Optical Access MonitorOnline User Manual

OTN Solutions for Metro/Regional and Long Haul

Content

Chapter I MonitorOnline Installation Prerequisites

The data management of MonitorOnline software is based on SQL_SERVER database. Therefore, SQL_SERVER database needs to be installed in advance to achieve the monitoring and recording of the entire system data.

Microsoft NET Framework 4.5 and database (SQL Server 2000 or SQL Server 2005 or SQL server 2008 or SQL server 2008R2 or SQL Server 2012 or SQL Server 2016 or SQL server 2017) must be set up before installing MonitorOnline software. The current mainstream databases are SQL Server 2008 and SQL server 2008R2.

SQL_SERVER Installation Environment

Operating System Requirements: according to the following table 1.0.

Computer Configuration Requirements: 4-core CPU, 4G RAM or more, 500G disk space.

Operating System Name	64Bit	32Bit
WIN10	√	√
WIN8	√	√
WIN7	√	√
WINXP	√	√
WIN2003	√	√
WIN2000	√	√
WIN98	\	\
WIN95	\	\

Table.1.0 Operating System

Note: √ : Supporting this system;

\ : No such system.

Once Microsoft .NET Framework 4.5 and SQL_SERVER are installed, you can start to install MonitorOnline Management Software, and please noted the selection of language during installation.

1.1 Login SSMS

The network management software needs to connect the database remotely to implement the operation, so it is necessary to make the pre-connected database and open the remote function before running MonitorOnline software. The specific steps as following:

Step One: Open SQL Server Management Studio and login as windows, then right click "SQL Server", choose "Properties" (see Fig.1.1).

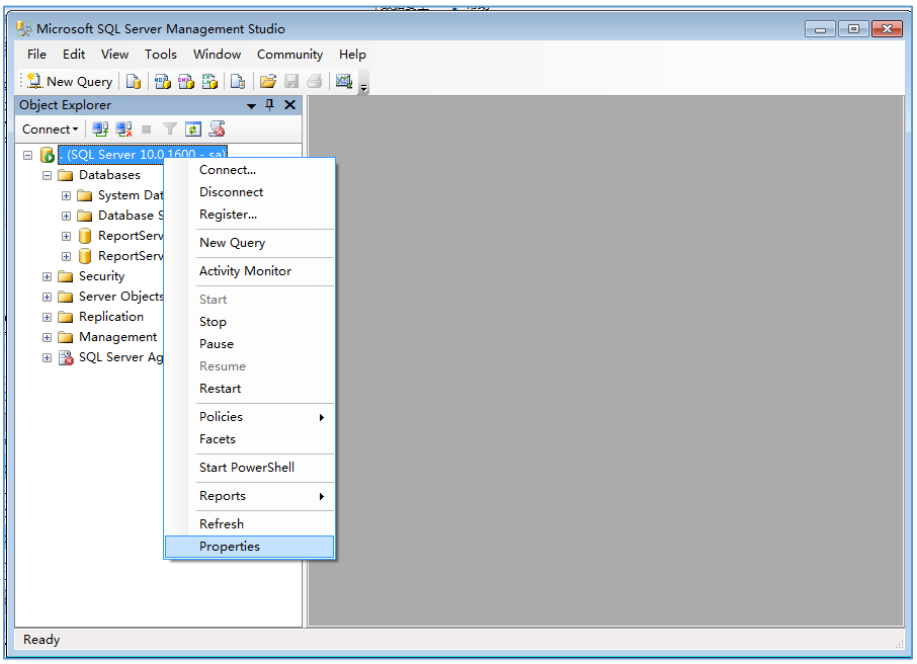


Fig.1.1 Microsoft SSMS

Step Two: After clicking "Properties", choose "Security" on the left, then choose "SQL Server and Windows Authentication mode" in Server authentication to enable hybrid login mode(see Fig.1.2).

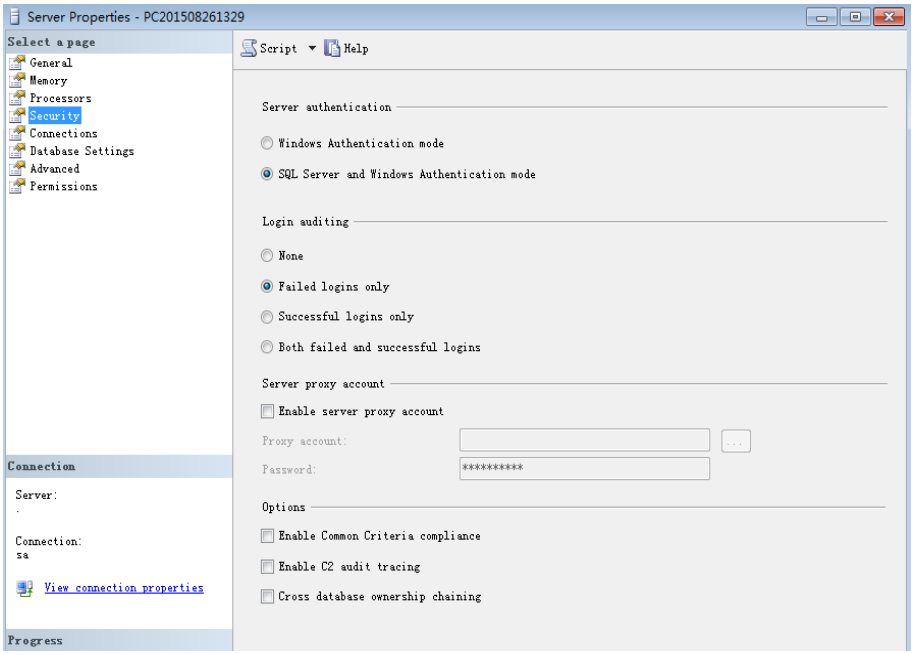


Fig.1.2 Server Properties

Step Three: Choose "Connections" on the left, check "Allow remote connections to this server", then click "OK" button (see Fig.1.3).

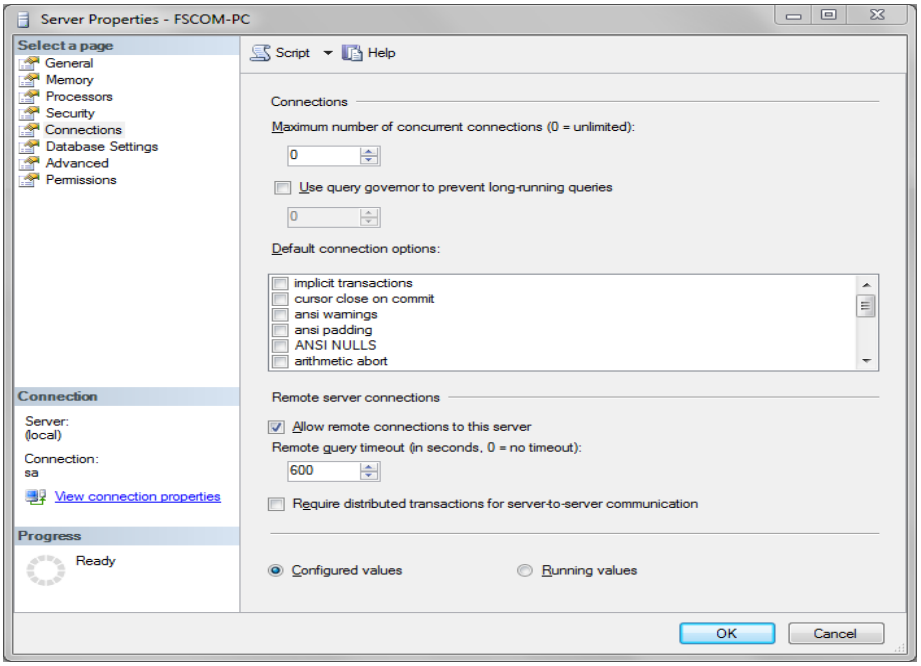


Fig.1.3 Server Properties

Step Four: Unfold "Security"-> "Logins"-> "sa", then right click "sa" and choose "Properties"(see Fig.1.4).

Note: The user name can only be "sa", cannot be modified.

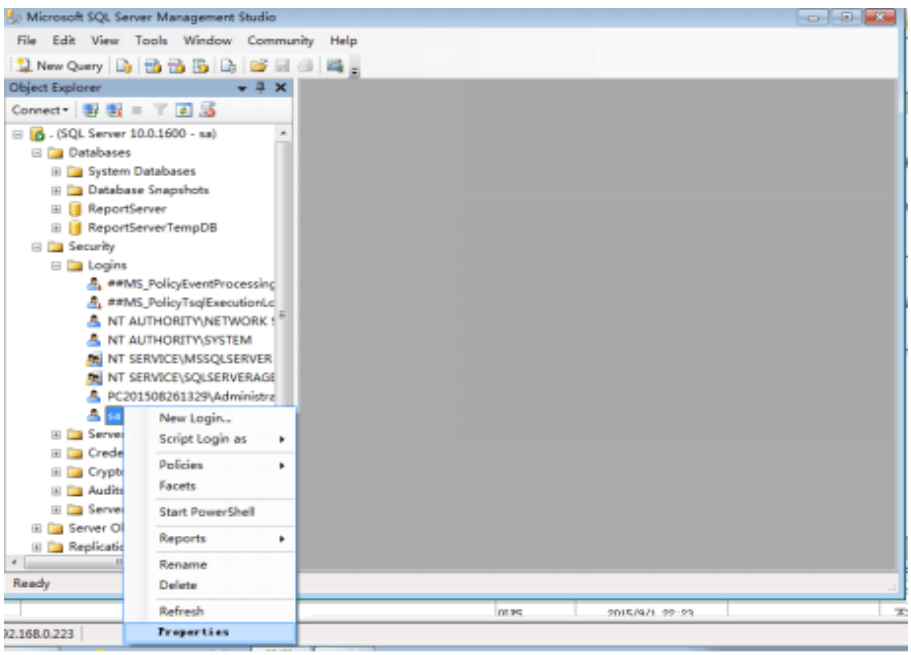


Fig.1.4 Microsoft SSMS

Step Five: Choose "General" on the left, then choose "SQL Server authentication" on the right and set password, click "OK" button (see Fig.1.5).

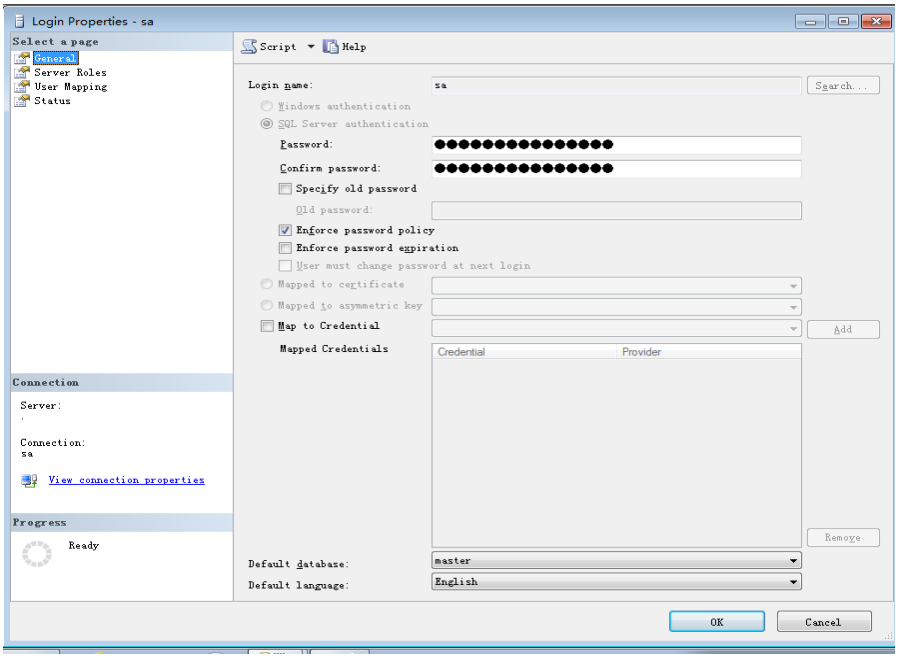


Fig.1.5 Login Properties

Step Six: Choose "Status" on the left, choose "Grant" and "Enabled" on the right and click "OK" button (see Fig.1.6).

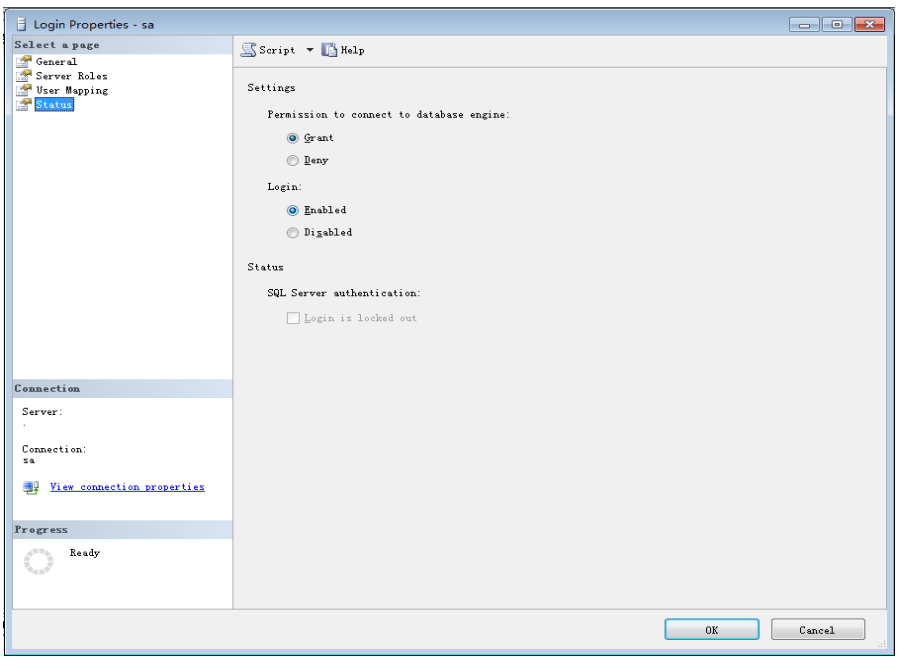


Fig.1.6 Login Properties

Step Seven: Back to SQL Server Management Studio login interface, right click SQL Server, choose "Facets" (see Fig.1.7).

