PR900 CS (Conventional System) Dispatch

.....

Configuration Guide

Version: V3.5

.....

Revision record

Edition	Date	Remarks				
V1.0	2019.05.01	Manual is released for the first time				
V1.0	2019.08.30	Add 3.4 section -IE browser check.				
V1.0	2019.09.05	1. Modify the description of 5.1.1 and 5.1.2 and the				
		MySQL version.				
		2. Modify the screenshots of 5-1 and 5-2.				
		3. Delete the related port notes from the server in Section				
		5.1.3.				
		4. Modify the description of 5.1.4, and 5-12,5-13				
		pictures.				
		5. Delete the contents related to OMM in Chapter 8.				
		6. Update the directory.				
V1.5	2019.12.24	1.Add chapter 5.1.1				
		2.Modify the description in chapter 5.1.2, 5.1.4				
		3. Modify the description of IP connect ID in chapter				
		5.2.4				
		4. Modify content of chapter 7.5 and 7.6, delete chapter				
		7.7				
V1.5	2020.02.25	Updated screenshots involving the resource tree on the				
		dispatch console client.				
V2.0	2020.07.24	1. Add IP Connect, simulcast scenario configuration				
		description in chapter 1				
		2. Make the planning based on IP Connect and simulcast				
		scenario in chapter 2				
		3. Make the planning based on IP Connect and simulcast				
		scenario in chapter 4.5				
		4. Add configuration description based on IP Connect,				
		simulcast scenario in chapter 5&6				
V2.5	2020.12.24	1. Add AIS licensed feature description in chapter4.5				
		2. Add offline map configuration in chapter5.3				
V3.0	2021.07.02	1. Add inter-network IP connect configuration				
		description in chapter2.2, 4.5.3				
		2. Modify inter-network IP connect planning in				
		chapter2.5, 2.6, 2.7				
		3. Modify offline map description in chapter 5.3 and				
		update figures.				
		4. Add the system and authorization contents in 5.1 and				
		5.2.2.				
V3.5	2021.12.21	1. Add the relevant configurations of the analog repeater				
		in Section 2.1, 2.5 and 2.7.				
		2. Add the dispatcher number segment range planning in Section 2.6				



3. Add the content of contact in Section 4.1 and the
content of analog channel configuration in Section 4.3.
4. Add the content of dispatcher number segment
management in Section 5.3.7.
5. Add the description of customized system name in
Section 5.3.8.

.....

© 2022 Caltta Technologies Co.,Ltd. All rights reserved

Copyright statement:

The copyright of this document belongs to Caltta Technologies Co.,Ltd. Text contains proprietary information owned by Caltta Technologies Co.,Ltd., without the written permission of Caltta Technologies Co.,Ltd., any unit or individual shall not use or leak any document and pictures, this document contains tables, picture, data and other information.

The information in this document contains the development progress of Caltta Technologies Co.,Ltd. products and technology will continue to update, Caltta Technologies Co.,Ltd. would not notice such information updates.



INDEX

Figure Index	6
Table Index	8
1 Overview	9
1.1 IP connect	9
1.2 Simulcast system	9
2 Configuration planning	9
2.1 IP connect or single site scenario	9
2.1.1 IP planning	10
2.1.2 Radio planning	10
2.1.3 Port planning	11
2.2 Inter-network IP connect scenario	11
2.2.1 IP planning	12
2.2.2 Radio planning	13
2.2.3 Port planning	13
2.3 Simulcast Scenario	14
2.3.1 IP planning	14
2.3.2 Radio planning	14
2.3.3 Port planning	15
2.4 Operating system	15
2.5 Repeater registration planning	15
2.6 Dispatcher planning	16
2.7 Network authentication code planning	16
3 Configuration check	17
3.1 IP check	17
3.2 Frequency check	17
3.3 Port check	17
3.4 IE browser check	18
4 Repeater configuration	18
4.1 CPS read	18
4.2 Common setting	19
4.3 Channel setting	20
4.3.1 Digital channel setting	20
4.3.2 Analog channel setting	21
4.4 Zone setting	22
4.5 Network setting	23
4.5.1 Single site	23
4.5.2 IP Connect	23
4.5.3 Inter-network IP connect	25
4.5.4 Simulcast	29
4.5.5 AIS setting	30
4.6 CPS write	31

Caltta

5 Dispatcher setting	32
5.1 Dispatch software installation requirements	32
5.2 Dispatcher installation	33
5.2.1 Dispatcher version and repeater version check	33
5.2.2 MySQL installation	33
5.2.3 Dispatcher server installation	35
5.2.4 Dispatcher client installation	41
5.3 Dispatcher client setting	42
5.3.1 Dispatcher client login	42
5.3.2 Configure IP connect network	43
5.3.3 Add radio	44
5.3.4 Add group	44
5.3.5 Add repeater and bind group	44
5.3.6 Modify admin password	. 46
5.3.7 Add dispatcher account	47
5.3.9 New dispatcher account login	49
5.4 Offline map setting (licensed feature)	52
5.4.1 Dispatch server setting	52
5.4.2 Dispatch client setting	52
6 Radio configuration	52
6.1 Radio CPS read	52
6.2 Basic setting (supplementary service)	. 53
6.3 Contact setting	54
6.4 Channel setting	54
6.5 Radio RRS setting	56
6.6 Radio positioning information report	56
6.7 Rx group setting	57
6.8 Radio CPS write	57
7 Commissioning system	. 58
7.1 Radio registration	58
7.2 Radio de-registration	59
7.3 Voice call	60
7.4 Send message	61
7.5 GPS Location	62
7.6 Real-time GPS location	62

Figure Index

Figure 2-1	Sample diagram of IP connect or single station configuration	10
Figure 2-2	Sample diagram of Inter-network IP connect configuration	12
Figure 2-3	Sample diagram simulcast	14
Figure 3-1	Port check -1	17
Figure 3-2	Port check -2	17
Figure 3-3	IE browser check	18
Figure 4-1	Repeater CPS read	18
Figure 4-2	CPS read success	19
Figure 4-3	Repeater common setting	19
Figure 4-4	Repeater ID setting	20
Figure 5-1	Right-click the installation package to run as administrator	34
Figure 5-2	MySQL installation	34
Figure 5-3	Command prompt during MySQL installation	35
Figure 5-4	Pop-up of MySQL is not installed when installing the dispatcher server	35
Figure 5-5	PD200 server installation	36
Figure 5-6	PD200 server installation	36
Figure 5-7	PD200 server shortcut	37
Figure 5-8	PD200 server IP setting	37
Figure 5-9	Firewall allows DPS process communication	38
Figure 5-10	Firewall allows LDS process communication	39
Figure 5-11	Server's processes displayed in task management	40
Figure 5-12	PD200 client installation	41
Figure 5-13	PD200 client installation	41
Figure 5-14	Dispatch client login	42
Figure 5-15	Firewall allows dispatcher client communication	43
Figure 5-16	IP connect network management configuration	43
Figure 5-17	Add radio	44
Figure 5-18	Add group	44
Figure 5-19	Add repeater	45
Figure 5-20	Repeater slot bind group	46
Figure 5-21	Modify admin password	46
Figure 5-23	Add dispatcher account	48
Figure 5-2 4	Dispatcher add available repeater	48
Figure 5-25	New dispatcher account login	50
Figure 5-26	Repeater login successful to dispatcher	50
Figure 5-27	Windows defender firewall setting -1	51
Figure 5-28	Windows defender firewall setting -2	51
Figure 6-1	Radio CPS read	52
Figure 6-2	Radio reading successful	53
Figure 6-3	Radio basic setting	54
Figure 6-4	Contact setting	54



Figure 6-5	Radio add channel	55
Figure 6-6	Radio 1 channel configuration	55
Figure 6-7	Radio add channel	55
Figure 6-8	Radio RRS setting - 1	56
Figure 6-9	Radio RRS setting - 2	56
Figure 6-10	Radio positioning system setting	57
Figure 6-11	Radio Rx group setting	57
Figure 6-12	Radio CPS write	58
Figure 7-1	Radio registration check	58
Figure 7-2	Radio de-registration check	59
Figure 7-3	Radio 1 initiates IP group call G101	60
Figure 7-4	Dispatcher initiates group call G101	61
Figure 7-5	Message display on dispatcher interface	61



Table Index

Table 2-1	IP connect or single site IP planning	10
Table 2-2	IP connect or single site radio planning	10
Table 2-3	IP connect or single site port planning	11
Table 2-4	Inter-network IP connect IP planning	.12
Table 2-5	Inter-network IP connect radio planning	. 13
Table 2-6	Inter-network IP connect port planning	13
Table 2-7	Simulcast IP planning	. 14
Table 2-8	Simulcast radio planning	. 14
Table 2-9	Simulcast port planning	. 15
Table 2-10	Operating system	. 15
Table 2-11	Repeater registration planning	.15
Table 2-12	Dispatcher planning	.16
Table 2-13	Network authentication code planning	.16

1 Overview

The PD200 dispatching system is a DMR conventional system developed by Caltta. The PD200 can realize command & dispatch services through the PR900 repeater and corresponding DMR radios, build communication network for users, and realize digital conventional dispatch services. The PD200 dispatching system adopts C/S architecture and modular design, including functional modules such as voice dispatch, positioning, text message and log. It is realized based on the standard SIP protocol.

PD200 can be connected with single site and IP connected sites of analog repeaters and digital repeaters, or only connected to simulcast system.

1.1 IP connect

IP connect can support maximum 64 repeaters through IP connected network for data transmission, to extend the communication coverage and to realize cross region long distance call.

