MonitorCable User Manual

OTN Solutions for Metro/Regional and Long Haul



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Chapter I MonitorCable Installation Prerequisites

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

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 MonitorCable 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		\checkmark
WIN8	\checkmark	\checkmark
WIN7	\checkmark	\checkmark
WINXP	\checkmark	\checkmark
WIN2003	\checkmark	\checkmark
WIN2000	\checkmark	\checkmark
WIN98	/	/
WIN95	/	/

Table.1.0 Operating System

Note: $\sqrt{}$: Supporting this system;

 $\$: No such system.

Once Microsoft.NET Framework 4.5 and SQL_SERVER are installed, you can start to install MonitorCable Management Software, and please note to select the 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 MonitorCable 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).

· · · · · · · · · · · · · · · · · · ·			
🍢 Microsoft SQL Server Ma	nagement Studio		
File Edit View Tools	Window Community	y Help	
😫 New Query 📑 📸	ð 🛐 🕞 🚰 🖬 🍊		
Object Explorer	→ ₽ ×		
Connect - 🛃 🛃 🔳 🍸	2 🔏		
🕞 💦 (SOL Server 10.0 160	10 - sal		
🖃 🦳 Databases	Connect		
🗉 🚞 System Dat	Disconnect		
🕀 🚞 Database S	Register		
ReportServ ReportServ	New Query		
E Security	Activity Monitor		
🗄 🚞 Server Objects	Start		
🗄 🚞 Replication	Stop		
🗉 🚞 Management	Pause		
🗄 🃸 SQL Server Ag	Resume		
	Restart		
	Policies •	•	
	Facets		
	Start PowerShell		
	Reports •	•	
	Refresh		
	Properties		
Ready			al

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).

🗄 Server Properties - PC201508261	329		
Select a page General Memory Processors Denuetions Database Settings Advanced Permissions	Script V Malp Server authentication Windows Authentication mode SQL Server and Windows Authentication Login auditing None Failed logins only Successful logins only Both failed and successful logins Server proxy account Enable server proxy account Proxy account:	tion mode	
Connection	Password.	NOROKOKK	
Server: Connection: Sa <u>View connection properties</u>	Options Enable Common Criteria compliance Enable C2 audit tracing Cross database ownership chaining		
11081622			

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).

Server Properties - FSCOM-	
Select a page Concerning Seneral Concessors Connections Connections Database Settings	Script
Advanced	Les query governor to prevent long-running queries Default connection options:
	implicit transactions
Connection	Remote server connections
Server: (local) Connection: sa <u>New connection properties</u>	Allow remote connections to this server Remote guery timeout (in seconds, 0 = no timeout): 600 60 Require distributed transactions for server-to-server communication
Progress	
Ready	Configured values Definition of the second
	OK Cancel

Fig.1.3 Server Properties

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

The user name "sa" is default, and cannot be modified.

Microsoft SQL Serv	ver Management Stu	dio			-00-
File Edit View 1	Tools Window Co	ommunity Help			
New Query		S (4) (4) (4)			
Object Explorer	• 1	×			
Connect • 1 1	YES				
B C. (SQL Server 1	0.0.1600 - sa)	1			
🛞 🧰 System D	Databases				
🗄 📴 Databas	e Snapshots				
III 🚺 ReportSe	erver				
iii 📑 ReportSi	erverTempDB				
E Security					
A. eeta	S. PolicyEventProcess	er.			
A. ##14	S PolicyTsalExecution				
ANTA	UTHORITY NETWOR	κ.e. ^e			
A NT A	UTHORITY\SYSTEM				
M NT S	ERVICEVMSSQLSERVI	ER			
M NT S	ERVICE\SQLSERVERA	GE			
& PC20	1508261329\Adminis	tre			
A 🔛	New Login	1			
E Serve	Script Login as				
E Creat	Policies.				
ili Ca Audita	Facets				
III Da Server	Start ProperShell				
iii 🧰 Server O					
🗷 🚞 Replicatio	reports				
4	Rename				
Ready	Delete				
	Refresh		10.35	2015/9/1 22:22	2
2.168.0.223	Properties				

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).

