

SMS ENGINE

ENTERPRISE EDITION

Manual for Software Developer and System Integrator

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1. REVISION HISTORY

| EDITION | ISSUED DATE | REMARK |
|------------------|-------------------------------------|---|
| 1 st | 1 st of November, 2007 | Draft release |
| 2 nd | 23 rd of November, 2007 | Minor correction |
| 3 rd | 5 th of December, 2007 | SQL statement for sending SMS |
| 4 th | 13 th of January, 2008 | Version 2 released |
| 5 th | 25 th of February, 2008 | Version 2.1 released. Supports SQL and Windows authentication mode. |
| 6 th | 13 th of March, 2008 | Version 3.0 released. Supports Chinese characters. |
| 7 th | 8 th of July, 2008 | "FAQ" section expanded. "Feature" section expanded. "Limitations" section expanded. "System Architecture" section added. |
| 8 th | 18 th of July, 2008 | Service picture added. |
| 9 th | 10 th of September, 2008 | "FAQ" section updated. |
| 10 th | 9 th of October, 2008 | Appendix 1 added. |
| 11 th | 29 th of October, 2008 | "FAQ" section updated. |
| 12 th | 13 th of November, 2008 | Appendix 1 amended. Appendix 2 added. |
| 13 th | 17 th of December, 2008 | Version 3.1 released. |
| 14 th | 12 th of August, 2009 | "FAQ" section updated. Appendix 1 updated. |
| 15 th | 1 st of January, 2010 | Version 3.2 is released |
| 16 th | 1 st of May, 2010 | Version 3.3 and Version 5.2 is released |
| 17 th | 10 th of August, 2010 | <i>MS SQL Server Edition</i> is supported |
| 18 th | 2 nd of September, 2010 | "REQUIREMENTS" updated |
| 19 th | 12 th of October, 2010 | "ALERT MESSAGE DISPLAYED BY SMS ENGINE MONITOR" is updated |
| 20 th | 1 st of March, 2011 | SMS Engine Enterprise Edition version 5.4 is released |

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4. INTRODUCTION

SMS Engine-Enterprise Edition is a *Windows Service* that sends and receives SMS. System integrator and software developer (SI/SD) do not need to write any code to build a SMS Gateway. The **SMS Engine-Enterprise Edition** uses *MS SQL Server* database to store incoming SMS, and to check if there is any pending SMS to be send out. SI/SD only needs to insert record into database to send out SMS, and retrieve record from database to read SMS. The **SMS Engine - Enterprise Edition** has taken care all SMS transactions.

5. FEATURES

1. Release – version 5.2
2. Running as *Windows Service* – **SMS Engine Enterprise Edition Service**.
 - a) **Service** will always try to initialise connection with GSM modem, e.g. If PC/server is rebooted, the service will automatically establish connection with GSM modem.
 - b) **Auto-reconnection with GSM modem** – if GSM modem is disconnected from PC/server (for whatever reasons), and then re-connected at later stage, service will automatically establish connection with GSM modem.
 - c) **Auto-reconnection with database**
3. Uses **Microsoft SQL Server** or **MySQL Server** to store incoming SMS, and to process outgoing SMS in database. Support both *Windows* and *SQL* authentication mode.
4. Sending of SMS in alphanumeric character (text) and in **Chinese character** (Unicode).
5. Scheduling of outgoing SMS.
6. Configure the **direction** of individual modem:-
 - a) 2 way send and read SMS;
 - b) 1 way read SMS; or
 - c) 1 way send SMS.
7. **Remote monitoring** of **SMS Engine Enterprise Edition Service**, modem status, and message status.
 - a) **SMS Engine Monitor** can be installed on client PC(s) to monitor;

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- b) **SMS Engine Monitor** will pop-up a balloon message to notify administrator In the event of problem encountered (refer to section 7 for more details).
- 8. **Load balancing** – 4 modems work together to broadcast message.
- 9. **Routing** – modem will send to designated prefix mobile number. Good for cost saving as SMS sent within the intra-network is cheaper than inter-network.
- 10. **Number of retries** – can specify the number of retries when a message fails to be sent.
- 11. **Fail-over** – if modem no.1 cannot send out the SMS, modem no. 2 will take over, and so on until modem no. 4.
- 12. **FIFO** – For sending out SMS, SMS Engine will process the 1st record in the outbox until the last record.
- 13. **Supports up to 4 GSM Modem Type SGDK** (other types of modem will not work).
- 14. **Flexible or robust configuration** – SMS Engine can be installed on any one of these variations:-
 - a) **1:4:1** – install *SMS Engine* on 1 server connected with 4 units of *GSM Modem Type SGDK* and connected to 1 database
 - b) **2:2:2** – install *SMS Engine* on 2 servers; each server with 2 units of *GSM Modem Type SGDK*; 2 SMS Engines are connected to 2 different databases
 - c) **4:1:4** – install *SMS Engine* on 4 servers; each server with 1 units of *GSM Modem Type SGDK*; 4 SMS Engines are connected to 4 different databases