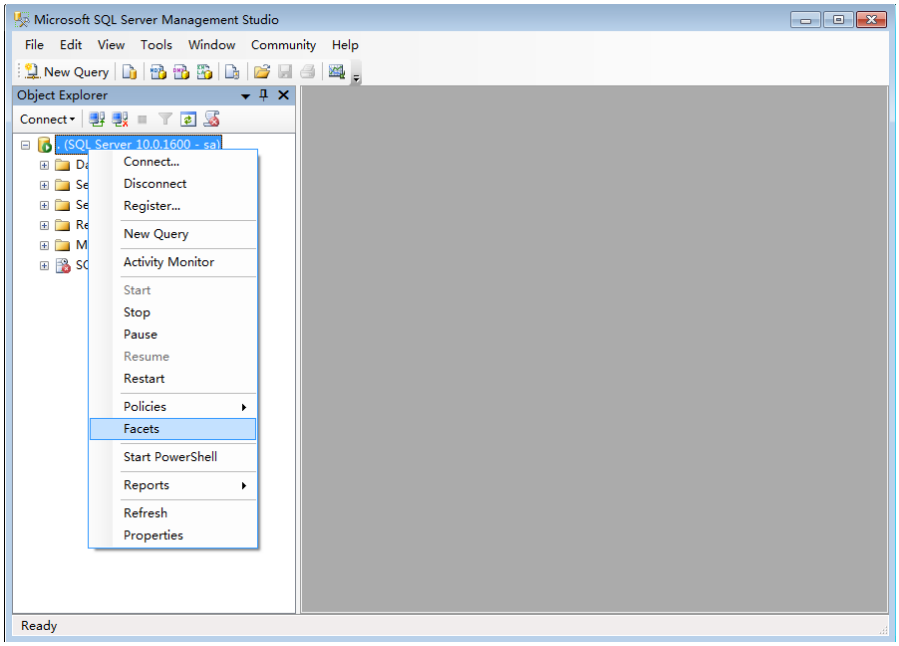


Fig.1.7 Microsoft SSMS

Step Eight: Choose "Server Configuration" from the drop-down box of "Facets" and set the properties of "Remote Access Enabled" as "true", then click "OK" button (see Fig.1.8).

Note: Now, SSMS has been set up. Exit first, then log in with "sa". If it is successful, it means the "sa" account is enabled. Otherwise, please check whether the network connection can be pinged. If the network connection is normal, please further confirm whether you followed the above steps.

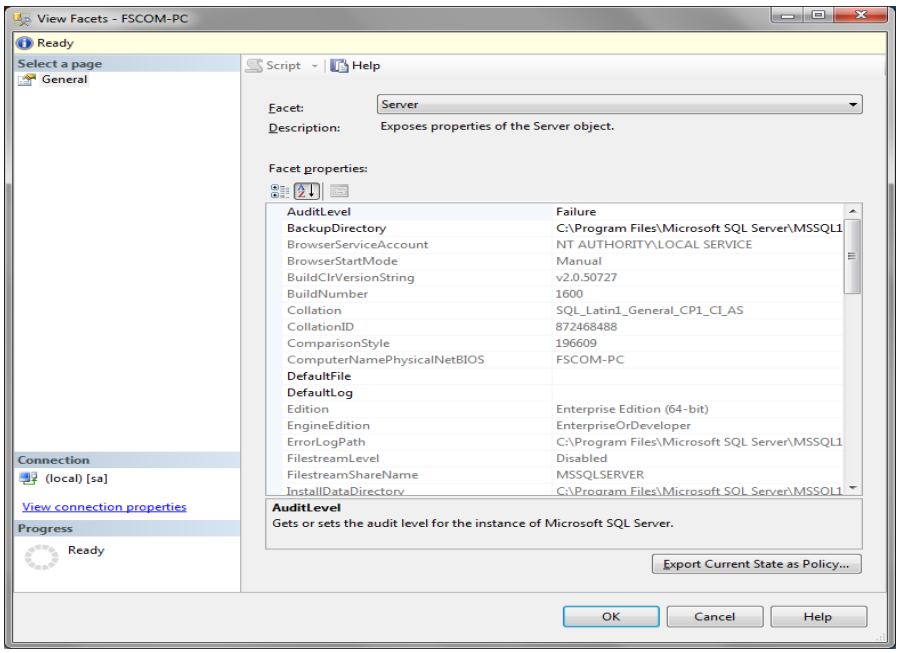


Fig.1.8 View Facets

1.2 Deploy SSMS

Step Nine: Open SQL Server Configuration Manager to start configuring SSCM , choose "SQL Server Services" on the left, please make sure the state of "SQL Server" and "SQL Server Browser" is running on the right (see Fig.1.9).

Note: It is usually necessary to reboot SQL Server after shutdown and restart, but SQL Server is still running after closing the SQL Server Configuration Manager program box.

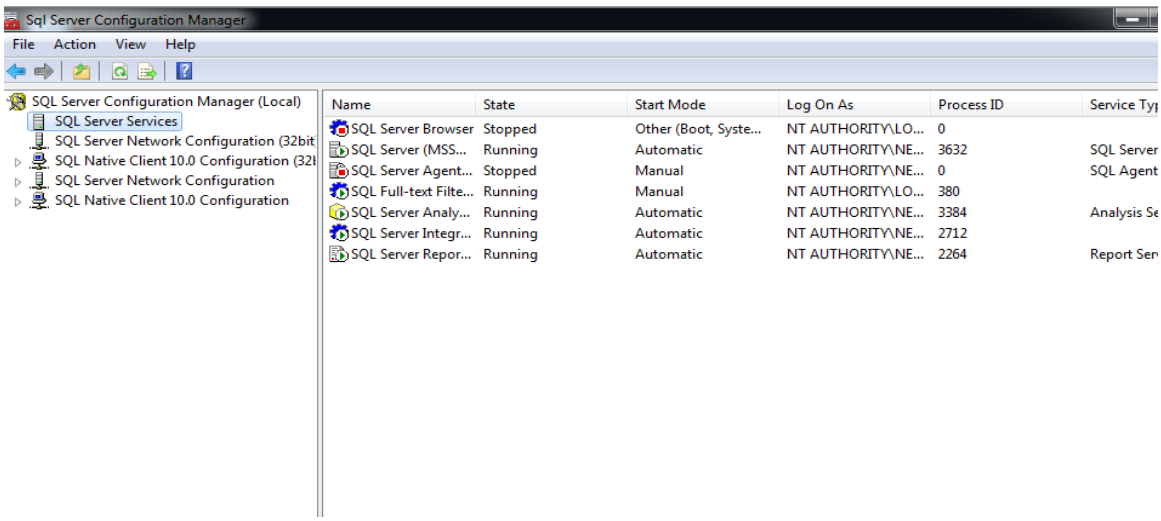


Fig.1.9 SQL Server Configuration Manager

Step Ten: Choose "Protocols for MSSQLSERVER" under the node of SQL Server Network Configuration on the left. The default status of TCP/IP is Disabled (see Fig.1.10). Please set status of TCP/IP as "Enable" by right click or opening TCP/IP Properties interface by double click (see Fig1.11), then modify "active" to "yes", click "OK" button.

Note: TCP/IP protocol is generally enabled, and can be tested by ping.

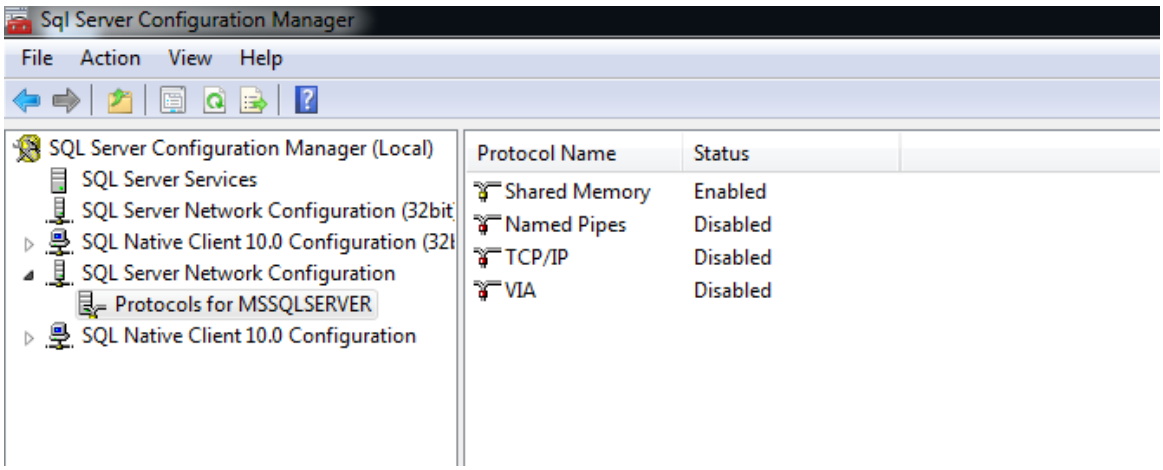


Fig.1.10 SQL Server Configuration Manager

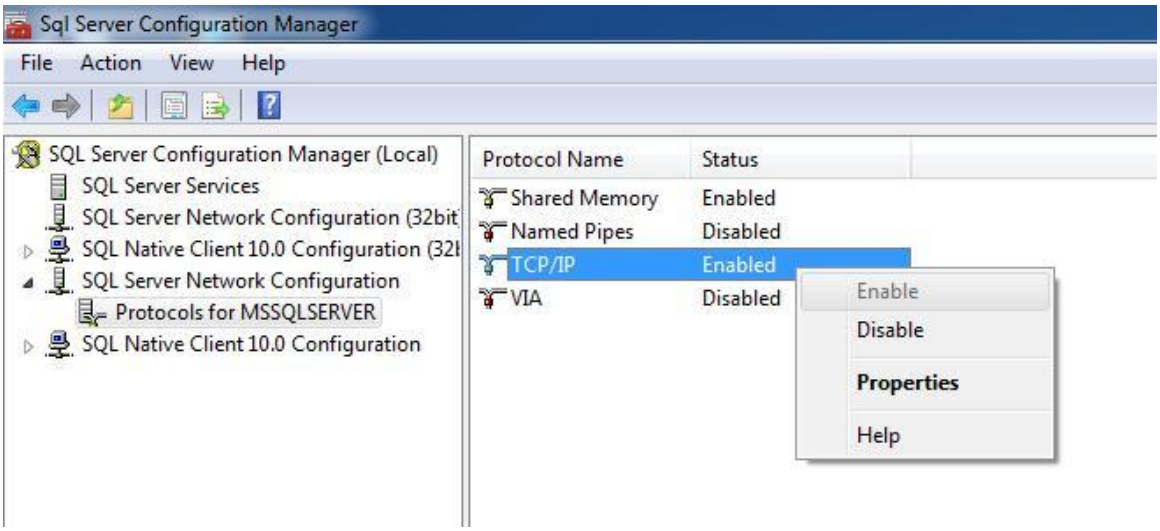


Fig.1.11 SQL Server Configuration Manager

Step Eleven: Right click "TCP / IP", select "IP Address" under "Properties" or double click to open the settings panel and select the "IP Address" tab, then set the port of TCP as "1433", and click "OK" button. (see Fig.1.12).

Step Twelve : Set TCP/IP of Client Protocols as "Enable" . (see Fig.1.13)

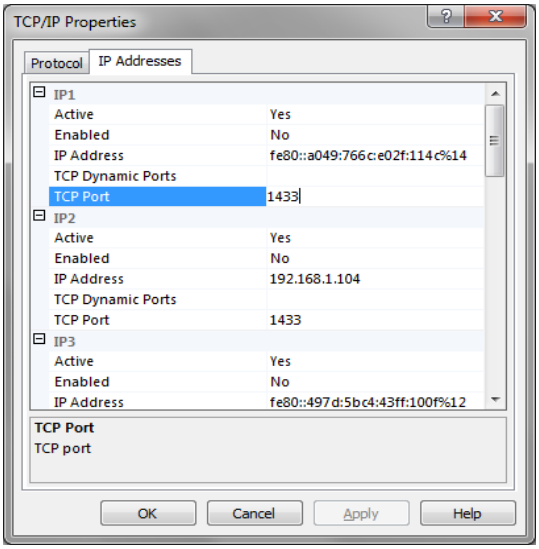


Fig.1.12 TCP/IP Properties

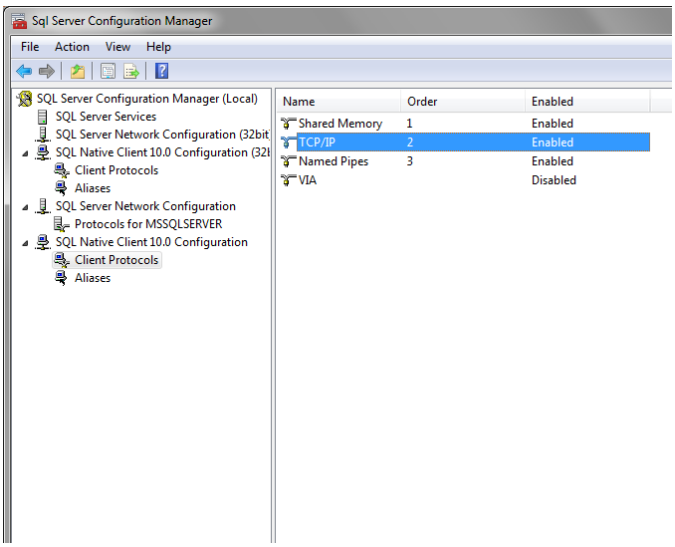


Fig.1.13 SQL Server Configuration Manager

Step Thirteen: Turn off the firewall or add SQL Serve.exe to the program list that allows the firewall to run. If you choose the latter, please open the firewall settings to add SQLServr.exe (C:\Program Files\Microsoft SQL Server\MSSQL10.SQLEXPRESS\MSSQL\Binn\sqlservr.exe) to the allowed list, the concrete steps are as follows:

(1) Click the "start" to open control panel

(2) Click "View network status and tasks" (see Fig.1.14)