Select a page	Script 👻 🊺 Help		Script - 🚺 Help				
T Server Roles T User Mapping	Login <u>n</u> ame:	34	Sgarch				
T Status	Windows authentication						
	SQL Server authentication						
	Password:	******					
	Confirm password:	********					
	Specify old password						
	Old password:						
	V Enforce password polic	3					
	Enforce password empir	ation					
	User must change passe	ford at next login					
	Mapped to certificate		*				
	🔘 Mapped <u>t</u> o asymmetric key		*				
	🛄 Map to Credential						
	Mapped Credentials	Credential Provider					
onnection							
Server:							
Connection							
sa							
View connection properties							
rogress							
Ready			Remowe				
See.	Default <u>d</u> atabase:	master	•				
	Default language:	English	•				

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).

🗄 Login Properties - sa		
Select a page	Script - Thelp Settings Permission to connect to database engine:	
Connection Server: . Connection: sa Yiew connection properties Frogress Ready		
		Cancel

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).

Microsoft SQL	Server Managemen	t Studio	
File Edit View	w Tools Window	Community Help	
New Ouerv			
Object Explorer		- 1 X	
Connect -	2 = T 2 3		
🖃 🚺 . (SQL Serv	ver 10.0.1600 - sa)		
🕀 🧰 De	Connect		
🕀 🚞 Se	Disconnect		
🕀 🧰 Se	Register		
⊞ 🔁 Re ⊞ 🛅 M	New Query		
⊞ 📸 SC	Activity Monitor		
	Start		
	Stop		
	Pause		
	Resume		
	Restart		
-	Policies	•	
	Facets		
	Start PowerShell		
1	Reports	•	
	Refresh		
	Properties		
Ready			d

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:

So far 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.

🕕 Ready					
Select a page	Script - The Help				
🚰 General					
	Facet: Server				
	D i l' Experse properties of th	he Server object			
	Description: Exposes properties of a	le server object.			
	Facet properties:				
	AuditLevel	Failure			
	BackupDirectory	C:\Program Files\Microsoft SQL Server\MSSQL1			
	BrowserServiceAccount	NT AUTHORITY\LOCAL SERVICE			
	BrowserStartMode	Manual			
	BuildClrVersionString	v2.0.50727			
	BuildNumber	1600			
	Collation	SQL_Latin1_General_CP1_CI_AS			
	CollationID	872468488			
	ComparisonStyle	196609			
	ComputerNamePhysicalNetBIOS	FSCOM-PC			
	DefaultFile				
	DefaultLog				
	Edition	Enterprise Edition (64-bit)			
	EngineEdition	EnterpriseOrDeveloper			
	ErrorLogPath	C:\Program Files\Wilcrosoft SQL Server\WissQLL			
Connection	FilestreamLevel	MSSOI SERVER			
ಶ (local) [sa]	InstallDataDirectory	C\Program Files\Microsoft SOL Server\MSSOL1			
View connection properties	AuditLevel				
Program	Gets or sets the audit level for the instance	e of Microsoft SQL Server.			
Togress					
Ready		Emert Commt State on Delle			
1 Parts		Export Current State as Policy.			

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 status 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.

Sql Server Configuration Manager						
File Action View Help						
🗇 🧼 🖄 🙆 🗟 👔	Manager P In Manager (Local) Name State Start Mode Log On As Process ID Service Typ Configuration (32bit Configuration (32bit Configuration Image: State Start Mode Log On As Process ID Service Typ SQL Server (MSS Running Automatic NT AUTHORITY\NE 0 SQL Server Configuration SQL Server Agent Stopped Manual NT AUTHORITY\NE 0 SQL Agent 0 Configuration O Configuration SQL Server Analy Running Manual NT AUTHORITY\NE 380 0 0 SQL Server Analy Running Automatic NT AUTHORITY\NE 384 Analysis Se SQL Server Integr Running Automatic NT AUTHORITY\NE 2712 SQL Server Repor Running Automatic NT AUTHORITY\NE 2264 Report Server Serv					
SQL Server Configuration Manager (Local) SQL Server Services SQL Server Network Configuration (32bit) ● SQL Native Client 10.0 Configuration (32l) ● SQL Native Client 10.0 Configuration ● SQL Server Network Configuration	Name SQL Server Browser SQL Server (MSS SQL Server Agent SQL Full-text Filte SQL Server Analy SQL Server Integr SQL Server Repor	State Stopped Running Stopped Running Running Running	Start Mode Other (Boot, Syste Automatic Manual Automatic Automatic Automatic	Log On As NT AUTHORITY\LO NT AUTHORITY\NE NT AUTHORITY\NE NT AUTHORITY\NE NT AUTHORITY\NE NT AUTHORITY\NE	Process ID 0 3632 0 380 3384 2712 2264	Service Typ SQL Server SQL Agent Analysis Se Report Ser

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.

