

Developing a SMS Gateway by Using Java with SMS Engine

Guide for System Integrator & Software Developer

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6th Floor, Suite 16, IOI Business Park, Persiaran Puchong Jaya Selatan, Bandar Puchong Jaya, Puchong 47100, Selangor, Malaysia.

Tel: 03-80644288 Fax: 03-80642109 Web: www.mobitek.com.my

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REVISION HISTORY

<i>EDITION</i>	<i>ISSUED DATE</i>	<i>REMARK</i>
1 st	9 th of July, 2007	Draft release
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INTRODUCTION

SMS Engine is a Windows application 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** uses MS Access database – “SMSEngine3.mdb” 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** has taken care all SMS transactions.

Java programmers can develop a SMS Gateway or SMS application by using Java with SMS Engine. Java programmers need only to interact with the database via JDBC to send and read SMS. A sample code written in Java -- “**SMSEngine.java**” is provided with the **SMS Engine**. Java programmers can freely use, or modify the code.

REQUIREMENTS

1. SI/SD must posses knowledge of Java programming, JDBC, and SQL statement
2. GSM modem
3. SMS Engine
4. PC running on Windows OS

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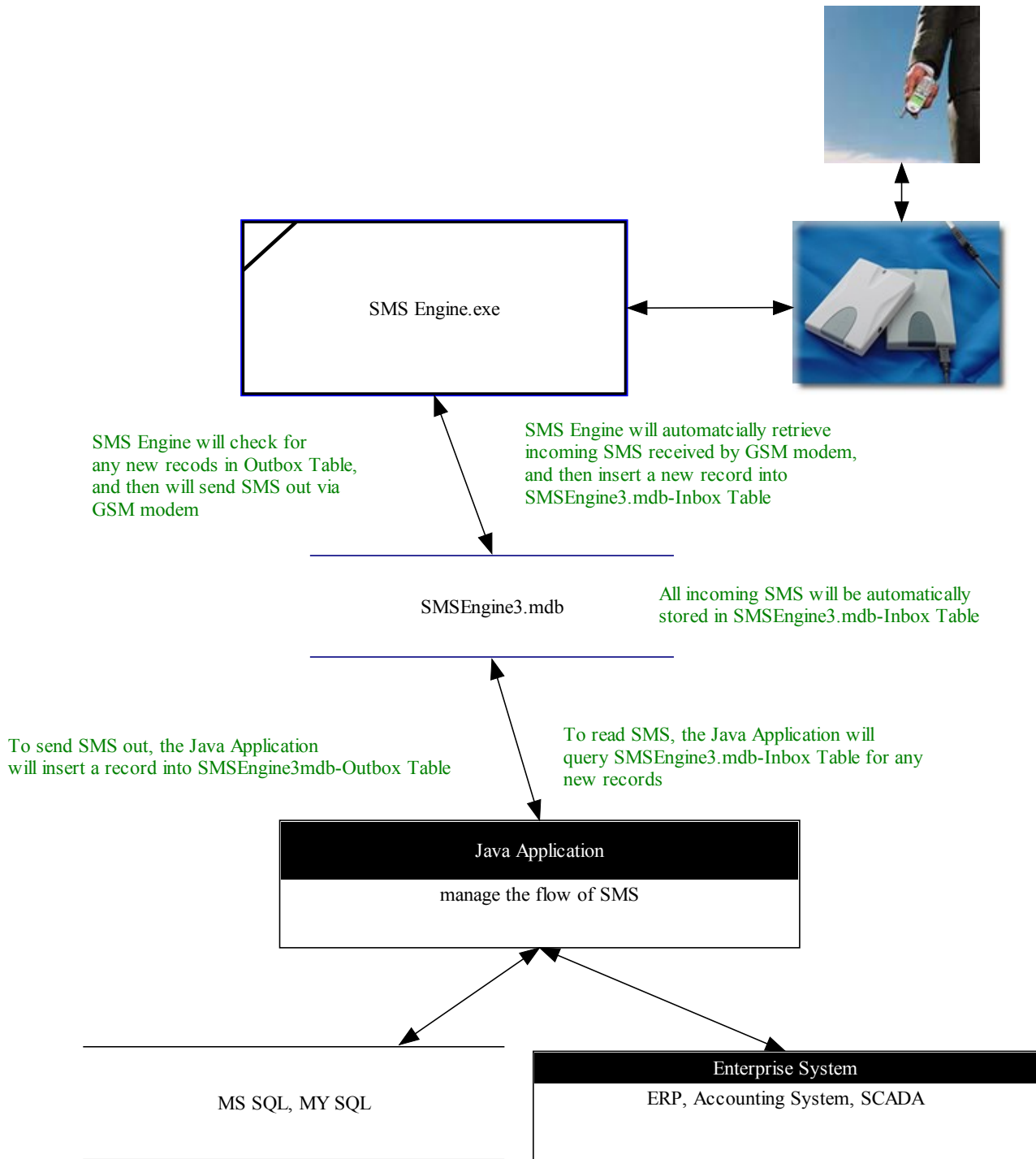
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SYSTEM ARCHITECTURE DIAGRAM



