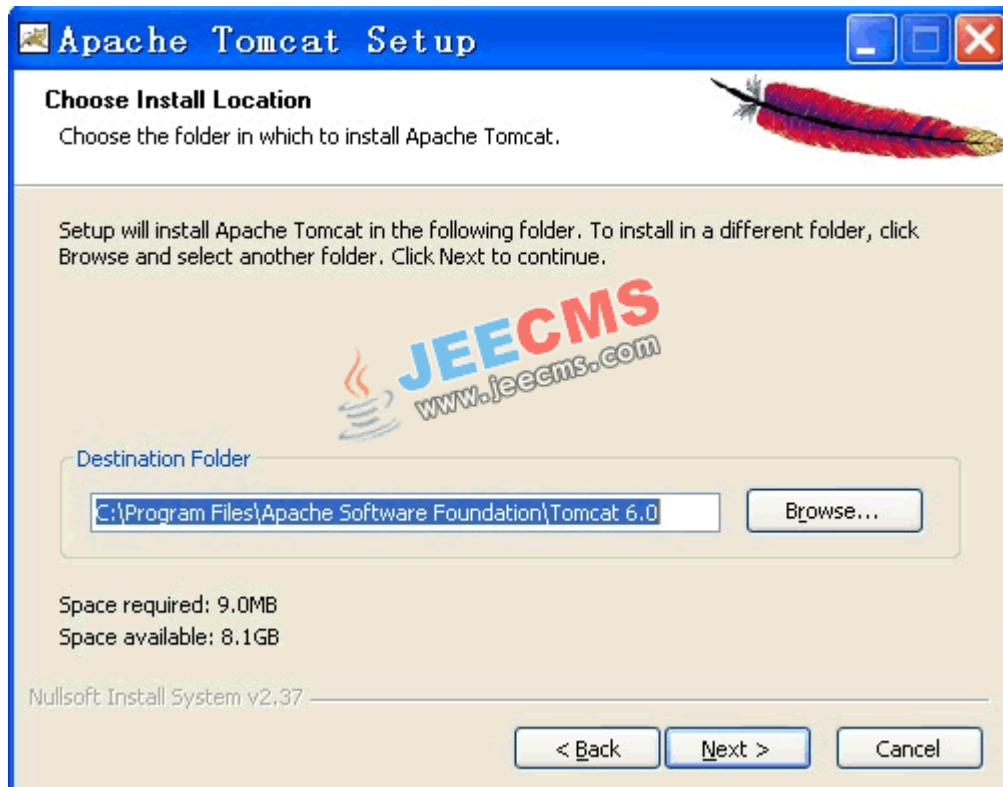


Figure 4- 25

Management Tip box appears requesting input ports and the admin password, the user can modify port 80. Such access WEB will not need to add ports to visit, but if users install and use IIS Or Apache, You cannot change the port, otherwise it will cause conflicts, if a user installs Resin Or other Tomcat, Then 8080 Also may be in use, you need to change into a different port, such as 8090. Here I changed 80.

