Lone Worker Integrator Quick Start Guide

SONIM CONFIDENTIAL

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REVISION HISTORY

Revision	Date	Author	Reviewers	Comments
PA1	12-2-2009	Gomu		Initial version
PA2	12-3-2009	Gomu		Added FAQ
PB1	12-17-2009	Gomu		Added plain SMS
PB2	06-2-2010	Gomu	Biswajit	Updated for latest release
PB3	06-7-2010	Gomu		Updated for latest release

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1 Introduction

The Sonim XP3 Sentinel is designed for Lone Worker market with features such as, periodic sending of GPS location and other phone health status to the server, detection of tilt and non-movement of the phone and sending multiple alert levels to the server, over the air configuration and control of the client from the server and much more. Furthermore, it has the same highly rugged design as the XP3 Quest to sustain even the toughest work environments. It conforms to IP67, MIL-810F standards and Sonim's RPS test specification confirming to tests such as conform to 2m (6ft) drop on hard concrete from any angle and high capacity battery for long operations.

The native Lone Worker Client application (client) can be integrated with a Lone Worker Server application (server). It is designed to support a variety of lone worker solutions offered by existing lone worker service providers, monitoring centers, system integrators and value added resellers. Besides the lone worker service provider channel, Sonim XP3 Sentinel is also expected to find application with enterprises and government organizations that deploy commercial lone worker system software and operate their own monitoring capabilities.

Sonim provides technical support to partners to understand the Lone Worker client and its interface with the server. Sonim has a reference implementation of the server, which can be made available to partners to understand the protocol better.

This quick start guide is for Sonim partners to start integrating with their server.

2 Acronyms

Acronym	Definition
client	Lone worker client
server	Lone worker server
LW Phone	The Sonim XP3 Sentinel phone that is being integrated

3 References

1. Lone Worker Developer Guide – PB14
2. Lone Worker Demo Guide – PB4

4 Pre-requisites

Before integrating, first you should understand the basic functionality of the client application and also make sure that it works fine. This can be best done by running through the Demo Guide. Please make sure that you are able to run all the demos in the Demo Guide, except the Remote Configuration demo. That will need some effort, which will be described here.

5 A Simple Server

The Lone Worker Client has two interfaces – HTTP and SMS. The first step is to replace the demo server that was used in the demo with your own server.

5.1 Pre-requisites

You need a HTTP server. It is recommended that you use an Apache or Lighttpd server running on a Linux machine. You should have PHP supported on the server. Other configurations also should work. But in this document, we restrict to this.

5.2 Sample Library

You can find sample server code on the FTP site under the folder *"Guides/Sample server code".* There is a PHP library and a test file that uses the library. PHP module with encryption library is also included.


Lwtest.php


LWLibrary.php


LW_encrypt.tgz

Please note that this code is given for quick integration without any warranty. Please read the copyright and warranty statement in the code carefully.

5.3 Basic Server

1. Put both the PHP in a folder that is accessible from the internet through the HTTP server.
2. Edit LWLibrary.php to comment out the lines calling LW_encrypt and LW_decrypt.
3. Edit LWTest.php to set the path of the logfile in the function debug_log.

Now, using the Java client on the phone, you can edit the HTTPUrl to point to the LWTest.php. If you change the mode of the Lone Worker client on the phone, it will send the report to this server and you can see the logs in the logfile that you have set.

6 Over The Air Configuration Using CP 1.1 SMS

Please note that some operator may not allow CP 1.1 SMS or any port directed SMS. Please check with your operator if you find this not working.