6. LIMITATIONS

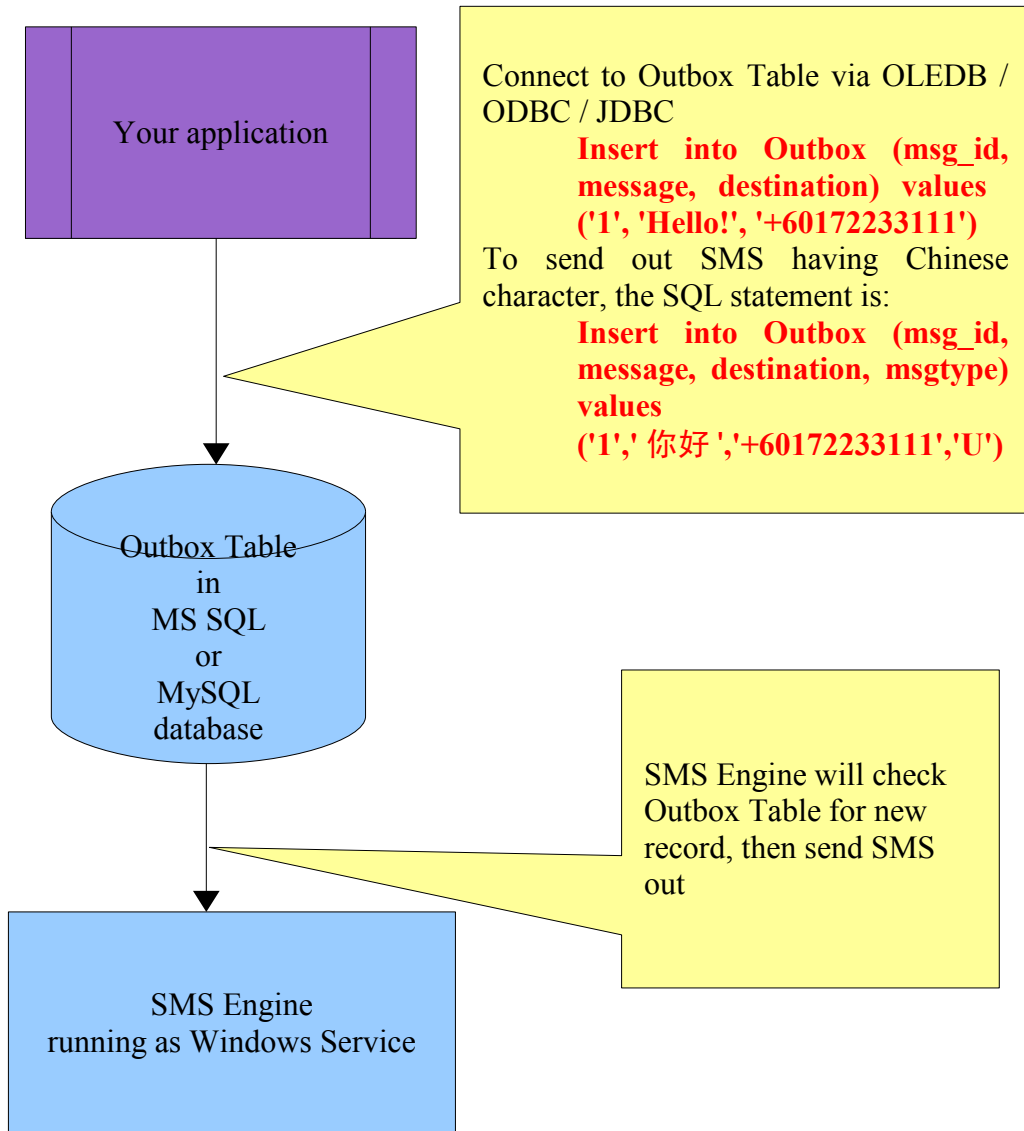
1. Sending of SMS in alphanumeric character with maximum of 160 characters length.
2. Sending of SMS in Chinese character with maximum of 70 characters length.
3. Does not support concatenate or long SMS.
4. Does not work in 64 bit operating system.

7. REQUIREMENTS

1. System integrators and software developers must possess knowledge of:
 - a) Microsoft SQL Server, Microsoft SQL Server Enterprise Manager, Microsoft SQL Server Query Analyzer;
 - b) MySQL Database Server;
 - c) Database programming
 - ODBC, ADO, ADO.net; and
 - SQL statement
 - d) Administering Windows Service
2. SMS modem Type SGDK supplied by MOBITEK System Sdn. Bhd.
3. SIM card(s)
4. Supported operating system: -
 - a) Windows 2000 Server 32 bit;
 - b) Windows 2003 Server 32 bit,
 - c) Windows 2008 Server 32 bit,
 - d) Windows XP Pro 32 bit; or
 - e) Windows Vista Business Edition 32 bit.
5. Microsoft .NET Framework Version 2.0
6. SQL Server:-
 - a) Microsoft SQL Server 2000 / 2003 / 2008 Enterprise Edition; or
 - b) MySQL version 4.1 and above with MySQL ODBC driver version 5.1; or
 - c) Microsoft SQL Server 2005 Express Edition