1.2 Simulcast system

The DMR simulcast system can support one master repeater and up to 15 slave repeaters. The simulcast master repeater is responsible for interaction with the dispatcher. Dispatch services are all handled through the master repeater, and the slave repeaters will not participate in dispatching. The master repeater information is configured in the dispatcher, it is treated as a normal repeater. AIS information is configured on the master repeater.

2 Configuration planning

2.1 IP connect or single site scenario

The following planning data is used as sample data. Please replace it with actual data during configuration.





Figure 2-1 Sample diagram of IP connect or single station configuration

2.1.1 IP planning

The following planning data is used as sample data. Please replace it with actual data during configuration.

Network Element	IP	Subnet mask		
Dispatch sever	70.1.91.101	255.255.255.0		
Dispatch client	70.1.91.102/103	255.255.255.0		
Repeater 1 (master)	70.1.91.110	255.255.255.0		
Repeater 2 (slave)	70.1.91.120 (DHCP)	255.255.255.0		
Repeater 3 (single site)	70.1.91.121	255.255.255.0		
Repeater 7(analog slave)	70.1.91.122 (DHCP)	255.255.255.0		

Table 2-1 IP connect or single site IP planning

2.1.2 Radio planning

The following planning data is used as sample data. Please replace it with actual data during configuration.

Note: One group can only be bound to time slot 1 or time slot 2 of a repeater, and cannot be bound to two time slots at the same time.

Network	ID	Name	Rx	Tx	Time slot	Colour	Tx contact
Element			frequency	frequency		code	ID
			(MHz)	(MHz)			
Repeater 1	200	PR900	402.05	412.05	slot1/slot2	1	101/102

Table 2-2 IP c	onnect o	r single	site	radio	nlanning
1 auto 2-2 II C	onnect o	n single	SILC	Taulo	plaining

<All rights reserved.No spreading abroad without permission of Caltta.>



							(group)
Repeater 2	300	PR900-1	445.125	455.125	slot1/slot2	1	101/102
							(group)
Repeater 3	302	PR900-A	404.025	414.025	slot1/slot2	1	103 (group)
Repeater 7	301	PR900-2	402.1	412.1	/	/	101(Intercon
							nection
							group)
Radio 1	101	P101	412.05	402.05	slot1	1	101 (group)
Radio 2	102	P102	455.125	445.125	slot1	1	101 (group)
Radio 3	103	P103	414.025	404.025	slot1	1	103 (group)
Radio 4	104	P104	412.1	402.1	/	/	/

2.1.3 Port planning

The following planning data is used as the default data. It is generally not recommended to modify

the ports.

Network	Master	IP connect UDP	IP connect RTP	IP connect RTP	Service	Voice	Voice
Element	UDP Port	Port	port (slot 1)	port (slot 2)	port	service port	service port
						(slot 1)	(slot 2)
Repeater 1		50000	50002	50003	19888	30000	30001
Repeater 2	50000	50000	50002	50003	19888	30000	30001
Repeater 3	/	/	/	/	19888	30000	30001
Repeater7	50000	50000	50002	50003	19888	30000	30001

Table 2-3 IP connect or single site port planning

2.2 Inter-network IP connect scenario

The following planning data is used as sample data. Please replace it with actual data during configuration.





Figure 2-2 Sample diagram of Inter-network IP connect configuration

.....

2.2.1 IP planning

The following planning data is used as sample data. Please replace it with actual data during configuration.

Network Element	IP	Gateway
Dispatch sever	192.168.1.101/24	192.168.1.1
Dispatch client	192.168.1.102/24 (DHCP)	192.168.1.1
Dispatch client	192.168.1.103/24 (DHCP)	192.168.1.1
Inter-network master M1	192.168.1.110/24	192.168.1.1
Subnet slave M2	DHCP	DHCP
Subnet master A1	192.168.2.110/24	192.168.2.1
Subnet slave A2	DHCP	DHCP
Subnet master B1	192.168.3.110/24	192.168.3.1
Subnet slave B2	DHCP	DHCP
Gateway route 1 WAN	10.192.28.30/24	10.192.28.1
Gateway route 2 WAN	DHCP	DHCP
Gateway route 3 WAN	DHCP	DHCP

Table 2-4 Inter-network	IP connect IP planning
-------------------------	------------------------

Note: The Inter-network master network corresponds to the route gateway 1 WAN port must be a public network

static IP.



2.2.2 Radio planning

The following planning data is used as sample data. Please replace it with actual data during configuration.

.....

Note: One group can only be bound to time slot 1 or time slot 2 of a repeater, and cannot be bound to two time

slots at the same time.

Network	ID	Name	Rx	Tx	Time slot	Colour	Tx contact
Element			frequency	frequency		code	ID
			(MHz)	(MHz)			
Inter-network	4000	Inter-networ	411.0	421.0	slot1/slot2	1	501/502
master M1		k master M1					(group)
Subnet slave	4001	Subnet slave	411.1	421.1	slot1/slot2	1	501/502
M2		M2					(group)
Subnet	2000	Subnet	412.0	422.0	slot1/slot2	1	501/502
master A1		master A1					(group)
Subnet slave	2001	Subnet slave	412.1	422.1	slot1/slot2	1	501/502
A2		A2					(group)
Subnet	3000	Subnet	413.0	423.0	slot1/slot2	1	501/502
master B1		master B1					(group)
Subnet slave	3001	Subnet slave	413.1	423.1	slot1/slot2	1	501/502
B2		B2					(group)
Radio 1	101	P101	421.0	411.0	slot1	1	501 (group)
Radio 2	102	P102	421.1	411.1	slot1	1	501 (group)
Radio 3	201	P103	422.0	412.0	slot1	1	501 (group)
Radio 4	202	P104	422.1	412.1	slot1	1	501 (group)
Radio 5	301	P105	423.0	413.0	slot1	1	501 (group)
Radio 6	302	P106	423.1	413.1	slot1	1	501 (group)

Table 2-5 Inter-network IP connect radio planning

2.2.3 Port planning

The following planning data is used as the default data. It is generally not recommended to modify the ports.

	-	-	1	1 0	-	
Network Element	Inter-network	Subnet	Subnet	Subnet	Subnet	Subnet
	master M1	slave M2	master A1	slave A2	master B1	slave B2
Inter-network UDP port	/	50000 ¹				
Inter-network master RTP port	/	50002 ²				
(time slot 1)						
Inter-network master RTP port	/	50003 ³				
(time slot 2)						
Local UDP port	50000 ¹	50000	50000	50000	50000	50000

Table 2-6 Inter-network IP connect port planning



Local RTP port (time slot 1)	50002 ²	50002	50002	50002	50002	50002
Local RTP port (time slot 2)	50003 ³	50003	50003	50003	50003	50003
AIS service port	19888	19888	19888	19888	19888	19888
Voice service port (time slot 1)	30000	30000	30000	30000	30000	30000
Voice service port (time slot 2)	30001	30001	30001	30001	30001	30001

Note: The ports with same subscripts should be configured the same.

2.3 Simulcast Scenario

The following planning data is used as sample data. Please replace it with actual data during configuration.

r .	0 0	C 1	1.	• •	i .
HIGHTP	1-4	Sample	diagram	C1m11	Cact
Inguic	2-5	Sample	ulagram	Sinnu	casi
0			0		



2.3.1 IP planning

The following planning data is used as sample data. Please replace it with actual data during configuration.

Network Element	IP	Subnet mask
Dispatch sever	70.1.91.101	255.255.255.0
Dispatch client	70.1.91.102/103	255.255.255.0
Repeater 4 (simulcast master)	70.1.91.130	255.255.255.0
Repeater 5 (simulcast slave1)	70.1.91.131 (DHCP)	255.255.255.0
Repeater 6 (simulcast slave2)	70.1.91.132 (DHCP)	255.255.255.0

Table 2-7 Simulcast IP planning

2.3.2 Radio planning

The following planning data is used as sample data. Please replace it with actual data during configuration.

1 0

Network	ID	Name	Rx	Tx	Time slot	Colour	Tx contact
Element			frequency	frequency		code	ID

<All rights reserved.No spreading abroad without permission of Caltta.>



			(MHz)	(MHz)			
Repeater 4	400	PR900-S1	410	420	slot1/slot2	1	104(group)
Repeater 5	401	PR900-S2	410	420	slot1/slot2	1	104(group)
Repeater 6	402	PR900-S3	410	420	slot1/slot2	1	104(group)
Radio 4	104	P104	420	410	slot1	1	104(group)
Radio 5	105	P105	420	410	slot1	1	104 (group)

2.3.3 Port planning

The following planning data is used as the default data. It is generally not recommended to modify

the ports.

Network	Master	IP connect UDP	IP connect RTP	IP connect RTP	Service	Voice	Voice
Element	UDP Port	Port	port (slot 1)	port (slot 2)	port	service port	service port
						(slot 1)	(slot 2)
Repeater 4	/	50102	50103	50104	19888	30000	30001
Repeater 5	50102	50101	50103	50104	/	/	/
Repeater 6	50102	50101	50103	50104	/	/	/

Table 2-9 Simulcast port planning

2.4 Operating system

Table 2-10 Operating system

Network Element	OS Requirement
Dispatcher server (MySQL)	Windows 64bit OS
Dispatcher client	Windows 32/64 bit OS
Repeater CPS	Windows 32/64 bit OS
Radio CPS	Windows 32/64 bit OS
NMS server	Windows 32/64 bit OS
NMS client	Windows 32/64 bit OS

The above software supports Windows 10 and Windows Server. For specific system requirements, please refer to Section 5.1.

2.5 Repeater registration planning

The following planning data is used as sample data. Please replace it with actual data during configuration.