File Action View Help			
	0		
SQL Server Configuration Manager (Local)	Protocol Name	Status	
 SQL Server Services SQL Server Network Configuration (32bit) SQL Native Client 10.0 Configuration (32l) SQL Server Network Configuration Protocols for MSSQLSERVER SQL Native Client 10.0 Configuration 	Shared Memory Named Pipes TCP/IP	Enabled Disabled Disabled Disabled	





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).

Protocol IP Addresses			🗇 🔿 🖄 🖾 🗟 🛛			
Protocol IP Addresses IP1 Active Enabled IP Address TCP Dynamic Ports TCP Port IP2 Active Enabled IP Address TCP Port IP3 Active Enabled IP Address TCP Port IP3 Active Enabled IP Address TCP Port IP3 Active Enabled IP Address TCP Port	Yes No fe80::a049:766c:e02f:114c%14 1433 Yes No 192.168.1.104 1433 Yes No fe80::497d:5bc4:43ff:100f%12	+ H	Image: Solid Server Configuration Manager (Local) SQL Server Services SQL Server Network Configuration (32bit) Image: SQL Server Network Configuration (32bit) Image: SQL Server Network Configuration Image: SQL Server	Name Shared Memory Named Pipes VIA	Order 1 2 3	Enabled Enabled Enabled Disabled
TCP port	Cancel Apply. Hel	P				

Fig.1.12 TCP/IP Properties

Fig.1.13 SQL Server Configuration Manager

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

(1) Click the "start" to open control panel (see Fig.1.14).

(2) Click "View network status and tasks" (see Fig.1.15).



Fig.1.14 SQL Server Configuration Manager



Fig.1.15 control panel

(3) Click "Windows Firewall" (see Fig.1.16).

🔵 🗢 👯 « Network and In	ternet 🕨 Network and Sharing Center	+ → Se	earch Control Panel)
Control Panel Home	View your basic network information	n and set up	connections	
Change adapter settings	A			See full ma
Change advanced sharing settings	XUANXUAN-PC Netwo (This computer)	ork	Internet	
	View your active networks		Conr	lect or disconned
	Network Work network	Access Connec	type: Internet tions: 🔋 Local Area C	onnection
	Change your networking settings			
	Set up a new connection or network Set up a wireless, broadband, dial-up, point.	, ad hoc, or VPN	connection; or set up a	router or access
	Connect to a network			
	Connect or reconnect to a wireless, w	vired, dial-up, or	VPN network connection	on.
	Choose homegroup and sharing opti	ons		
	Access files and printers located on o	ther network cor	nputers, or change sha	ring settings.
See also	Troubleshoot problems			
HomeGroup	Diagnose and repair network problem	ns, <mark>or get troubl</mark> e	shootin <mark>g in</mark> formation.	
Internet Options				

Fig.1.16 Network and Sharing Center

(4) Click "Allow a program of feature through Windows Firewall" (see Fig.1.17).

🗿 💽 🗢 🕍 🔸 Control Panel 🔸	System and Security Windows Firewall	✓ 4 Search Control	l Panel
Control Panel Home Allow a program or feature. through Windows Firewall Change notification settings Turn Windows Firewall on or off Restore defaults Advanced settings Troubleshoot my network	Help protect your computer with W Windows Firewall can help prevent hackers or through the Internet or a network. How does a firewall help protect my computer What are network locations? Windows Firewall state: Incoming connections: Active home or work (private) networks: Notification state:	indows Firewall malicious software from gaini ? works nd trust the people and device On Block all connections to the list of allowed progr Network Notify me when Window program	ing access to your compute Connected es on the network programs that are not on ams ws Firewall blocks a new
	Public networks		Not Connected 😪
See also			
Action Center			

Fig.1.17 Windows Firewall

(5) Click "Changes settings" button and "Allow another program" button (see Fig.1.18).