8. SYSTEM ARCHITECTURE

Sending SMS

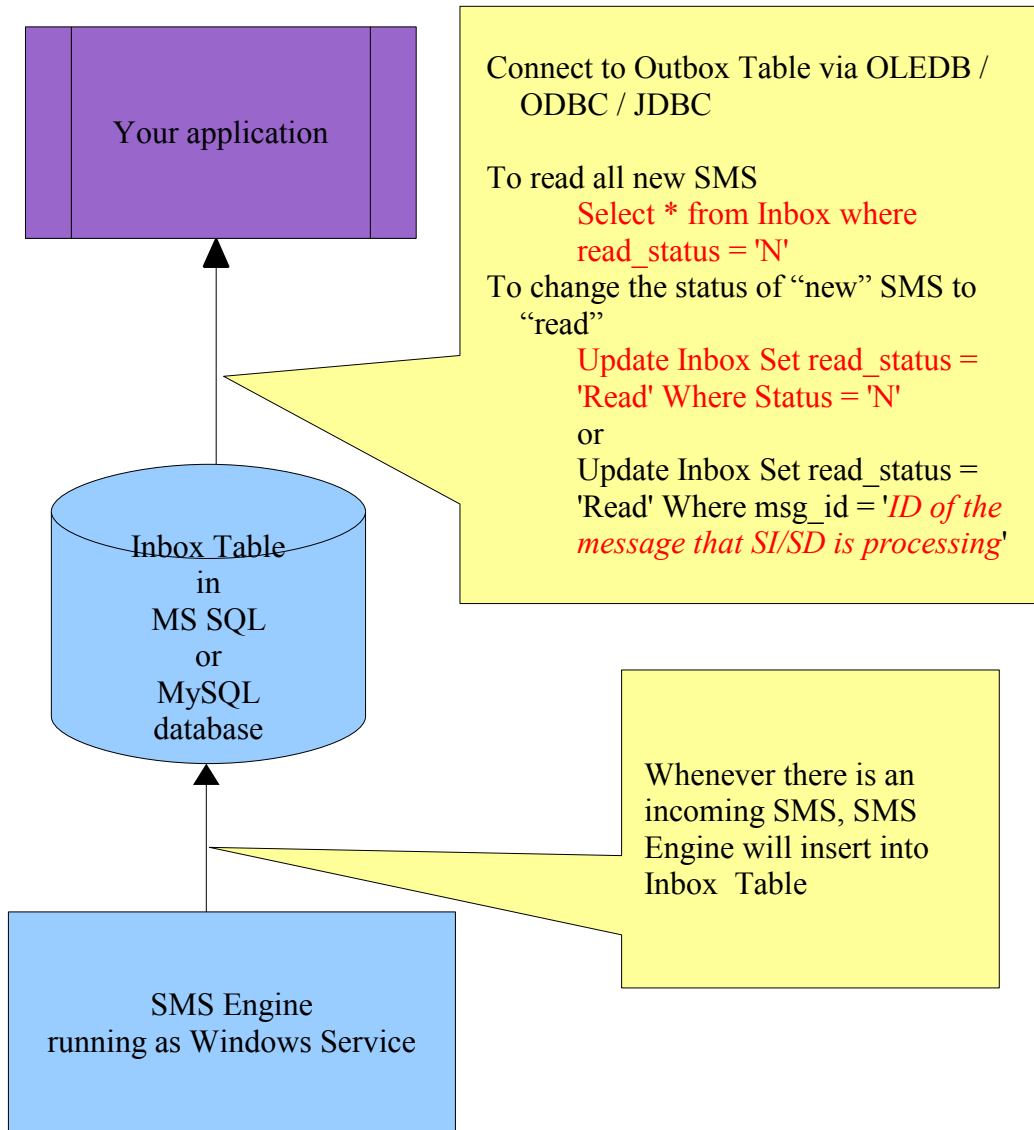


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Reading / Receiving SMS



9. INSTALLATION OF SMS Engine - Enterprise Edition

1. SMS Engine can be installed in these variations depending on your system design:-
 - d) **1:4:1** – install *SMS Engine* on 1 server connected with 4 units of *GSM Modem Type SGDK* and connected to 1 database
 - e) **2:2:2** – install *SMS Engine* on 2 servers; each server with 2 units of *GSM Modem Type SGDK*; 2 SMS Engines are connected to 2 different databases
 - f) **4:1:4** – install *SMS Engine* on 4 servers; each server with 1 units of *GSM Modem Type SGDK*; 4 SMS Engines are connected to 4 different databases

Note: For 2:2:2 configuration and 4:1:4 configuration, the database must be separated, i.e. centralised database is not supported.

2. To avoid confusion, we strongly recommend that you install according to **1:4:1 configuration**.
3. Install *Microsoft .NET Framework Version 2.0*
 - a) install it from the CD; or
 - b) download from (<http://www.microsoft.com/downloads/details.aspx?familyid=0856eacb-4362-4b0d-8edd-aab15c5e04f5&displaylang=en>)
4. Add a new database or use existing database.
5. Execute SQL script to add new tables to a new database or existing database.
 - a) For MS SQL database server, the sql script is "MSSQL.sql";
 - b) For MySQL database server, the sql script is "MySQL.sql".
6. The SQL script will generate 4 tables:
 - a) inbox
 - b) outbox
 - c) modem_state
 - d) retry_send

Note: Please make sure you have back-up your database before executing "smsengine.sql". We will not be held responsible for any data loss nor data corruption.

7. Install GSM modem.
 - a) For assistance, please view a video demonstration at http://www.mobitek.com.my/support/kb/Set-up_F10.htm
8. Determine the COM port number which the modem is connected to.
 - a) For assistance, please refer to <http://www.mobitek.com.my/support/kb/KB001.htm>
9. Install **SMS Engine - Enterprise Edition**.
 - a) Run the file "Setup_SMSEngine5.exe" (from CD).

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10. Using *Notepad*, edit the configuration file "config.xml", located at "C:\Program Files\SMS Engine Enterprise Edition\config.xml". The contents of config.xml is as follows:

```
<SMSConfig>
<!-- after editing this configuration file, save file, restart the service in order to
allow new setting to take effect -->
<RETRY_SEND>3</RETRY_SEND> <!-- enter a number; if "0" means no retry
-->
<ROUTING>FALSE</ROUTING> <!-- enter "TRUE" or "FALSE" -->

<MODEM_LIST>
  <MODEM>
    <ID>1</ID>
    <PORT>11</PORT>
    <ENABLED>true</ENABLED> <!-- enter "TRUE" or "FALSE" -->
    <MODE>B</MODE> <!-- enter "B" or "S" or "R" -->
    <TARGET_PREFIX>013,017</TARGET_PREFIX> <!-- use "comma" as
delimiter -->
  </MODEM>

  <MODEM>
    <ID>2</ID>
    <PORT>12</PORT>
    <ENABLED>FALSE</ENABLED>
    <MODE>B</MODE>
    <TARGET_PREFIX>013,017</TARGET_PREFIX>
  </MODEM>

  <MODEM>
    <ID>3</ID>
    <PORT>13</PORT>
    <ENABLED>FALSE</ENABLED>
    <MODE>B</MODE>
    <TARGET_PREFIX>013,017</TARGET_PREFIX>
  </MODEM>

  <MODEM>
    <ID>4</ID>
    <PORT>14</PORT>
    <ENABLED>FALSE</ENABLED>
    <MODE>B</MODE>
    <TARGET_PREFIX>013,017</TARGET_PREFIX>
  </MODEM>
</MODEM_LIST>

<DATASOURCE>
  <DBTYPE>MYSQL</DBTYPE> <!-- enter "MYSQL" or "MSSQL" -->
  <SERVER>localhost</SERVER>
  <USERNAME>root</USERNAME>
  <PASSWORD>root</PASSWORD>
  <DATABASENAME>smsengine5_1</DATABASENAME>

  <!-- only for MS SQL -->
  <AUTHMODE>WIN</AUTHMODE> <!-- enter "SQL" or "WIN" -->
</DATASOURCE>

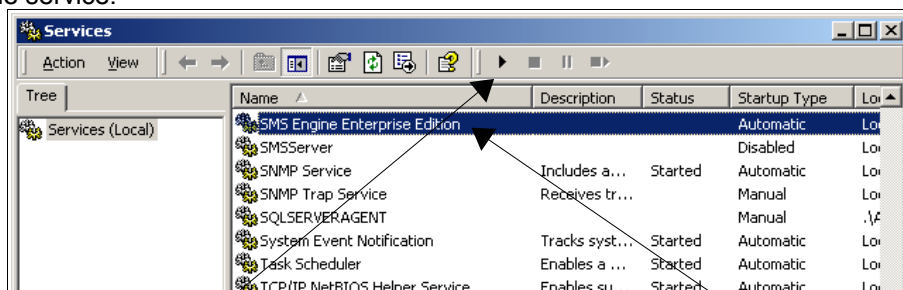
</SMSConfig>
```