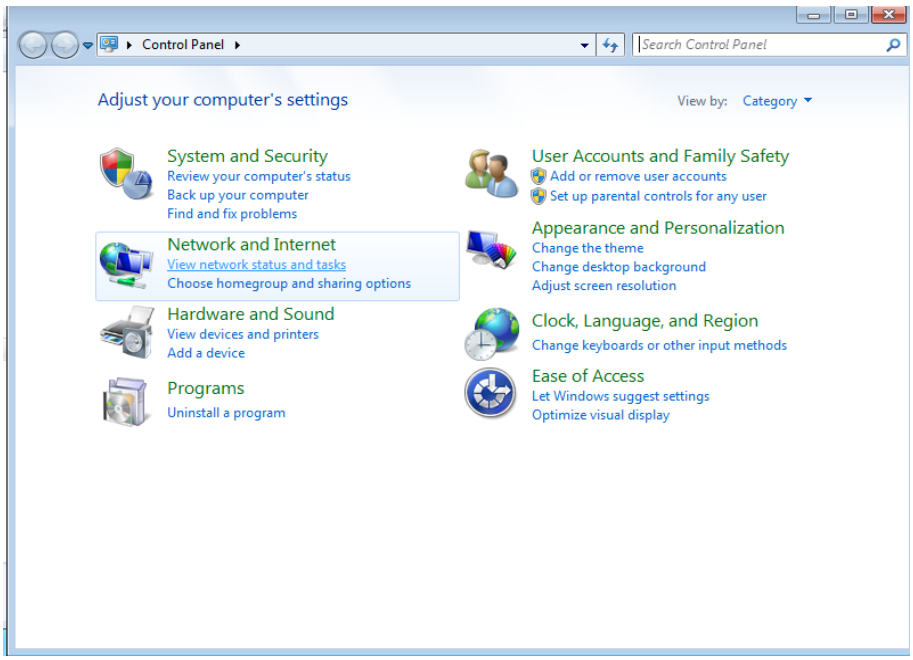


Fig.1.14 Control Panel

(3) Click "Windows Firewall" in Fig.1.15, the interface will pop up " (see Fig.1.16)

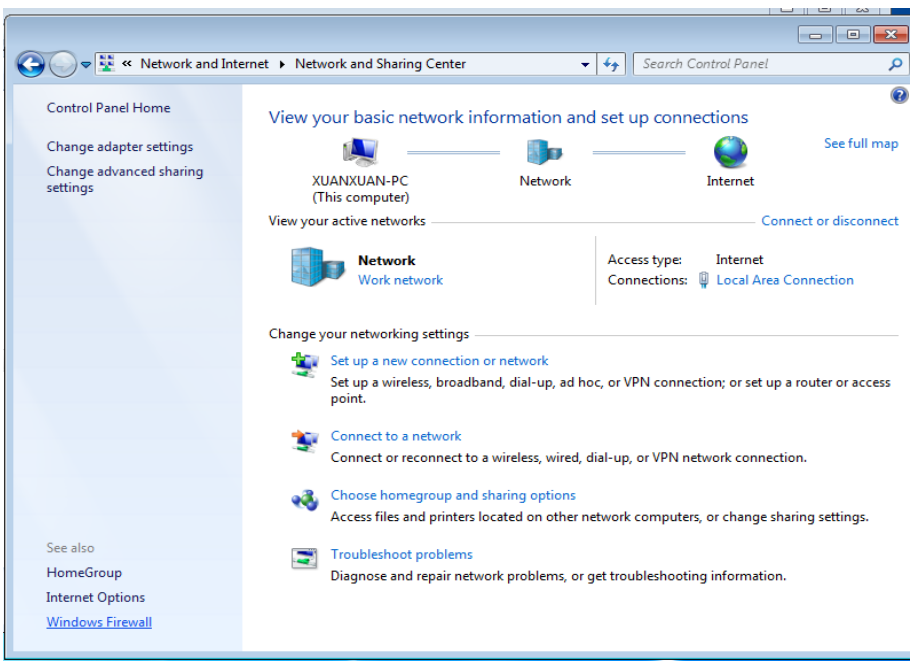


Fig.1.15 Network and Sharing Center

(4) Click “Allow a program of feature through Windows Firewall” (see Fig.1.16).

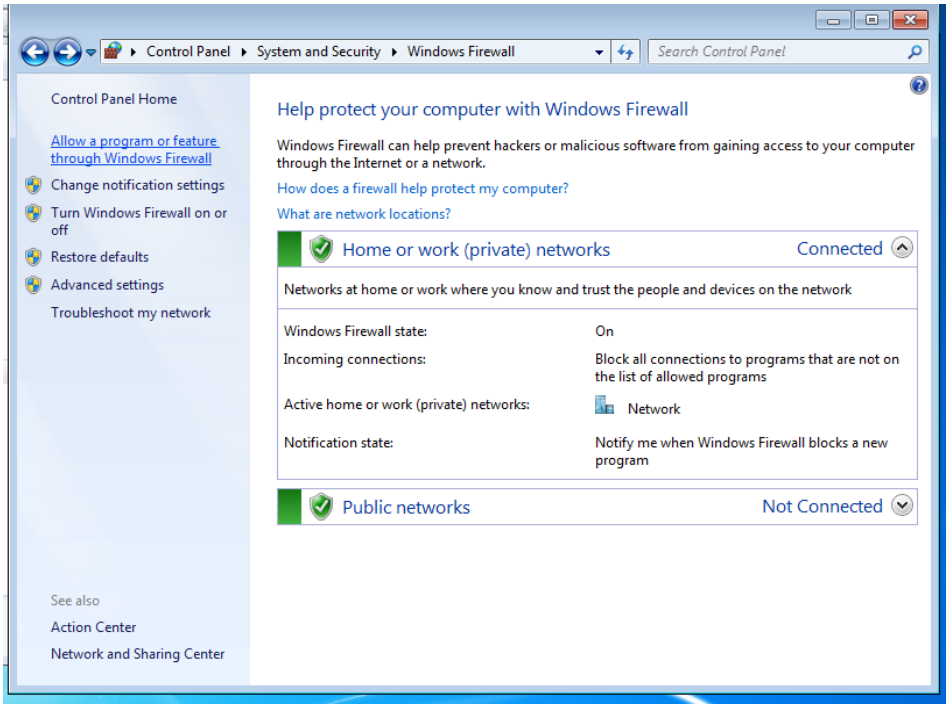


Fig.1.16 Windows Firewall

(5) Click “Changes settings” button and “Allow another program” button (see Fig.1.17). Then add "SQLServr.exe" to the list of allowed list according to the path "C:\Program Files\Microsoft SQL Server\MSSQL10.SQLEXPRESS\MSSQL\Binn\sqlservr.exe"

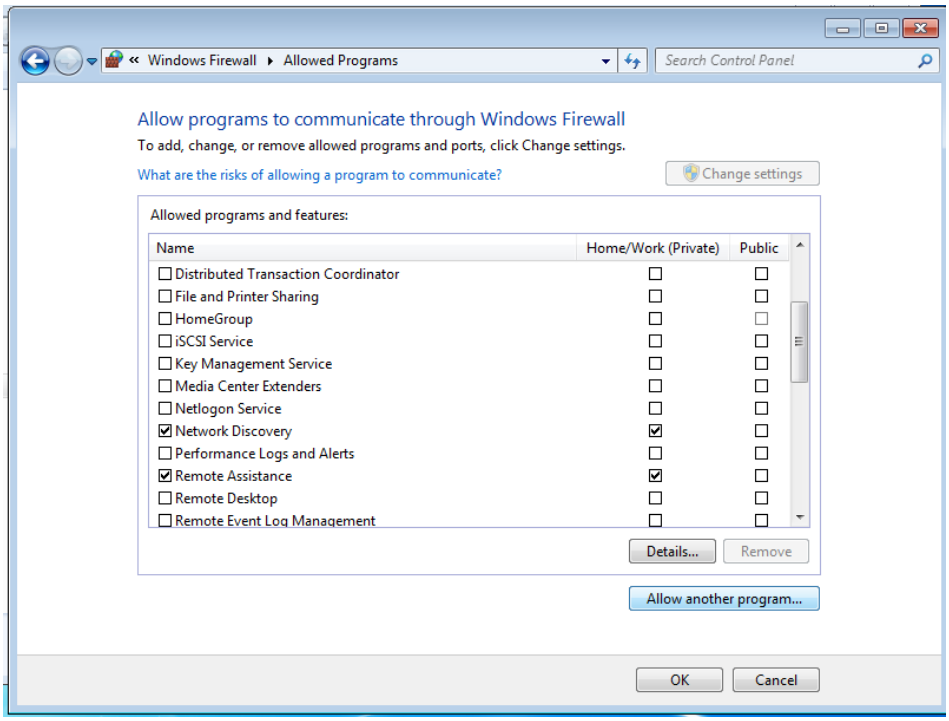


Fig.1.17 Allowed Programs

(6) Click "Browse" and open Program Files folder in C (see Fig.1.18).

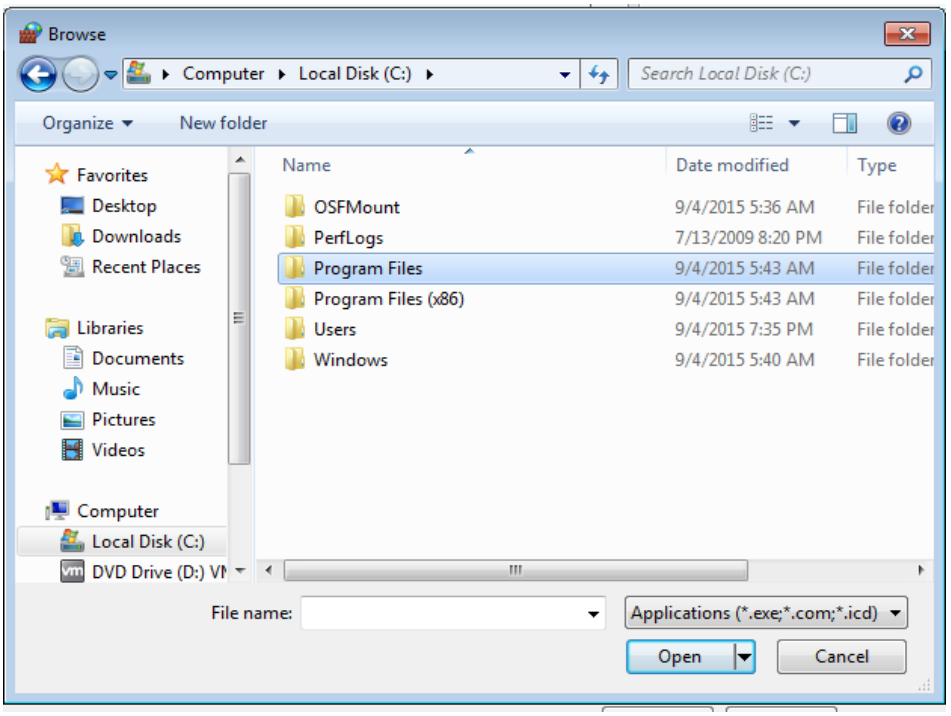


Fig.1.18 Local Dlisk C

(7) Open "Microsoft SQL Server" folder (see Fig.1.19).

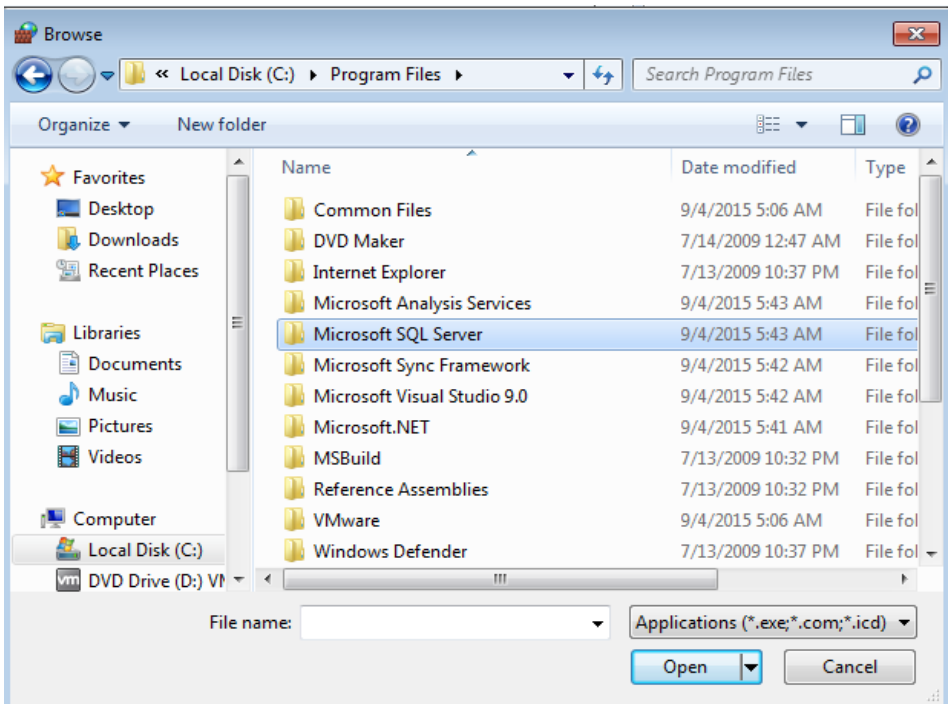


Fig.1.20 Program Files

(8) Open "MSSQL10.MSSQLSERVER" folder (see Fig.1.20). Then open "MSSQL" folder

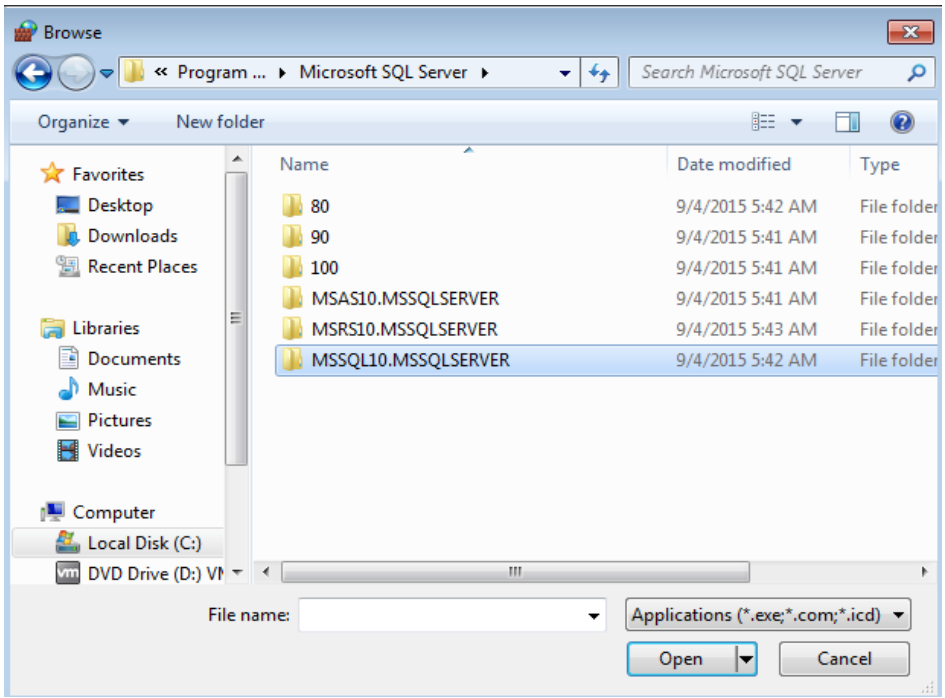


Fig.1.20Microsoft SQL Server

(9) Open "Binn" folder (see Fig.1.21).