G 🕖 🖉 📽 Windows Firewall 🕨 Allowed Programs	✓ ✓ ✓ Search Control Panel	٩
Allow programs to communicate through Windows F To add, change, or remove allowed programs and ports, click Change What are the risks of allowing a program to communicate?	irewall settings.]
Allowed programs and features:		
Name	Home/Work (Private) Public 🔺	
 Distributed Transaction Coordinator File and Printer Sharing HomeGroup ISCSI Service Key Management Service Media Center Extenders Netlogon Service Network Discovery Performance Logs and Alerts Remote Assistance Remote Desktop Remote Log Management 		
	Details Remove Allow another program OK Cancel]

Fig.1.18 Allowed Programs

(6) Click "Browse" and open Program Files folder in C (see Fig.1.19).



Fig.1.19 Local Dlisk C

(7) Open "Microsoft SQL Server" folder (see Fig.1.20).

Organize 🔻 New fold	der			8== 💌	
Favorites	P	lame		Date modified	Туре
🧮 Desktop		📙 Common Files		9/4/2015 5:06 AM	File fol
\rm Downloads		📙 DVD Maker		7/14/2009 12:47 AM	File fol
🖳 Recent Places		Internet Explorer		7/13/2009 10:37 PM	File fol
		📙 Microsoft Analysis Services		9/4/2015 5:43 AM	File fol
🗧 Libraries 📕		📙 Microsoft SQL Server		9/4/2015 5:43 AM	File fol
Documents		📙 Microsoft Sync Framework		9/4/2015 5:42 AM	File fol
J Music		Microsoft Visual Studio 9.0		9/4/2015 5:42 AM	File fol
Pictures		📙 Microsoft.NET		9/4/2015 5:41 AM	File fol
📑 Videos		📙 MSBuild		7/13/2009 10:32 PM	File fol
		Reference Assemblies		7/13/2009 10:32 PM	File fol
🖳 Computer		📙 VMware		9/4/2015 5:06 AM	File fol
🏭 Local Disk (C:)		📙 Windows Defender		7/13/2009 10:37 PM	File fol
DVD Drive (D:) VI	•	m			P.
Filer	name	- <u>12</u>	- 0	Applications (*.exe**.com*	icd) 🔻

Fig.1.20 Program Files

(8) Open "MSSQL10.MSSQLSERVER" folder (see Fig.1.21).



Fig.1.21Microsoft SQL Server

(9) Open "MSSQL" folder (see Fig.1.22).

P Browse	1SSQL10.MSSQLS	ERVER 🕨		Search MSSQL10.MSSQL	SERVER 🔎
Organize 🔻 New folder					
🔆 Favorites	Name	^		Date modified	Туре
E Desktop Downloads Recent Places Libraries Documents Music Pictures Videos	MSSQL			9/4/2015 5:55 AM	File folde
Computer					
DVD Drive (D:) VN + 4		III			•
File name	e		- A	pplications (*.exe;*.com; Open 🗣 🔽 Ca	*.icd) ▼ ncel

Fig.1.22 MSSQL10.MSSQLSERVER

(10) Open "Binn" folder (see Fig.1.23).

Organize 🔻 New folder			1955 •	
🚖 Favorites 🕺	Name		Date modified	Туре
🧮 Desktop	🔋 Backup		9/4/2015 5:55 AM	File folder
〕 Downloads	🍌 Binn		9/4/2015 5:55 AM	File folder
📃 Recent Places	JATA		9/4/2015 5:56 AM	File folder
	📕 FTData		9/4/2015 5:55 AM	File folder
🗟 Libraries 👘	🌗 Install		9/4/2015 5:42 AM	File folder
Documents	JOBS		9/4/2015 5:55 AM	File folder
J Music	🌗 Log		9/4/2015 6:03 AM	File folder
🔄 Pictures	🔋 repidata		9/4/2015 5:55 AM	File folder
Videos	퉬 Upgrade		9/4/2015 5:42 AM	File folder
Computer				
🚢 Local Disk (C:)				
DVD Drive (D:) VI 👻	f [۰.
File nar	ne:	- A	pplications (*.exe;*.com	n;*.icd) 🔻

Fig.1.23 MSSQL

(11) Double-click "sqlservr" (see Fig.1.24).