6.1 Using NowSMS

6.1.1 Pre-requisites

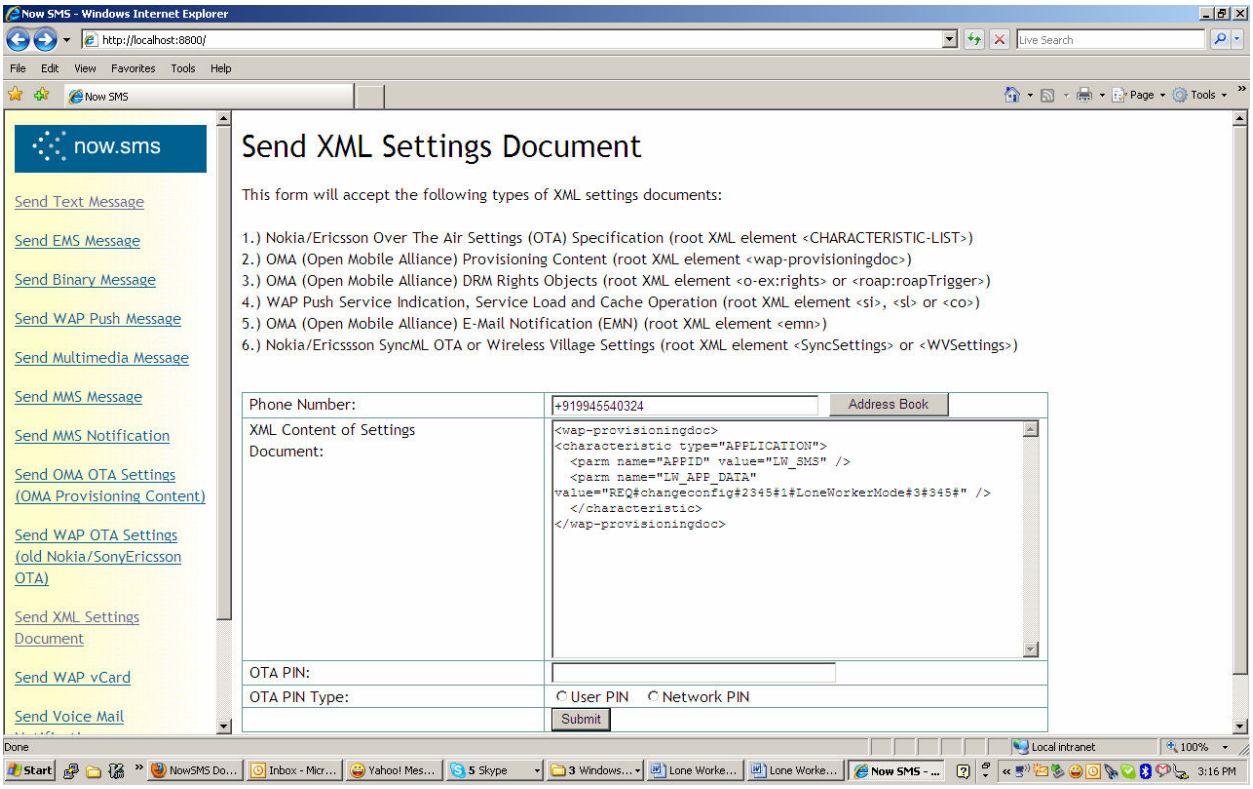
For this quick integration, we will use NowSMS application. Install NowSMS (NOT NowSMSLite) on a PC and connect a cell phone to it as a GSM modem. Follow the procedure given in the NowSMS documentation to set this up. Test the installation by opening the web interface (usually http://localhost:8800/) and sending a text SMS to the LW Phone and make sure that it reaches.

Make sure that your operator allows XML Settings Documents to your phone.

6.1.2 Sending OTA SMS

Select "Send XML Settings Document" at the left pane of the NowSMS web interface. Enter the LW Phone's MSISDN number and this text as the XML content. Click Submit.

```
<wap-provisioningdoc>
<characteristic type="APPLICATION">
  <parm name="APPID" value="LW_SMS" />
  <parm name="LW_APP_DATA"
value="REQ#changeconfig#2345#1#LoneWorkerMode#3#345#" />
  </characteristic>
</wap-provisioningdoc>
```



This will set the mode of the Lone Worker Client to “Mandown” mode. You can repeat the same with this XML. This will set the mode to “Tracking” mode.

```
<wap-provisioningdoc>
<characteristic type="APPLICATION">
  <parm name="APPID" value="LW_SMS" />
  <parm name="LW_APP_DATA"
value="REQ#changeconfig#2346#1#LoneWorkerMode#2#346#" />
  </characteristic>
</wap-provisioningdoc>
```

6.2 Using Code

Here is some PHP code that can help you to integrate this with an SMS Gateway.

```
$udh = "\006\005\004\013\204\043\360";
$str = "REQ#changeconfig#2346#1#LoneWorkerMode#2#346#";
$encoded_str =
"\124\006\001\266\003\013j\000E\306\000\001U\001\2076\000\000\006\003LW_SMS\00
0\001\207\005\003LW_APP_DATA\000\006\003".$str."\000\001\001\001";
```

The UDH specifies the type of the message and the port 2948 to which it has to be sent. The encoded string has the wbxml encoding of the XML.

Note that if the encoded string becomes large, then it has to be cut into several parts and then the UDH for each part should include the number of parts and the part index also.