Table 2-11 Repeater registration plaining				
Network Element	Password setting			
Repeater 1	111111			
Dispatcher (repeater 1)	111111			
Repeater 2	111111			
Dispatcher (repeater 2)	111111			
Repeater 3	333333			
Dispatcher (repeater 3)	333333			
Repeater 4	555555			

Table 2-11 Repeater registration planning

<All rights reserved.No spreading abroad without permission of Caltta.>



Dispatcher (repeater 4)	555555
Repeater 7	111111
Dispatcher(repeater 7)	111111
Inter-network master M1	666666
Subnet slave M2	666666
Subnet master A1	666666
Subnet slave A2	666666
Subnet master B1	666666
Subnet slave B2	666666

The password registered by the repeater to the dispatcher should be the same as the password filled in when the repeater is added to the dispatcher. Different repeater can use the same password.

2.6 Dispatcher planning

The following planning data is used as sample data. Please replace it with actual data during configuration. Range of dispatcher number segment: 16775905 ~16775999

	1	1 0	
Network Element	ID	Account name	Password
Administrator (system	16775904	admin	111111
default)			
Dispatcher	16775905	shenzhen	07552019
Dispatcher	16775906	Caltta	07552021

Table 2-12 Dispatcher planning

The administrator account is set to "admin" and the password is set to "111111" as default.

2.7 Network authentication code planning

The following planning data is used as sample data. Please replace it with actual data during configuration.

Tuble 2 15 Network autoenteution code plaining				
Network Element	Network	Inter-network	Subnet network	
	authentication code	master network	authentication code	
		authentication code		
Repeater 1 (master)	A1B2C3	/	/	
Repeater 2 (slave)	A1B2C3	/	/	
Repeater 7(analog slave)	A1B2C3	/	/	
Inter-network master M1	/	A123456	A1B2C1	
Subnet slave M2	A1B2C1	/	/	
Subnet master A1	/	A123456	A1B2C2	
Subnet slave A2	A1B2C2	/	/	
Subnet master B1	/	A123456	A1B2C3	

Table 2-13 Network authentication code planning



Subnet slave B2	A1B2C3	/	/

The authentication code of master must be the same as the authentication code of slave in order to connect successfully.

The authentication code of Inter-network master must be the same as the authentication code of subnet master in order to connect successfully.

The authentication code of Inter-network master (Subnet master) must be the same as the authentication code of subnet slave (subnet) in order to connect successfully.

3 Configuration check

3.1 IP check

According to chapter 2.1.1, 2.2.1 and 2.3.1 IP planning in chapter 2 configuration planning, run the PING command to check whether the IP addresses are occupied. If the IP address is already occupied, you need to re-plan the IP address.

3.2 Frequency check

According to chapter 2.1.2, 2.2.2 and 2.3.2 radio planning, check if the Rx frequency and the Tx frequency are already in use by other devices. If you have already used it, you need to re-plan the frequency.

3.3 Port check

According to the chapter 2.1.3, 2.2.3 and 2.3.3 port planning, check whether the port of the dispatcher server PC is occupied. Enter the "netstat -ano|findstr port number" in the command window to check if there is any content. As shown in the following figure, the port 19888 has no content, indicate that the port is idle and can be used.

```
Figure 3-1 Port check -1
```

C:\Users>netstat -ano findstr	19888
C:\Users>	

As shown in the following figure, there is a displayed content, indicate that port 4000 is already occupied, and the port number needs to be re-planned.

	Figure 3-2 Port check -2		
C:\Users>netstat -ano findstr TCP 127.0.0.1:4000 UDP 127.0.0.1:40000	4000 0.0.0.0:0 *:*	LISTENING	4908 4352
C:\Users>			

<All rights reserved.No spreading abroad without permission of Caltta.>

3.4 IE browser check

If the PC where the dispatch server is installed uses a proxy server to connect internet, the IP segment where the dispatch server is located needs to be added to the unused proxy server. The specific setting is to open Internet Explorer, select "Internet Options" - "Connection" - "LAN settings" - "Advanced", and add an IP segment to the content of "Exceptions", such as "70.1.91. *", as shown in the following figure. If your PC is not using a proxy server, you do not need to do operations in this chapter.

Figure 3-3 IE browser check

ternet Options	8 22	Local Area Network (LAN) Settings
General Security Privacy Content Connections	Programs Advanced Setup	Automatic configuration Automatic configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration. Automatic automatic configuration script Automatic configuration script Address True Proxyxa.zte.com.cn 8 Secure: Proxyxa.zte.com.cn 9 Secure:
Choose Settings if you need to configure a proxy envire for a connection.	Add VPN Remove Settings	Proxy server Use a proxy server for your LAN (These settings will not apply to dial-up or VPI connections). Address: proxy server for all protocols
Never dela connection Dial whenever a network connection is not press Aways dial my default connection Current None	ent Set default	Exceptions CK Cancel Do not use proxy server for addresses beginning with: 192.168,* *10,* * *;*.zte.intra Lize semicolons (; 10 separate entries.
Local Area Network (LAN) settings LAN Settings do not apply to dial-up connections. Choose Settings above for dial-up settings.	LAN settings	

4 Repeater configuration

4.1 CPS read

Connect the repeater with PC, open CPS software on the PC, as shown in the following figure.



Click the "Read" icon is successful, on the toolbar and click "OK" to read. After the reading is successful,

the corresponding list is displayed on the left side of the CPS, as shown in the following figure.

Figure 4-2 CPS read success



4.2 Common setting

Double-click the "Common Setting" option under "Common Setting" - "Basic Setting". on the pop-up page "Device Name" option, you can modify the name of the repeater, such as "PR900", as shown in the following figure.





Double-click the "Digital Setting" option under "Common Setting" - "Basic Setting". on the pop-up page "Repeater ID" option, you can set the repeater ID, ranging from 1 to 16775903. For example, repeater 1 ID is 200 as shown in the following figure.



Figure 4-4 Repeater ID setting



Double-click the "Contact" option under "Common Setting". on the pop-up page you can set the

repeater's group call. For example, input group 101 and 102, as shown in the following figure.



Figure 4-5 Contact setting

4.3 Channel setting

4.3.1 Digital channel setting

Configure digital channel. Double-click the "Digital Channel" option under "Conventional Setting" - "Channel". On the pop-up page, the frequency value can be modified, added, or deleted. According to the chapter 2.1.2 Radio planning, the Rx frequency of repeater 1 is 402.05MHz, the Tx frequency of repeater 1 is 412.05MHz, the color code is 1, and the channel name is D412.05. Set the power level. Click the ">>" icon, and select the IP interconnect timeslot in the pop-up window. Configure other repeaters according to the planning. (Note that the contact settings in time slots and different time slots are for the hand mic, and you do not need to configure them separately if you do not connect the hand mic.) see the following figure.



Figure 4-6 Repeater digital channel setting



4.3.2 Analog channel setting

Configure analog channel. Double-click the "Analog Channel" option under "Conventional Setting" - "Channel". On the pop-up window, you can modify, add or delete the frequency value. According to the planning in Section 2.1.2, the analog receive frequency of repeater 7 is 402.1 MHz, the transmit frequency is 412.1 MHz, the channel name is A412.1, and set the power level. For the IP interconnection site, click the ">>" icon, and select "Enable" in the pop-up page. Analog group choose the digital interconnection group, and then select the corresponding RX squelch mode according to the actual environment, and the RX and TX CTCSS/CDCSS type, as shown in the figure below.



	×							
	^							
- TP Connection Access								
		No.	RX Frequency [TX Frequency [Channel Name	Power Level	Channel Spaci	Other
		1	400.150000	410.150000	A410.150	High	12.5	>>
PSTN	_	2	435.150000	445.150000	A445.150	High	12.5	>>
Conventional	A410.150							
Basic Setting								
Button								
Accessory Port								
Zone			No.	1		E	mp&De-emp 🔽	
E Channel			, ,	A410 150		Multi CT	CSS/CDCSS	
			Channel Name	A410.150		CTCSS Tail De	wert Option 120	
			Channel Type	Analog	-	Cress runte		
Mixed Channel		d	annel Spacing [KHz]	12.5	•	IP I	nterconnect Enable	
Multi CTC/CDC List				12.5		A	nalog Group 🚻 G 10 1	
Encrypt								
<	Г	Rx				Тх		
			RX Frequency [MHz]	400.150000	_	TX Frequ	uency [MHz] 410.1500	000
					_			
Parameter Description-Cor			RX Squelch Mode	CTCSS/CDCSS	•		Power Level High	
A sector of second		RX	CTCSS/CDCSS Type	CTCSS	-	Tx Time-	out Time [s] 60	
Analog Channel			RX CTCSS[Hz]	67.0	•	TX CTCSS/0	CDCSS Type CTCSS	
			RX CDCSS	D023N	~	KT.	CTCSS[Hz] 67.0	
		C	Carrier Squelch Level	Normal	•		TX CDCSS D023N	-
Add			,				,	
Incent								

<All rights reserved.No spreading abroad without permission of Caltta.>





Figure 4-8 Multi CTCSS/CDCSS setting

4.4 Zone setting

Caltta

Double-click the "Zone" option under "Conventional Setting". Select the Channel under "Available" on the left and click the "Add>>" button in the middle to add to the right "Members", as shown in the following figure.



Figure 4-9 Repeater zone setting

.....

