RSSI Software

User Manual

Document Version: V1.1

Release Date: 05-2014

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As a leading supplier of professional wireless communications equipment and solutions, Hytera provides a series of software for the worldwide customers to help customers to further understand our DMR products. This software is:

-Free of charge

-Small and simple

-Easy to configure and use

-For basic use only

-Available online for download

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welcomed. This will encourage us to provide more tools to help your business. Hytera retains the rights to change the products based on the feedbacks received.

Email Address：appmanager@hytera.com.

Contents

Documentation Information **1**
1. Brief Introduction **2**
1.1 Typical Application Scenarios 2
2. Before Use **4**
2.1 Prerequisite 4
3. Software Installation **5**
3.1 .Net Framework 4.0 Installation 5
3.2 vcredist_2010_x86 Installation 7
3.3 RSSI Subscriber Installation 7
3.4 RSSI Repeater Installation 10
4. RSSI Configuration **11**
4.1 RSSI Subscriber (Dispatch Station) Configuration 11
4.2 RSSI Repeater (Dispatch Station) Configuration 13
5. RSSI Subscriber **15**
5.1 Main Interface of RSSI Subscriber 15
5.2 Configuration Guide 16
6. RSSI Repeater **18**
6.1 Main Interface of RSSI Repeater 18
6.2 Configuration Guide 18
7. FAQ **21**
7.1 RSSI Subscriber 21
7.1.1 Opening the RSSI Subscriber failed 21
7.1.2 Dispatch Station is connected to PC, but display offline 21
7.1.3 GPS latitude and longitude values are always 0 21
7.1.4 Modify the RSSI interval and save data path, but do not take effect 22
7.2 RSSI Repeater 22
7.2.1 Opening the RSSI Repeater software failed 22
7.2.2 Repeater is connected to the PC, but display offline 22
7.2.3 RSSI Repeater result cannot be saved 23
8. Appendix **24**

Documentation Information

This section describes the conventions and revision history of this document.

Documentation Conventions

Instructional Icons

Icon	Description
Tip	Indicates information that can help you make better use of your product.
Note	Indicates references that can further describe the related topics.
Caution	Indicates situations that could cause data loss or equipment damage.
Warning	Indicates situations that could cause minor personal injury.
Danger	Indicates situations that could cause major personal injury or even death.

Notational Conventions

Convention	Description
“ ”	The quotation marks enclose the name of a software interface element. For example, click “OK”.
Bold	The text in boldface denotes the name of a hardware button. For example, press the **PTT** key.
->	The symbol directs you to access a multi-level menu. For example, to select “New” from the “File” menu, we will describe it as follows: File -> New.

Revision History

Version	Release Date	Description
V1.0	03-2014	Initial release
V1.1	05-2014	The first time revise

1. Brief Introduction

RSSI is an application based on Hytera DMR API, which supports streaming of the RSSI value associated to the received signal. It is useful especially in the case of RF signal strength measurement during site setup. GPS coordinate reporting is also a feature embedded into this tool to further assist the site setup personnel to know the signal strength of the downlink with a precise location coordinate.

Only one free solution is allowed to connect with a dispatch station at the same time.

Note: For the RSSI application to work correctly, it is recommended to turn off the computer firewall.

1.1 Typical Application Scenarios

RSSI application contains a pair of software. One is RSSI Repeater, the other one is RSSI Subscriber. RSSI Repeater uses repeater as a dispatch station via IP network. RSSI Subscriber uses mobile or portable as a dispatch via USB.

Before any site setup, there is always a need to know the uplink and downlink signal strength for the use of sites final lockdown and also site optimization after deployment to customers. As illustrated in figure below, the RSSI Subscriber will be used to monitor the RSSI of the downlink while the RSSI Repeater will be used to monitor the RSSI of the uplink. In order to assist the site setup service personnel to use the RSSI value and map it to its current geographical area map, there is also GPS data logged out from the subscriber to the RSSI Subscriber Application.

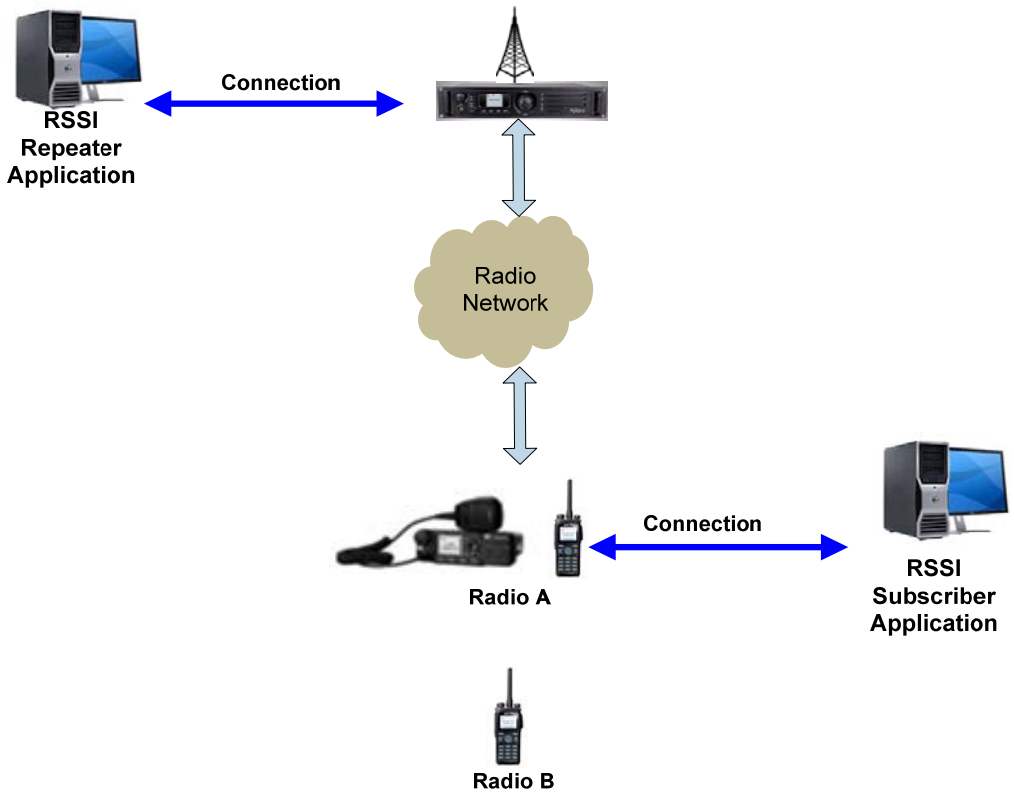


Figure above illustrates one of the use cases for site setup.

After installation of RSSI application, when Radio B calls Radio A. RSSI Repeater will get the RSSI value from the calling. In the same time, RSSI Subscriber will get RSSI value with GPS coordinate of Radio A. According to the data collected from RSSI Repeater and RSSI Subscriber,you can depoly base station with further analysis of these data yourself.

2. Before Use

2.1 Prerequisite

Please prepare the resources in the following list for actual requirements before receiving the RSSI and GPS data.

Item	Description
PC	Operating System: Windows XP/ Windows 7 This guide takes Windows 7 as the example. As for the USB driver, please refer to the ***Hytera USB Driver Installation User Guide*** of V5.30.42.0.
CPS	The RSSI software is included in the program of CPS R6.0 or above. Please make sure the CPS is installed properly before using this software. In this guide, we take CPS V6.00.xx.xxx as the example.
Radio	The RSSI Subscriber software is applicable to the radio of R6.0 or above. The terminal has a GPS module.
Repeater	The RSSI Repeater software is applicable to the repeater of R6.0 or above.
Programming Cable for Radio	The programming cable is used to configure the radio. The detail information, please refer to the radio's user manual. The Third Party can get the manual from Hytera local sales.