11. This table describe the node:

| NODE | VALUE | DESCRIPTION |
|---|--|---|
| <RETRY_SEND>3</RETRY_SEND> | An integer, starting from 0 0: no retry 3: retry 3 times | Enter the number of retry in the event if SMS cannot be sent. The total number of sending is 1 + number of retry. This is a global setting that will affect all GSM modems. |
| <ROUTING>False</ROUTING> | "True" or "False" | Enter "false" to disable routing feature. Or "true" to enable it. This is a global setting that will affect all GSM modems. If it is set to "true", then the GSM modem will send SMS only to numbers with prefix according to <TARGET_PREFIX>017,012</TARGET_PREFIX>. |
| <MODEM> ... </MODEM> | N/A | Setting of each GSM modem. If there are 4 modems, then there must be 4 <MODEM> nodes |
| <ID>1</ID> | An integer, starting from 1 | <ID>1</ID> Enter the identity of GSM modem. |
| <PORT>9</PORT> | An integer, starting from 1 | COM port of which the GSM modem is connected. Please refer to "Device Manager > Ports" to find out the COM port numbers. COM port is NOT the numbering on the adapter which is 1, 2, 3, 4. |
| <ENABLED>>true</ENABLED> | "True" or "False" | To enable or disable the GSM modem. |
| <MODE>B</MODE> | "B", "R", or "S" | "B" – bi-directional or two way, read and send SMS; "R" – one way read SMS only; "S" – one way send SMS only |
| <TARGET_PREFIX>017,012</TARGET_PREFIX> | Numeric, if multiple prefix then separate with comma | Enter the prefix of mobile number. This modem will only SMS to numbers with prefix 017 and 012. Subject to <ROUTING>>true</ROUTING>. If <ROUTING>>false</ROUTING>, then prefix rule is not implemented. |
| <MODEM> <ID>1</ID> <PORT>9</PORT> <ENABLED>>true</ENABLED> <TARGET_PREFIX>017,012</TARGET_PREFIX> </MODEM> | N/A | Modem ID 1 is connected to COM port number 9. It is enabled, and it will only send SMS to numbers starting with 017 and 012 (provided that <ROUTING>>true</ROUTING>) |
| <DATASOURCE> ... </DATASOURCE> | N/A | Settings for <i>MS SQL Database Server</i> or <i>MySQL Database Server</i> |
| <DBTYPE>MYSQL</DBTYPE> | "MYSQL" or "MSSQL" | Type "MYSQL" if database server us MySQL. Type "MSSQL" if database server is MSSQL |

| NODE | VALUE | DESCRIPTION |
|------------------------------------|------------------------------------|---|
| <SERVER>192.168.1.66</SERVER> | IP address or name of server | If using <i>MS SQL Express Edition</i> then add a suffix – “\SQLEXPRESS” , e.g. 127.0.0.1\SQLEXPRESS |
| <USERNAME>sa</USERNAME> | User name | Login account of the database server |
| <PASSWORD>sa</PASSWORD> | Password | Login account of the database server |
| <DATABASENAME>SMSEE</DATABASENAME> | Name of the database | |
| <AUTHMODE>SQL</AUTHMODE> | “SQL” or “WIN” | “SQL” for SQL authentication mode; “WIN” for Windows authentication mode. |

12. Save “config.xml” after all changes are made.
13. Make sure that all GSM modems are powered on.
14. Start the service.



- a) Go to “Administrative Tools > Services”, look for service called “SMS Engine Enterprise Edition”, and click start.
 - b) At later stage, you can configure the service to start automatically at “Start-up type: Automatic”.
15. Open log file to see if service is successfully started.
 - a) Goto “C:\Program Files\SMS Engine Enterprise Edition\log”, log file is saved as “yyyy_mm_dd.log”.
 - b) Open current log file. If service is successfully started, then you will see this message:

```

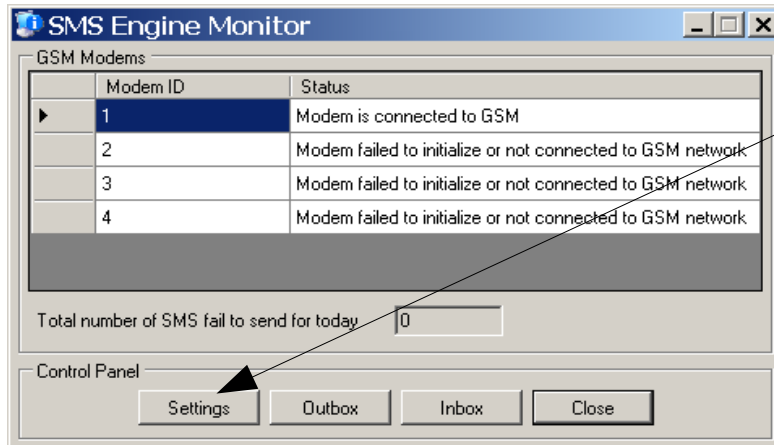
14:08:27 Modem with ID = 2 initialized
14:08:27 Modem with ID = 1 initialized
14:08:28 SMS Engine Enterprise Edition service started

```

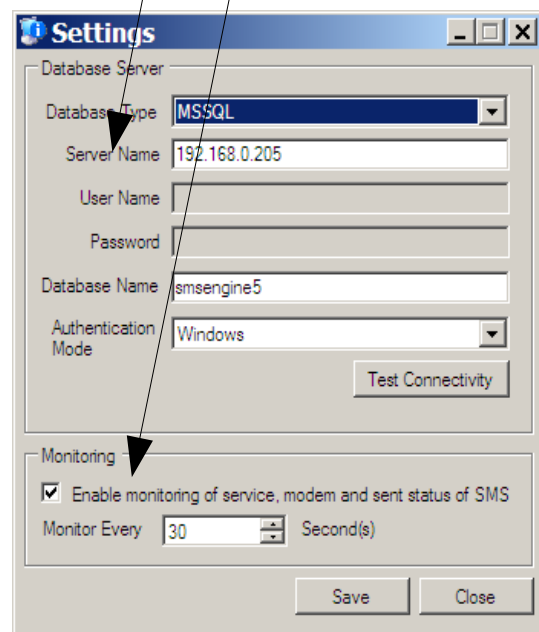
16. Please report any broken links on this section to support2007@mobitek.com.my