* PR900				
				_
j 🏋 Common Setting	Zone Alias	Zone 1		
🗄 🦌 Basic Setting	Chappel List	,		
	Available			Members
E VI Setting	Channel Name		No. Channe	Name
UI Setting	A469.150		1 D412.05	i0
Backlight	A445.150			
Button	A410.150			
Menu	D469.150 D445.150			
Conventional Setting	0440.100			
Password				
Zone				
Channel				
🕂 Digital Channel				
👫 Analog Channel		Addas		
Multi CTC/CDC List		Aug		
		Les Parraua		
🖶 🎇 Network		ss <u>rt</u> eniove		

4.5 Network setting

4.5.1 Single site

Double-click the "Network" option under "Conventional Setting" - "Network". Under the "Basic Setting", "DHCP" is not checked. The IP address is set to "70.1.91.121" according to chapter 2.1.1 IP planning, and the Netmask is set to "255.255.255.0". The "Gateway" is configured according to the actual router gateway. Under the "IP Interconnection Configuration", the "Repeater Type" is set to "Single Site". Under the "Network Management", the network management "Server IP" is filled with the IP address of the network management server, as shown in the following figure

Figure 4-10 Single site network setting

Basic Setting	PIP Interconnection Configuration
DHCP	Device Type Single Site
IP Address 192 . 168 . 1 . 100	
Gateway 192 . 168 . 1 . 1	
Netmask 255 . 255 . 0	
MAC A8 A6 68 D6 C1 73	
Remote Upgrade & Programming	1
UDP Port 50009 .	
Network Management	
Server IP 192 . 168 . 1 . 102	
UDP Port 50010	

4.5.2 IP Connect

4.5.2.1 Master repeater

Double-click the "Digital Channel" option under "Conventional Setting" - "Channel". Select the "Other " - ">>" button, the "IP Connect " selects "Slot 1 & Slot 2", as shown in the following



figure.

Common Setting Digital Setting Digital C	Channel Zo	ne Password Net	work							
→* PR900										
Radio Information	No.	RX Frequency [M	TX Frequency [M	Color Code	Channel Na	ame P	ower Level	Slot	Other	
Common Setting	1	402.050000	412.050000	1	D412.050	н	igh	Slot1	>>	
Basic Setting	2	435.150000	445.150000	1	D445.150	н	igh	Slot1	>>	
Common Setting	3	459.150000	469.150000	1	D469.150	н	igh	Slot1	>>	
Cigital Setting										
Analog Seurig	D412.050									
- Consenting										
A Backlight										
Button										
Menu										
Conventional Setting		N	0. 1	<u> </u>			Color	Code 1	_	
Password		Chappel Nar	D412.050					Slot Slot1	-	
		Charmerval				_		300 3001		_
🗄 🦌 Channel		Channel Ty	pe Digital	~			IP Intercor	nnect Slot 1	& Slot 2 🗸 🗸	
-Z Digital Channel			, -	_				,		
🕂 Analog Channel	-8	×								
Multi CTC/CDC List						17				
		RX Frequency [MH	z] 402.050000			T	(Frequency	[MHz] 412.0	50000	
Network										
							TX CO	ntact G	roup 1	
- TE Local Access Manageme							Power	Level High	-	
AIS										
Second Development						T	Time-out Tin	ne [s] 60	•	
Seneral Development										

Double-click the "Network" option under "Conventional Setting" - "Network". Under the "Basic Setting", "DHCP" is not checked. The IP address is set to "70.1.91.110" according to chapter 2.1.1 IP planning, and the netmask is set to "255.255.255.0". The "Gateway " is configured according to the actual router gateway. Under the "IP Interconnection Configuration", the "Repeater type" is set to "Master". The port is configured according to port planning. The "Network Authentication Code" is configured with "A1B2C3" according to authentication code planning, as shown in the following figure (take V3.0 as an example).





4.5.2.2 Slave repeater

Double-click the "Digital Channel" option under "Conventional Setting" - "Channel". Select the "Other" - ">>" button, the "IP Interconnect" selects "Slot 1 & Slot 2", as shown in the following



figure.

Figure 4-13 Slave site IP conne	ect slot
---------------------------------	----------

Common Setting Digital Setting Di	gital Channel	Zone	Password	Netw	ork							
Radio Information Common Setting Satic Setting Common Setting Common Setting Common Setting Analog Setting Analog Setting	×	No. F 1 4 2 4 3 4	X Frequency 02.050000 35.150000 59.150000	[M]	TX Frequency [M 112.050000 145.150000 169.150000	Color Code 1 1 1	Channel D412.050 D445.150 D469.150	Name	Power Level High High High	Slot Slot1 Slot1 Slot1 Slot1		Other >> >>
UI Setting UI Setting Backlight Button Conventional Setting Password Zone	D412.		Chanr	No nel Nam	. 1 e D412.050	×			Color	Code Slot	1 Slot1	•
Channel		RX	Chan RX Frequen	nel Typ cy [MHz	e Digital	y		_тх	IP Interco	[MHz]	Slot 1 & Slot 2	
Network Local Access Managem P Connection Access M AlS General Development	e								Tx Co Power Tx Time-out Tin	ntact Level H ne [s]	High	v

Double-click the "Network" option under "Conventional Setting" - "Network". Under the "Basic Setting", "DHCP" is checked. Under the "IP Interconnection Configuration". The "Repeater type" is set to "Slave". The IP address is set to "70.1.91.110" according to IP planning. The port is configured according to port planning. The "Network Authentication Code " is configured with "A1B2C3 " according to authentication code planning and it need to be the same with master, as shown in the following figure (take V3.0 as an example). The network settings of the analog slave are the same as those of the digital slave server.





4.5.3 Inter-network IP connect

According to the design, in the inter-network IP connect mode, the gateway route connected to the Inter-network master should use the static IP, and port mapping should be configured in the



gateway route. According to chapter 2.2.1 IP planning, the static IP is "10.192.28.30". According to chapter 2.2.1 and 2.2.3 port planning, the three ports 50000, 50002, and 50003 of the inter-network master "192.168.1.110" need to be configured in port mapping of the gateway routing configuration, the two ports 19888 and 18000 of the dispatch server "192.168.1.101" need to be configured in port mapping of the gateway routing configuration. If the dispatch client and server are not in the same subnet, you need to configure the same port mapping of three ports 18226, 28226 and 8082 of dispatch server on the gateway router.

4.5.3.1 Inter-network master

Take subnet master M1 as an example. Double-click the "Network" option under "Common Setting" - "Network", uncheck "DHCP". Set IP address as "192.168.1.110" according to chapter 2.2.1 IP planning, set gateway as "192.168.1.1" and subnet mask as "255.255.255.0".

In the IP connect configuration ,set the repeater type as "Subnet master" and check "Inter-network master", set the port according to chapter 2.3.3 port planning, set network authentication code as "A1B2C1" according to chapter 2.7.

In the Inter-network configuration set the network authentication code as "A123456" according to chapter 2.7, as shown in the following figure (take V3.0 as an example).



Figure 4-15 Inter-network master network setting

Double-click the "Digital Channel" option under "Channel". Select the "Other " - ">>" button, select the time slot for IP connect, e.g., in "IP Connect " selects "Slot 1 & &Slot 2", as shown in the following figure.





Figure 4-16 Inter-network master IP connect time slot setting

4.5.3.2 Subnet master

Take subnet master A1 as an example, double-click the "Network" option under "Conventional Setting" - "Network". Under the "Basic Setting", uncheck "DHCP". Set IP address as "192.168.2.110" according to chapter 2.2.1 IP planning, set gateway as "192.168.2.1" and subnet mask as "255.255.255.0".

In the IP connect configuration set the repeater type as "Subnet master", set the port according to chapter 2.3.3 port planning, set network authentication code as "A1B2C2" according to chapter 2.7.

In the Inter-network configuration set the Inter-network master IP as "10.192.28.30" according to chapter 2.2.1 IP planning, which should be an static IP of the external gateway. Set the port according to chapter 2.3.3 port planning, set the inter-network master network authentication code as "A123456" according to chapter 2.7, as shown in the following e figure (take V3.0 as an example).



Figure 4-17 Subnet master network setting



Set the IP connect time slot in the "Digital Channel", referring to chapter 4.5.3.1 for detail configuration.

The configuration of subnet master B is similar so it is not repeated here.

4.5.3.3 Subnet slave

Take subnet slave B2 as an example, double-click the "Network" option and check "DHCP" or set static IP.

In the IP connect configuration set the repeater type as "Slave/Subnet slave", set the master/Subnet master IP address as "192.168.3.110" according to chapter 2.3.1 IP planning, set the port according to chapter 2.3.3 port planning, set network authentication code as "A1B2C3" according to chapter 2.7, as shown in the following figure (take V3.0 as an example).





Set the IP connect time slot in the "Digital Channel", referring to chapter 4.5.3.1 for detail configuration.

The configuration of subnet slave M2, subnet salve A2 is similar so it is not repeated here.

4.5.4 Simulcast

4.5.4.1 Simulcast master repeater

Double-click the "Network" option under "Conventional Setting" - "Network". Under the "Basic Setting", uncheck "DHCP". Set IP address as "70.1.91.130" according to chapter 2.3.1 IP planning, set subnet mask as "255.255.255.0" and set gateway to actual configuration. Check "Simulcast" in simulcast parameters, set simulcast role to "Master", set port configuration according to chapter 2.3.3 port planning, as shown in the following figure (take V3.0 as an example).



Figure 4-19 Simulcast master repeater network setting

4.5.4.2 Simulcast slave repeater

Double-click the "Network" option under "Conventional Setting" - "Network". Under the "Basic Setting", check "DHCP" or uncheck "DHCP". Set IP address, subnet mask and gateway. Check "Simulcast" in simulcast parameters, set simulcast role to "Slave". Set Master IP to simulcast master repeater IP according to chapter 2.3.1 IP Planning. Set port configuration according to chapter 2.3.3 port planning, as shown in the following figure (take V3.0 as an example).