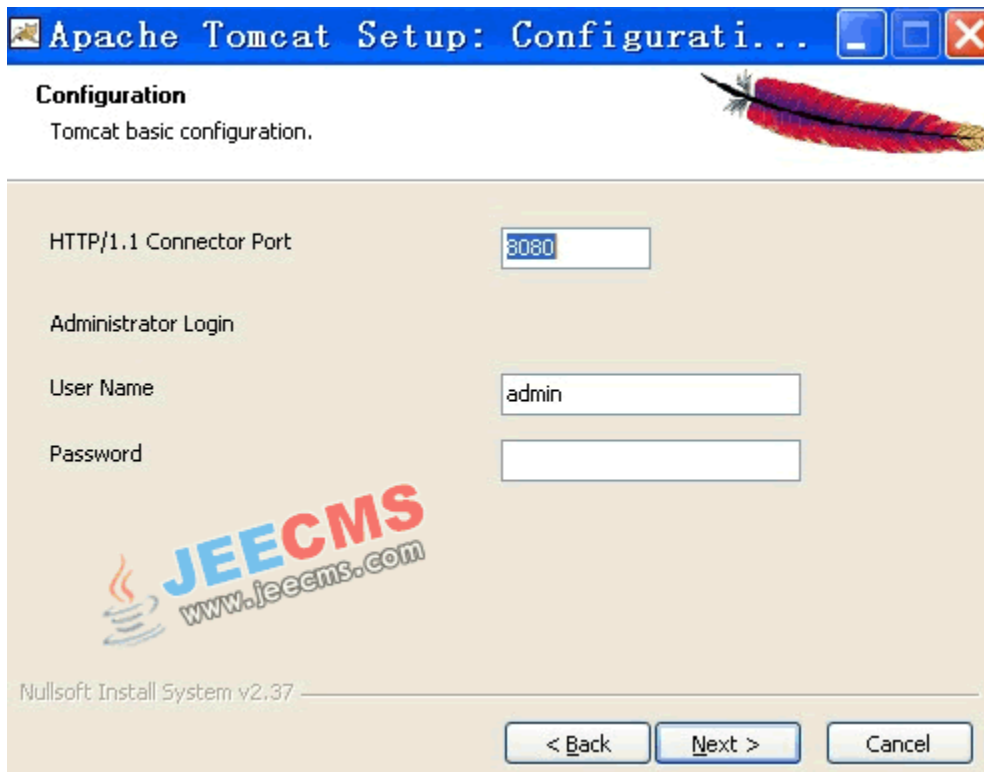


Figure 4- 26

Click on the Next Will appear under the map, it will automatically find JRE If users do not have to install JRE , You can modify the points JDK Directory.

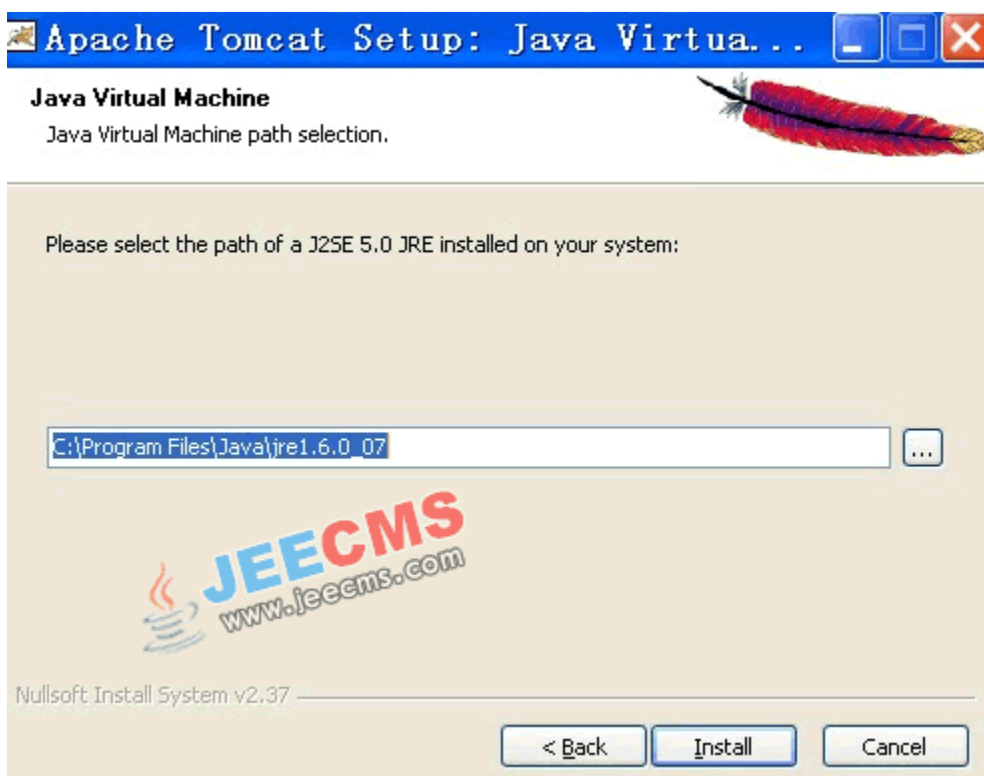


Figure 4- 27



Click on the Install To start the installation.

