TCP-SMS Protocol Converter

Tech Note – TN3004
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Introduction

Ctek's TCP to SMS Protocol Converter application is a controller application that accepts a properly formatted TCP message on any TCP port, converts it to a SMS message and transmits it to a specified SMS terminal address (MSISDN/MDN). The application includes a mechanism to acknowledge the successful transmission of an individual message from the controller onto the wireless network. Items on the survey were worded as positive statements or direct questions, and included the following topics:

Message Format

The format of a message for this application is as follows:

<msg><seq>xxxx<addr>nnnnnnnnnnnnnnn<len>yyy<text>aaaaa.....a</msg>

Where:

- **<msg>** is a mandatory start of message tag
- **<seq>** is a mandatory start of sequence message tag
- *xxxx* is an ascii representation of a sequence (4 digit maximum) number identifying a specific message
- **<addr>** is a mandatory start of destination address tag
- *nnnnnnnnnnnnnnn* is the destination phone number for the SMS message (15 digits or less)
- **<len>** is a mandatory tag indicating the start of the **text field** length value. The text field length and associated len value must be greater than zero and less than or equal to 140 characters.
- *yyy* is an ascii representation of a number indicating the number of bytes in the message
- **<text>** is a mandatory tag indicating the start of the message text.
- *aaaaa…..a* is the message text
- **</msg>** is a mandatory tag indicating the end of this message

Example:

<msg><seq>5<addr>5555551212<len>11<text>Hello World</msg>

Send message sequence 5 to a SMS terminal, e.g. a handset having an address (phone number) of 5555551212. The message body delivered would be *Hello World*.

Message Delivery Confirmation

Message Delivery Confirmation is only capable of confirming that a properly formatted message has been received by the controller application and has been successfully transmitted on the wireless network using that network's Short Message Service (SMS). The ultimate delivery of the message to the targeted SMS terminal is not being confirmed by the controller application's message acknowledgement (ACK).

If the SMS application is configured to reply with an ACK, the application will return a message of the following form:

<ack><seq>xxxx</ack>

Where:

- **<nak>** indicates message type
- **<seq>** is the start of sequence message tag
- *xxxx* is an ascii representation of a sequence (4 digit maximum) number identifying a specific being negatively acknowledged.
- **</nak>** indicates end of acknowledgement message

The application will send NAK if anything after the <msg> tag is malformed or if it cannot send the sms. This means that in some cases, the application will send a NAK without having received a valid sequence number. In those cases, the NAK will contain a sequence number of 0000. Therefore, it is recommended that user applications not use a 0000 sequence number when sending messages to this application.

Timing considerations - If the controller application is given a message to send and there is no service, the SMS API of the controller will test for service approximately every five seconds. After approximately sixty seconds, the SMS API will time out and return an error. If NAK is enabled, the user will receive a NAK message at this time.

If the user application sending TCP messages does not synchronize by waiting for the ACK/NAK response TCP/IP queuing on the Ctek Controller platform will buffer a number of TCP messages until they can be transmitted. The messages will eventually be delivered to the SMS terminal in the order they were received.

Configuring the Application

The TCP to SMS protocol converter application is configured using the Ctek Controller's screen editor to change configuration file /etc/conf.d/opt.smsclient. The configuration file contains the following three tags which are used to control the application.

    TCP_PORT="5050"

    MSG_ACK="Y"

    MSG_NAK="Y"

- TCP_PORT can be set to any valid TCP/IP port
- MSG_ACK can be set to Y (yes, send acknowledgements) or N (no, don not send acknowledgements)
- MSG_NAK can be set to Y (yes, send NAKs) or N (no, don not send NAKs)