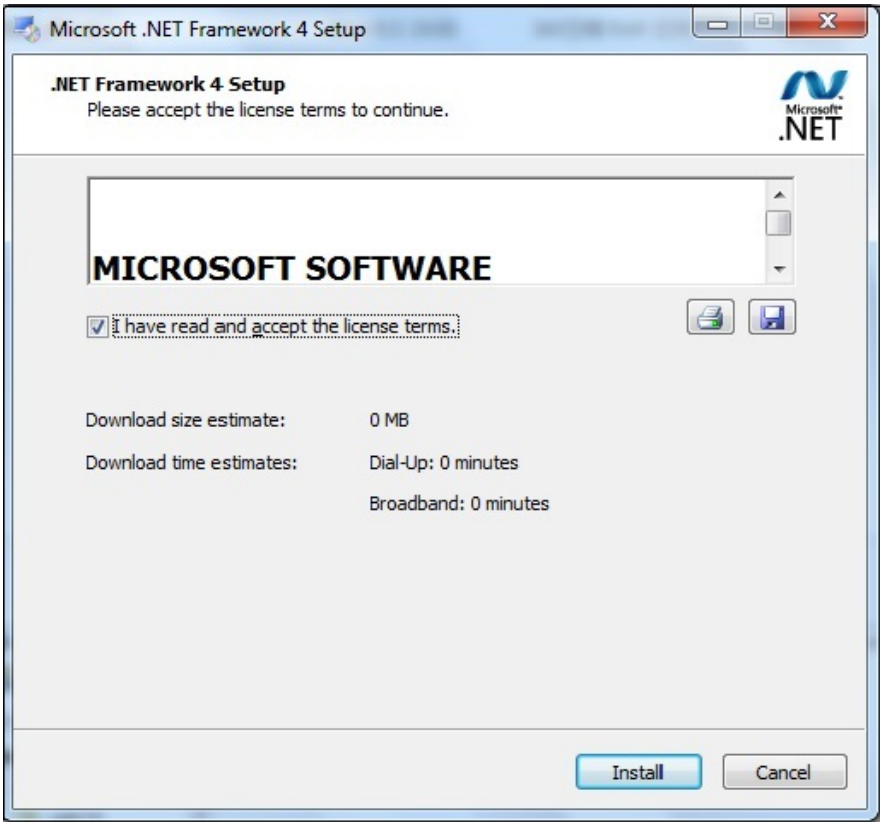
3. Software Installation

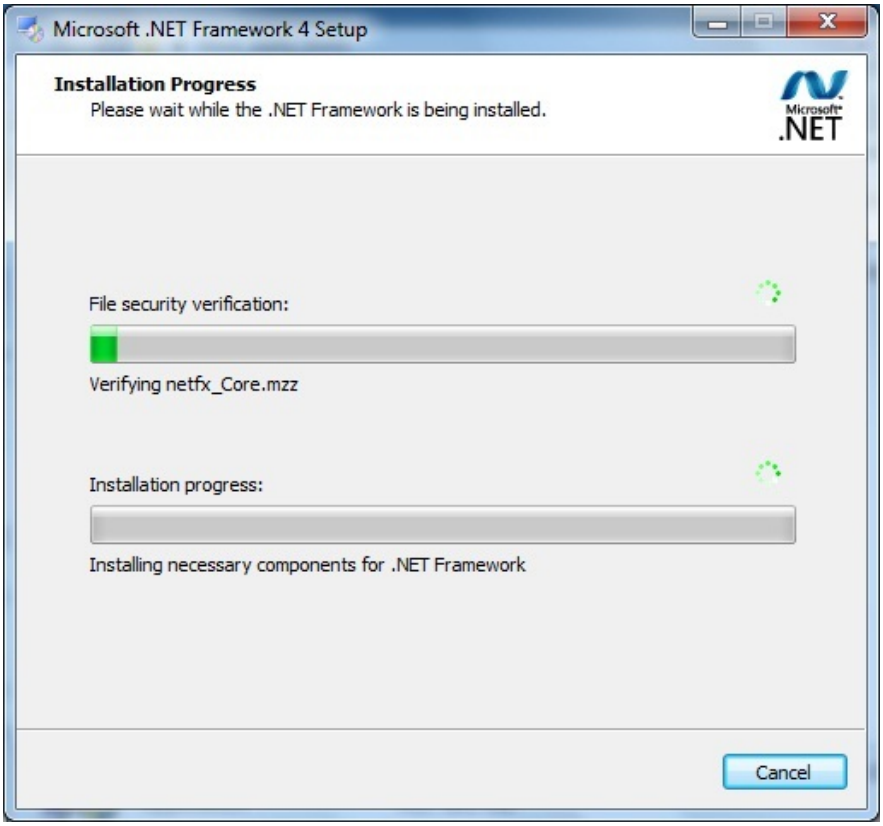
3.1 .Net Framework 4.0 Installation

Step 1. Find dotNetfx40.exe “third party tools” file in the archive directory. Double-click Net Framework 4.0 installation package. 

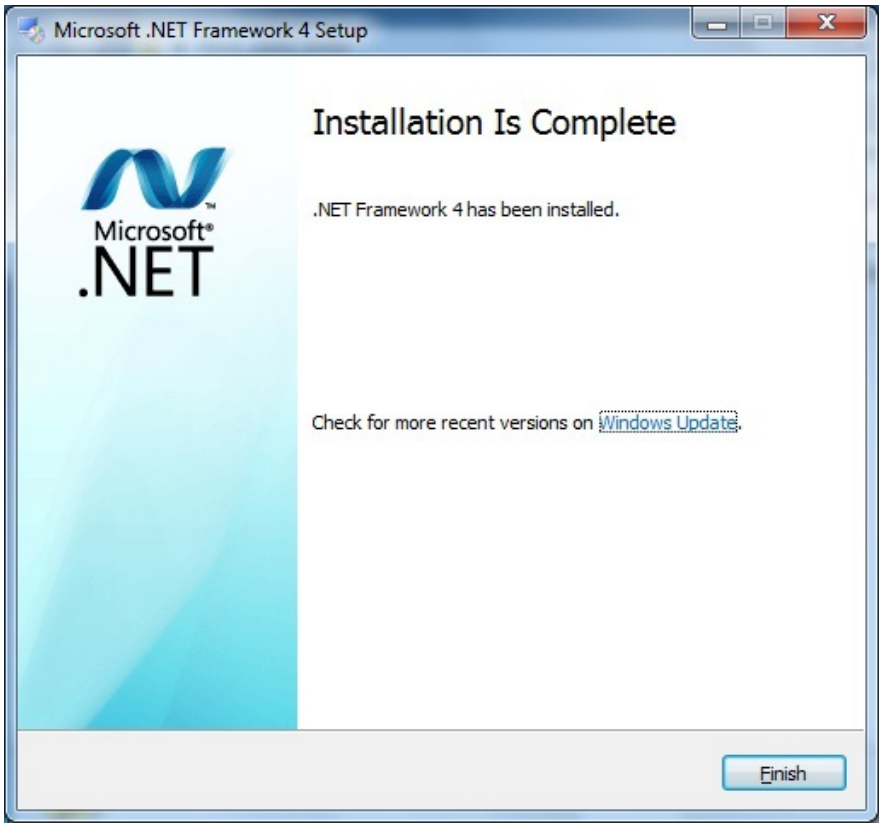
.

Step 2. Click "Install".





Step 3. Click "Finish" to complete the Net Framework 4.0 installation.



3.2 vcredist_2010_x86 Installation

Step 1. Find the vcredist_2010_x86 file from “third_party_tools” directory and unzip it.

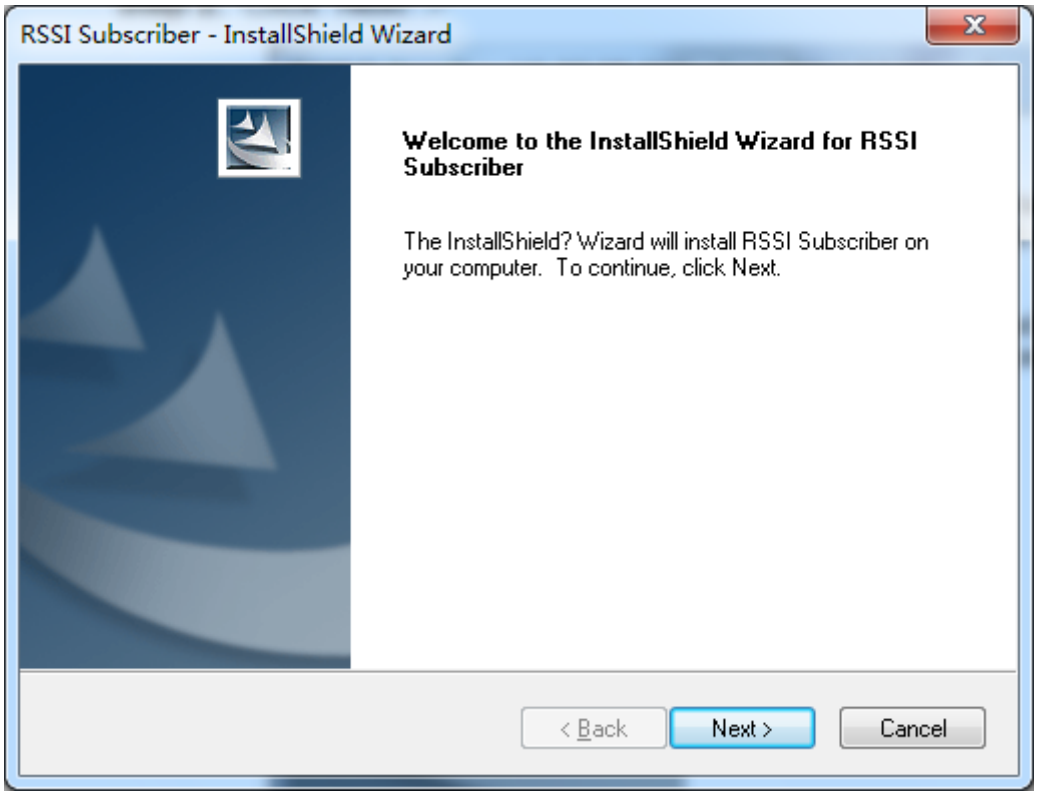
Step 2. Double-click the installation “vcredist_2010_x86.exe”. Install it by default.