Figure 4-20 Simulcast slave network setting

4.5.5 AIS setting

When it is needed to use the dispatcher for the single site, IP Connect site or Inter-network IP Connect site, "AIS" should be checked by the single site, IP Connect master, IP Connect slave, Inter-network master, subnet master and subnet slave. When it is needed to use the dispatcher for the simulcast system, "AIS" should be checked by the simulcast master, and simulcast slave doesn't need to check it. Detail configuration as below:

Double-click the "AIS" option under "Conventional Setting" - "Network". Check "AIS" and fill in the IP of the dispatch server according to chapter 2.1.1 IP planning (You can just fill in the PD200 server IP if the PD200 server is in the same LAN. If it is Inter-network IP connect scenario, you need to fill in PD200 server routing gateway static IP). According to chapter 2.5 Repeater authentication planning, set the password registered from repeater to the dispatcher server. The port is set according to chapter 2.1.3, 2.2.3 or 2.3.3 Port planning, as shown in the following figure



Figure 4-21 AIS setting

.....

AIS			
	AIS	V	1
	Service IP	70 . 1 . 91 . 101	L
	Password	111111	
	Service Port	19888	
Voice Servio	ce Port(Slot 1)	30000	
Voice Servio	ce Port(Slot 2)	30001	
RTP Voice Packet Bu	ffering Length	4	
Hearth	eat Interval[s]	10 💌	
Periodic Registra	tion Interval[s]	3600 💌	

4.6 CPS write

After performing the above steps, click the "Write" icon in the toolbar, and click the "OK" button on the pop-up page. After the writing is successful, the repeater will restart, as shown in the following figure.

Figure 4-22 Repeater CPS write	2
Common Setting Digital Setting Digital Channel Zone Password Network	c AIS
PR900 Radio Information Common Settin Gommon Setin Gommon Settin Gommon Settin Gommon Setti	× 91 . 101 • • • • •
Local Access Manageme	

5 Dispatcher setting

5.1 Dispatch software installation requirements

The common DMR dispatch software uses the CS architecture. The hardware and operating system requirements for the installation of the dispatch server and clients are described in the following table.

1: A large-capacity network has higher requirements for the processing and storage capabilities of the dispatch server, so there are specific requirements for hardware installation of the dispatch server.

If no more than eight repeaters/self-networking devices are connected, it is recommended that you connect the dispatch server to a desktop (corresponding to dispatch server 1 in the following table).

When more than eight repeaters or self-networking devices are connected, it is recommended that you use a server for the dispatch server (corresponding to dispatch server 2 in the following table).

If the hardware indicators of the server do not meet the requirements, the processing delay may be too long and the recording storage may fail, affecting normal services and user experience.

2: The installation of the dispatch server should meet the requirements of the operating system version in the

following table. Otherwise, the installation may fail and the dispatch software cannot be used.

Table 5-1 DMR common dispatch software and hardware requirements for installation

	CPU	3 GHz, 6 cores	1: Desktop: Connected to no more than eight repeaters
	Memory	8GB	or self-networking networks.
Dispatch server	Hard disk	1TB	2: Material code of ZTE: Host: 0.53, 30.0400669
1	Operating	64-bit windows operating system	Display: 0.53. 30.0600112
	system		3: Operating system: Windows 10 1909 or above
Dispatch server	CPU	2.2 GHz, 12 cores	1: Server: Used to connect to more than eight repeaters
2	Memory	4*16GB	or self-networking networks.
	Hard disk	4*600GB	Host: 0.53. 10.0500840
	Operating system	64-bit windows operating system	Display: 0.53. 30.0600112 3: Operating system: Windows server 2016 or above 4: Considering large capacity and long time recording, the hard disk should be at least 4*600 GB
	CPU	2GHz	1. Deskton
Dissects alient	Mamami	20112 9CD	2: Material code of ZTE :
Dispatch client	Memory	80B	
	Hard disk	500GB	Host: 0.53. 30.0400669



Operating	32/64 bit windows operating
system	system
Accessory	A microphone, loudspeaker, or
Requirements	earphone must be configured

5.2 Dispatcher installation

5.2.1 Dispatcher version and repeater version check

Check if repeater version matches dispatcher version. The repeater version and dispatcher version must be matching. For the repeater, click the front panel menu—device information, and check the firmware version. For the dispatcher, check the suffix of installation package name. USB Key or soft license should authorize the corresponding service.

- Repeater version: Repeater_V*.*.*
- Dispatcher server version: PD200Server_V*.*.*
- Dispatcher client version: PD200Client V*.*.*
- USB Key or soft license

5.2.2 MySQL installation

According to chapter 2.4 Operating system planning, MySQL and the dispatcher server are installed on the same PC with 64-bit operating First system. find the "MySql 8.0.20 win64 EN.exe" V3.0 for (taking example) installation package MySql_8.0.20_win64_EN (You need to use the installation package that comes with the version package for installation. If the version you downloaded doesn't come with the version package, you will not be able to connect), then right click on the installation package and select "Run as administrator" to install, as shown in the following figure.

Note: After MySQL is installed for the first time, there is no need to reinstall for the dispatcher upgrade without special instruction.



Figure 5-1 Right-click the installation package to run as administrator

MySal 8.0.18 win64 EN	-	1/2/2020 2.44 DM
		Open
	🛞 🖪	Run as administrator
		Troubleshoot compatibility

In the pop-up installation interface, click "Install" to select every option and perform installation, as shown in the following figure.

Figure 5-2 MySQL installation

👹 mysql - InstallShield Wizard			×
Ready to Install the Program			と
	·		
If you want to review or change any of exit the wizard.	fyour installation set	tings, click Back. C	lick Cancel to
Current Settings:			
Setup Type:			
Typical			
Destination Folder:			
C:\Program Files (x86)\MYSQL\			
User Information:			
Name: WKK			
Company:			
TestellChield			
Instanoniela			
	< Back	Install	Cancel

After clicking the "Install" button, it is normal that the command prompt will pop up during the installation process. Do not manually close the window, as shown in the following figure.

Caltta

Figure 5-3 Command prompt during MySQL installation



5.2.3 Dispatcher server installation

If MySQL is not installed successfully, there will be a pop-up telling that MySQL is not installed.

Please install MySQL first, as shown in the following figure.

Figure 5-4 Pop-up of MySQL is not installed when installing the dispatcher server

	Mr.COL not be installed	ar McCOL canvia		r not cat
<u> </u>	environment variable fo installation, selecting Re location unusabled	r MySQL. selectin try will re-detect	ng Abort will canc t, selecting Ignore	le will result in

Please select "Abort", and install MySQL before installing the dispatcher server.

According to chapter 2.4 Operating system planning, the PD200 server and MySQL must be installed on the same PC. After the steps in chapter 5.1.3 are completed, unzip the server installation package, double click "PD200Server_V*.*.*.exe" to install, then the following figure will be shown.



Figure 5-5 PD200 server installation



In the pop-up window, click "Next" until the installation path appears, select corresponding installation path, for example, "C:\Program Files (x86)\Caltta\PD200 Server\", as shown in the following figure, click "Install" button. The appearance of black command prompt pop-up window is normal during the process, please do not manually close it.

Figure 5-6 PD200 server installation

🖶 PD200 Server - InstallShield Wiza	rd	×
Ready to Install the Program The wizard is ready to begin installation		と
If you want to review or change any of exit the wizard. Current Settings:	your installation settings,	, dick Back. Click Cancel to
Setup Type:		
Typical		
Destination Folder:		
C:\Program Files (x86)\Caltta\PD20	00 Server\	
User Information: Name: WKK Company:		
InstallShield		
	< Back I	nstall Cancel

After the installation is complete, the PD200 Server shortcut appears on the desktop. Double-click

the shortcut icon to start the software, as shown in the following figure.

Note: The version upgrade of dispatcher server is overwrite installation, and retain the configuration file. Please choose to install by default after running the file.

Figure 5-7 PD200 server shortcut



To start the dispatcher successfully, you need to connect the PC to the USB Key or a soft license. You need to confirm the authorization item in advance.

Double-click the desktop icon to start PD200 Server. Select the local address in the pop-up window that appears, select "192.168.1.101" according to Chapter 2.2.1 IP planning if it is Inter-network IP connect scenario. Select "70.1.91.101" according to Chapter 2.1.1 or 2.3.1 IP planning in other scenarios. NAT address: When dispatcher server, dispatcher client and repeater are in the same local area network or external network, the NAT address does not need to be configured. Fill in the NAT address when the dispatcher server is in the local area network, and the dispatch client and / or the repeater are in the external network and need to be traversed by the private network, e.g., select "10.192.28.30". For soft license authorization, click "Import License" button to select the authorization file and click "OK" to start the dispatcher server. See the following figure.



IP Selector		
Local address L	70.1.91.101	~
Local address :		
NAT address :	10 . 192 . 2	8.30
导入License		Confirm

After startup, the firewall will pop up window to display the network that allows communication.

Check the network option and click "Allow access" button.

The following figure allows the DPS process to communicate.



Figure 5-9 Firewall allows DPS process communication

🔗 Windows Secu	urity Alert			×		
Windo app	ws Defend	er Firewall has block	ed some features	of this		
Windows Defender networks.	Firewall has blo	cked some features of DPS or	n all public, private and do	omain		
	Name:	DPS				
\odot	Publisher:	TODO: <公司名>				
	Path:	C:\program files (x86)\calt	ta\pd200 server\dps\dps	.exe		
Path: C:\program files (x86)\caltta\pd200 server\dps\dps.exe Allow DPS to communicate on these networks: Domain networks, such as a workplace network Private networks, such as my home or work network Private networks, such as my home or work network Public networks, such as those in airports and coffee shops (not recommended because these networks often have little or no security)						
what are the risks	ot allowing an a	pp through a firewall?				
			Allow access	Cancel		



The following figure shows the LDS process is allowed (or displays "Java (TM) Platform SE binary"

on Windows 10).