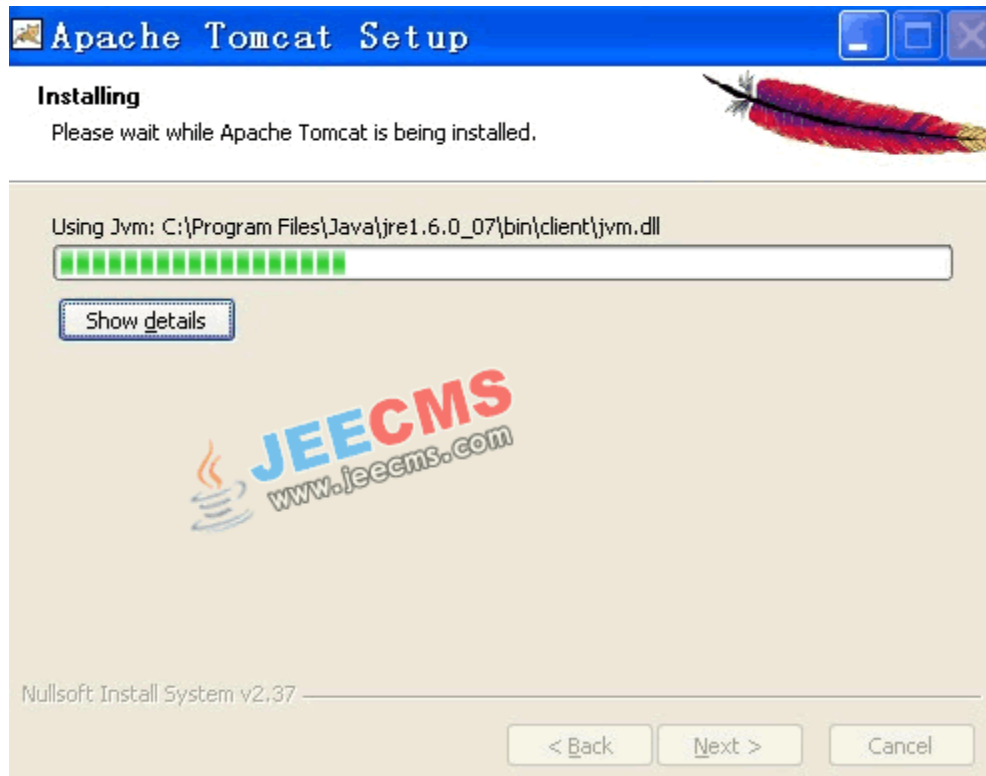


Figure 4- 28

End of Setup:

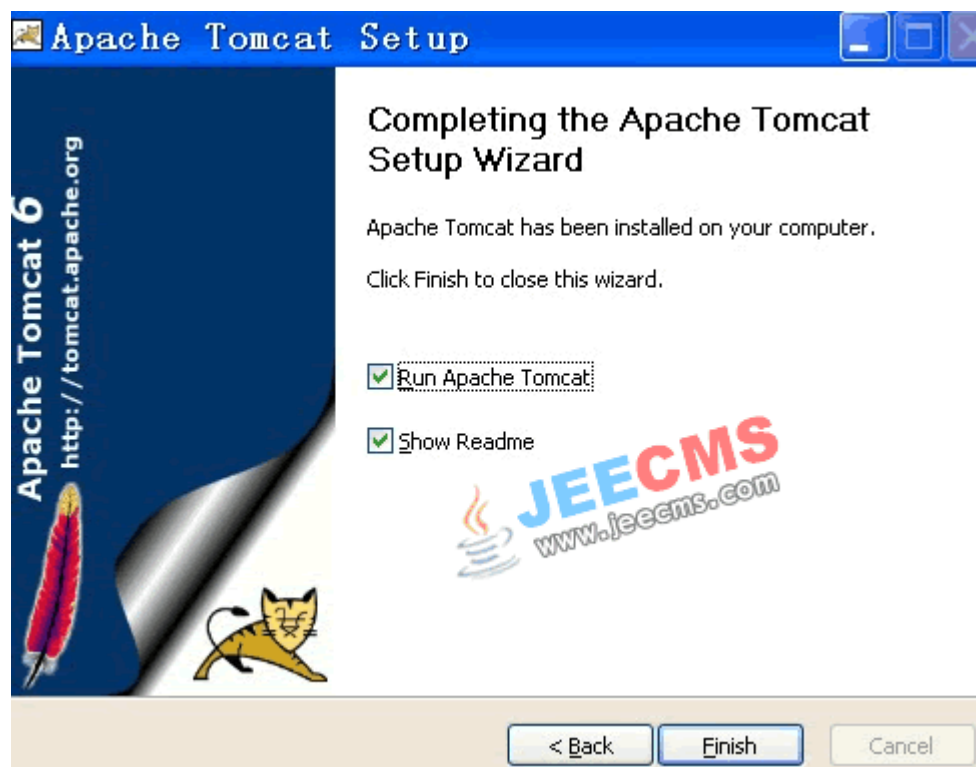


Figure 4- 29

You will see in computer management-services Tomcat Service, click on the Start button, you can start Tomcat .



Figure 4- 30

(Open Tomcat Server icon appears on the taskbar after , Green run , Red for the provisional)



Figure 4- 31

Open a browser Type <http://localhost:8080> enter the following page indicates successful installation)