Browse				-	-	X
S S S S S S S S S S S S S S S S S S S		Binn 🕨	▼ +j	Se	earch Binn	Q
Organize 👻 New fo	lder				833 🕶 [9
🔶 Favorites	•	Name			Date modified	Туре 🖍
E Desktop		Templates			9/4/2015 5:43 AM	File fol
Downloads		DatabaseMail			7/10/2008 4:38 AM	Applic
📃 Recent Places		DCEXEC			7/10/2008 4:38 AM	Applic
107AV		🗾 fdhost			7/10/2008 4:39 AM	Applic
词 Libraries	E	E fdlauncher			7/10/2008 4:39 AM	Applic
Documents		SQLAGENT			7/10/2008 5:31 AM	Applic
J Music		SQLIOSIM			7/9/2008 3:45 PM	MS-D(≡
E Pictures		🛃 SQLIOSIM			7/10/2008 5:31 AM	Applic
Videos		💷 sqlmaint			7/10/2008 5:31 AM	Applic
		sqlservr			7/10/2008 5:31 AM	Applic
📜 Computer		sqlstubss			7/10/2008 5:31 AM	Applic
🚢 Local Disk (C:)		xpadsi			7/10/2008 5:31 AM	Applic 🗸
DVD Drive (D:) VI			111			+
File	e nam	ne: sqlservr	•	Ap	plications (*.exe;*.com;'	*.icd) 🔻
					Open	ncel

Fig.1.24 Binn

(12) Click "Add" button to add SQL Server Windows NT-64bit to "Allow Programs" (see Fig. 1.25).



Fig.1.25 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 MonitorCable Installation Procedures

2.1 MonitorCable Installation

Double-click MonitorCable.exe or MonitorCable.msi of MonitorCable.exe folder to install MonitorCable. 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 MonitorCable

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



Fig.2.2 MonitorCable

2.2 Connect Database

Step 1: Double click Fig.2.2, and click "OK" button, the interface of database connection will pop up.

Step 2: Input IP address (Computer IP of installation database), Login name (Default as "sa") and Login password (password set when the database is installed) of database, and click "Test" button, if the database is existent and the connection is successful, then the box of database connection success will pop up. Please transfer to step 3. Otherwise, the an interface of establishing a database will pop up, please transfer to step 5.

Step 3: Click "OK" button, then click "Confirm" button. Then MAC address verification interface will pop up.

Step 4: Click "Confirm" button, if the device IP is online, then login interface will pop up. Input correct login account and password and click "Login" button, then "Submit success" interface will pop up.

Step 5: Please click "OK" button, then the interface of database configuration will pop up.

Step 6: Input IP address (Computer IP of installation database), Login name (Default as "sa") and Login password (password set when the database is installed) of database, and click "Create" button to create a database. After creating database, the interface of "Submit success" will pop up.

Step 7: Click "OK" button, then the interface of database connection will pop up. The other steps are same with Step2.

Note:

Both the initial login account and password of optical cable monitoring software are admin.

Chapter III Device Configuration

Click "Device 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 room and delete (see Fig.3.2).

Device o	onfiguration				<u> </u>
Add city	Add room	Add unit	Edit	Delete	
	1100 110 1100 1	1. 200) 3	Luit	Delete	
	OPD3 (3)	(4)			
	hou 12				
1	, 02 (192. 168 .)	1. 103)			

Fig.3.1 Device Configuration

Explain: ① City; ② Serviceroom; ③ Unit device name; ④ Business card The serial number of the card is the slot where the card is located, for example: OTDR(4).

3.1 Add City

Click "Add City" button and the interface will pop up (see Fig.3.2). Input city code and city description, then click "Submit" button.



Fig.3.2 Edit City

3.2 Add Room

Click "Add Room" button and the interface will pop up (see Fig.3.3). Input room code and room description, then click "Submit" button.

🖳 Edit room		×
Belong city	China]
Room code		•
Room description		
Explain: Room code is two digit between 00 ~99	and the range of numberson submit Close	ers is

Fig.3.3 Edit Unit

3.3 Add Unit

Click "Add Unit" button, and an interface of "edit unit" will pop up (see Fig.3.4). 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 "edit unit".

🖳 Edit unit					.
Unit info					
IP address			Unit code		
Unit description	1				
Belong city	China	•	Belong room	hubei	•
Connecting unit					
e () () China	ei				
			[Submit	Close



3.4 Edit Room

You can edit information about city, room, unit and card in Fig.3.1 (take edit room for example). When you click pre-edit room and "Edit" button, then the "Edit room" interface will pop up (see Fig.3.5), finally, you can modify the basic information of the device in this interface.