E' 7 10 E	• 11 11	IDC	• ,•
F_{10} ire $2-10$ F	trewall allows	LUS process	communication
115410 2 101	ne wan ano wo	LDS process	communeation

🔗 Windows Secu	irity Alert		\times
Windo app	ws Defend	er Firewall has blocked some features of this	
Windows Defender networks,	Firewall has blo	ocked some features of LDS on all public, private and domain	
(Name:	LDS	
E	Publisher:	Oracle Corporation	
	Path:	C:\program files (x86)\caltta\pd200 server\lds\apache- tomcat\jdk1.8.0_101\jre\bin\lds.exe	
Allow LDS to commu	inicate on thes	e networks:	
✓ Domain netw ✓ Private netw	orks, such as a orks, such as n	workplace network	
Public networ because the	rks, such as the	ose in airports and coffee shops (not recommended ten have little or no security)	
what are the fisks t	or allowing an a		
		Allow access Cancel	

After the startup is successful, check the "Processes" option in the task manager, if DPS and LDS (or display "Java (TM) Platform SE binary") processes are included, it indicates that the startup is successful, as shown in the following figure.



r Task Manager File Ontions View				_		(
Processes Performance App history Startup	Users Details	Services				
^		11%	54%	2%	0%	
Name Statu	S	CPU	Memory	Disk	Network	
DPS DPS		0%	13.1 MB	0.1 MB/s	0 Mbps	1
📑 drmLayerUser.exe		0%	3.9 MB	0 MB/s	0 Mbps	
DsmSvcho.exe (32 bit)		0%	0.7 MB	0 MB/s	0 Mbps	
> 📑 FtDbgSvc.exe		0%	1.3 MB	0 MB/s	0 Mbps	
> 🔄 FtSystem 应用程序		0%	4.4 MB	0 MB/s	0 Mbps	
🏟 HD Audio Background Process		0%	0.7 MB	0 MB/s	0 Mbps	
🏟 HD Audio Background Process		0%	0.7 MB	0 MB/s	0 Mbps	
🏟 HD Audio Background Process		0%	5.6 MB	0 MB/s	0 Mbps	
📧 HeartBeatLogTask.exe (32 bit)		0%	2.0 MB	0 MB/s	0 Mbps	
📵 Hook Manager For x64		0%	3.0 MB	0 MB/s	0 Mbps	
Host Process for Windows Tasks		0%	4.7 MB	0 MB/s	0 Mbps	
> 📑 igfxCUIService Module		0%	1.4 MB	0 MB/s	0 Mbps	
🧾 igfxEM Module		0%	4.6 MB	0 MB/s	0 Mbps	
📑 igfxext Module		0%	4.2 MB	0 MB/s	0 Mbps	
> 📧 Intel HD Graphics Drivers for Wi		0%	1.1 MB	0 MB/s	0 Mbps	
> 📧 Intel(R) Capability Licensing Ser		0%	1.4 MB	0 MB/s	0 Mbps	
> 📑 Intel(R) Dynamic Application Lo		0%	2.8 MB	0 MB/s	0 Mbps	
> 📑 Intel(R) Local Management Serv		0%	2.7 MB	0 MB/s	0 Mbps	
> 📑 Intel(R) PROSet/Wireless Event L		0%	2.9 MB	0 MB/s	0 Mbps	
> Intel(R) PROSet/Wireless Registr		0%	1.3 MB	0 MB/s	0 Mbps	
> Intel(R) Wireless Bluetooth(R) iB		0%	0.7 MB	0 MB/s	0 Mbps	
> Intel® PROSet/Wireless Zero Co		0%	3.2 MB	0 MB/s	0 Mbps	
> Intel® SGX Application Enclave		0%	1.8 MB	0 MB/s	0 Mbps	
> IntelCpHeciSvc Executable		0%	1.1 MB	0 MB/s	0 Mbps	
LDS		0%	557.7 MB	0 MB/s	0 Mbps	
>		0%	1.4 MB	0 MB/s	0 Mbps	
<		070		0 1110/ 3	>	
Fewer details					End task	

Figure 5-11 Server's processes displayed in task management



5.2.4 Dispatcher client installation

Double-click the PD200 client installation package "PD200Client_V*.*.*.exe" to install, as shown

in the following figure.



Figure 5-12 PD200 client installation

Select the installation path and click the "Install" button to install PD200 client, as shown in the following figure.



PD200 PD200_V1.00.12 Setup	-	-		\times
Choose Install Location Choose the folder in which to install PD200 PD200_V1.00.12.				
Setup will install PD200 PD200_V1.00.12 in the following folder. To click Browse and select another folder. Click Install to start the inst	install in allation.	a diffe	erent fo	lder,
Destination Folder C:\Program Files (x86)\PD200		Brows	e	
Space required: 176.5MB Space available: 71.5GB				
Nullsoft Install System v2,46	Install		Can	cel

After the installation is complete, double-click the PD200 client shortcut on the desktop to start the client.

Note: The version upgrade of dispatcher client is overwrite installation. Please choose to install by default after running the file.

5.3 Dispatcher client setting

Dispatcher client differentiates the administrator and the dispatcher account. The administrator only configures data, and the dispatcher only handles dispatching.

5.3.1 Dispatcher client login

Double click the icon to start PD200 client, and use the admin account to log in. Select "70.1.91.102" as the local IP, fill in "70.1.91.101" as the server IP, and set the password as "111111" according to chapter 2.6 account planning, as shown in the following figure (taking V3.0 as an example), and click the login button to log in.

	PD200 Dispatching	System	
· ·		٤	
		â	
		IP	
		Login	

Figure 5-14 Dispatch client login

When logging in, the firewall pop-up window is displayed. Check the network option to allow the PD200 client to communicate. Click the "Allow access" button, as shown in the following figure.





P Windows Security Alert							
Windo app	ws Defend	ler Firewall has blocked some features of this					
Windows Defender	Firewall has blo	ocked some features of pd200 on all public, private and domain					
	Name:	pd200					
\otimes	Publisher:	Unknown					
	Path:	C:\program files (x86)\pd200\pd200.exe					
Allow pd200 to com	municate on th vorks, such as a	ese networks: a workplace network					
🗸 Private netw	vorks, such as n	ny home or work network					
Public netwo because the	Public networks, such as those in airports and coffee shops (not recommended because these networks often have little or no security)						
What are the risks of allowing an app through a firewall?							
		Allow access Cancel					

5.3.2 Configure IP connect network

IP connect network management mainly differentiates different IP connected networks, the IP services of different IP connected networks are independent of each other.

Select the "Configure" menu on the left, click "IP Connect Network Management" on the page that pops up on the right, click the "Add" button in the upper right corner, and fill in the IP connect network ID and IP connect network name in the pop-up interface, you need to add different IP connect network ID if there are multiple independent networks, as shown in the following figure.

Figure 5-16 IP connect network management configuration

Add IP Connect Netwo	rk	×
IP Connect Network ID:	1	*
IP Connect Network Name:	IP Connect 1	*
	Save	
l		

5.3.3 Add radio

Select the "Configure" menu on the left, click "Radio Management" on the page that pops up on the right, click the "Add" button in the upper right corner, and fill in the "Radio ID" and "Radio Name" in the pop-up interface, as shown in the following figure. Add Radio according to chapter 2.1.2 or 2.2.3.



admin 🖌						
<u>_</u>			Q			🕀 Add 🛛 🖂 🖯 Elete
Configure	付 Radio Management	No.	Radio ID	Radio Name	Operation	
		1	101	P101	E	
		2	102	P102	e	
			Add Radio	×		
			Radio ID: 103 Radio Name: P103	*		
			(Save		

5.3.4 Add group

Select the "Configure" menu on the left, click "Group Management" on the page that pops up on the right, click the "Add" button in the upper right corner, and fill in the "Group ID" and "Group Name" in the pop-up interface, as shown in the following figure. Add group ID 101, 102 and 103, group name G101, G102 and G103. In the simulcast scenario add group ID 104, group name G104.



admin 🖌							
<u>تچ</u>			Q				Delete
Configure		No.	Group ID	Group Name	Operation		
	🔍 Group Management	1	101	G101	E		
			Add Group	×			
			Group ID:	102 *			
			Group Name:	Gt02 *			
				Save			

5.3.5 Add repeater and bind group

Select the "Configure" option on the left, click "Repeater Management" on the page that pops up on the right, click the "Add" button in the upper right corner, set the repeater ID as 200 for repeater 1, and set repeater name as "PR900" in the pop-up interface. Set the password as "111111" according to chapter 2.4 Repeater authentication planning. Select IP connect network according to chapter 5.2.2 configuration, then click "Save" button, as shown in the following



figure. Add other repeaters and select IP connect networks in the same way (Choose analog in analog repeater). In the simulcast scenario only add repeater 4 (simulcast slave repeater 5 and 6 don't need to add to dispatch).

Add Repeater			×
Basic Information	Available Group		
Repeater ID	200		*
Repeater Name	PR900		*
PassWord:	•••••		*
Confirm PassWord			~
Operation Mode:	✓ digital	analog	
IP Internet:	IPID5	•	*
		Save	

Figure 5-19 Add repeater

Click on the "Available Group" page in the pop-up window, repeater1 and repeater2 select time slot 1, click the "Add Available Group" button, select group G101 in the pop-up window and click "Save"; also for the time slot 2, click the "Add Available Group" button, select group G102 in the pop-up window and click "Save", as shown in the following figure. The repeater 3 selects group G103 in the same way. In simulcast scenario repeater 4 selects group G104 in the same way. Analog repeater 7 can only be bound to groups that bound to other digit repeaters time slot 1.