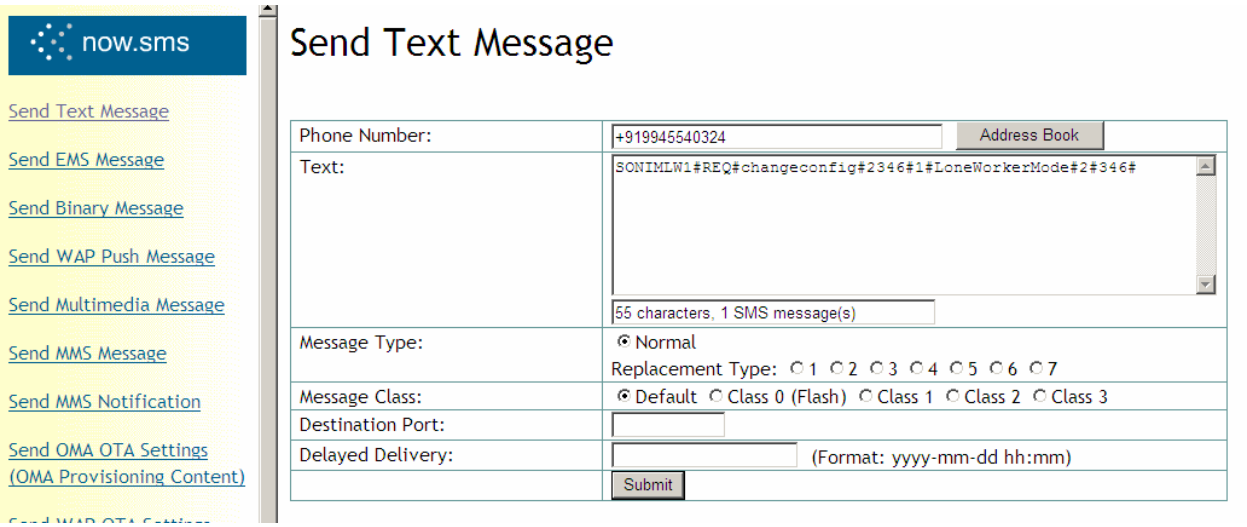
7 Over The Air Configuration Using Plain SMS using NowSMS

7.1.1 Pre-requisites

For this quick integration, we will use NowSMS application. Install NowSMS (NOT NowSMSLite) on a PC and connect a cell phone to it as a GSM modem. Follow the procedure given in the NowSMS documentation to set this up. Test the installation by opening the web interface (usually http://localhost:8800/) and sending a text SMS to the LW Phone and make sure that it reaches.

7.1.2 Sending OTA SMS

Select “Send Text SMS” at the left pane of the NowSMS web interface. Enter the LW Phone’s MSISDN number and **SONIMLW1#REQ#changeconfig#2346#1#LoneWorkerMode#2#346#** as the Text content. The Message type should be Normal and Message Class should be Default. Click Submit.



This will set the mode of the Lone Worker Client to “Mandown” mode.

8 Over The Air Configuration Using Base64 SMS using NowSMS

8.1.1 Pre-requisites

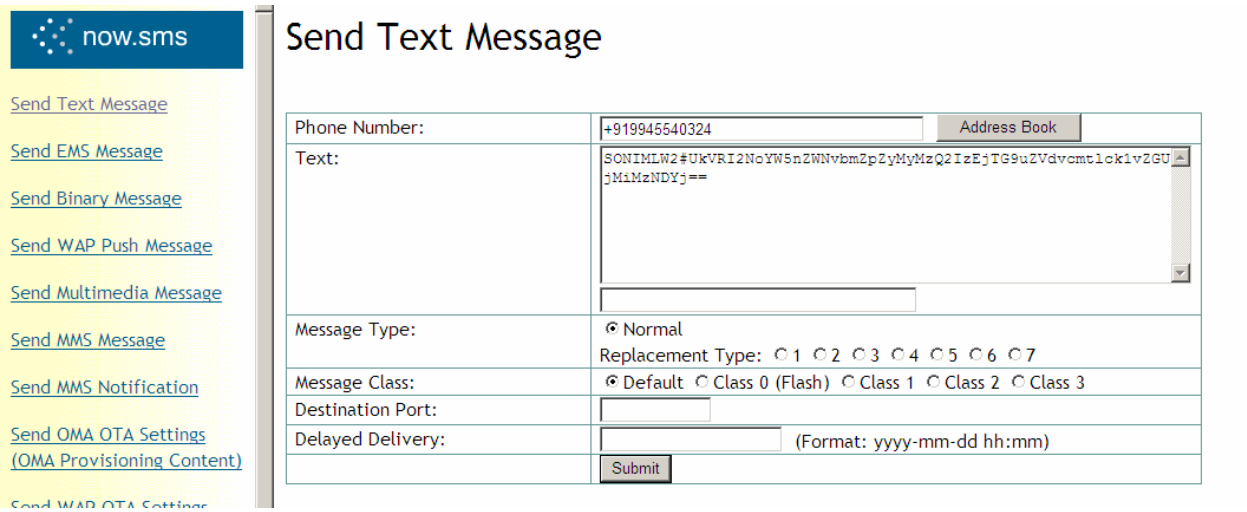
For this quick integration, we will use NowSMS application. Install NowSMS (NOT NowSMSLite) on a PC and connect a cell phone to it as a GSM modem. Follow the procedure given in the NowSMS documentation to set this up. Test the installation by opening the web interface (usually http://localhost:8800/) and sending a text SMS to the LW Phone and make sure that it reaches.