Edit room		×
Belong city	China 🗸]
Room code	01	
Room description	beijing]•
Explain: Room code is two digit between 00 ~99	and the range of numbe Submit Close	ers is

Fig.3.5 Edit Room

3.5 Board Configuration

The network topology tree is on the left side of the main interface, and in the topology tree, you can see all the cities, machine rooms, unit, the type and number of boards of each network element. Right-click the board icon and click "Edit board" to enter the board configuration interface(see Fig 3.6).

Board information							
Board type	OTDR -	Belong city	China	•	Belong room	hubei	•
Belong unit	FMT-192.168.1.225 -	Board description	OTDR4		Board code	[
Belong slot	4						
P Address	Range	Lase	er wavelength		Con	figure IP	

Fig.3.6 Edit Board

After the board code and IP address, range, and wavelength are inputting, then click "Submit" to complete the configuration of the board. You can also click Configure IP to remotely set the IP address, subnet mask, and gateway of the OTDR(see Fig 3.7).

IP Address	I	
Subnet mask		
Gateway		
	Carting	Class

Fig.3.7 Configure IP

Chapter IV Configuration of Cables

Click "Configuration of cable resources" of menu bar, and the interface will pop up(see Fig.4.1). The function of adding cable, editing, and deleting could be achieved.

🖳 Configuratio	on of cable	resources	
Add cable	Edit	Delete	

Fig.4.1 Configuration of Cable Resources

4.1 Add Cable

Click "Add cable" button in Fig.4.1 and the "Cable edit" interface will pop up (see Fig.4.2). Input the information of cable, related OSW and OTDR, automatic acquisition measured value and parameter set, then click "Confirm" button.

-
-
•

Fig.4.2 Cable Edit

A: Cable edit: Select city, room, unit, belong OPD and OPD route of starting point and city, room, unit, belong LSU and LSU route of ending point. If there is no OPD at the starting point of the cable or there is no LSU at the end of the cable, there is no need to select the information of OPD or LSU when configuring the cable information.

Cable Description: This item cannot be empty.

B: Related OSW and OTDR: if there is no OSW in the line, there is no need to configure OSW. But the OTDR must be configured with OSW. C: Automatic acquisition measured value: The cable length and cable loss in the automatic acquisition measurement value are the two parameter basis of the parameter setting, which can be obtained by the automatic acquisition button.

D: Parameter Set: Click the "measurement parameter set" button, and the interface of parameter setting will pop up(see fig 4.3).

Note:

Because the cables have both ends(A End to B End), you should configure a virtual network element.

hysical properties o	f cabl	•	<u> </u>		
Kefractive index 4.4	000	Y	Lu	stom	
easuredment paramete	r set				
Laser wavelength	1625	×	nm	Custom	
Measure range	10	Ŧ	Km	Custom	
Measure pulse width	40	×	ns	Custom	
Measure time	30	w	s	Custom	
End threshold	5.00	*	dB	Custom	
larm threshold set Reflection event l Non reflective los	oss thres	esho shold	15		dB dB
Cable loss threshold				51	dE
Cable loss thresho	Broken cable threshold				

Fig.4.3 Measurement Parameter Set

4.2 Edit Cable

In the tree structure (see Fig.4.1), select a Pre-edit cable and click "Edit" button, and an interface of "Cable edit" will pop up (see Fig.4.4), you can edit the information of cable, related OSW and OTDR, automatic acquisition measured value and parameter set.

P.1					_]	Balong unit	01	
Deron Starting point	g city [guil:	ing	• Delong ro	Som OI		perong anic		_
Belor	ng OPD OPD3		 Belong ro 	oute 1				
Belon	g city liuz	hou	- Belong ro	oom 02	•	Belong unit	02	
Ending point Belor	ng LSU None	selected	Belong ro	oute	•			
Belong unit Belong unit	01		Belong OSW	OSW1	▼ OSW	direction [1	•
	S		red value	Parameter se				
Aut	omatic acquis	sicion measu						
Aut (omatic acquis Cable length	6436.81	m	4	ato acquisi	tion		

Fig.4.4 Cable Edit

4.3 Delete Cable

In the tree structure (see Fig.4.5), select one of the pre-delete cables and click "Delete" to delete the cable.