Note: One group can only be bound to either time slot 1 or time slot 2 of a repeater, and cannot be bound to both two time slots at the same time. The group under the IP connect master and slave sites can only be bound to either time slot 1 or time slot 2, it cannot be bound to time slot 1 of master site and bound to time slot 2 of slave site, and vice versa. The analog repeater does not distinguish time slots, can only be bound to groups that bound to other digit repeaters time slot 1.

Figure 5-20 Repeater slot bind group

.....

Add Available	Group		×
No.	Group ID	Group Name	
1	101	G101	
2	102	G102	
3	103	G103	
		Save	

5.3.6 Modify admin password

Select "Configure" - "Dispatcher Management" on the left. The currently logged admin account already exists on the pop-up page. Click the edit button below the "Operation" column, you can set the new password in the pop-up window. The password and the confirm password must be the same. Click the save button, as shown in the following figure.



Edit Dispatcher		×
Basic Information	Available Repeater	
Dispatcher ID:	16775904	
Dispatcher Accour	it: admin	
PassWord:	•••••	
Confirm PassWord	d: ••••••] ~
	Save)

On the "Available Repeater" page, you can add or delete the repeater that the account can manage.

5.3.7 Add dispatcher account

To add a dispatcher, first need add a dispatcher number segment, select dispatcher number segment management, and click add. The add dispatcher number segment dialog box is displayed, see the following figure.





Select "Configure" - "Dispatcher Management" on the left, click the add button in the upper right corner of the pop-up page, and fill in the dispatcher ID as 16775905 in the pop-up window according to chapter 2.6 Account planning, set the dispatcher Account as shenzhen, set the dispatcher password as 07552019, the password and the confirm password must be the same, click the save button, as shown in the following figure.

Figure 5-23 Add dispatcher account

Add Dispatcher		×
Basic Information	Available Repeater	
Dispatcher ID:	16775905	*
Dispatcher Account:	shenzhen	*
PassWord:	•••••	*
Confirm PassWord:	•••••	~
	Save	

On the "Available Repeater" page, you can add available repeaters that the account can manage. On the new page, select the existed repeaters and save them, the admin account can be allocated to different dispatcher to manage different repeaters, as shown in the following figure.

Add Available	Repeater		×
-			
No.	Repeater ID	Repeater Name	
1	200	PR900	
2	300	PR900-1	
3	302	PR900-A	
4	400	PR900-S1	
5	2000	Subnet Master A1	
6	2001	Subnet Slave A2	
7	3000	Subnet Master B1	
8	4000	Inter Master M1	
9	4001	Subnet Slave M2	
		Save	

Figure 5-24 Dispatcher add available repeater

5.3.8 Customized system name

The current version (V3.50) supports the customization of system names, and can only be



modified by the admin account. After logging in to the client as the admin account, click the setting button in the lower left corner. In the pop-up window, select the system name setting, and enter the customized system name in the dialog box, see the following figure. After the modification, the customized system name is displayed on the login page and the upper left corner of the login page.

Figure 4	5 2 1	Customized	austam	nomo
riguie.)-31	Customized	system	name

Setting				×
Local path setting Log print level setting Online map type setting System name settings	System name :	PR900 CS dispatcher system	Restore default settings	
		Save		

5.3.9 New dispatcher account login

Exit the current admin account login interface, re-open the PD200 client, log in with dispatcher account "shenzhen", input password "07552019", and server IP address "70.1.91.101", as shown in the following figure.



Figure 5-25 New dispatcher account login

	PR900 CS d atcher syster	isp m	
×	admin	±	
		â	
	Lo	ogin	

After the login is successful, select the left "Dispatch" menu, click on the "Device" list in the "Resource" tree, you can view the added repeaters. When the font of the repeater is highlighted, it indicates that the repeater has been registered successfully, as shown in the following figure.



Figure 5-26 Repeater login successful to dispatcher

If the font of the repeater is gray, it indicates that the repeater is not registered successfully, please



check if the configuration is correct, and check whether the PC firewall of the PD200 has added DPS, LDS (or displays "Java (TM) Platform SE). Binary"), PD200 to the list of "allowed apps and features", as shown in the following figure.

Mome Windows Security Find a setting ✓ Update & Security Open Windows Defender Security Center is you and held of your device. ✓ Windows Update ✓ Windows Update ✓ Windows Update ✓ Windows Security ✓ Windows Update ✓ Protection areas ✓ Windows Security ✓ You & threat protection ✓ You and what can access your network ✓ You and what can access your network ✓ You device performance & health ✓ You device performance & health Ø Protection and bing security: ✓ App & browser control App or protection and security: ✓ App & browser control App or protection and online security: ✓ App & browser control App or protection and online security: ✓ App & browser control App or protection and online security: ✓ Ap

Figure 5-27 Windows defender firewall setting -1

Make sure that DPS, LDS (or displays "Java (TM) Platform SE). Binary"), and PD200 have been

added and checked in the list, as shown in the following figure.



Allow apps to communicate through Win	dows Defen	nder Fire	ewall		
To add, change, or remove allowed apps and ports, cli	ck Change setti	ings.			
What are the risks of allowing an app to communicate	?			🗣 Change sett	ings
For your security, some settings are managed by	your system ac	Iministrato	or.		
Allowed apps and features:	Domain	Private	Public	Group Policy	^
DPS	Image: A state of the state	•		No	
✓ EasyConnect			✓	No	
Email and accounts	\checkmark	✓	✓	No	
File and Printer Sharing				No	
File and Printer Sharing over SMBDirect				No	
Google Chrome	\checkmark	✓	\checkmark	No	
☑ Groove 音乐	\checkmark	✓	✓	No	
□ HomeGroup				No	
I'M Instant Messenger Launcher	\checkmark			No	
I'M Instant Messenger Launcher			\checkmark	No	
iSCSI Service				No	
Key Management Service				No	\checkmark

5.4 Offline map setting (licensed feature)

5.4.1 Dispatch server setting

Offline map function version 3.0 requires licence, please make sure you have licence permission before using this function.

The default path to load offline map is "c:\offlinemap" in dispatch server, put the downloaded offline map in this folder (if the folder doesn't exist, create it manually and rename it as offlinemap), reboot the server, make sure that DPS and LDS processes are restarted successfully.

If offline map package should be put in other path, you should open server.xml file in server installation folder, e.g. (C:\Program Files (x86)\Caltta\PD200 Server\LDS\apache-tomcat\conf\server.xml) , find <Context path="/offlineMap" docBase="C:\offlinemap" debug="0" reloadable="false" /> line, and modify docBase path to the offline map path, then save the file and reboot the server.

5.4.2 Dispatch client setting

The offline map is automatically selected and loaded after the dispatch client logs in.

6 Radio configuration

6.1 Radio CPS read

The radio 1 connects to the PC through the programming cable and opens the corresponding radio CPS software (If it is an installation version, please install it first), as shown in the following figure.

Figure 6-1 Radio CPS read



Click the "Read" icon St on the toolbar and click "OK" to read. After the successful reading, the list is displayed on the left side of the CPS, as shown in the following figure.



Figure 6-2 Radio reading successful

6.2 Basic setting (supplementary service)

Double-click the "Settings" option under "DMR Conventional" - "Basic Setting". on the pop-up page "Radio ID" parameter, radio 1 is filled in as "101" according to chapter 2.1.2 Radio planning, as shown in the following figure. Configure radio 2 and 3 according to chapter 2.2.2 planning in simulcast scenario (If the dispatcher needs to use remote kill, remote revive, call alert, radio check functions, then the remote kill/revive, radio check and call alert decode boxes should be checked).

🗄 韂 DMR Conventional 🔹 🔺		
🖻 🔭 Basic Setting	Basic Setting	
-Z Setting	Radio ID 101	
🎠 Button		
	Call Hang Time [s] 3.0	
	TX Preamble Duration [ms] 960	
- 🎠 Quick Dial	Wakeun Retries 2	
- The Encrypt		
	Sync Wakeup Time[ms] 600	
	Wait Ack Delay[ms] 0	
Battery Save	Wait Ack Send Preamble No 1	
🖻 🎦 Channel		
- tigital Channel	No Voice Call Clear Time[s] 3	
Analog Channel	PSTN WaitAck Time[s] 10	
🖻 🚼 Zone	Rx RSSI Threshold[dBm] Disable	
	Default Zone 101	
	Dial Rule Flat	
Favorite Contact	Talkback In All Call	
🖻 🐂 Rx Group	WildCard V	
Rx Group List 1		
🖻 🐂 Message	Radio Disable/Enable Decode IV	
QuickText	Background Call Decode	
Emergency	Radio Check Decode 🔽	
System 1	Alert Call Decode 🔽	
🖻 🔭 Roam	Hook Key Call 🔽	
Roaming List 1		

Figure 6-3 Radio basic setting

6.3 Contact setting

Double-click the "Contact" option under "DMR Conventional". You can modify, add, or delete contacts on the pop-up page. According to chapter 2.1.2 radio planning, the radio 1 is configured with group call 101 as the contact, the call alias is G101, the call type is group call, and the call ID is 101, as shown in the following figure.





6.4 Channel setting

Double-click the "Digital Channel" option under "DMR Conventional" - "Channel". Click ">>"

under "Other" Column, the frequency value can be modified, added or deleted on the pop-up page.