10. INSTALLATION OF SMS ENGINE MONITOR

1. Make sure you have successfully installed SMS Engine - Enterprise Edition.
2. Install SMS Engine Monitor
 - a) Run "Setup_SMSMonitor.exe"
3. Open SMS Engine Monitor



4. Click "Settings" button.
5. Configure the Database Server
6. Check to enable monitoring
7. Click "Save" button.

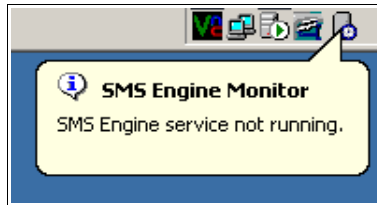


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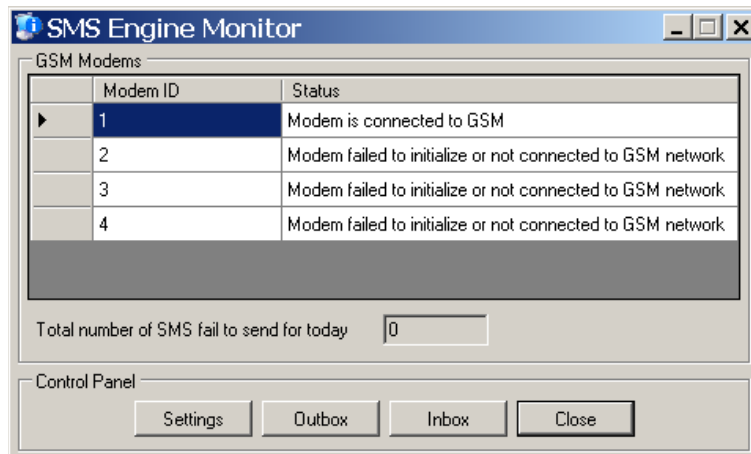
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11. ALERT MESSAGE DISPLAYED BY SMS ENGINE MONITOR



| <i>ALERT MESSAGE</i> | <i>POSSIBLE CAUSE</i> | <i>SOLUTION</i> |
|---------------------------------|---|--|
| SMS Engine service not running. | <ol style="list-style-type: none"> 1. Service is not started. | <ol style="list-style-type: none"> 1. Start the service. |
| GSM modem failure detected. | <ol style="list-style-type: none"> 1. GSM modem power is not turn on. 2. GSM modem not connected to server. 3. GSM modem not connected at the right COM port. 4. GSM modem not connected to GSM network due to account expire, SIM card is barred, SIM lock, etc. | <ol style="list-style-type: none"> 1. Check power. Check the red LED of modem, ensure it is blinking. 2. Check the USB cable, PCI cable, or serial cable. Make sure the connection is tight. 3. Check the COM port number. 4. Disable SIM lock by using mobile phone. Check the credit balance, ensure the account has credit. Check the validity of the SIM, ensure it is not barred. |
| SMS fail to send detected. | <ol style="list-style-type: none"> 1. One of more messages in Outbox table having sent_status = 'F'. | <ol style="list-style-type: none"> 1. Increase the value in <RETRY> |



| <i>ALERT MESSAGE</i> | <i>POSSIBLE CAUSE</i> | <i>SOLUTION</i> |
|---|---|--|
| Modem is connected to GSM | Modem is working fine. | |
| Modem fail to initialize or not connected to GSM network. | <ol style="list-style-type: none"> 1. GSM modem power is not turn on. 2. GSM modem not connected to server. 3. GSM modem not connected at the right COM port. 4. GSM modem not connected to GSM network due to account expire, SIM card is barred, etc. | <ol style="list-style-type: none"> 1. Check power. Check the red LED of modem, ensure it is blinking. 2. Check the USB cable, PCI cable, or serial cable. Make sure the connection is tight. 3. Check the COM port number. 4. Disable SIM lock by using mobile phone. Check the credit balance, ensure the account has credit. Check the validity of the SIM, ensure it is not barred. |
| Modem not enabled. | In "config.xml" file, the modem is set to: <ENABLE>FALSE</ENABLE> | |
| Modem is enabled but not in use. | In "config.xml" file, the modem is set to: <ENABLE>TRUE</ENABLE> but the <i>SMS Engine Service</i> is not started. | |

12. OUTBOX TABLE – SEND SMS

To send out SMS in text mode, the SQL statement is:

Insert into Outbox (msg_id, message, destination) values ('1', 'Hello!', '+60172233111')

To send out SMS having Chinese character, the SQL statement is:

Insert into Outbox (msg_id, message, destination, msgtype) values ('1', '你好', '+60172233111', 'U')

SMS Engine implements FIFO (first in first out) rule for processing messages to be send out. That is the 1st message that is inserted into the table will be the 1st message to be send out.

| FILED NAME | DATA TYPE | DESCRIPTION | REMARK |
|-----------------|--------------------------|---|---|
| msg_id | varchar (primary key) | Outgoing SMS unique identifier key. | Value required to send out SMS. |
| msg_ref | integer | Message reference given by the SMSC. | Automatically generated by SMS Engine. Reserved. Do not modified. |
| message | varchar | Outgoing message. Maximum length is 160 characters for text. If exceeded, then SMS Engine will truncate to 160 characters. Maximum length is 70 characters for Chinese. | Value required to send out SMS. If you want to send out this SMS as Chinese (Unicode) format, then you must insert a 'U' in the "msgtype" field. |
| datetime_queued | datetime | Date and time of outgoing SMS queued to be send. Format according to system's setting. | Automatically generated by SMS Engine. Reserved. Do not modified. |
| destination | varchar | Recipient's mobile number | Value required to send out SMS. The format must be '+country code then prefix then number' e.g. +60123477527 +6598770270 If you do not insert +country code, e.g. 0123477527, the message can still be send out but there will not be any delivery report. |
| sent_status | varchar | Status of outgoing SMS 'P' – Pending 'L' – Processing 'S' – Sent 'R' – Retry 'F' – Fail to send | Default value is 'P'. Automatically generated by SMS Engine. Reserved. Do not modified. |
| datetime_sent | datetime | Date and time of outgoing SMS being sent. | Automatically generated by SMS Engine. Reserved. Do not modified. |
| delivery_status | varchar | 'D' – delivered 'F' – fail to deliver 'U' – unknown status | Whenever there is a delivery status report from the network, it will be |