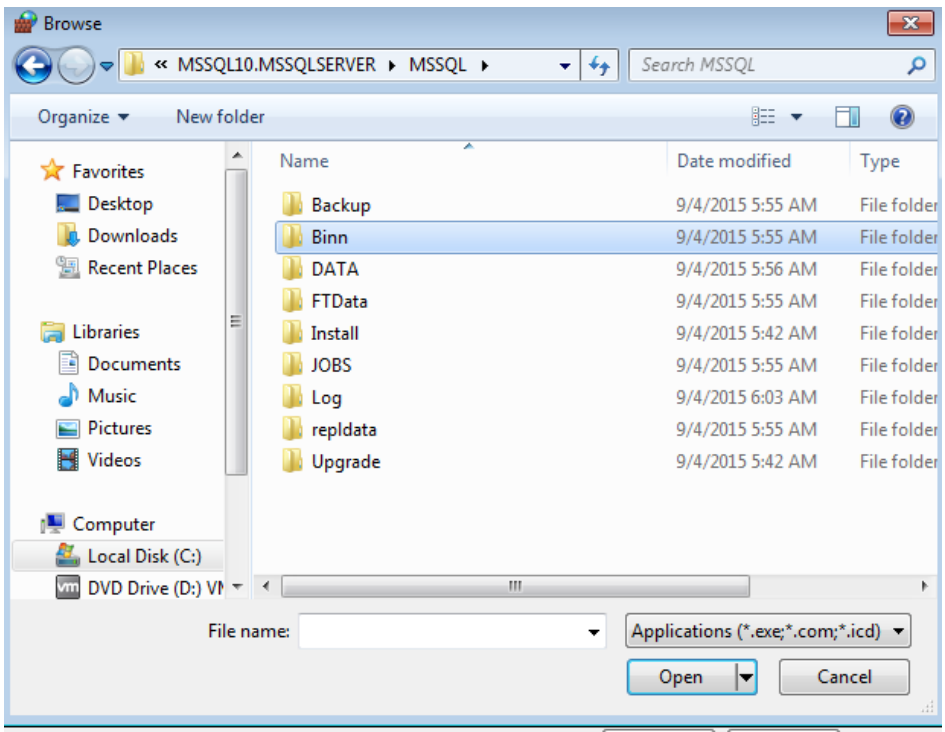


Fig.1.21 MSSQL

(10) Double-click "sqlservr" (see Fig.1.22).

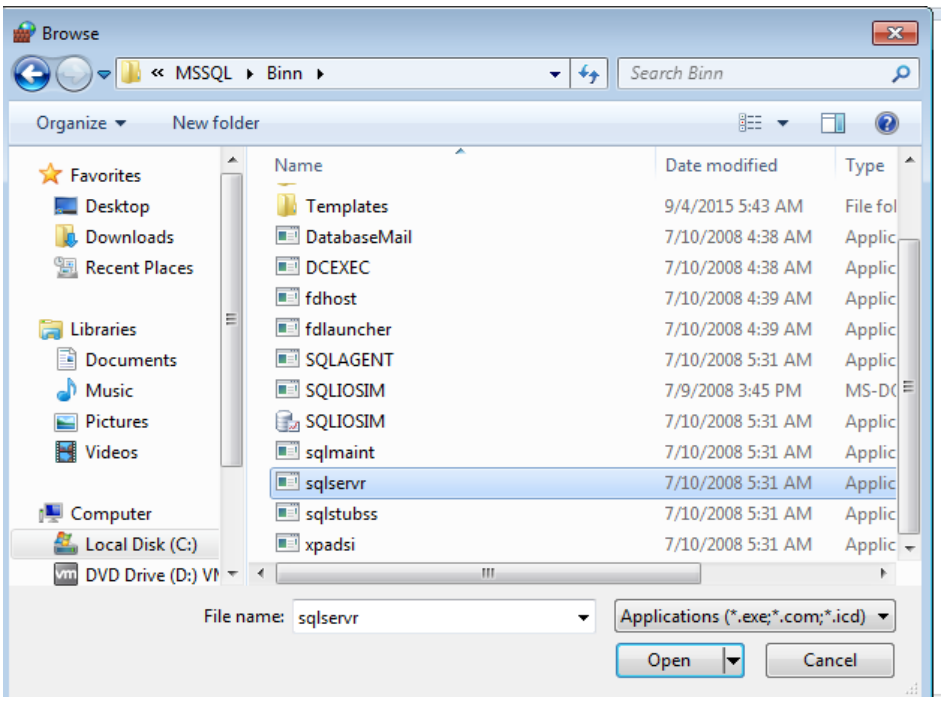


Fig.1.22 Binn

(11) Click "Add" button to add SQL Server Windows NT-64bit to "Allow Programs"(see Fig.1.23).

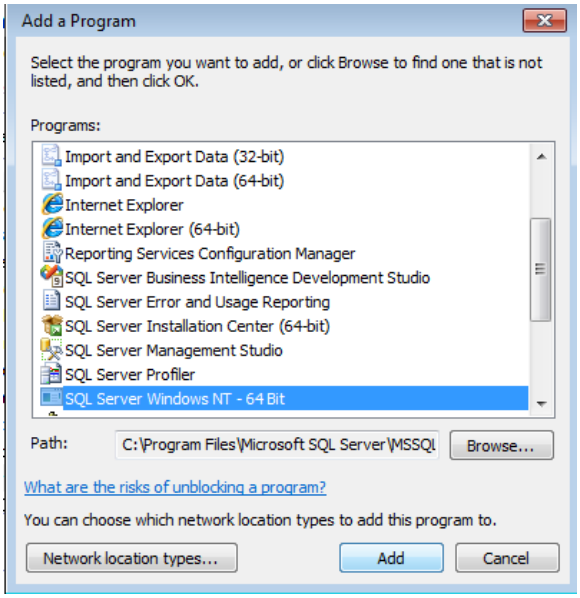


Fig.1.23 Add a Program

(13) The configuration is complete now. Please start SQL Server Management Studio and log in.

Note:

If you open SQL Server Management Studio before starting SQL Server and SQL Server Browser, you need to shut it down and then restart it.

Chapter Ⅱ MonitorOnline Installation Procedures

2.1 MonitorOnline Installation

Double-click MonitorOnline.exe or MonitorOnline.msi of MonitorOnline.exe folder to install MonitorOnline. Please keep going to the next step until the installation is successful (see Fig.2.1)

Note: Based on the software version in the CD.

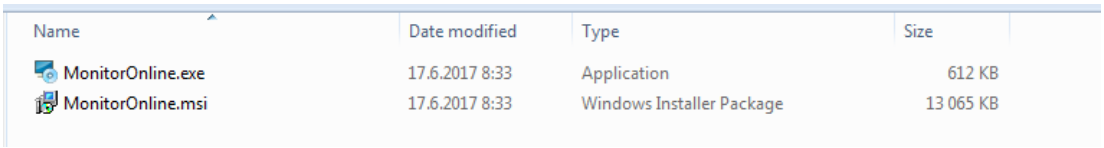


Fig.2.1 Software Installer

The Shortcut will be created after installing Monitor Online, as shown in Fig.2.2.

Fig.2.2 Monitor Online

2.2 Connect Database

Step 1: Double click Fig.2.2, the interface will pop up(see Fig.2.3). After filling in the user name and password （the default login name and password are both admin), click "Login" to log in the system. If you have connected to the database, the system interface will pop up directly. If you do not connect to the database, you will be prompted to connect to the database. and click "Database Connection" button, the interface of database connection will pop up(see Fig.2.4).

Fig.2.3 Login

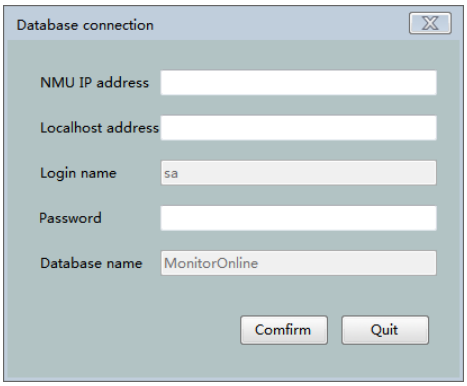


Fig.2.4 Database Connection

Step 2: Input MNU IP address (IP address of NMU card), Localhost address (Computer IP of installing database), Login name (Default as "sa") and Login password (password set when installing the database) of database, and click "confirm" button In Fig.2.4. If the database is existent and the connection is successful, then user can log in to the system. If the database does not exist and the connection is unsuccessful, the interface of establishing a database will pop up (see Fig.2.6).

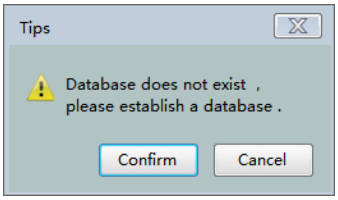


Fig.2.5 Tips

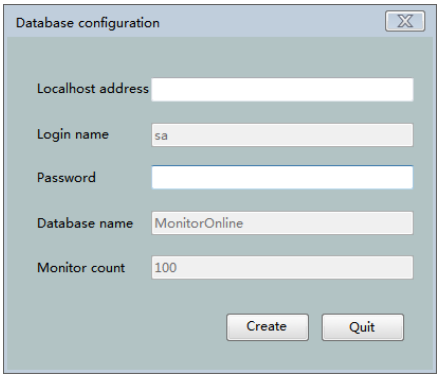


Fig.2.6 Database Configuration

Step 3: Please click "Confirm" button in Fig.2.5, then the interface of database configuration will pop up as shown in Fig.2.6.

Step 4: Input Localhost address (Computer IP of installing database) and Login password (password set when installing the database) of database, and click "Create" button In Fig.2.6 to create database, after creating database, the interface of "Submit success" will pop up, and click "OK" button, then the database connection interface will pop up as shown in Fig.2.4. The other steps are same with Step 2, complete the database connection and user login operation, you can log in the system.

Note:

1. Both the initial login account and initial password of network management software are admin.
2. After the user finishing the configuration database on the local machine. If the configuration information of the device (such as Localhost address, NMU address, and database) does not change, user can skip the database connection and configure the operation to log in directly; if the device configuration information changes, the user needs to re-database connection and configuration.
3. If an error occurs during the database connection operation, the following interface will pop up (see Fig.2.7):

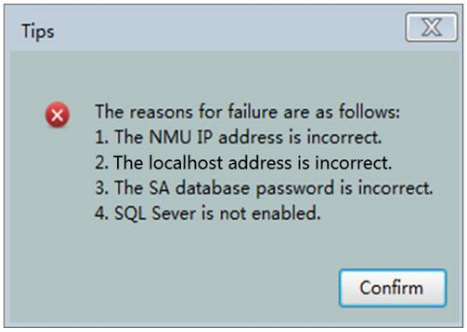


Fig.2.7 Tips

Solutions for error interface:

1. The NMU's IP address is incorrect. Please check whether the NMU IP can be pinged.
2. The Localhost address is incorrect. Please check the IP address of the PC network card.
3. The SA database password is incorrect. Please pay attention to keyboard capitalization
4. SQL Sever is not enabled. Please configure the SQL service properly.

2.3 MonitorOnline Interface Instruction

MonitorOnline interface is shown in Fig.2.8.