Note：In Win XP, you need to install vcredist_2008_x86.exe and vcredist_2010_x86.exe. In Win 7, you just need to install vcredist_2010_x86.exe.

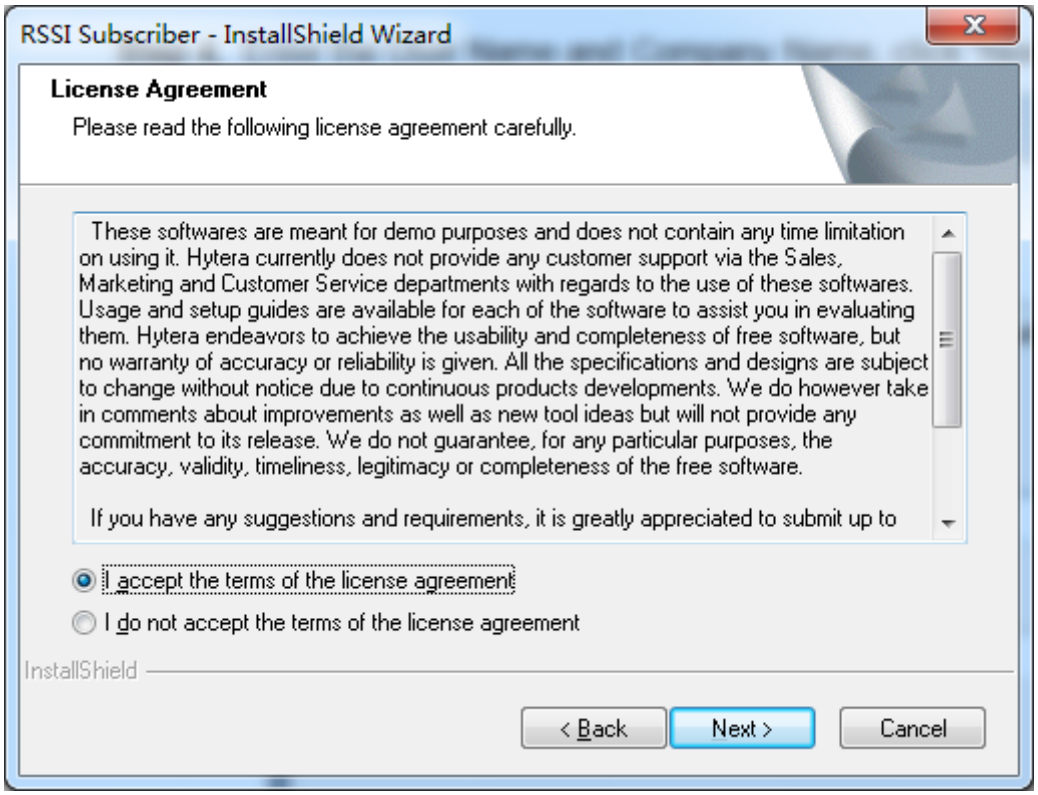
3.3 RSSI Subscriber Installation

Step 1. Find Setup.exe in the compressed package, double-click the installation Setup.exe.

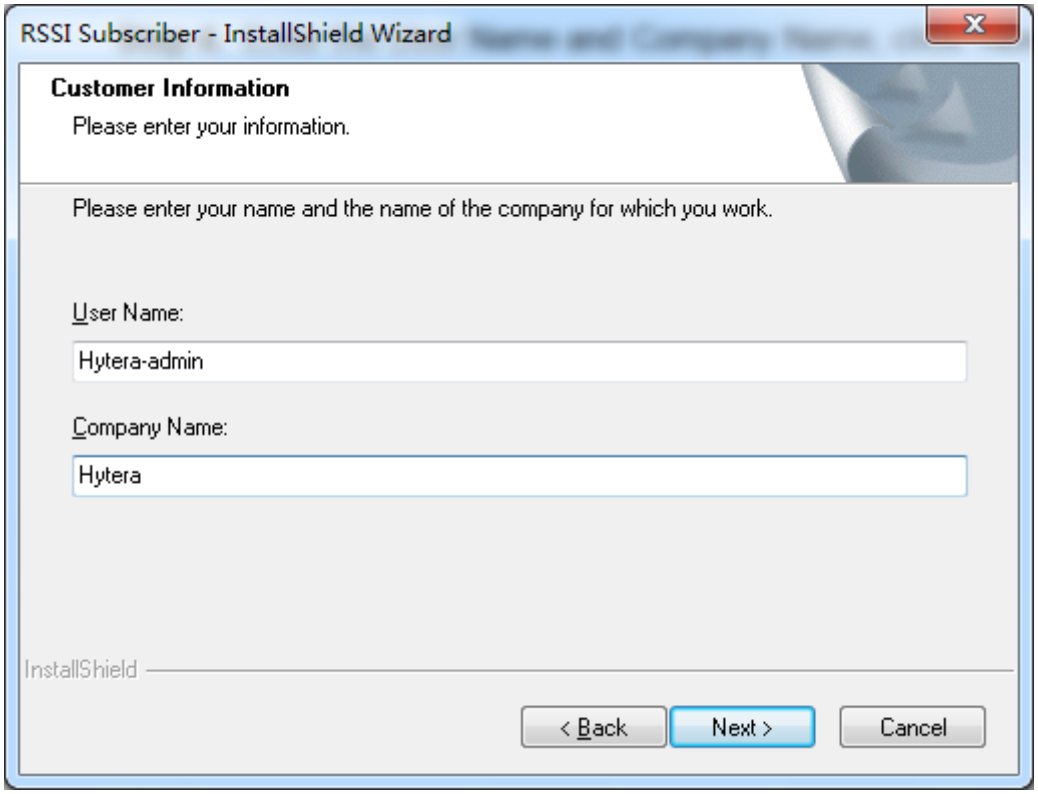
Step 2. Click "Next".



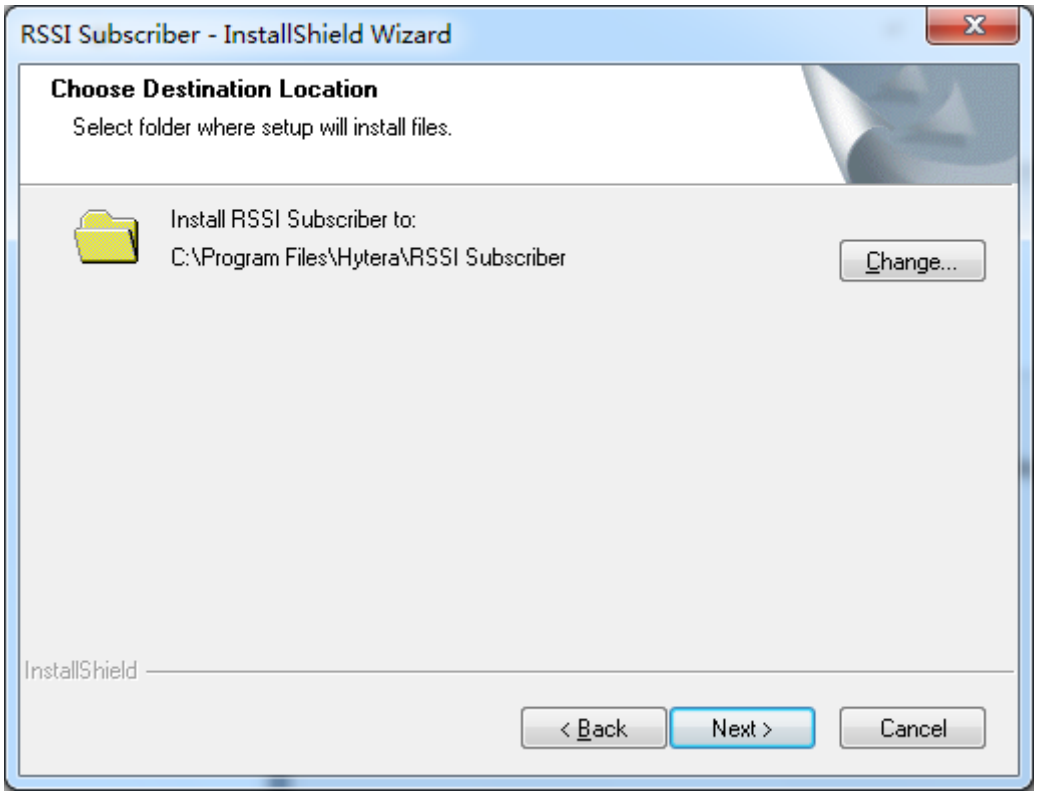
Step 3. Choose consent statement, click "Next".