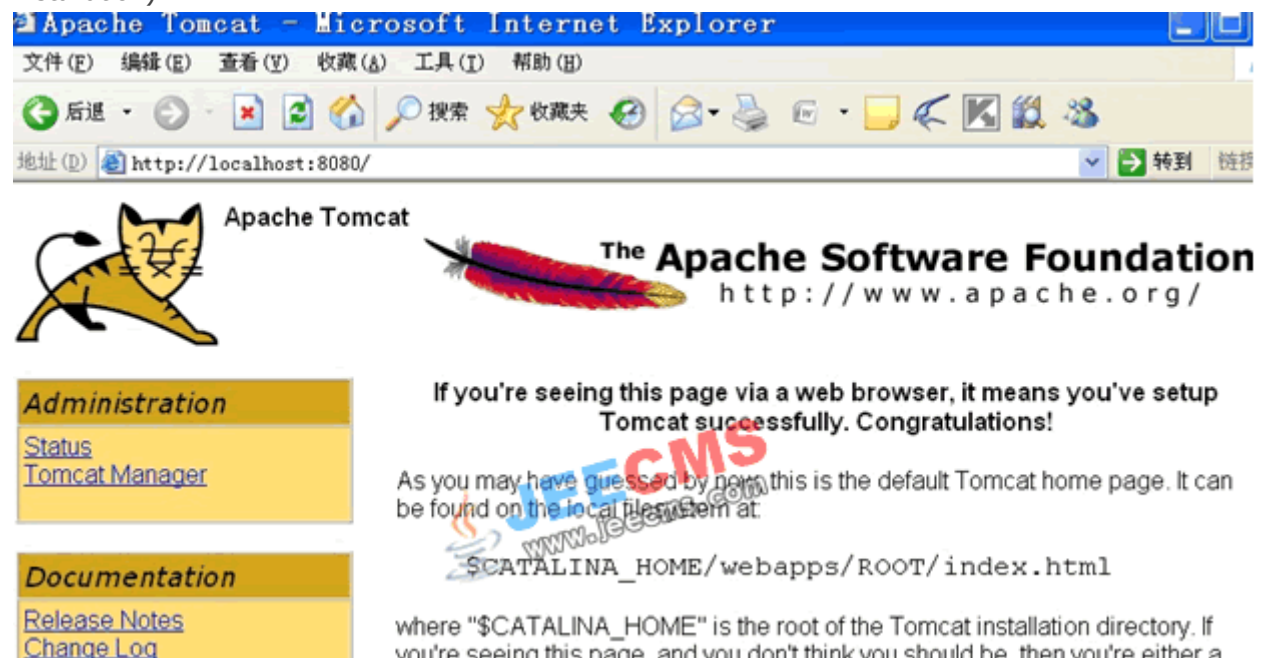


Figure 4- 32

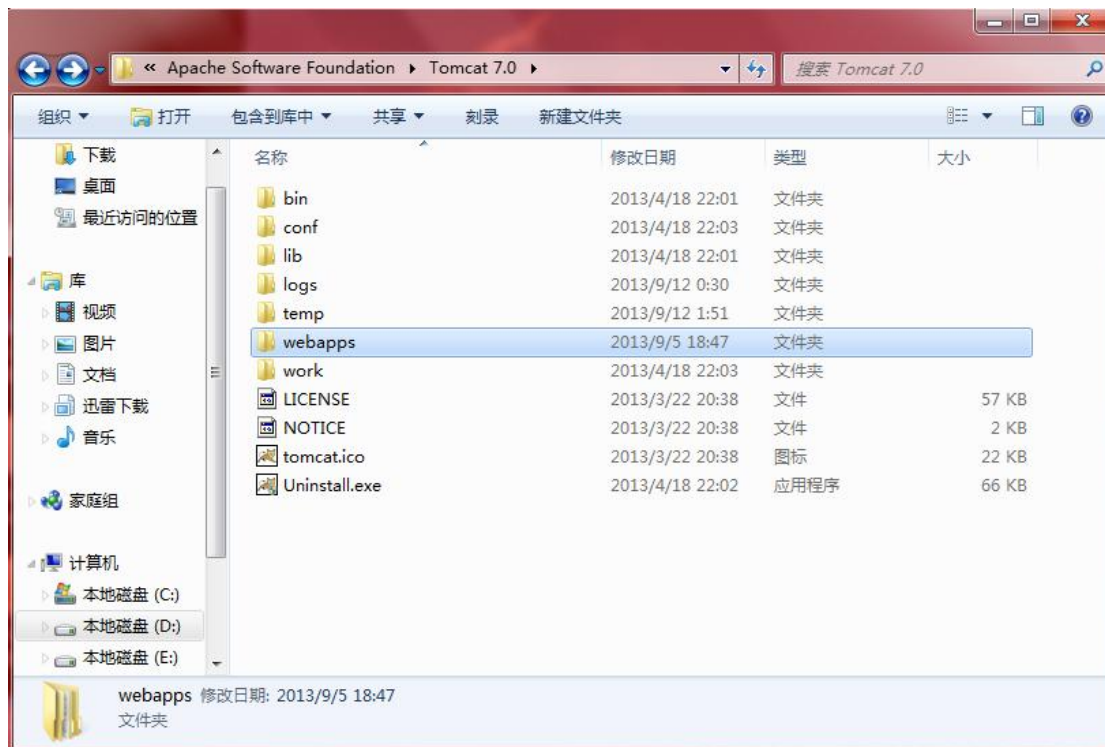


图 4-33

To extract the source code to tomcat Directory of the web apps.