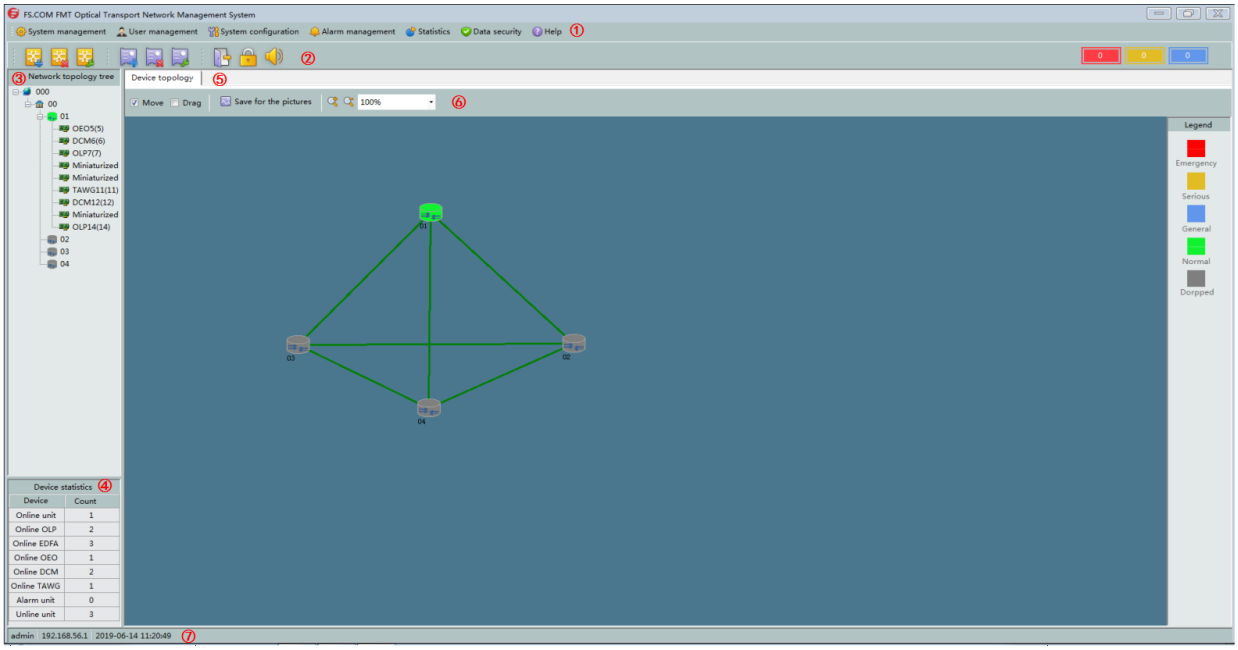


Fig.2.8 Fiberstore FMT Optical Transport Network Management System

System	Description
①Menu Bar	Main congfiguration functions
②Shortcut bar	: Add unit, by clicking the icon, you can add unit.
	: Delete unit, by clicking the icon, you can delete the selected unit.
	: Edit unit, by clicking the icon, you can edit some information of unit.
	: Add line card, by clicking the icon, you can add a line card for the unit.
	: Delete line card, by clicking the icon, you can delete a line card of the unit.
	: Edit line card, by clicking the icon, you can edit some information of the unit.
	: Exit system, by clicking the icon, you can close the current system.
	: Lock system, by clicking the icon, you can lock the current user.
	: Close/open alarm sound, by clicking the icon, you can close or open network management software alarm sound.

System	Description
②Shortcut bar	: The number of emergency alarm. : The number of serious alarm. : The number of general alarm.
Note: To add unit or delete unit, please select the service room where the unit is located.	
③Net Topology Tree	See 5.2.
④Device Statistics	The numbers of units and business cards are presented in real time.
⑤View Display Area	Current alarm management interface, historical alarm management interface, history records, operation records interface and graphic topology are all presented in view display area.
⑥ Topology	Move : After selecting the this box, you can drag a selected unit icon. Drag : After selecting the this box, you can drag all unit icons of the topology. : Save topology, by clicking this icon, you can save topology. : Enlarge icon, by clicking the icon, you can enlarge all the icons of topology. : Shrink icon, by clicking the icon, you can shrink all the icons of topology.
⑦ Status Bar	(1) Presenting login account of current system. (2) Presenting local IP address. (3) Presenting local time.

Chapter III System Configuration

Click "System Configuration"of menu bar (see Fig.3.1), then the system configuration interface will pop up. There are several operations in system configuration, such as: add city, add room, add unit, edit and delete (see Fig.3.2).

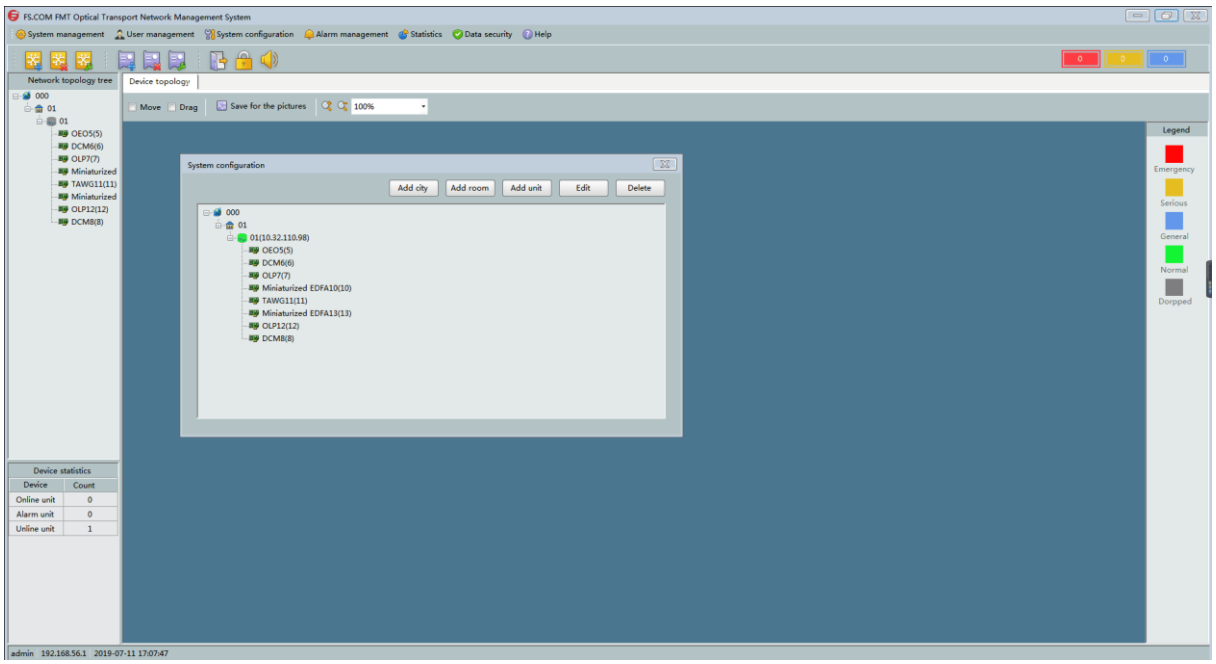


Fig.3.1 Fiberstore FMT Optical Transport Network Management System

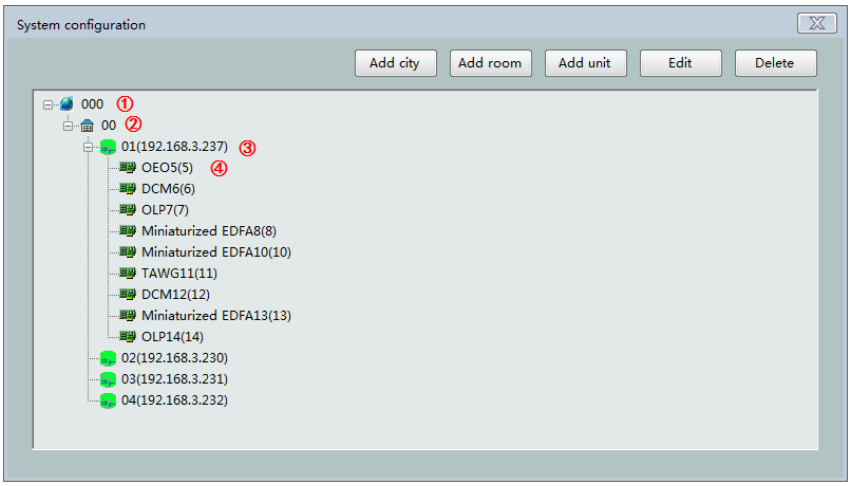


Fig.3.2 System configuration

Explain: ① represent city; ② represent serviceroom; ③ represent unit device name; ④ represent business card

The name of the business card is in the slot where the card is located, for example: OEO(3)

3.1 Add City

Click "Add City" button in Fig.3.3 and "Edit City" interface will pop up (see Fig.3.4). Inputting city code and city description, then Click "Submit" button.

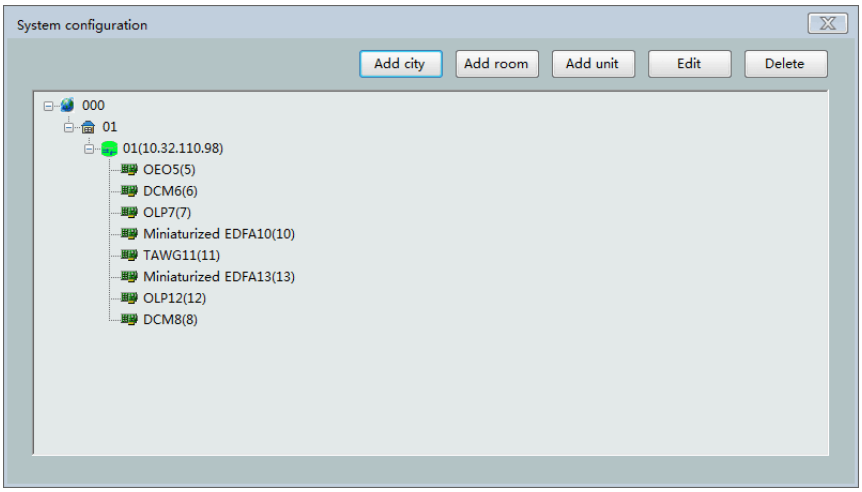


Fig.3.3 System configuration

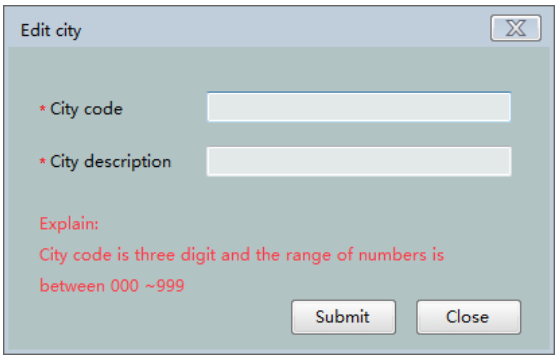


Fig.3.4 Edit city

Note: The city code and city description should fulfil requirements, and cannot be duplicated with other cities.

3.2 Add Room

Click "Add Room" button in Fig.3.3, then "Edit Room"interface will pop up (see Fig.3.5). You can add room by inputting room code and room description.

3.3 Add Unit

Click "Add Unit" button in Fig.3.3. It can only be added manually and distinguish it by between IP addresses. IP addresses can only be modified by button; Then the interface of add unit will pop up (see Fig.3.6). Inputting unit basic information, then Click "Submit" button. At the same time, the software will automatically refresh the number and type of cards in the added unit.

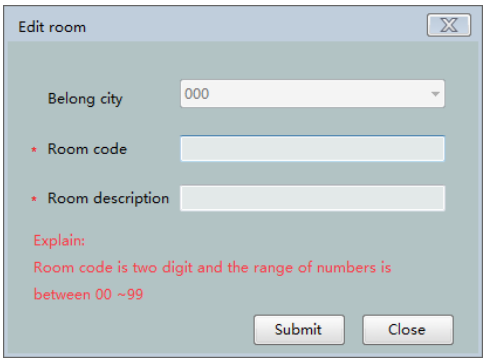


Fig.3.5 Edit room

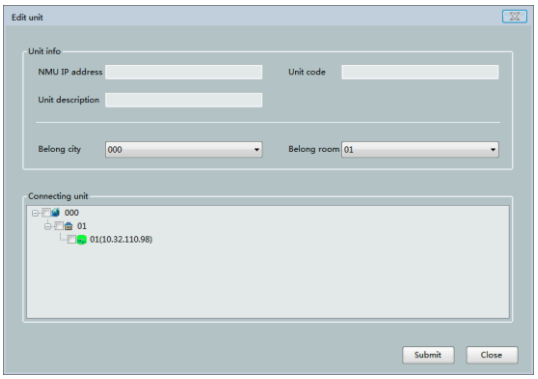


Fig.3.6 Edit unit

3.4 Edit

Right click the card in network topology tree, and the "Edit board" interface will pop up. (Before edit the board information, you need to fill in the Board Code first.)

The Fig.3.7 is the interface of editing OEO board, and here you can modify basic information, wavelength and rate of the optical module.

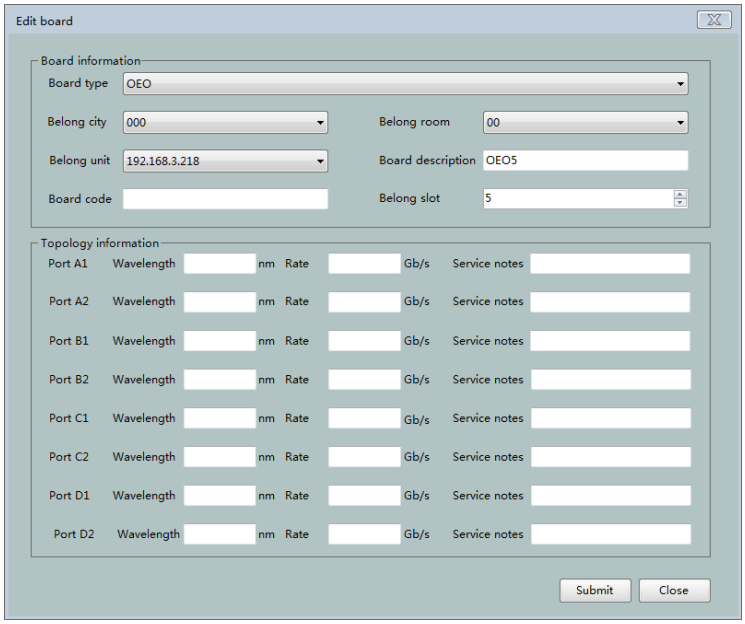


Fig.3.7 Edit board

The Fig.3.8 is the interface of OLP edit board, and here you can edit basic information, topology information. The main and backup cable description of OLP can be modified.

TXEDFA: Add EDFA on the TX side of OLP

T1EDFA: EDFA Add EDFA on the T1 side of OLP

T2EDFA: EDFA Add EDFA on the T2 side of OLP

RXEDFA: EDFA Add EDFA on the RX side of OLP

R1EDFA: EDFA Add EDFA on the R1 side of OLP

R2EDFA: Add EDFA on the R2 side of OLP

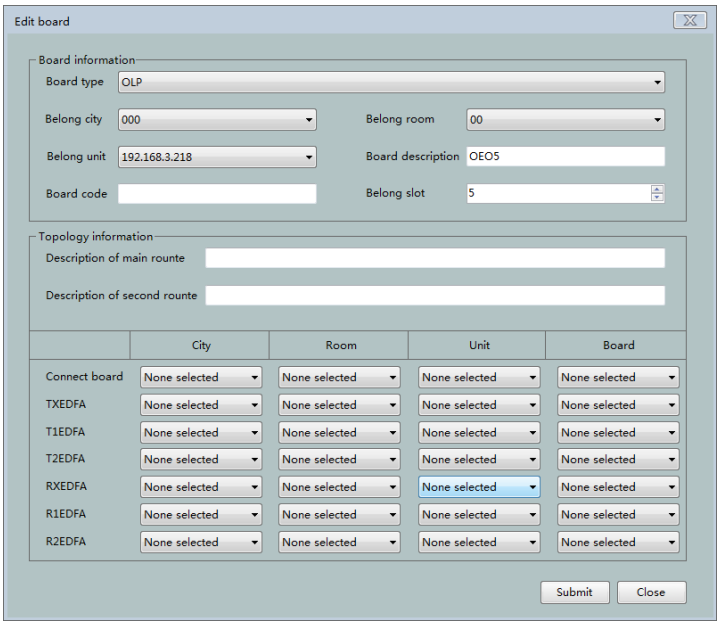


Fig.3.8 Edit board

The Fig.3.9 is the interface of EDFA edit board, and here you can edit basic information, topology information.