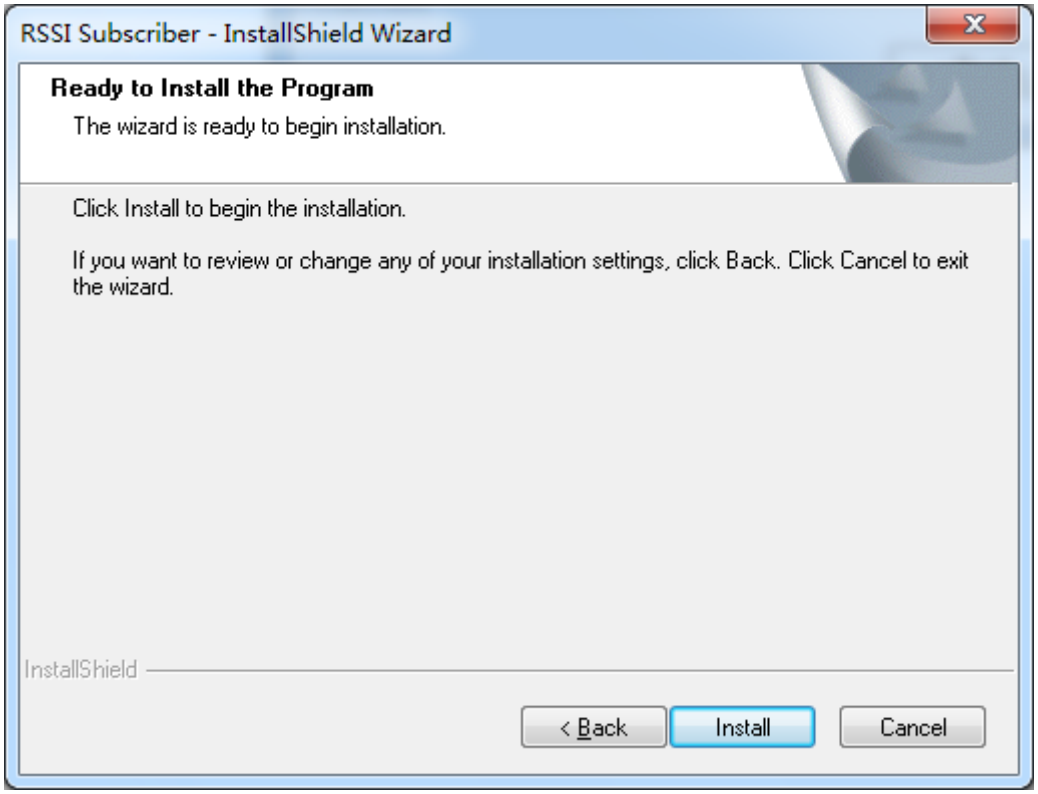
Step 4. Enter the User Name and Company Name, click "Next".



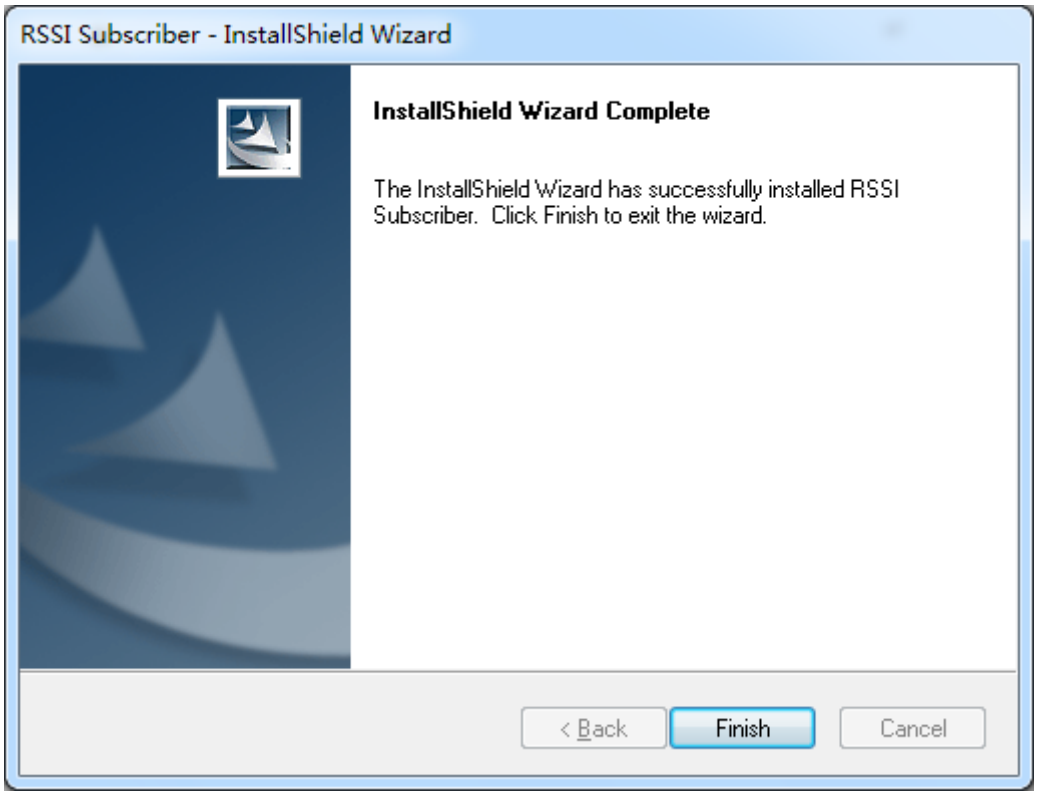
Step 5. Select the installation path, click "Next".



Step 6. Click "Install".



Step 7. Click "Finish" to complete the installation.



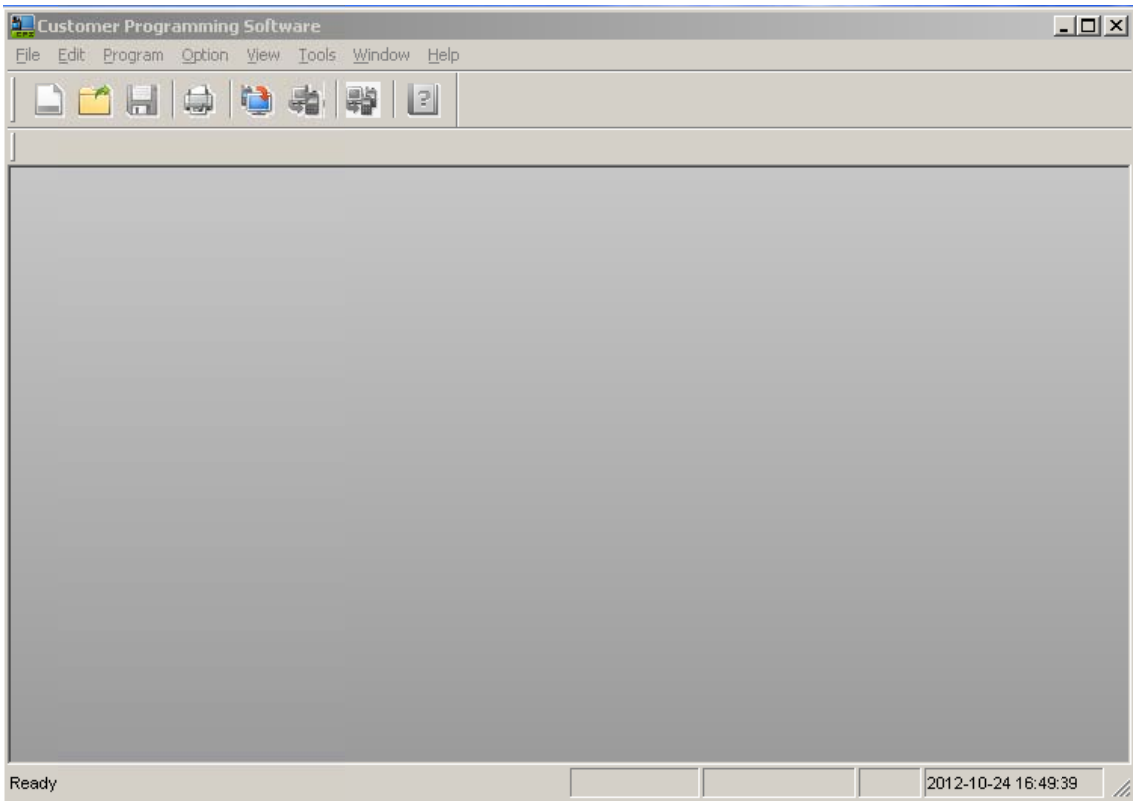
3.4 RSSI Repeater Installation

Please refer to “RSSI Subscriber” installation steps.

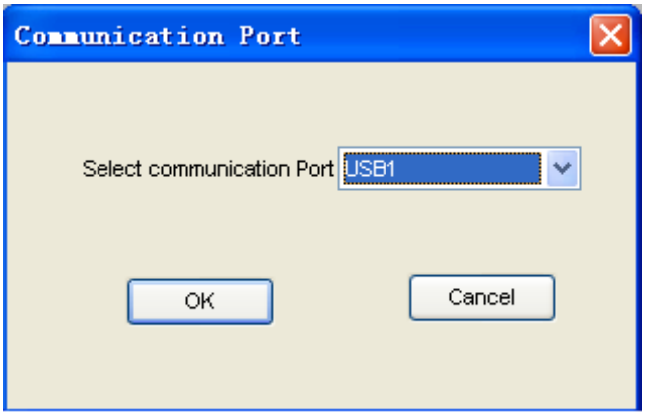
4. RSSI Configuration

4.1 RSSI Subscriber (Dispatch Station) Configuration

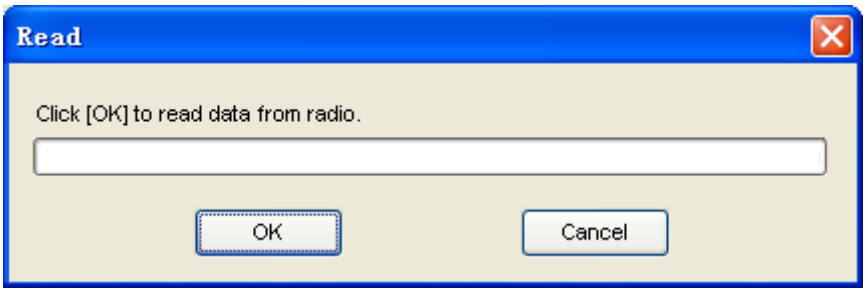
Step 1. Run the CPS and enter its main interface as shown below.