8.1.2 Generating Base64 Message

The protocol uses standard base64 encoding as per RFC 3548. There is an online Base64 encoder at http://www.motobit.com/util/base64-decoder-encoder.asp Enter **REQ#changeconfig#2346#1#LoneWorkerMode#2#346#** as the text to encode. You will get **UkVRI2NoYW5nZWNvbmZpZyMyMzQ2IzEjTG9uZVdvcmtlck1vZGUjMiMzNDYj** This has to be used to form the OTA message by prepending **SONIMLW2#** and appending **==**

8.1.3 Sending OTA SMS

Select “Send Text SMS” at the left pane of the NowSMS web interface. Enter the LW Phone’s MSISDN number and **SONIMLW2#UkVRI2NoYW5nZWNvbmZpZyMyMzQ2IzEjTG9uZVdvcmtlck1vZGUjMiMzNDYj==** as the Text content. The Message type should be Normal and Message Class should be Default. Click Submit.



This will set the mode of the Lone Worker Client to “Mandown” mode.

9 Enabling Encryption

1. Install the PHP extension in the tgz file.

2. Uncomment the lines calling LW_encrypt and LW_decrypt that you commented out for basic server.

3. Now the encryption system is on, but the special value of the encryption key “disabled” is used to disable encryption.

4. On the server, you can change the value of the encryption key in the function GetEncryptionKey in LWTest.php.

5. On the phone, press #5323# on the idle screen to change the encryption key. If the current value of the key is “disabled”, then it can be set from the server using OTA SMS following the procedure to change the value of the configuration parameter “EncryptionKey”.

Note that SMS communication will also be encrypted. So if you use NowSMS or any SMS gateway, you will have to encrypt the payload that you send in the SMS. As encryption results in binary data, plain SMS cannot be used with encryption. CP 1.1 or base64 SMS has to be used if encryption is used.

10 Frequently Asked Questions

1. Can XP3 Sentinel use domain name in the HTTPUrl?
   Yes. Both domain name and IP address are supported.

2. Can the HTTPUrl use different ports?
   Yes. You can specify the port in the usual format – eg. http://host.com:8080/server.php. If not specified, port 80 is used for HTTP and port 443 is used for HTTPS.

3. Can XP3 Sentinel use HTTPS?
   No. Only HTTP is supported.

4. Can MSISDN be used in the messages instead of IMEI and IMSI?
   No. Only IMEI and IMSI are supported.

5. Can I avoid using encryption?
   Yes. The system allows that. The special value “disabled” for the encryption key disables encryption. However, it is advisable that a commercial deployment uses encryption. As the Sonim Lone Worker server interface protocol is shared with several partners and service providers, it can be a security issue if encryption is not used. A phone can be reconfigured by using NowSMS or any SMS gateway easily. If encryption is used, the phone cannot be reconfigured without knowing the encryption key.

6. What can I use the uid for? Who generates it?
   The uid is to help the partner integrate the phone into their existing system. Typically the partner will have a database of users. The uid can be used to map the phone to the user.

7. When the phone is restarted, the Lone Worker icon does not come up for quite some time.
   The Lone Worker module is started 20 seconds after registration with GSM network.

8. Can we change the default idle screen to our logo?
   We can produce custom phones with customized idle screen images, ringtones, etc. This depends on the volume of purchase. You can talk to your Sonim marketing contact person about it.

9. Can we change the icons used for Lone Worker modes?
   This also can be taken up as a customization requirement for you based on the volume of purchase. You can talk to your Sonim marketing contact person about it.

10. The phone allows numbers starting with 0, 1 and 9 to be typed in when the keypad is locked.
    This is to cater to the requirement that emergency numbers like 911 and 112 should be callable even if the keypad is locked. Though the phone allows numbers to be typed in, calls can be made only the emergency numbers.

11. Are long SMS (more than 160 bytes) supported for OTA?
    Long SMS up to about 5000 bytes are handled in CP1.1 mode. Long SMS are not supported in plain and base64 modes.

12. Can plain SMS used with encryption?
    No. As encryption results in binary data, plain SMS cannot be used with encryption. CP 1.1 or base64 SMS has to be used if encryption is used.

13. Can OTA SMS be used to set the APN?
    Yes. The details are given in the Developer Guide.

Please read the Best Practices section in the Developer Guide for more information.

11 Contact

This is only to get you started with the integration. Please contact the developers at Sonim to whom you would have got introduced to get any of your questions answered.