The up even board and down even board of the EDFA can be selected according to the actual situation of the link.

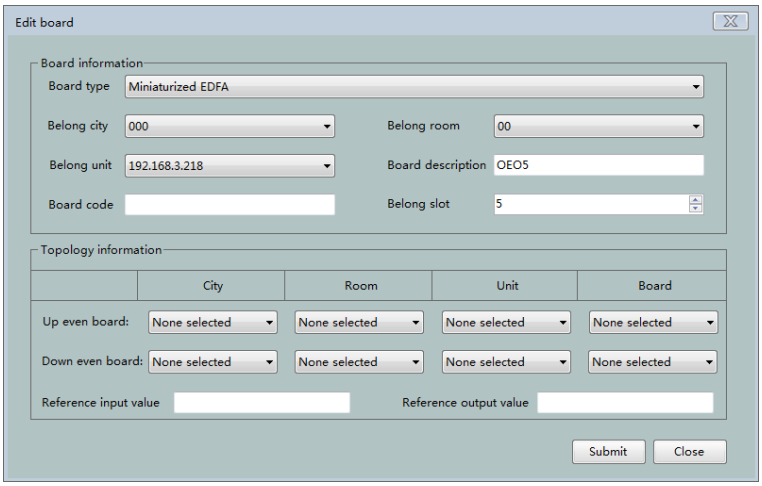


Fig.3.9 Edit board

3.5 Delete

You can delete city, room, unit and board card in Fig.3.10 (take unit for example). Click pre deleted unit and click “Deleted” button, the confirm interface will pop up (see Fig.3.11).

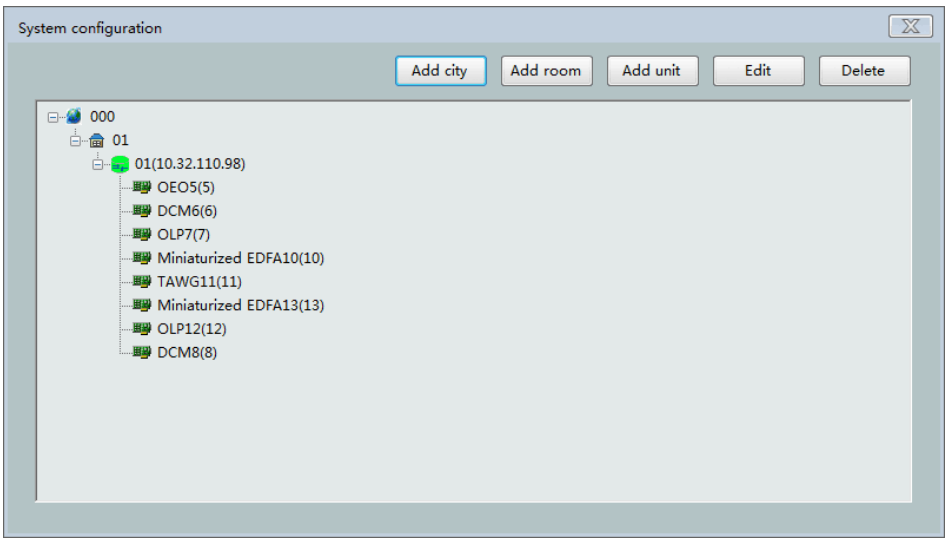


Fig.3.10 Edit room

Then you can delete unit by clicking “Confirm” button (see Fig.3.11).

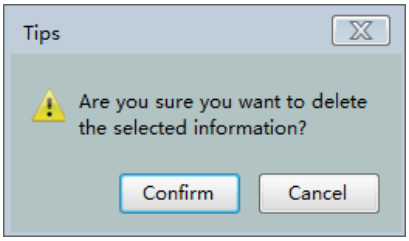


Fig.3.11 Tips

Chapter IV Software Security

4.1 User Management

Click "User Management" of menu bar in Fig.4.1, then an interface of user management will pop up (see Fig.4.2). There are several operations in user configuration, such as: add user, edit user, delete user and query user as shown in Fig.4.2.

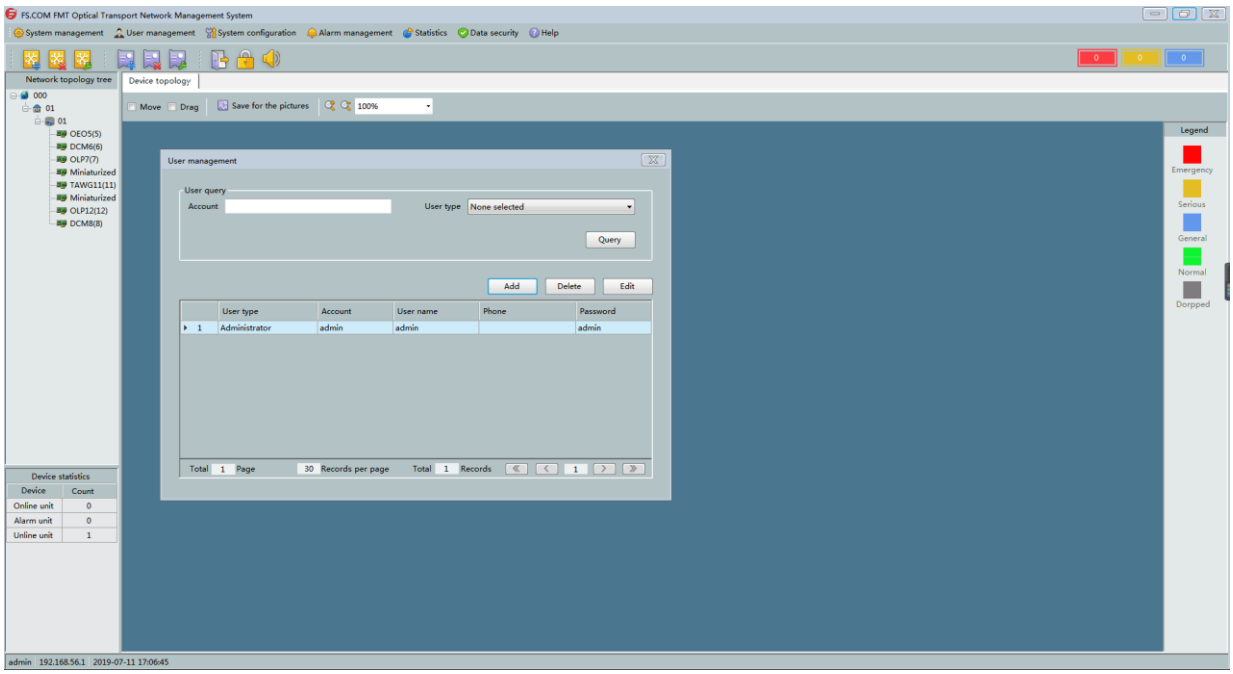


Fig.4.1 Fiberstore FMT Optical Transport Network Management System

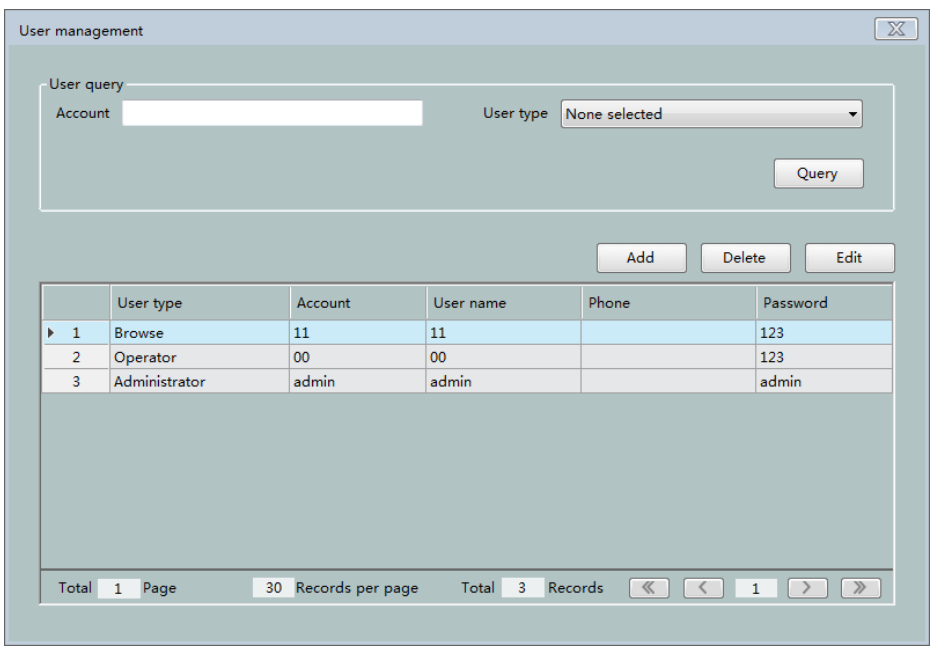


Fig.4.2 User Management

4.1.1 Add User

Click "Add" button in Fig.4.2, the interface of user adding will pop up (see Fig.4.3). Selecting user type and inputting login account, user name and phone number, then click "Confirm" button.

4.1.2 Edit User

Click "Edit" button in Fig.4.2, the interface of user editing will pop up (see Fig.4.4). Then you can edit user type, login account, user name and phone number .

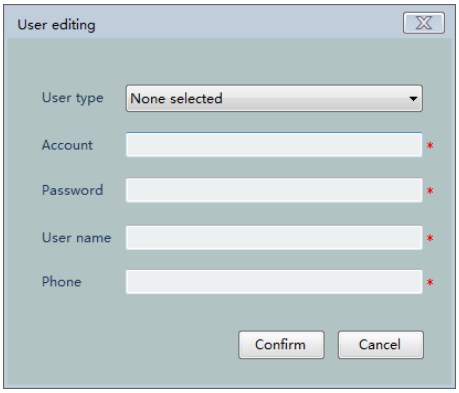


Fig.4.3 User editing

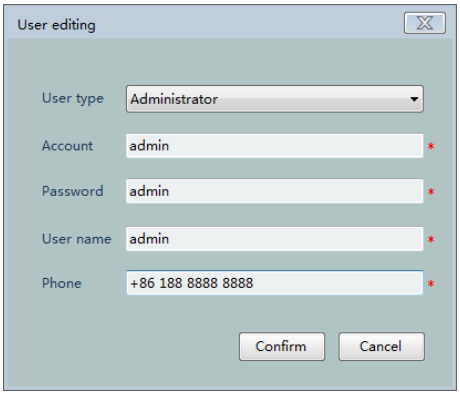


Fig.4.4 User editing

Note: User types include administrators, operators, browsers, and they have different permissions.
Administrators have all permissions; Operators just can not operate user management; Browsers only has permission to view, no delete permission; Customers need to choose user type according to their needs.

4.1.3 Delete User

Click "Delete" button in Fig.4.2, the interface of user deleting will pop up (see Fig. 4.7), then click "Confirm" button to delete user.

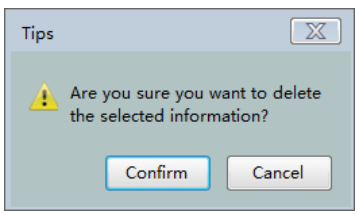


Fig.4.5 Delete tips

Note: The user of login account is admin that cannot be deleted and modified.

4.1.4 Query User

You can query user in Fig4.2 and the query condition includes:

(1) User information: Input login account and click "Query" button, then the login account with the input login account information will be displayed.

(2) User type: Click "User type" to select administrator, operator and browser to view user information.

4.2 System Management

System management menu items include modify password, switch user, lockking system, setting interval time of record, exit (see Fig.4.6).

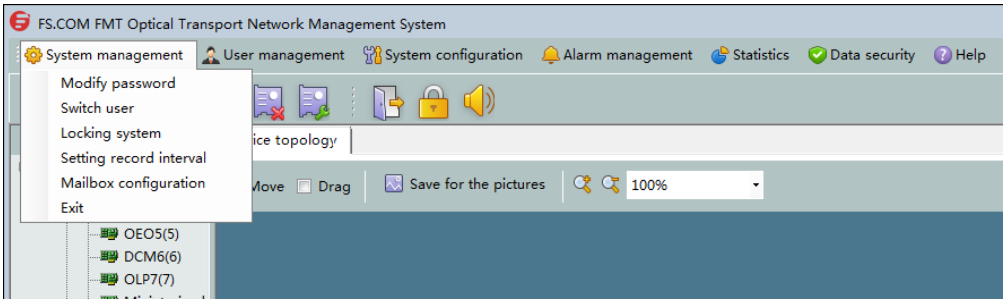


Fig.4.6 System Management

4.2.1 Modify Password

Click "Modify password" in Fig.4.6, then an interface of change password will pop up (see Fig.4.7). Inputting original password and new password, then click "Confirm"button to complete the modification.

4.2.2 Switch User

Click "Switch user" in Fig.4.6, then an interface of switch user will pop up (see Fig.4.8). Inputting user name and password, then click "Login" button. MonitorOnline login user name is the user name of the switch user.

4.2.3 Locking System

Click "Lockking system" in Fig.4.6, then an interface of locking system will pop up (see Fig.4.8). Inputting user name and password, you can unlock it and log in again.