🕀 🦌 Common Setting	No.	RX Frequency [M	TX Frequency [M	Color Code	TX Admit	Channel Name	Power Level	Slot	Other
🖃 🏋 DMR Conventional	1	412.050000	402.050000	1	Always Allow	D412.050-1	Low	Slot 1	>>
🖶 🎠 Basic Setting	2	445.150000	445.150000	1	Always Allow	D445.150	High	Slot 1	>>
Channel	3	469.150000	469.150000	1	Always Allow	D469.150	High	Slot 1	>>
Analog Channel									
🖻 🦖 Zone									
Zone 1									

According to the radio planning, the RX frequency of radio 1 is 412.05Mhz, the TX frequency is 402.05Mhz, the color code is 1, and the time slot is 1, the channel name is D412.05-1, and the TX contact selects G101, as shown in the following figure.



_ Normal	
No. 1	Talkaround
Channel Name D412.05-1	Rx Only
	Private Call Confirmed 🕅
Color Code	Auto Scan
Slot Slot 1	IP Interconnect
Scan/Roam List None	Automatic Start Roaming
	трма рмо 🥅
	RRS Switch
	Transmit
RX Frequency [MHz] 412.050000	TX Frequency [MHz] 402.050000
Rx Group List Rx Group List 1	Tx Contac
Emergency Alarm Tips	Power Level High
Emergency Alarm Reply	TX Admit Always Allow 💌
Emergency Call Tips	Tx Time-out Time [s] 60
Encrypt	TOT Pre-alert Time [s] 0
Encrypt	TOT Re-key Time [s] 0
Random Key Encrypt	Emergency System 1
MultiKey Decrypt	GPS ACK Channel Preset Channel
Encrypt Type Basic 💌	,
Encrypt Key None	

Click the Add button to configure the same frequency, color code, contact, time slot select time slot 2, and the name is changed to D412.05-2, as shown in the following figure.

Figure 6-7 Radio add channel

No.	RX Frequenc	TX Frequency [Color Code	TX Admit	Channel Alias	Power Level	Slot	Other
1	412.050000	402.050000	1	Always Allow	D412.05-1	Low	Slot 1	>>
2	412.050000	402.050000	1	Always Allow	412.05-2	Low	Slot 2	>>

6.5 Radio RRS setting

Double-click "RRS Service" under "DMR Conventional" - "Basic Setting", and the radio registration

parameters can be set on the pop-up page, as shown in the following figure.

On the pop-up page, you can set the number of repetitions and the time interval for repeated

registration when the radio registration fails.

Figure 6-	8 Radio RRS	setting - 1
-----------	-------------	-------------

∃**** PH790	
	RRS Service
🗄 🦌 Common Setting	
🗄 🎠 DMR Conventional	RRS Delay Time[s] 3
Basic Setting	RRS Retry Counter 10
Button	RRS Interval[ms]
One Touch Call	RRS Random Cycles[s]
RRS Service	
BatterySave	

After RRS service is set, click "Digital Channel" under "Channel", click "Other", and check RRS switch on the pop-up page. When the radio powers on, it will send a registration message in the channel, and will send a de-registeration message when it is turned off, as shown in the following figure.



Normal		
No.	1	Talkaround
Changed Name	D412 050-1	Rx Only
Channel Name		Private Call Confirmed
Color Code	1	Auto Scan
Slot	Slot 1	IP Interconnect
Scan/Roam List	None 🔻	Automatic Start Roaming
		трма рмо Г
		RRS Switch 🔽

6.6 Radio positioning information report

Double-click "Positioning System" under "DMR Conventional" - "Basic Setting", check the "Positioning Info Report" on the pop-up page, and configure "Report Condition", "Report Interval Time", "Report Random Cycles" and "Report Interval Distance" ("Target ID" is not used right now). The radio will report the GPS information according to the corresponding period or distance, as shown in the following figure.



Figure 6-10 Radio positioning system setting



6.7 Rx group setting

Double-click "RX Group" under "DMR Conventional", select "G101" under "Available" on the left, and click the "Add>>" button, add "G101" to the right "Members", as shown in the following figure.



Radio Information	Rx Group Lis	t Alias Rx Group List 1	
H Setting	RX Group List		
Channel	Available		Members
			0404
Contact			GIUT
🖃 🔭 Rx Group			
Rx Group List 1			
E Message			
QuickText			
Emergency			
System 1			
Roam		<u>A</u> dd >>	
Koaming List 1			
Scan List 1		<< <u>R</u> emove	
Compatibility			
a a			

6.8 Radio CPS write

After setting the above steps, click the "Write" icon in the toolbar, click "OK" button on the pop-up interface to write, the radio will restart after the successful writing, as shown in the following figure.



Figure 6-12 Radio CPS write

.....

🖺 ờ 🛃 💩 💏 🚧 🥝	Write	×
Digital Channel Contact Setting RR	53	
	DMR Conventional	
Radio Information	Auto Increase	
E	Radio Start ID 101	
Basic Setting	Written Count	
🗄 📲 Zone	Next ID 101	
Contact		
Favorite Contact		
🛱 🔭 Rx Group	Click OK to continue	
Rx Group List 1		
📥 🚼 Message		
QuickText	OK Cancel	
🗄 🔭 🎇 Emergency		
System 1		
🛱 🤆 Roam		_

According to chapter 2.1.2 Radio planning, perform CPS writing operations on radio 2 and radio 3 in the same way. In simulcast scenarios, perform CPS writing operation on terminals 4 and 5 in the same way.

7 Commissioning system

7.1 Radio registration

- Precondition:
 - 1. Repeater1 is connected to the PD200 server and the PD200 client is logged in.
- Operation step:
 - 1. Radio 1 powers on
- ➢ Expected result:
 - P101 (radio 1) is displayed under the time slot 1 of PR900, and the font is highlighted, as shown in the following figure.

A Resource
⊿ 🧱 Device
🔺 🌐 IPID5
⊿ 🚟 PR900_Slot1
👭 All Call
<u>ቢ</u> G101
<u>ቢ</u> G103
风 601
谱 P1
PR900_Slot2
🕨 🖵 Dispatcher
InterConnect System
▶ 遭 Others

Figure 7-1 Radio registration check

7.2 Radio de-registration

- ➢ Precondition:
 - 1. The repeater1 is connected to the PD200 server and the PD200 client is logged in. The radio has successfully registered in the corresponding time slot.

.....

- > Operation step:
 - 1. Radio 1 power off.
- ➢ Expected result:
 - 1. P101 (radio 1) is offline, and the font is gray. As shown in the following figure.



Figure 7-2 Radio de-registration check

7.3 Voice call

> Precondition:

- 1. The repeater1 and repeater 2 are connected to the PD200 server successfully, the PD200 client is logged in. Radio 1 & 2 are online in the corresponding time slots.
- Operation steps:
 - 1. Radio 1 initiates group call G101 in slot 1.
 - After the radio 1 releases the PTT button, click the PTT button of the slot 1 on the PD200 client interface to initiate the group call G101.
- > Expected result:
 - Radio 2 receives the G101 group call initiated by radio 1 and can hear radio 1 speaking. PD200 client can receive the G101 group call initiated by radio 1 and can hear radio 1 speaking (PD200 client PC is connected with headset), the dispatching interface is shown in figure 7-3.
 - Both radio 1 and radio 2 receive the group call G101 initiated by the PD200 client. The dispatching interface is shown in figure 7-4.







Figure 7-4 Dispatcher initiates group call G101

🙆 ом	R Dispatching System		
shenz 4	🏭 Type 🔺 🌡 States 🖌 📿 🅻		
Ŕ	🏨 Resource		
Dispatch	⊿ ≣ Device		
<u>Мар</u>	 → ■ PR900_Slot1 → ■ PR900_Slot2 → ■ PR900.1_Slot1 → ■ PR900.1_Slot2 		00:00:04
Ē	 ▶		
Message	A R Dispatcher	PR900.1_Slot1	
Report	1 全 ── Other 樹 P103		

7.4 Send message

- > Precondition:
 - The repeater is connected to the PD200 server successfully, the PD200 client is logged in. Radio 1 & 2 are online in the corresponding time slots.
- > Operation steps:
 - On PD200 client PC, select "Message" "Resource", right click group G101 under slot 1, select "Send Message", enter "Hello, PR900" in the pop-up window, and click "Send".
 - 2. Radio 1 sends a group message "Hi, PR900" to group G101.
- ➢ Expected result:
 - 1. Radio 1 and radio 2 receive the message "Hello, PR900" sent from PD200 client.
 - Radio 2 and PD200 client receive the message "Hi, PR900" from radio 1, as shown in the following figure.

G101_1	×
	16:25
	Hello,PR900
P101 18:28	
HI,PR900	
	send

Figure 7-5 Message display on dispatcher interface

7.5 GPS Location

- Precondition:
 - The repeater is connected to the PD200 server and the PD200 client is logged in. Radio
 1 is configured with positioning information report and has enable GPS.
- > Operation step:
 - 1. Select "Map" "Resource", right click P101 under slot 1, select "Location".
- Expected result:
 - 1. The PD200 interface switches to the map interface, and the location of radio 1 will be displayed on the map, which is consistent with the actual location, as shown in figure.



Figure 7-6 Map display on dispatcher interface

7.6 Real-time GPS location

- Precondition:
 - The repeater is connected to the PD200 server and the PD200 client is logged in. Radio
 1 is configured with positioning information report on, and the automatic report has been chosen and periodic report has been selected.
- Operation steps:
 - 1. Right click P101 under slot 1, select "Real Time Location".
 - 2. After a period of time, right click P101, select "Cancel Location".
- Expected result:



 The PD200 interface switches to the map interface. The icon of radio 1 is centered on the map interface, and there is a highlighted display around the icon. Radio 1 location can be automatically refreshed periodically.

.....

2. After "Cancel Location" operation, the highlighted display around the radio icon disappears.



Figure 7-7 Real-time location display on dispatcher interface