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| FILED NAME | DATA TYPE | DESCRIPTION | REMARK |
|--------------------|------------------|---|--|
| | | | automatically inserted by SMS Engine. Reserved. Do not modified. |
| datetime_delivered | datetime | Date and time of outgoing SMS being delivered to recipient. | Whenever there is a delivery status report from the network, it will be automatically inserted by SMS Engine. Reserved. Do not modified. |
| modem_id | varchar | Modem that sends out SMS. Correspond to the modem ID as described in "config.xml". | Automatically generated by SMS Engine. Reserved. Do not modified. |
| modem_retry | varchar | Modem that has tried to send out SMS but fail. E.g. If value is "1,2,3" it means that 3 modems with ID 1,2,3 have all tried to send out this message but fail to do so. This field is for the "fail-over" feature. | Automatically generated by SMS Engine. Reserved. Do not modified. |
| msg_type | varchar | To indicate whether to send out this SMS in text or Chinese (Unicode) format. | Default value is 'P'. Insert 'U' to send out SMS in Chinese format. |
| datetime_schedule | datetime | To indicate when this message/record is to be send. | Default value is the current date and time. Insert date and time if you want to schedule this message to be send out later. |

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13. INBOX TABLE – READ SMS

SQL Statement:

- To read all new SMS
Select * from Inbox where read_status = 'N'
- To change the status of new SMS to "read"
Update Inbox Set read_status = 'Read' Where Status = 'N'
or
Update Inbox Set read_status = 'Read' Where msg_id = 'ID of the message that SI/SD is processing'

| FILED NAME | DATA TYPE | DESCRIPTION | REMARK |
|---------------|-----------|--|---|
| msg_id | varchar | Incoming SMS unique identifier key. | Automatically generated by SMS Engine. Reserved. Do not modified. |
| message | varchar | Incoming SMS. Maximum of 160 characters. | Whenever there is an incoming SMS, it will be automatically inserted by SMS Engine. Reserved. Do not modified. |
| datetime_recv | datetime | Date and time of incoming SMS received by server. | Whenever there is an incoming SMS, it will be automatically inserted by SMS Engine. Reserved. Do not modified. |
| receive_from | varchar | Sender Mobile number of incoming SMS . | Whenever there is an incoming SMS, it will be automatically inserted by SMS Engine. Reserved. Do not modified. |
| read_status | varchar | Status of incoming SMS. 'N' – New (default value) | Whenever there is an incoming SMS, 'N' will be automatically inserted by SMS Engine. SI/SD can change the value after reading the SMS. Value can be modified. |
| modem_id | varchar | Modem that receives incoming SMS. Correspond to the modem ID as described in "config.xml". | Automatically generated by SMS Engine. Reserved. Do not modified. |
| scts | datetime | Date and time of incoming SMS received by SMS centre. It is NOT the date, and time of the server. | Automatically generated by SMS Engine. Reserved. Do not modified. |

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14. RETRY_SEND TABLE

This table is used for logging number of retries for a message.

| FILED NAME | DATA TYPE | DESCRIPTION | REMARK |
|-------------------|---------------------|--|---|
| id | automatic increment | | Automatically generated by SMS Engine. Reserved. Do not modified. |
| msg_id | varchar | The message ID of the outbox table. [outbox].[msg_id] | Automatically generated by SMS Engine. Reserved. Do not modified. |
| modem_id | varchar | The modem used for retrying Correspond to the modem ID as described in "config.xml". | Automatically generated by SMS Engine. Reserved. Do not modified. |
| total_retry | integer | Number of retries done by the particular modem. The number should be less than or equal to <RETRY_SEND>3</RETRY_SEND> as described in "config.xml". | Automatically generated by SMS Engine. Reserved. Do not modified. |

For example, if a record with ID "118" has this value:-

| FILED NAME | VALUE |
|-------------------|--------------|
| id | 118 |
| msg_id | A3210 |
| modem_id | 1 |
| total_retry | 3 |

It means – modem with ID number 1 had retried 3 times to send out the message having ID "A3210".

15. FREQUENTLY ASKED QUESTIONS

Last updated on 29th of October, 2008.

Q: The log file is good for trouble shooting. Any setting for us to control the size of the file?

A: It is good to keep log for audit and trouble shooting purposes. And nowadays, server has large hard disk capacity, so the log file hogging space is not an issue.

Q: The service will always try to initialise with GSM modem. What about database connection? What if the service started before SQL Server started? Will the service try to re-connect with SQL server?

A: Yes, it will. When the SMS Engine Enterprise Edition service is started, it will always try to initialise the GSM modem, and will always try to connect to SQL server.

In order that the service is not stopped (for whatever reasons), goto "Administrative Tools > Services", right click on "SMS Engine > Properties > Recovery tab".

Under "First failure:" select "Restart service"

Under "Second failure:" select "Restart service"

Under "Subsequent failures:" select "Restart service"

This will make sure that the *SMS Engine – Enterprise Edition* service is always running, and it will always attempt to initialise the GSM modem and to connect to the database.

However, if your *MS SQL Server* fails, then not only *SMS Engine – Enterprise Edition* will not run properly, other applications are affected as well. Therefore, it is your responsibility to ensure *MS SQL Server* does not fail.

Q: Can I modify the structure database or tables?

A: It is important that the database schema or structure of 3 tables (inbox, outbox, modem_state) are intact. You must not modify the fields nor data type. Otherwise the SMS Engine will fail to operate properly.

You must use the SQL script provided to create 3 tables, and you must back-up your database before you do so. We do not assume any liability if there are any data corruption or data loss.

Q: How does the SMS Engine process each record in outbox table in order to send out SMS?

A: The process flow is as follows

P > L > S

or

P > L > R > S

or

P > L > R > F

The final value is either 'S' or 'F'.