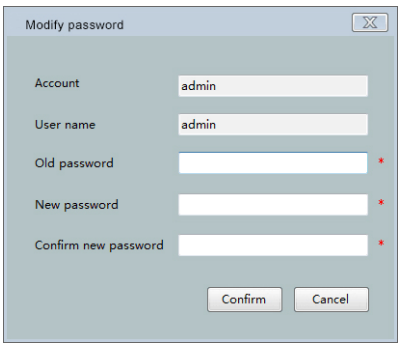


Fig.4.7 Change password

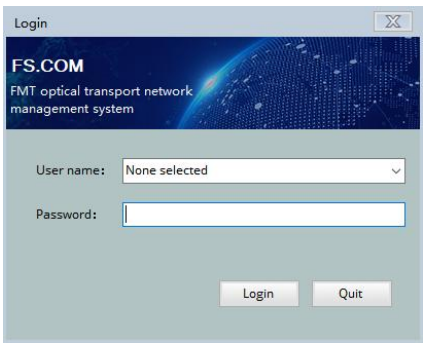


Fig.4.8 Login

4.2.4 Setting Record Interval

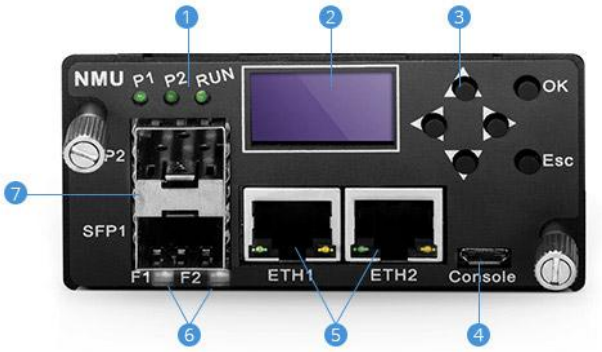
Click "Setting record interval" in Fig.4.6, then an interface of setting record interval will pop up. You can set interval of EDFA, OLP,OEO. The specific operational records of OEO and EDFA will be covered in Chapter 7.

4.2.5 Exit System

Click "Exit" in Fig.4.6, then you can exit current system.

Chapter V System Monitoring

5.1 Network Management Card



1. Equipment status indicator：P1（Power1）、P2(Power2)、RUN
2. HD dual color LCD display screen
3. Operation keys
4. Console port: Reserved for factory future use
5. RJ45 Ethernet port: Used for equipment upgradation to repair system bug and management
6. Optical transceiver working status indicator
7. Optical transceiver slot: Support 1.25G downward compatibility for network management

Fig.5.1

Panel Keys Description

Definition	Key	Description
▲	Scroll Up Key	The key is used to change the menu or data up.
▼	Scroll Down Key	The key is used to change the menu or data down.
►	Scroll Right Key	The key is used to move the cursor right when in modification state.
◄	Scroll Left Key	The key is used to move the cursor left when in modification state.
(OK)	OK	Confirm key, the key is used to enter into the submenu or confirm the modification. Enter this key to modify
(Esc)	Esc	Quit key, the key is used to exit the current menu level or to exit the modification state.

Table 4-1 Panel keys description

5. 2 Network Topology Tree

In each newly created database, the initial login management must establish the network topology tree to monitor the device. The database does not delete the network topology tree and will keep recording it. Network topology tree is located on the left of main interface (see Fig.5.2). You can see all cities, engine rooms, units and the type and number of cards of each network element.. Double click the card icon to enter the chassis monitoring interface (see Fig.5.4).

5.3 Equipment Topology

Device topology is in view display area of main interface (see Fig.5.3), and you can see all states of device. means normal, means offline, means emergency alarm, means serious alarm, means general alarm). Double click unit icon of equipment topology to open an interface of chassis monitoring interface(see OEO monitoring interface in Fig.5.4).

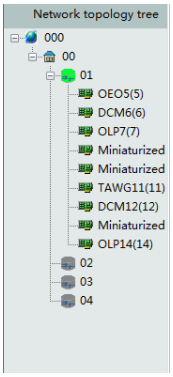


Fig.5.2 Network topology tree

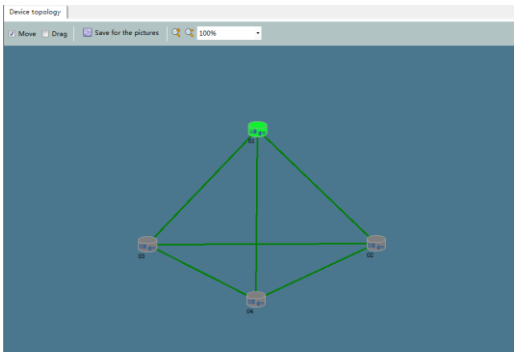


Fig.5.3 Equipment topology

OEO card:

Double-click OEO card, then pop up an interface of card monitoring (see Fig.5.4). You can see monitor information, topology information and basic information of OEO in Fig.5.4.

The monitoring information includes:

(1) Basic information of each transceiver on OEO card (Wavelength, transmission distance, Tx & Rx power, temperature and rate).

(2) The illumination control mode and working mode of the OEO.

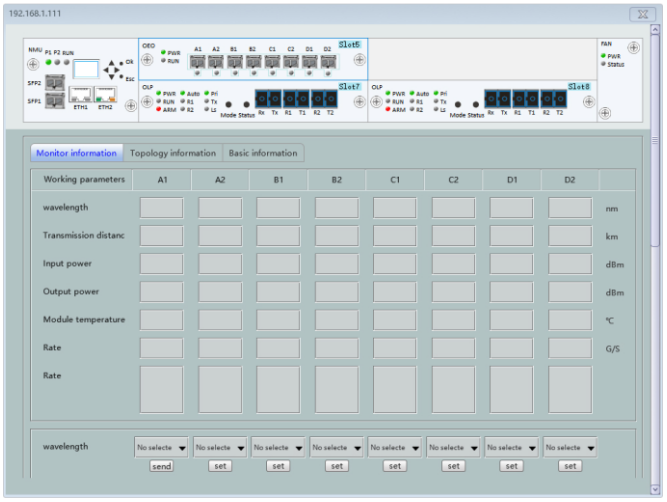


Fig.5.4 OEO card information

Note1: When set up the light control mode of OEO via Monitor Online, there will be a certain delay, this is caused by a large amount of data of OEO.

Note2: For 8G transceivers, please save the FC setting according to the following steps: first, click "set" to choose "FC", then, click "send". For the other transceivers, just set the normal mode.

EDFA card:

You can see monitor information, topology information and basic information of EDFA in Fig 5.5.

Description of EDFA's main parameters:

Input power & Output power: Real-time monitoring can be realized;

Gain adjustment: Adjustment range between ±3db;

Output adjustment: AGC mode is default;

Lower limit value of input and upper limit value of output: Adjust according to the demand.

Pump: Pump2 of the mid-stage EDFA also has monitoring parameters.

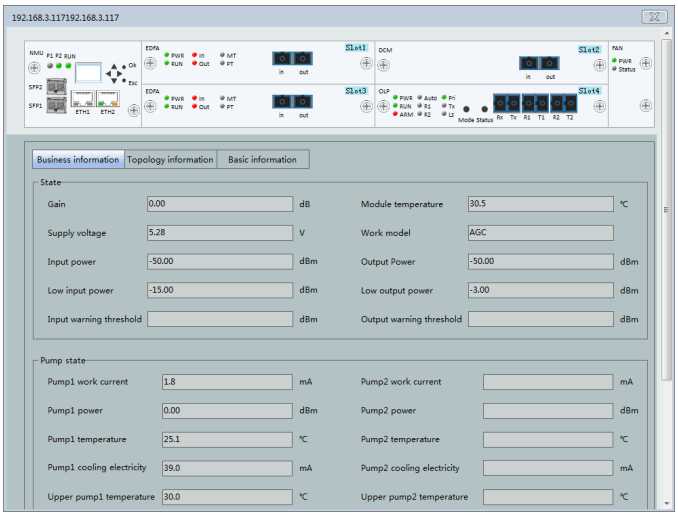


Fig.5.5 EDFA card information

OLP card:

You can see monitor information, topology information and basic information of OLP in Fig 5.6.

Description of OLP's main parameters:

Power value: the left data is the real-time monitoring parameter, and the right data is the alarm threshold;

Switching Threshold: When the current power of the fiber is lower than the threshold, the switch switches immediately.

Change back delay: Switch back to the original line after a delay;

Change delay: Switch to the alternate line after a delay;

Working parameters: Mainly divided into manual and automatic modes, generally using automatic mode.

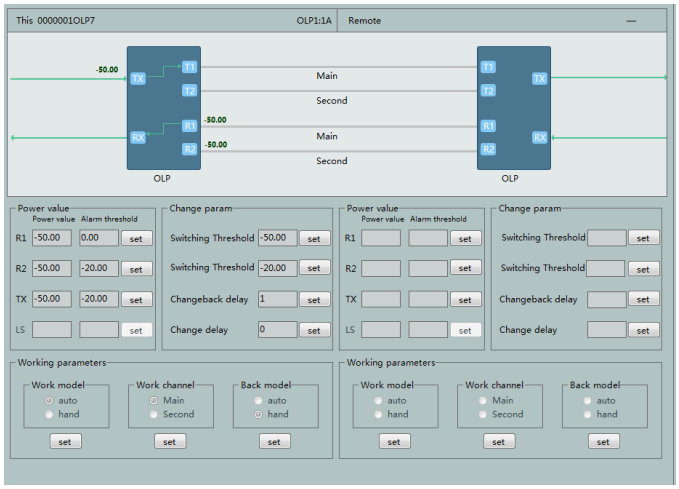


Fig.5.6 OLP card information

Chapter VI Alarm Management

Alarm management: Device alarm query and alarm type configuration.

6.1 Current Alarm Management

The alarm management of menu bar includes current alarm management, historical alarm management and alarm configuration. The interface of current alarm management is shown in Fig.6.1.

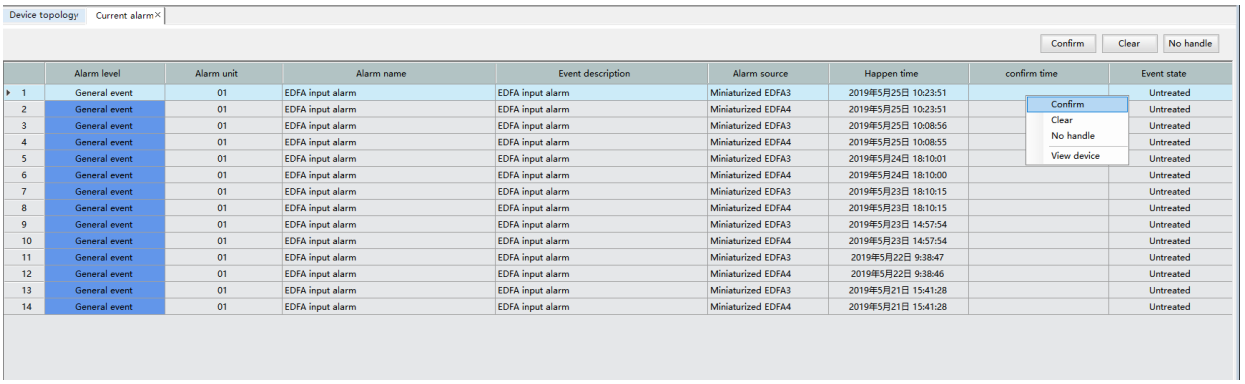


Fig.6.1 Current Alarm

Note: Current alarm information must be confirmed and then cleared. The current alarm that is confirmed and cleared will be transferred to historical alarm.

The interface of current alarm management contains confirm alarm, clear alarm and no need handle. Right-clicking the selected current alarm also can realize all the above functions as well as view device.

Confirm alarm: Confirm the selected current alarm information.

Clear alarm: Clear the selected current alarm information and transfer it to the historical alarm.

No need handle: Transfer alarm information that does not need to be processed to historical alarms.

View device: Jump directly to the alarm device.

6.2 Historical Alarm Management

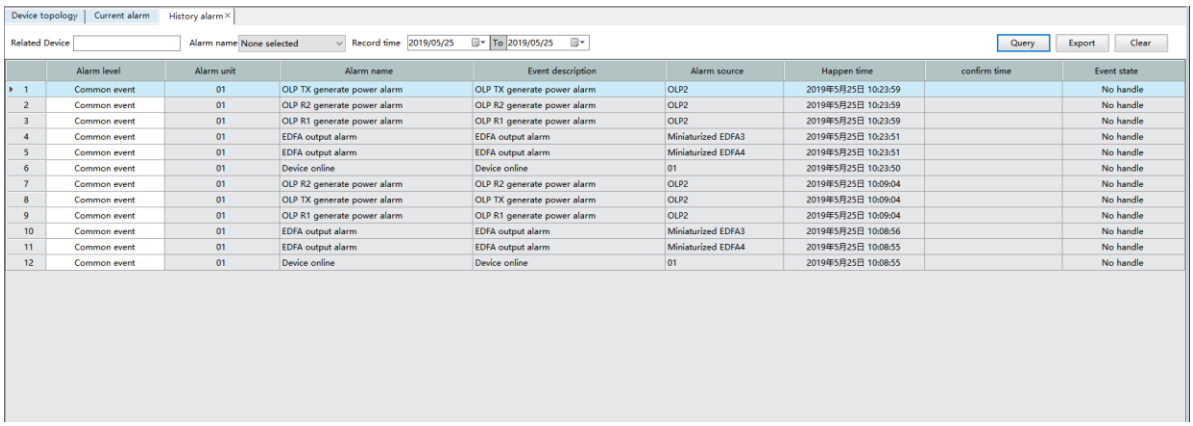


Fig.6.2 History alarm

You can query, clear and export historical alarm information in Fig.6.3. The explanation of query condition includes:

(1) Related equipment: Input the related name of the pre-query history alarm and click query button(see Fig.6.3), then all the alarm information that is related to query will be displayed.

(2) Alarm name: Click the alarm name, select the alarm type (see Fig.6.3), and click the "Query" button, then all the alarm information of the selected alarm name will be displayed.