🖳 Configuratio	on of cable	resources	
Add cable	Edit	Delete	
<u> </u>			

Fig.4.5 Configuration of Cable Resources

Chapter V Monitoring of Equipment

5.1 Network Topology Tree

The network topology tree is located on the left side of the main interface (see Fig.5.1). You can see all the cities, machine rooms, unit, the type and number of cards of each network element. Double-click the card icon to enter the chassis monitoring interface.



Fig.5.1 Network Topology Tree

5.2 Device Topology

Device topology is in view display area of main interface (see Fig 5.2), 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 OPD monitoring interface in Fig.5.3).

Network topology tree	Device topology	
E 🚰 China E 🌚 hubei	More □ Drag □ Q Q 101% . .	
E FMT-192.168.1.225		Legend
OTDR4(4)		
		Dergency
		Tring
		General
		Somal
		Dorped
Cable topology	FMT-192-168.1.225 FMT-192.168.1.226	
⊖ 🔮 Orina ⊖ 🌚 hubel		
Hantor Cable		
E	1	

Fig.5.2 Cable Monitoring

2.168.1.	225FMT-192.	168.1.225							
PW	²¹		r run 5	00000 0000	0 0 0	E COLOR			Slot2 PWR Status
Ethern	et	(PD)	PWR RUN		0 0 0 0	Slot3		Ethernet Out	Slot4
Monitor	Info Topolog	gy information Basi	c information			₩			
Chanr	el Power	Threshold	Route Type	Waveleng	th	Channel Power	Threshold	Route Type	Wavelength
1	-60.00		set Unline monitor	1550 -	set	9	set		-Not seler 👻 set
2	-60.00		set Unline monitor	1550 -	set] 10	set		-Not sele 👻 set
3	-60.00		set Unline monitor	1550 -	set) 11	set		-Not sele → set
4	-60.00		set Unline monitor	1550	set] 12	set		-Not sele ▼ set
5			set	-Not seler	set] 13	set		-Not sele 👻 set
6			set	-Not seler	set] 14	set		-Not sele 👻 🛛 set
7			set	-Not sele	set] 15	set		-Not sele 👻 🛛 set
8			set	-Not sele	set	16	set		-Not sele 👻 set

Fig.5.3 Cable Monitoring

Chapter VI Cable Monitoring

6.1 Cable Topology

The cable topology tree is on the left side of the main interface (see Fig. 6.1).

In the topology tree, you can see the city where the cable is located and the cable that is monitored under each city.

FS Network Management System	the second	
😼 System management 🛛 🔏 User management	: 🔀 Device configuration 🏻 🍌 Management of cable resources 🛛 🥐 Data security 🦙 Help	
		● 0 ● 0 ● 0 − 0 − 0
Network topology tree	Device topology Cable monitoring	
- 🖉 guiling - 🎰 01	■ Nove ■ Drag 💾 Q Q 100%	
	ot Oz	Legend Part story Series General
Cable topology		Kensi Dorged
Current device alarm Current cable alarm		
Current alarm management	I and a second line of any second	t en er de sou
admin 192.168.1.25 2018年08月31日 09:34:36		

Fig.6.1 Cable Monitoring

MonitorCable Interface Instruction

System	Description
①Menu Bar	
	${f Q}_{{f c}}$: Search unit, by clicking the icon, you can search all the units in the LAN.
	: 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.
	E : Add line card, by clicking the icon, you can add a line card for the unit.
	E : 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.
②Shortcut bar	(a) : 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.
	0 : The number of emergency alarm.
	0 The number of serious alarm.
	🥥 0 : The number of general alarm.
	O : The number of cable serious alarm.
	0 : The number of cable general alarm.

6.2 Cable Measurement

Click the city, room, machine or cable in cable topology can realize single cable measurement, single polling measurement and periodic polling measurement. Then take single cable measurement for example.

Choose a cable then right click start button to realize single cable measurement(see Fig.6.2). If OTDR associated with the cable has not configured IP address, the interface will pop up as shown in figure 6.3. You should edit the IP address of the OTDR in "Edit board" interface, if the cable has configured successfully, the "monitor cable single cable measurement" interface will pop up(see Fig.6.3). When the test is completing, this interface will pop up(see Fig.6.4).