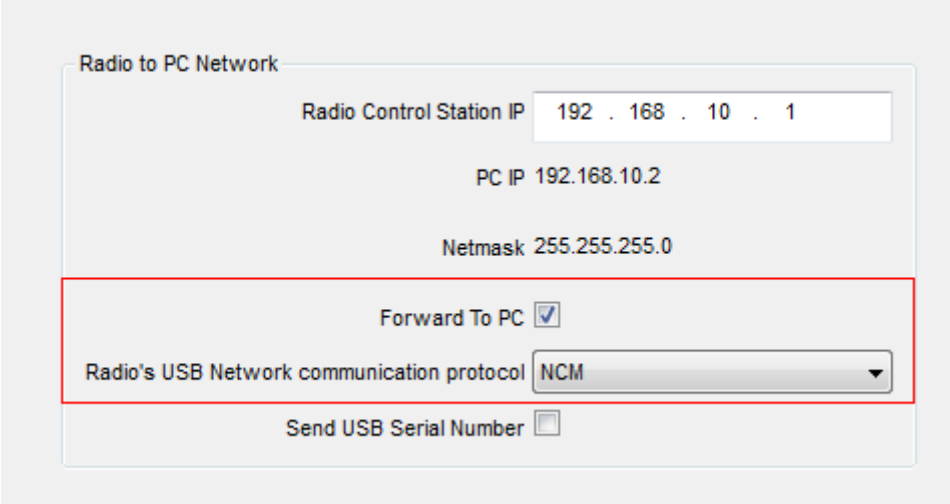
Step 2. Select “Program -> Read From Radio” or click , you will see the pop-up “Communication Port” dialogue box.



Step 3. Select the corresponding USB port (e.g.: USB1) for the PD78X, and click “OK” to enter the “Read” dialogue box.



Step 4. Select "Conventional -> General Setting -> Network". Check the box "Forward to PC" in the "Network" area. Select "NCM" in "Radio's USB Network communication protocol".

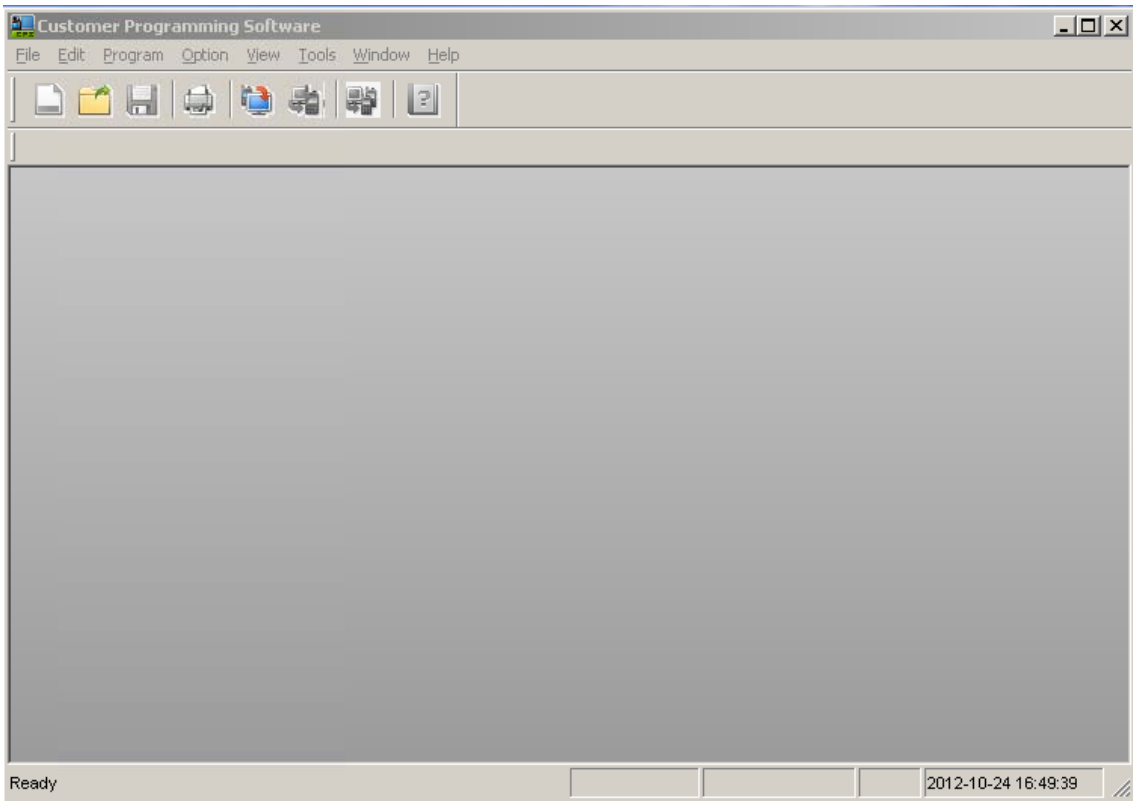


Step 5. Select “Program -> Write To Radio” or click , and the “Communication Port” box will pop up.

Step 6. Click “OK” to write the configure information into the PD78X. When the information is written, the PD78X will restart automatically to make the setting effective.

4.2 RSSI Repeater (Dispatch Station) Configuration

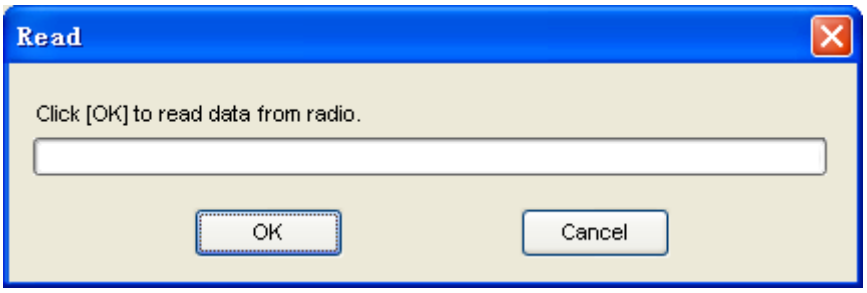
Step 1. Run the CPS and enter its main interface.



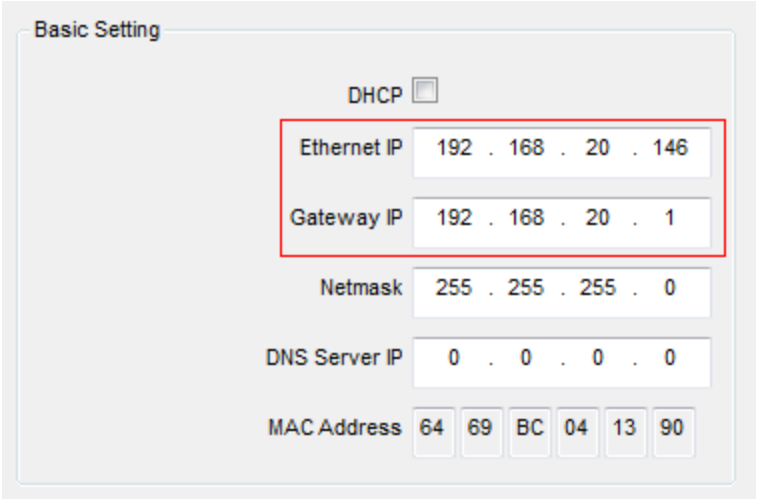
Step 2. Select “Program -> Read From Radio” or click , you will see the pop-up “Communication Port” dialogue box.



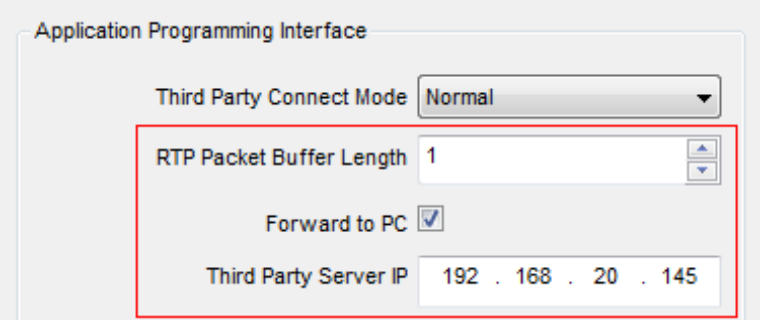
Step 3. Select the corresponding USB port (e.g.: USB1) for the RD98X, and click “OK” to enter the “Read” dialogue box.