Then start tomcat

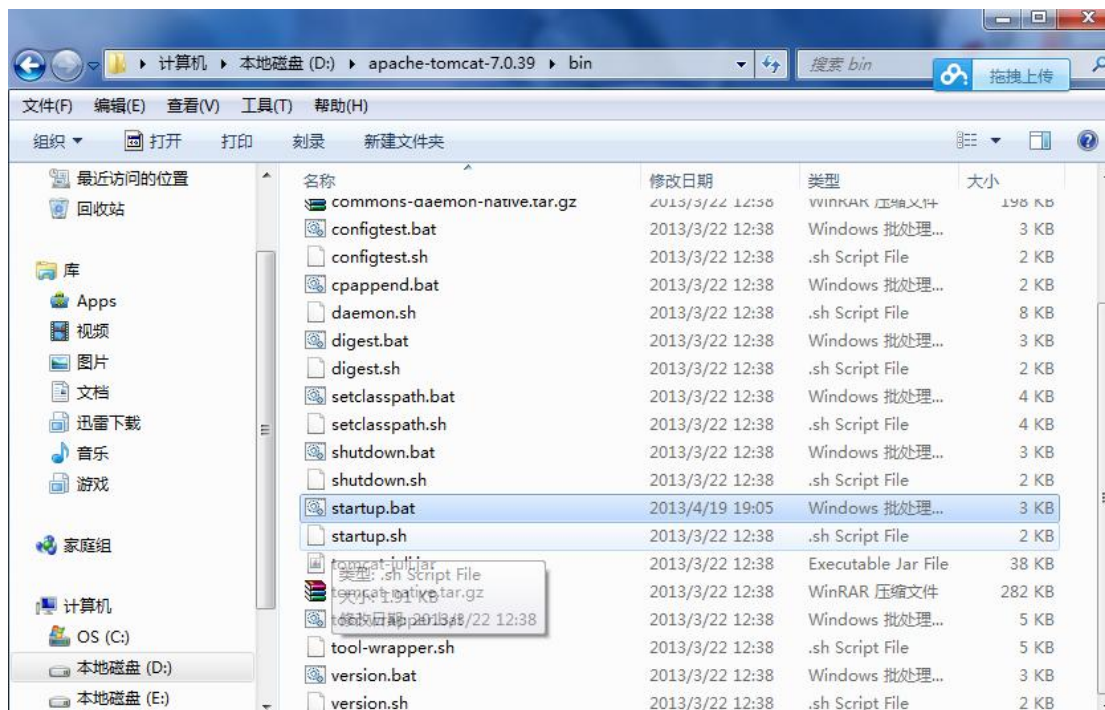


图 4-34

Enter tomcat The directory, click on the bin Into a subdirectory, double-click startup.bat

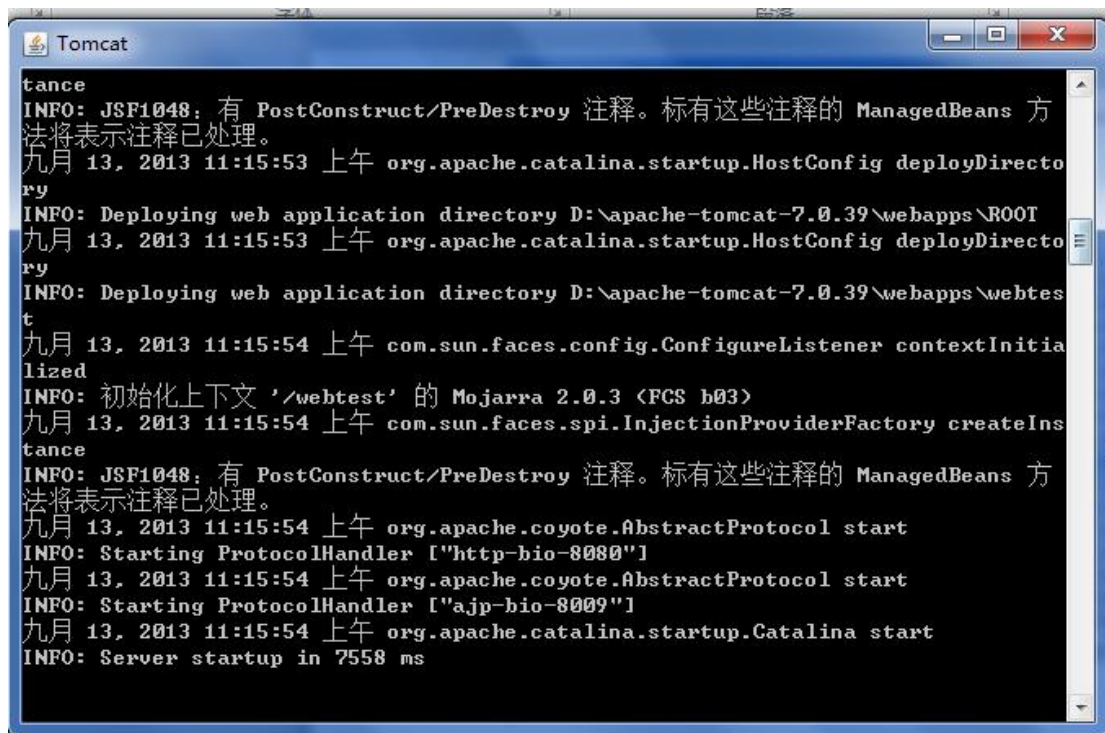
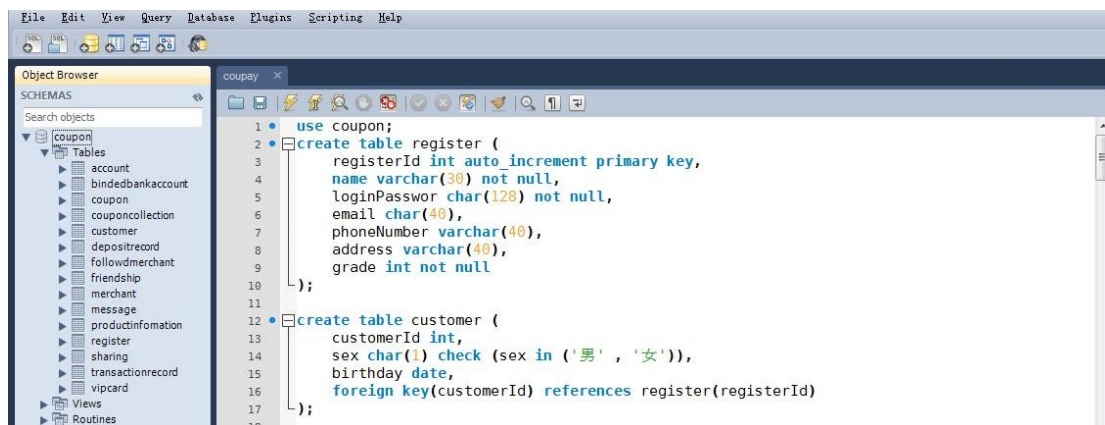