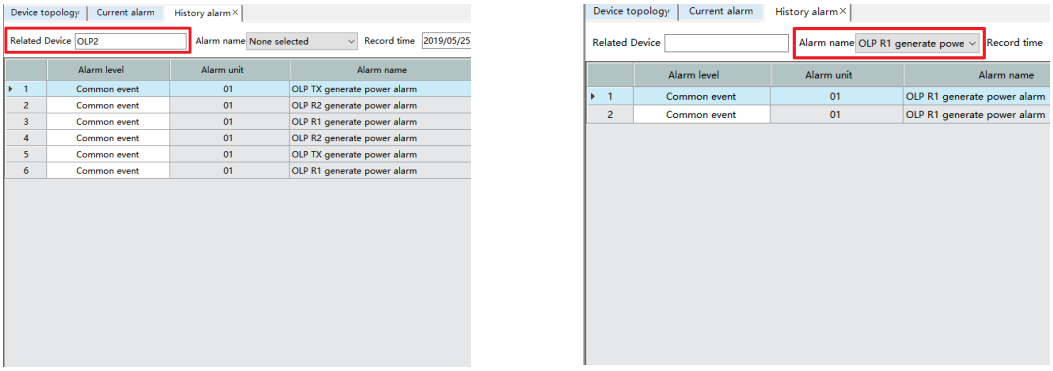


Fig.6.3 History alarm

(3) Record time: Choose the start date and end date of the pre-query, and click the "Query" button, then all alarm information of selected time period will be displayed (see Fig.6.4).

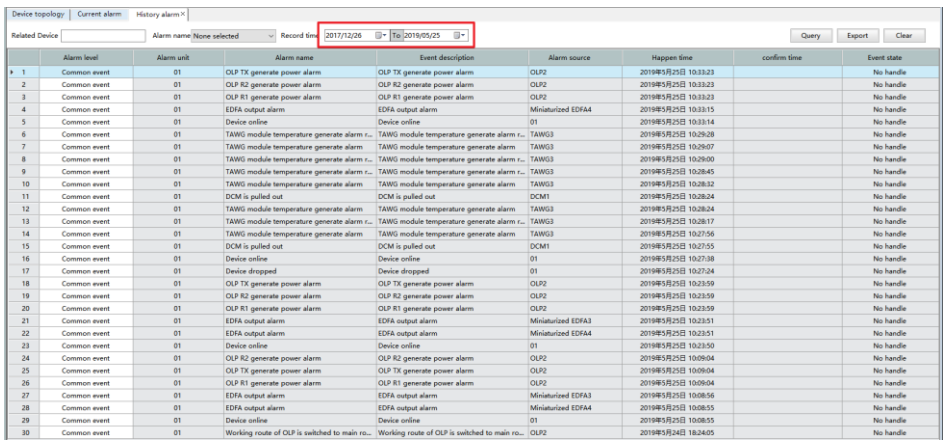


Fig.6.4 History alarm

6.3 Alarm Configuration

Choose event level of every event type and click submit button to configure each alarm level. At the same time, selecting the alarm level that you need to push(see Fig.6.5).

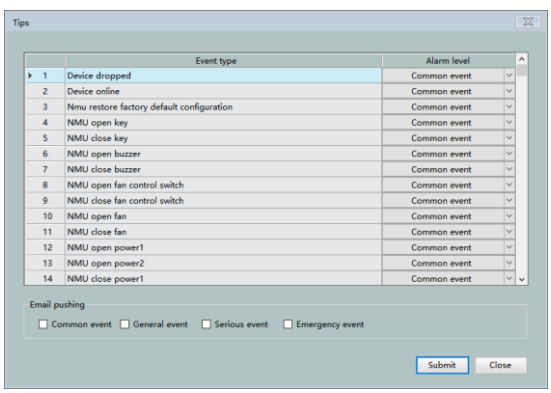


Fig.6.5 Alarm configuration

Chapter VII Statistics

Statistics: Record the historical data of the equipment card. When the line encounters problems, you can check statistics to figure out the failure time and the reason of failure quickly. Statistics in the submenu only contain four types of products: OEO, EDFA, mid-stage EDFA and OLP.

7.1 History Record

The statistics menu includes history record submenu and operation record submenu. The history interface of EDFA is shown in Fig.7.1.

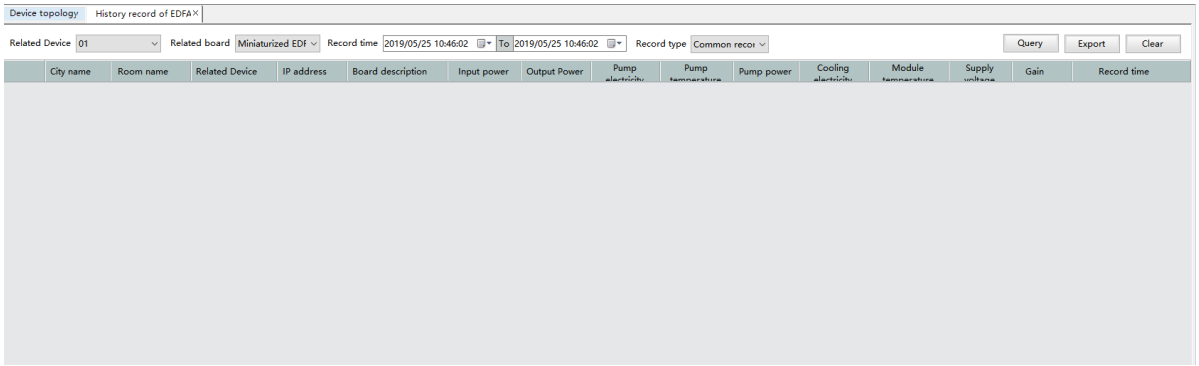


Fig.7.1 History Record

You can query, export and clear history record in Fig.7.1. The query condition includes:

(1) Related equipment: Input the related equipment name, then click the "Query" button to check out the history record of the related equipment.

(2) Record time: Choose the start date and end date of the pre-query and click the "Query" button, then all history record of selected time period will be displayed(see Fig.7.2).

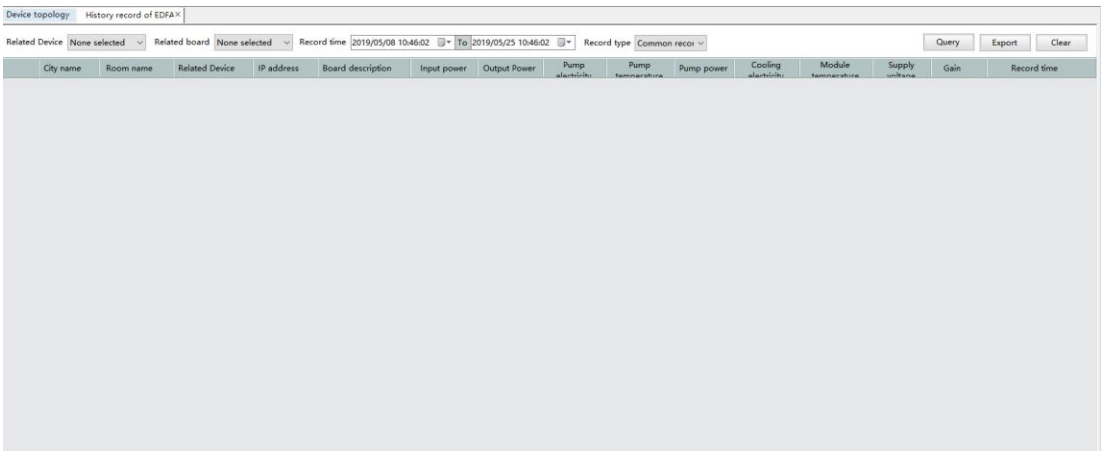


Fig.7.2 Operation record

7.2 Operation Record

The operation record is shown in Fig.7.3. You can query operation record according to the related equipment and the record time. At the same time, you can export, query and clear operation record.

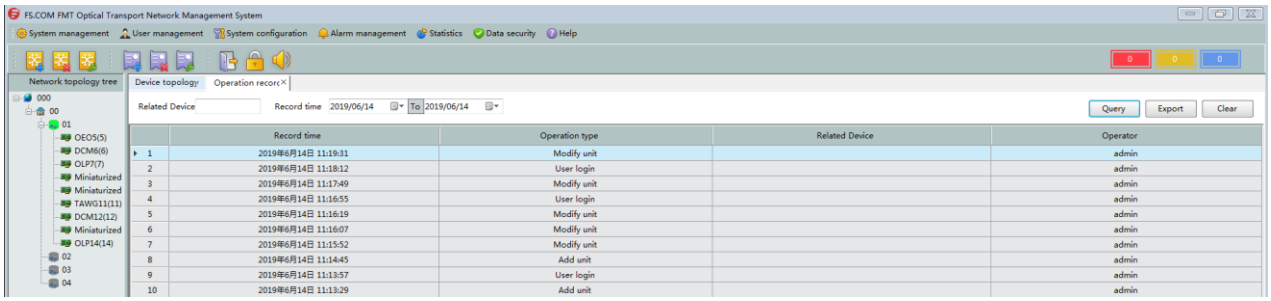


Fig.7.3 Operation record

7.3 Email configuration

Click "Email address of sender", then the interface will pop up, and click "Query" to configure the email(see Fig.7.4).

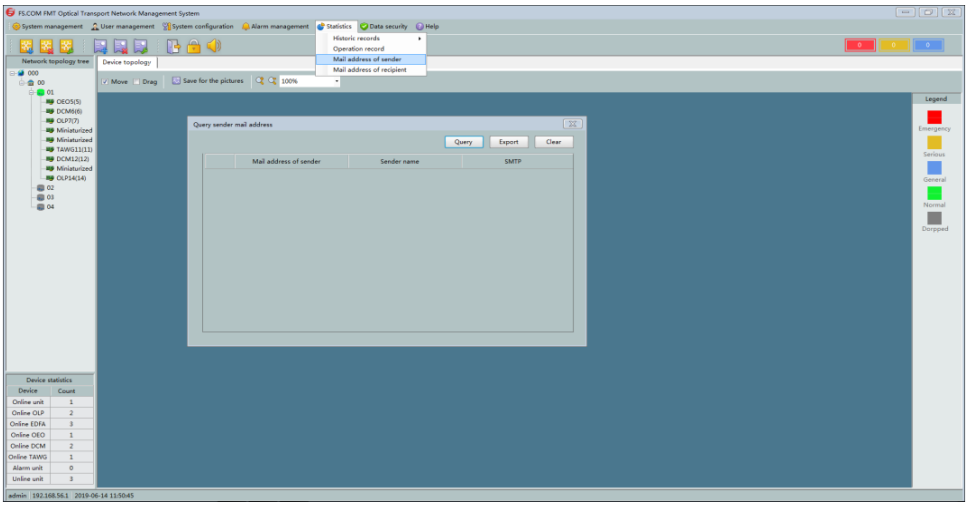


Fig.7.4 Email configuration

Click "Email address of recipient", then the interface will pop up, and click "Query" to configure the email(see Fig.7.5).

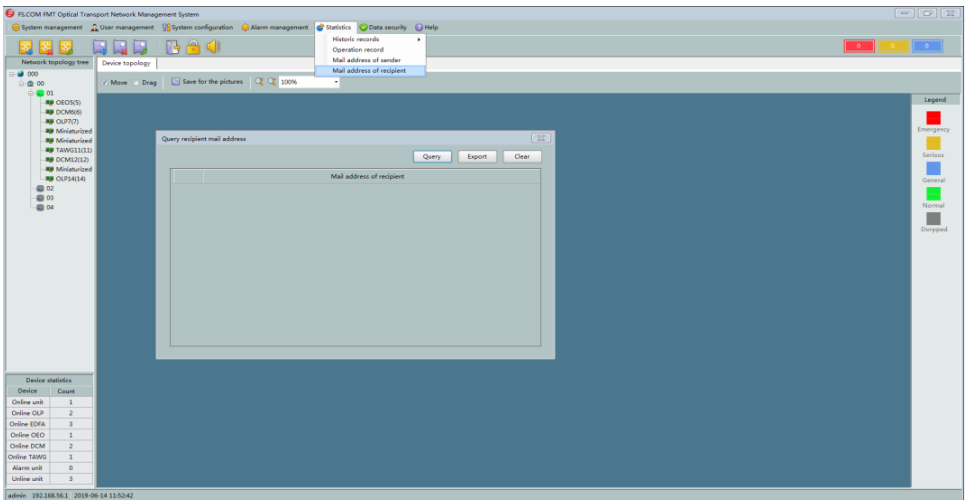


Fig.7.5 Email configuration

Click “Query” to edit the email information that you have configured; click “Clear” to delete the existing mailbox configuration; click “Export” to export the existing mailbox configuration table.

The prerequisite for using the mailbox push function is that the management PC requires access to the public network and the client server corresponding to the mailbox type is configured.
The supported mailbox types and client servers are as follows:

Email	SMTP server	SSL
Gmail	smtp.gmail.com	√
Yahoo	smtp.mail.yahoo.com	√
Outlook	smtp-mail.outlook.com	√
QQ	smtp.exmail.qq.com	√

Fig.7.6 Email configuration

Note: Only the highest level of alarm information is received by the mail, and the common event alarm information is not pushed by default. (Using QQ email address as the sending mailbox, the login password must be the authorization code.)

Chapter VIII SNMPv1

8.1 About SNMPv1

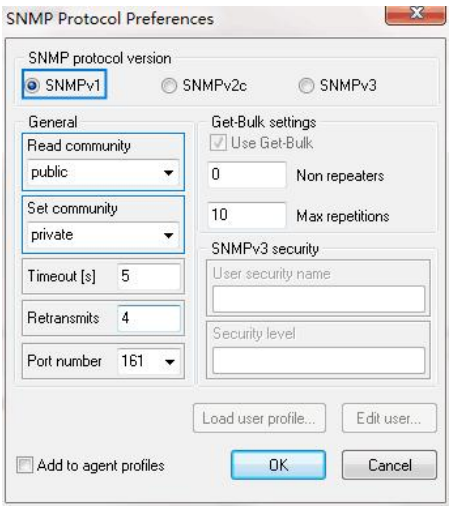


Fig.8.1 SNMP Protocol Preferences

Note: The default version is SNMPv1. FS can also offer the customized service according to customers' different demands.

Read community: It’s similar to the password function, if you need to read the data, you only need to write the “Read community” correctly. The password can only be modified via the Simple Management Tool.
Set community: It’s similar to the password function, if you need to modify the data, you need to write the “Read & Set community” correctly. The password can only be modified via the Simple Management Tool.

https://www.fs.com