Step 4. Select "Conventional -> General Setting -> Network", Ethernet IP is the IP address of repeater. Gateway IP should be correct. Following figure shows normal IP settings.



Step 5. Select "Conventional -> General Setting -> Network". In the "Network" area, check the box "Forward to PC". The default value of “RTP Packet Buffer Length” is 1. If it is in Ethernet, you can set to 3 or above. “Third Party Server IP” is the IP address of PC.

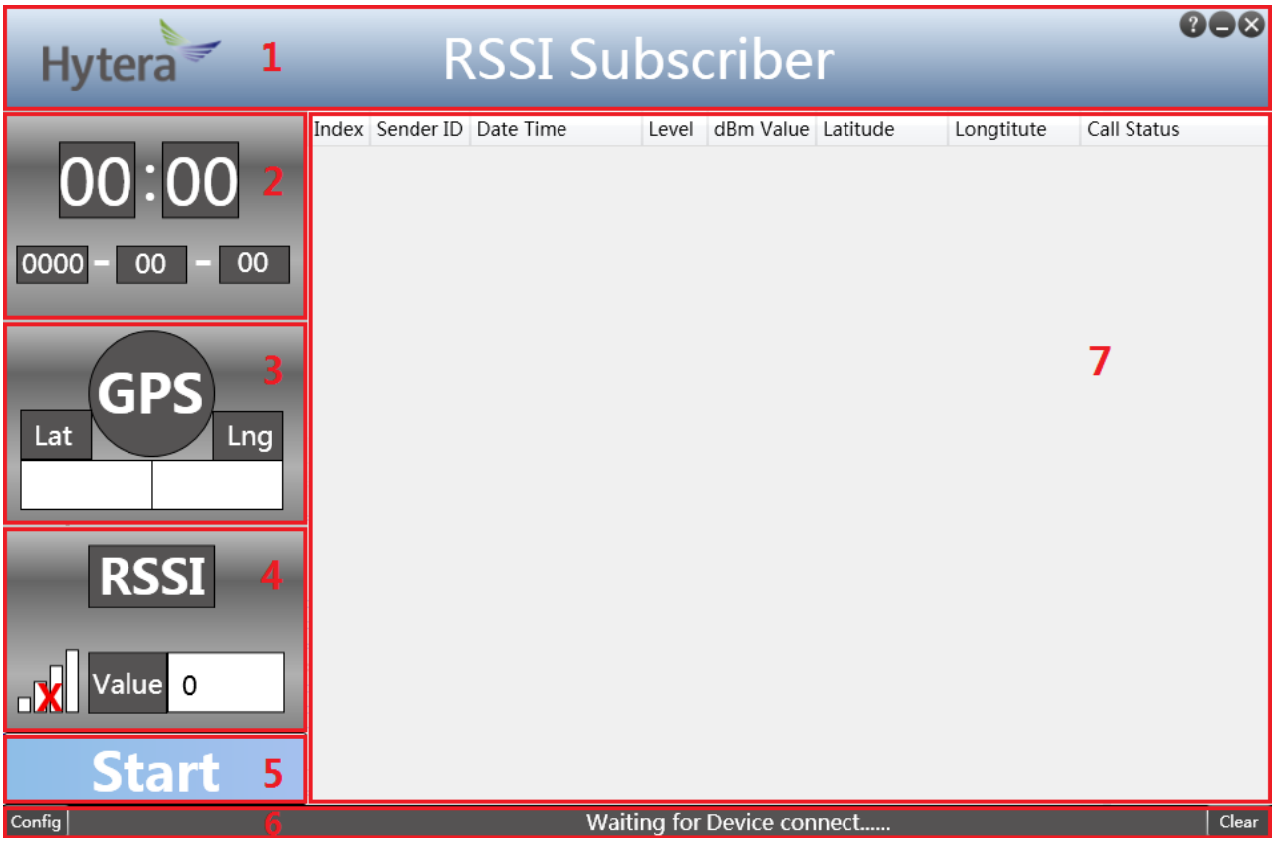


Step 6. Select “Program -> Write To Radio” or click , and the “Communication Port” box will pop up.

Step 7. Click “OK” to write the configure information into the RD98X. When the information is written, the RD98X will restart automatically to make the setting effective.

5. RSSI Subscriber

5.1 Main Interface of RSSI Subscriber



Default view layout introduction:

Area 1: Title bar (click  to display information of version).

Area 2: Date time (display date and time of the latest received data).

Area 3: GPS data (latitude and longitude).

Area 4: RSSI data (level and value).

Area 5: Start/ Stop query RSSI and GPS data.

Area 6: Status bar (click Config to pop up the configuration window, click Clear to clear the query list)

Area 7: Detailed list of queried RSSI and GPS data.

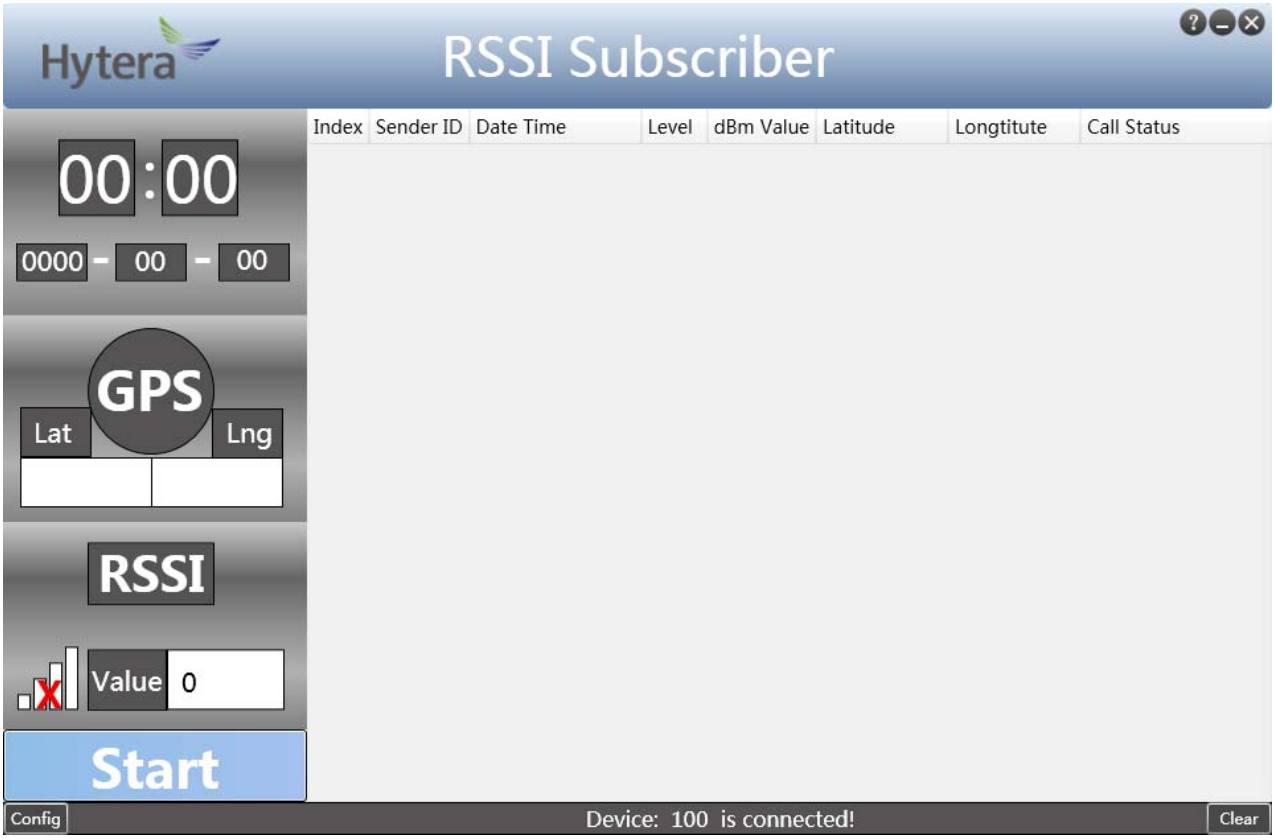
5.2 Configuration Guide

Below are the step by step guides to configure the RSSI Subscriber to be used with the radio:

Step 1. Please connect the Dispatch Station (Mobile) to PC via USB.

Step 2. Run the RSSI Subscriber and enter its main interface.

Step 3. The application will automatically connect the Dispatch Station. After it is online, it will prompt "Device: XX is connected". ”XX” indicates the ID of Dispatch Station.