Note: System Integrator must not enter any values into "sent_status" field, doing so will disrupt the flow or will cause SMS Engine to process the record improperly.

Q: Do I need to enter "P" in "sent_status" field?

A: You do not need to enter the value 'P' for "sent_status", it is automatically inserted. The SMS Engine will automatically update the "sent_status" field.

Q: May we know how to sequence the SMS Engine process the records in "outbox" table? In other

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words, which message is sent out first.

A: The rule for processing record in "outbox" table is **FIFO**. The first record inserted into "outbox" table will be the 1st record sent out.

Q: In the "outbox" table, I notice this field "modem_retry = 1,2,3". What does it mean?

A: "modem_retry" means modem that has tried to send out SMS but fail. Value "1,2,3" means that 3 modems with ID 1,2,3 have all tried to send out this message but fail to do so. This field is use by SMS Engine for its "fail-over" feature.

The "outbox" table will not log the number of times a message has been retried.

Q: What is the delay for next retry?

A: There is no delay nor "sleep", it will retry immediately.

Note: if you have 3 records in outbox, if the 1st record fail to send out, it will retry until the number of times stated in <RETRY_SEND>3</RETRY_SEND> before moving to 2nd record, will do the same, before moving to 3rd record.

Q: What is the purpose of "modem_state" table?

A: You must not touch the "modem_state" table, it is irrelevant to your application.

Q: Can we have a centralised database if we install the SMS Engine in a 2x2 configuration?

A: The current SMS Engine – Enterprise Edition **does not support centralised database**. I.e. if 2 or more **Engines** are installed on different servers, then each **Engine** must have its own database.

Nevertheless, if you need a "centralised database mode", we are able to develop a special edition with a centralised queue manager. Please let us know, we will quote the license fee to you.

An alternative solution is that your application will manage the queue — you will decide whether to insert record into "database 1" or "database 2".

Q: Will you be releasing a SMS Engine - Enterprise Edition that will work on Windows 64bit very soon?

A: No. But there is a solution. Install a **virtual machine** in 64 bit machine. Install Windows 32 bit inside virtual machine. Install SMS Engine – Enterprise Edition inside virtual machine. List of recommended virtual machine:

- VMware Server (<http://www.vmware.com/products/server/>)
- Microsoft Virtual PC 2007 (<http://www.microsoft.com/windows/downloads/virtualpc/default.msp>)
- Microsoft Virtual Server 2005 (<http://www.microsoft.com/windowsserversystem/virtualserver/>)

Guide on using serial port on VMWare --

http://www.vmware.com/support/ws3/doc/ws32_devices3.html

Guide on using serial port on Microsoft Virtual Server 2005 --

<http://www.microsoft.com/windowsserversystem/virtualserver/evaluation/virtualizationfaq.msp>

Look under "Q. Is there a list of the Virtual Server 2005 R2 emulated hardware?"

Note:-

1. We have not tested SMS Engine running in an environment as described above. Therefore you are responsible for configuring virtual machine and request support from the vendor of virtual machine.

2. A customer our ours have successfully run SMS Engine on this system configuration:-

- *Host server -- windows 2003 Server (64 bit)*
- *Install Microsoft Virtual PC 2007 in windows 2003 Server (64 bit)*
- *Install windows XP Pro (32 bit) inside Virtual PC 2007*
- *Install SMS Engine in windows XP Pro (32 bit)*

Some advice on migrating SMS Engine from 32 bit to virtual machine in 64 bit machine:-

- do not migrate all data (inbox table and outbox table) over to virtual machine first
- if required, install USB driver (that comes with the USB converter) and connect the GSM modem to 64 bit machine, and configure virtual machine to see if it can detect a new "COM port" in "Device Manager > Ports"
- do not look in "Device Manager > Modems", it will not show as "modem"
- install a copy of SMS Engine in virtual machine with Win 2003 server
- run a test to see if it can send and receive SMS
- if test result is ok, then only migrate over to virtual machine

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16. TIPS

These are import factors to ensure SMS Engine operates smoothly:

1. GSM modem with SIM card connected to server
2. config.xml properly configured
3. SQL script is executed, and 3 tables (inbox, outbox, modem_state) are created or added to your preferred database name
4. SMS Engine service is started
5. Other factors which are beyond are our control that will also affect SMS Engine are:
 - a) whether MS SQL server is running
 - b) whether network is running, and firewall is opened for SMS Engine (if database server and SMS Engine are on separate machines)
 - c) whether there is database connection
 - d) whether PC / server / Windows is running
 - e) whether GSM network TELCO is running
 - f) whether SIM card is barred
 - g) whether SIM card has money

17. TERMS AND CONDITIONS ON SUPPORT

Please write to support2007@mobitek.com.my with:

1. company name
2. invoice number (located at back of modem)
3. version number of the SMS Engine - Enterprise Edition (right click on "C:\Program Files\SMS Engine Enterprise Edition\SMSSvc.exe", select "Properties > Version tab")
4. attach log file (located at "C:\Program Files\SMS Engine Enterprise Edition\log")
5. attach screen capture

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18. APPENDIX 1: GUIDE TO ADD 1 OR MORE GSM MODEM TO EXISTING SMS ENGINE

As 1 copy of SMS Engine comes with 4 modem access license (MAL), it can only control up to 4 GSM modems. If you begin with 1 GSM modem, and later you want to add 1 or more, please follow these steps:

1. Stop "SMS Engine Enterprise Edition" service.
2. Back-up your database.
3. Back-up the CD (SMS Engine – Enterprise Edition), as there is no download link on our web site. You need the CD if you want to roll-back or restore.
4. Switch off the power to all existing GSM modems.
5. Connect additional or new GSM modem to server / machine.
6. Run the set-up file -- "Add.exe"
7. Use notepad (any text editor) to edit "config.xml" by adding 1 or more <MODEM> node. Refer to **text highlighted in yellow** at table below. Save file after changes are made.

```
<MODEM_LIST>
  <MODEM>
    <ID>1</ID>
    <PORT>5</PORT>
    <ENABLED>>true</ENABLED>
    <TARGET_PREFIX></TARGET_PREFIX>
  </MODEM>

  <MODEM>
    <ID>2</ID>
    <PORT>6</PORT>
    <ENABLED>>true</ENABLED>
    <TARGET_PREFIX></TARGET_PREFIX>
  </MODEM>

</MODEM_LIST>
```

8. Switch on power to all GSM modems.
9. Make sure that all the GSM modems' red LED is blinking.
10. Start the service.
11. Open log file to see if service is successfully started and all modems are initialised. Goto "C:\Program Files\SMS Engine Enterprise Edition\log", log file is saved as "yyyy_mm_dd.log".

```
(time stamp) Modem with ID = 1 initialized
(time stamp) Modem with ID = 2 initialized
(time stamp) SMS Engine Enterprise Edition service started
```

19. APPENDIX 2: GUIDE TO INCREASE MODEM ACCESS LICENSE FROM 4 TO 8

This section applies if you are increasing the number of GSM modem from 4 to 8 units.