图 4-35

On the pop-up page, the server loads successfully.

Database deployment:

After the statements are executed, the database deployment is finished:



After deploying the database, data can then be imported.

## 4.2 Input

### 4.2.1 Background of input

Conditions: user login, payment transactions.

Enter media: text input.

Limitations: password are covered in accordance with instead of the display.

## 4.2.2 Example of input

	item	data type	I/O	must given	range	examples
3	pay password	string	I	√	between 8 and 20 bits	12345
4	bank account number	string	I	√		
6	Bank card password	字符	I	√	Less than	12345
7	Bank	string	I	√		Bank of china
8	address	string	I		less than 40 bits	HEMC
10	contact number	string	I	√		<a href="mailto:123@qq.com">123@qq.com</a>
19	sex	char	I	√	Male or female	Male
20	birthday	date	I		yyyy-mm-dd	2013-08-10
21	name	string	I	√		Jack
36	login password	string	I	√	between 5 and 20 bits	12345
41	sharing content	string	I	√	less than 140 bits	Hello

## 4.3 Output

### 4.3.1 Background of output

Use: provides the user with feedback related operations makes it easy for users to do next.

Medium: screen display.

Dominate: the system prompts are displayed automatically after elimination, permanent

records in the database.

### 4.3.2 Example of output

	item	data type	I/O	must given	range	examples
1	Balance of account	float	O	√	More than 0	1000.50
2	grade	integer	O	√	1, 2,3,4,5	1
5	passwor d of bank account	string	I	√	between 6 and 20	12345
7	bank	string	I	√		Bank of china
8	address	string	I		less than 40 bits	HEMC
11	coupon content	string	I	√		70% off
12	couponI d	int				
13	head time of coupon	date	I	√	yyyy-mm-dd	2013-09-10
15	discount rate	float	I	√		15 0.5
16	Picture of Coupon	String	O	√		http://localhost:...
23	productI d	string	O	√	less than 20 bits	NB001
24	product name	string	I	√	less than 30 bits	Iphone5S

25	price	float	I	√	grater than 0	10.50
29	login time	date	O	√	yyyy-mm-dd hh-MM-ss	2013-09-10 12:00:00
30	login address	string	I	√		127.0.0
31	message content	string	I	√		{pushtype:1,data:hello, sponsor:hello}
33	sentDate	date	I	√	yyyy-mm-dd hh-MM-ss	2013-09-10 12:00:00
39	longitud e and latitude	float	I	√	accurate to six decimal place	113.402257
42	Vip card number	int	I	√		123456789

## 4.4 Error and Recover

Please be sure to press the installation instructions to install and configuration.

If the user presses the user manual handling errors, please check the system software and hardware conditions are complete, error-free installation process, the configuration process has no errors, configuration information for any omission. Installation and configuration in order for any errors.