Fig.6.2 Single Cable Measurement

Gamma Monitor CableSingle cable r	neasurement	×
Single cable measurement is in pr	rogress, please wait!	
	Measurement result	Ì
		2

Fig.6.3 Monitor CableSingle Cable Measurement



Fig.6.4 Monitor CableSingle Cable Measurement

Click "measurement result" button, you can view the results of the measurement(see Fig.6.5).

In figure 6.5, you can click on an event in the event list to locate the location directly on the graph and quickly query the event location.



Fig.6.5 History of Cable Measuring

6.3 Automatic Alarm Test

Cable edit

Take the configuration of two optical cables as an example.

The configuration of Line 1: the channel of the optical switch needs to correspond, the optical cable is 1, the corresponding optical switch channel is 1;

abre edit			-			
Belo	ong city guil	ing 🔹	 Belong room 	01	- Belong unit	•
Starting poin Bel	ong OPD OPD3		Belong rout	.e[1	•	
Bela	ong city liuz	hou •	Belong room	02	- Belong unit ()2 v
Ending point Bel	ong LSU None	selected	· Belong rout	e	•	
Cable descri	ption Line 1			- 35 -		_
elated OSW am	d OTDR					
Belong uni	+ 01	- Be	long OSW OS	81 -	OSW direction 1	•
Printing an					-	
Belong uni	t [01	▼ Bel	ong OTDR OT	DR4 👻		
A	itomatic acqui	sition measure	d value	Parameter set		
	Cable length	6436.81	m	Auto a	cquisition	
	Cable loss	2.79	dB	Measuredmen	t parameter set	

Fig.6.6 Cable Edit

The configuration of Line 2: the channel of the optical switch needs to correspond, the optical cable is 2, the corresponding optical switch channel is 2.

			v			(
Belor	ng city guil	ing 🔻	Belong room	01 -	Belong unit	•
Starting poin Belo	ng OPD OPD3	+	Belong route	2 •		
Belor	ng city liuz	hou 👻	Belong room	02 🗸	Belong unit	02 -
Ending point Belo	ng LSU None	selected 🔻	Belong route	•		
Cable descrip	tion Line 2					
elated OSW and	1 OTDR					
Polona unit	01				ew discontine (• _]
berong unit	UI	• Del	ong USN USN		is direction	<u>د</u> •)
Belong unit	01	➡ Belon	ng OTDR OTDI	R4 🔻		
Aut	omatic acqui:	sition measured	value	Parameter set		
į	Cable length	0.00	m	Auto acqu	isition	
	Cable loss	0.00	dB	Measuredment p	arameter set	

Fig.6.7 Cable Edit

OPD card configuration

Configure the alarm threshold of the OPD board. When the power value of a channel in the OPD is lower than the set alarm threshold, an alarm will be triggered. The optical switch will automatically switch to the alarm channel and start the OTDR test.

2 -0.31 -10.00 set 10 set -Het x = - 3 -2.33 set thaline menitor 1500 = set 11 set -Het x = - 4 -1.12 set thaline menitor 1500 = set 12 set -Het x = - 5 set -Wet x = - set 13 set -Het x = -	set
3 -2.33 set biline senitor 1500 set 11 set -Ret s 1 4 -1.12 set biline senitor 1500 set 12 set -Ret s 1 5 set -Set 13 set -Ret s 1	
4 -1.12 ast balane sensitor 1500 ast -Hot s = 0 5 ast -Hot s = sat 13 ast -Hot s = 0	set
5 at This at This at	unt
	set
6 sat -Ret sat 14 sat -Ret z -	set
7	set
8	set
Fin (0	

6.4 Polling Test

The cable configuration is unchanged. Right click the "unit" in the cable topology, you can choose "Single polling" or "Periodic polling" (see Fig.6.10). "Single polling" means starting the test from the first cable until the last cable test is completed; "Periodic polling" means polling continuously at specified intervals until the user clicks to stop.



Fig.6.10 Cable Topology

The periodic polling interval is set in the time interval of the period measurement of the cable resource management (see Fig.6.11).

🖳 Periodic interval	set	×
Intteerval time	1	Minute
	Confirm Cancel]

Fig.6.11 Periodic Interval Set

6.5 Test Record Query

The test record is in the optical cable measurement history of the optical cable resource management(see Fig 6.12).



Fig.6.12 History of Cable Measuring

Here you can check the three test records of each cable, including the first measurement record and the two recent measurement records. And the first measurement record will not be covered.



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