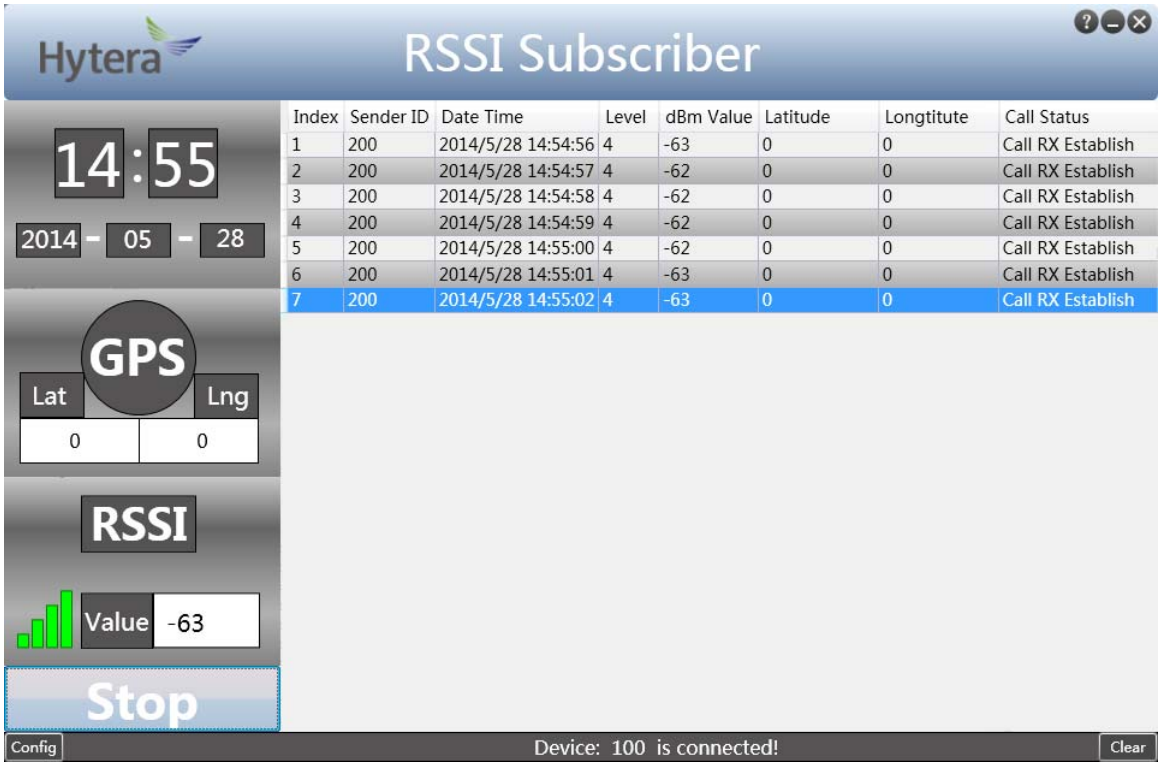


Step 4. Click "Config", you can set the export path, RSSI and GPS data query interval. The RSSI interval is configurable. The default value is 1s. RSSI data will be queried per 1s. The GPS interval is also configurable. The default value is 5s. GPS data will be queried per 5s. If you do not set the export path, the default path for the installation directory is under the Data file folder.



Step 5. After setting the path and RSSI and GPS query interval, click "Save".

Step 6. Click "Start" to begin the query of RSSI and GPS data. It only supports streaming out RSSI value stronger than -125dBm. Values weaker than that will be filtered and not displayed. As for the coordination of RSSI value and RSSI level, please refer to 8.Appendix.



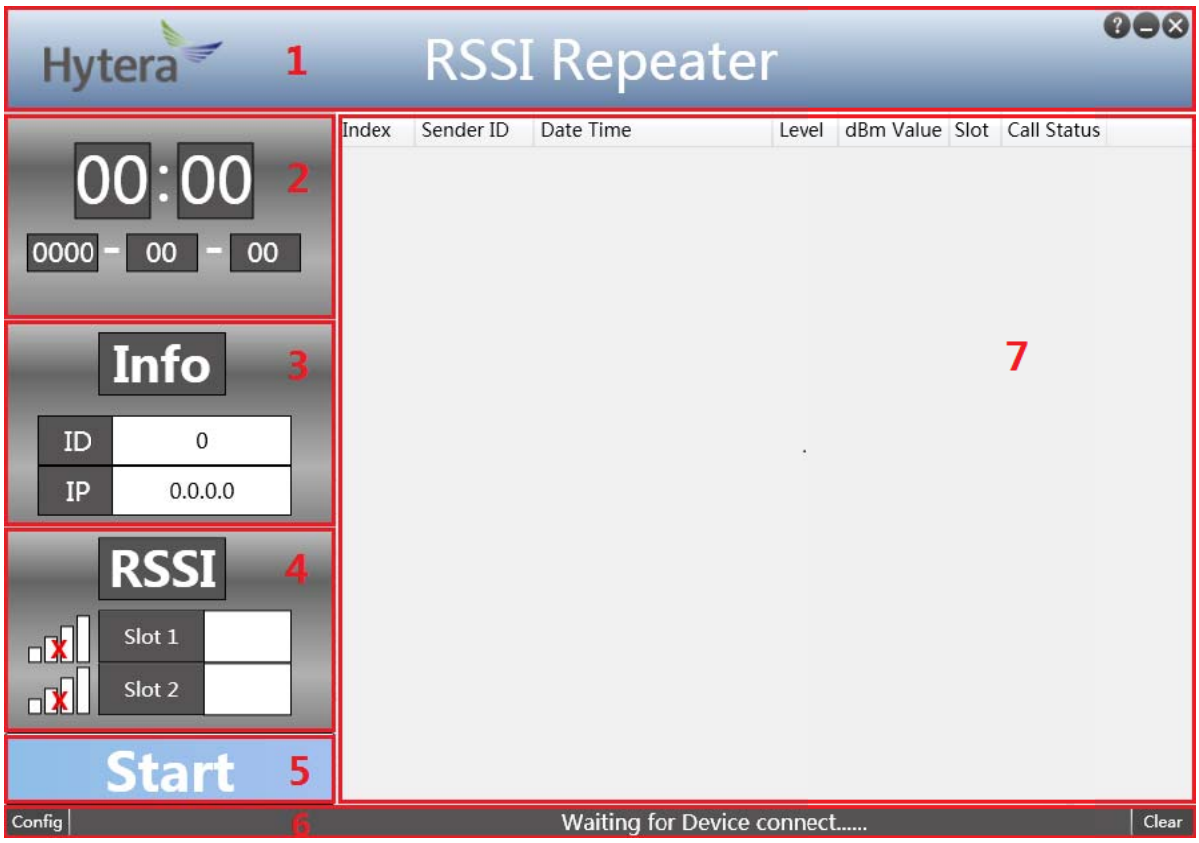
Step 7. When a terminal calling the Dispatch Station, the Dispatch Station will report RSSI value and GPS coordinate to the Application, the data is automatically saved to the file path set before.

Step 8. Click "Stop" to stop the query of RSSI and GPS data.

Note： The list only displays the latest 100 data. If you want to see more historical data, open the file (csv format) in folder “Data” under installation directory.

6. RSSI Repeater

6.1 Main Interface of RSSI Repeater



Default view layout introduction:

Area 1: Title bar (click  to display information of version).

Area 2: Date time (display date and time of the latest received data).

Area 3: Information of repeater (repeater's ID and IP).

Area 4: Slot 1 and Slot 2 RSSI data (level and value).

Area 5: Start/ Stop query RSSI data.

Area 6: Status bar (click Config to pop up the configuration window, click Clear to clear the query list).

Area 7: Detailed list of queried RSSI data.

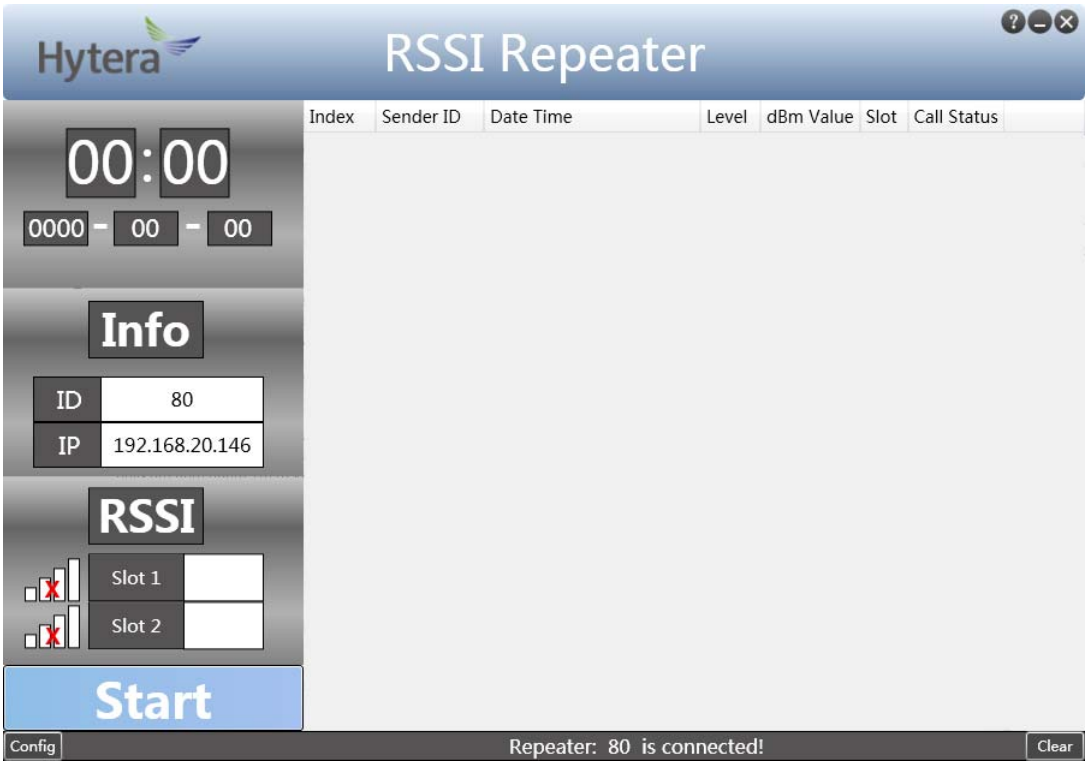
6.2 Configuration Guide

Below are the step by step guides to configure the RSSI Repeater to be used with the radio:

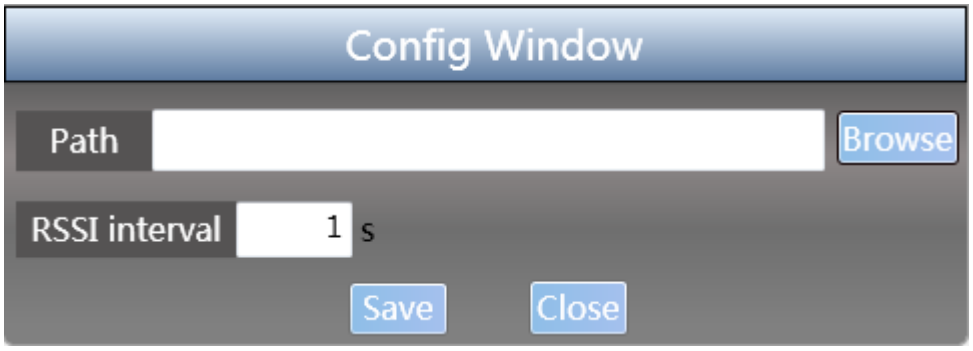
Step 1. Please connect the Dispatch Station (repeater) to PC via IP network.

Step 2. Run the RSSI Repeater and enter its main interface.

Step 3. The application will automatically connect the repeater about 2 minutes. After it is online, it will prompt "Device: XX is connected". ”XX” indicates the ID of repeater.

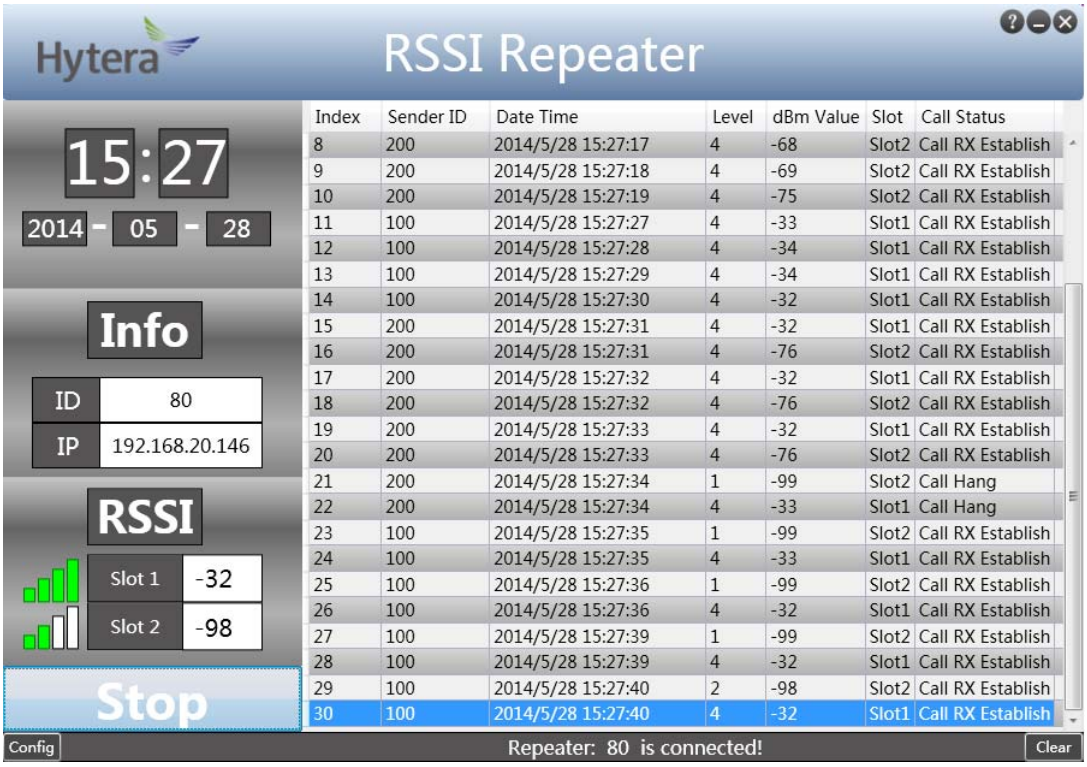


Step 4. Click "Config", you can set the export path, RSSI interval and slot. The RSSI interval is configurable. The default value is 1s. RSSI data will be queried per 1s. If you do not set the export path, the default path for the installation directory is under the Data file folder.



Step 5. After setting the path, RSSI and slot, click "Save".

Step 6. Click "Start" to begin the query of RSSI data. It only supports streaming out RSSI value stronger than -125dBm. Values weaker than that will be filtered and not displayed. As for the coordination of RSSI value and RSSI level, please refer to 8.Appendix.



Step 7. When a terminal calling the Dispatch Station, the Dispatch Station will report RSSI value to the Application, the data is automatically saved to the file path set before.

Step 8. Click "Stop" to stop the query of RSSI data.

7. FAQ

7.1 RSSI Subscriber

7.1.1 Opening the RSSI Subscriber failed

Phenomenon

At the left bottom of the PC, select “Start -> All Programs -> Hytera RCPs ->RSSI Subscriber -> RSSI Subscriber”, but the RSSI Subscriber cannot be opened.

Analysis

. Net Framework 4.0, vcredist_2008_x86 or vcredist_2010_x86 not installed correctly.

Solution

Need to be properly installed. Net Framework 4.0, vcredist_2008_x86 or vcredist_2010_x86.

Please refer to 3.1 and 3.2.

7.1.2 Dispatch Station is connected to PC, but display offline

Phenomenon

Dispatch Station is connected to PC, but display offline still (about 1 minute later).

Analysis

1. USB Driver is not installed correctly.
2. Dispatch Station CPS setting is not correct. Make sure "Network/Forward To PC" is checked.

Solution

1. Need to install the USB Driver properly.
2. Check "Network/Forward To PC" in CPS. Please refer to 4.1 for detail.
3. Plug in the USB again or restart mobile.

7.1.3 GPS latitude and longitude values are always 0

Phenomenon

GPS latitude and longitude values are always 0.

Analysis

1. Dispatch Station has not GPS module.
2. GPS function is not open.
3. Dispatch station can’t find GPS signal currently.

Solution

1. Replacing Dispatch Station with GPS module.
2. Manually Open GPS function in Dispatch Station menu.
3. Move to an area with GPS signal.

7.1.4 Modify the RSSI interval and save data path, but do not take effect.

Phenomenon

Modify the RSSI interval and save data path, but do not take effect.

Analysis

Software does not run as administrator in Win 7 or higher OS. Software installation directory has not written permission.

Solution

Software runs as administrator in Win 7 or higher OS. Software installation directory must have written permission.

7.2 RSSI Repeater

7.2.1 Opening the RSSI Repeater software failed

Phenomenon

At the left bottom of the PC, select “Start -> All Programs -> Hytera RCPs ->RSSI Repeater -> RSSI Repeater”, but the RSSI Repeater cannot be opened.

Analysis

. Net Framework 4.0, vcredist_2008_x86 or vcredist_2010_x86 not installed correctly.

Solution

Need to be properly installed. Net Framework 4.0, vcredist_2008_x86 or vcredist_2010_x86.

Please refer to 3.1 and 3.2.

7.2.2 Repeater is connected to the PC, but display offline

Phenomenon

Repeater is connected to the PC, but display offline still (about 2 minute later).

Analysis

The configuration of Repeater is not correct.

Solution

Make sure the configuration of Repeater is correct. Please refer to 4.2.1 for detail.

7.2.3 RSSI Repeater result cannot be saved

Phenomenon

RSSI Repeater result cannot be saved.

Analysis

Software does not run as administrator in Win 7 or higher OS. Software installation directory has not written permission.

Solution

Software runs as administrator in Win 7 or higher OS. Software installation directory must have written permission.

8. Appendix

Coordination of RSSI value and RSSI level

Value	Level
<-125db	No signal
-125db~-106db	Level 0
-105db~-99db	Level 1
-98db~-92db	Level 2
-91db~-84db	Level 3
>-83db	Level 4