As 1 copy of SMS Engine comes with 4 modem access license (MAL), it can only control up to 4 GSM modems. To add more modem, you need to purchase 1 additional copy which will allow you to control up to 8 GSM modems (4 MAL x 2).

1. Stop SMS Engine service.
2. Back-up your database.
3. Back-up your "config.xml" file. E.g. Rename the file to "config_backup.xml".
4. Uninstall **SMS Engine – Enterprise Edition**.
5. Switch off the power to all GSM modems.
6. Connect 1 or more additional GSM modems to the server/PC. If your server does not have enough serial port, it is highly recommended to purchase *1 PCI to 4 serial port expansion card* from us.
7. Run the new set-up file "SMSService.exe" in the CD.
8. Rename "config_backup.xml" to "config.xml". This will preserve your configuration.
9. Use notepad (any text editor) to edit "config.xml" by adding 1 or more <MODEM> node. Refer to **text highlighted in yellow** at table below. Save file after changes are made.

```
<MODEM_LIST>
  <MODEM>
    <ID>1</ID>
    <PORT>5</PORT>
    <ENABLED>true</ENABLED>
    <TARGET_PREFIX></TARGET_PREFIX>
  </MODEM>

  <MODEM>
    <ID>2</ID>
    <PORT>6</PORT>
    <ENABLED>true</ENABLED>
    <TARGET_PREFIX></TARGET_PREFIX>
  </MODEM>

  <MODEM>
    <ID>3</ID>
    <PORT>7</PORT>
    <ENABLED>true</ENABLED>
    <TARGET_PREFIX></TARGET_PREFIX>
  </MODEM>

  <MODEM>
    <ID>4</ID>
    <PORT>8</PORT>
    <ENABLED>true</ENABLED>
    <TARGET_PREFIX></TARGET_PREFIX>
  </MODEM>

  <MODEM>
    <ID>5</ID>
    <PORT>9</PORT>
    <ENABLED>true</ENABLED>
    <TARGET_PREFIX></TARGET_PREFIX>
  </MODEM>

  <MODEM>
    <ID>6</ID>
    <PORT>10</PORT>
    <ENABLED>true</ENABLED>
    <TARGET_PREFIX></TARGET_PREFIX>
  </MODEM>

  <MODEM>
    <ID>7</ID>
    <PORT>11</PORT>
  </MODEM>
```

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```
<ENABLED>true</ENABLED>  
<TARGET_PREFIX></TARGET_PREFIX>  
</MODEM>  
  
<MODEM>  
<ID>8</ID>  
<PORT>12</PORT>  
<ENABLED>true</ENABLED>  
<TARGET_PREFIX></TARGET_PREFIX>  
</MODEM>  
  
</MODEM_LIST>
```

10. Switch on power to all GSM modems.
12. Make sure that all the GSM modems' red LED is blinking.
13. Start the service.
14. Open log file to see if service is successfully started and all modems are initialised. Goto "C:\Program Files\SMS Engine Enterprise Edition\log", log file is saved as "yyyy_mm_dd.log".

```
(time stamp) Modem with ID = 1 initialized  
(time stamp) Modem with ID = 2 initialized  
(time stamp) Modem with ID = 3 initialized  
(time stamp) Modem with ID = 4 initialized  
(time stamp) Modem with ID = 5 initialized  
(time stamp) Modem with ID = 6 initialized  
(time stamp) Modem with ID = 7 initialized  
(time stamp) Modem with ID = 8 initialized  
(time stamp) SMS Engine Enterprise Edition service started
```

20. APPENDIX 3: RELEASE NOTE

Version 3.1

1. dateTime_sent -- only record time when "sent_status = S".
2. Retry -- pause for 2 seconds before retrying. Previously, Engine will retry immediately
3. Retry Value default is 0. Previously, default value is 3.
4. dateTime_queue -- automatically insert current date and time of the system
5. Queue Manager will not assign any record to modem that is not connected with GSM network. Effective, this will increase the speed of sending out SMS. Previously, it will, and this result in slow down of the speed.

Version 3.2

1. Improve speed of sending out SMS. Previously, **SMS Engine** would read all incoming messages from memory of SIM card before processing records in outbox table. Now, it will only read for a maximum of 3 messages, and then process records in outbox table.

Version 3.3

1. Do away with Windows registry for both **SMS Engine** and **SMS Monitor**.

Version 5.1

1. Configure the direction of individual modem:-
 - a) 2 way send and read SMS;
 - b) 1 way read SMS; or
 - c) 1 way send SMS.
2. Add scheduling of message/record.
3. Previously in version 3, two separate set-up files are required for each SQL database server. In version 5, both files are combined into one set-up file that can support either MS SQL or MySQL database server.
4. Field names have been changed

| TABLE | OLD FIELD NAME | NEW FIELD NAME |
|--------------|-----------------------|-----------------------|
| OUTBOX | mrf | msg_ref |
| OUTBOX | msgtype | msg_type |

Version 5.2

1. Do away with Windows registry for both **SMS Engine** and **SMS Monitor**.

Version 5.3

1. The current matching criteria for delivery status report is "message reference" and "mobile number", change the criteria to "message reference" and the last 6 digit of mobile number.
2. Bug Fixed – **SMS Engine** has successfully initialize the modem, it did not log "Modem with ID = 1 initialized" in text file but update [modem_state].[status] to 2, this happen if there are 2 or more modems.

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Version 5.4

1. Bug Fixed – each modem's thread writes to a log file, but will cause I/O error if 2 or more threads try to open and write the log file at the same time.