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INSTALLATION

1. Connect the GSM modem (refer to installation guide in the CD).
2. Copy the Java sample code "SMSEngine.java" to your own folder.
3. Use any IDE (in our example, we will used Eclipse) to open the sample code.
4. Configure an ODBC connection, call it "SMSENGINE", connects to "SMSEngine3.mdb".
5. Click "run" to run the sample code to send out SMS and to receive SMS.

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JAVA SAMPLE CODE

```
/*
```

```
=====
```

```
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```

```
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```

```
ACKNOWLEDGEMENT
```

```
Mr. Aizuddin Aizat B. Abdul Rahman (student of MULTIMEDIA UNIVERSITY  
MALAYSIA) is the author of this sample code.
```

```
TERMS AND CONDISTIONS
```

```
This sample code is to be used with SMS Engine. SMS Engine is one of the  
development tool in MOBITEK SMS Gateway Development Kit
```

```
1. License condition - you are allowed to use, modify, distribute, this Java  
code for free
```

```
2. This source code is provided on "as-is" basis. No warranty nor support is  
provided on the use of the code
```

```
3. BY USING THIS CODE, YOU ASSUME ALL THE RISK AND RESPONSIBILITY
```

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4. MOBITEK System Sdn. Bhd. EXPRESSLY DISCLAIMS ANY WARRANTIES
```

```
5. MOBITEK System Sdn. Bhd. SHALL NOT BE LIABLE TO YOU OR ANYONE ELSE FOR ANY  
LOSS OR DAMAGES WHATSOEVER
```

```
=====
```

```
*/
```

```
import java.sql.*;
```

```
import javax.swing.*;
```

```
import java.awt.*;
```

```
import java.awt.event.*;
```

```
import java.util.*;
```

```
public class SMSEngine extends JFrame{
```

```
    private JTable DataTable;
```

```
    private Connection Database;
```

```
    String url = "jdbc:odbc:SMSENGINE";
```

```
    Statement DataRequest;
```

```
    ResultSet Results;
```

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```
//to send out SMS
public void SendMsg(){
    try{
        Class.forName("sun.jdbc.odbc.JdbcOdbcDriver");
        Database = DriverManager.getConnection(url);
    }
    catch(ClassNotFoundException error){
        System.err.println("Unable to load JDBC/ODBC bridge" +
error);
        System.exit(1);
    }
    catch(SQLException error){
        System.err.println("cannot connect to the database " +
error);
        System.exit(2);
    }

    try{
        String query = "INSERT INTO Outbox(Message, Mobile,
DateTimeQueue,SentStatus)" +
                        " VALUES('Alert', '0163311600', '07/04/2007
03:20pm', 'P')";
        DataRequest = Database.createStatement();
        DataRequest.executeQuery(query);
        DataRequest.close();
    }
    catch(SQLException error){
        System.err.println("SQL Error" + error);
    }
}

//to read incoming SMS
public void ReceiveMsg(){

    try{
        Class.forName("sun.jdbc.odbc.JdbcOdbcDriver");
        Database = DriverManager.getConnection(url);
```

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```
    }
    catch(ClassNotFoundException error){
        System.err.println("unable to load the JDBC/ODBC bridge" +
error);
        System.exit(1);
    }
    catch(SQLException error){
        System.err.println("Cannot connect to database " + error);
        System.exit(2);
    }
    try{
        String query = "Select Message From Inbox WHERE Status =
'New'";

        DataRequest = Database.createStatement();
        Results = DataRequest.executeQuery(query);
        DisplayResults(Results);
        DataRequest.close();
        Update();

    }
    catch(SQLException error){
        System.err.println("SQL error" + error);
        System.exit(3);
    }
    setSize(500, 200);
    show();
}

//to dsplay incoming SMS in a table
private void DisplayResults(ResultSet DisplayResults) throws
SQLException
{
    boolean Records = DisplayResults.next();
    if (!Records)
    {
```

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```
JOptionPane.showMessageDialog(this, "End of Data");
setTitle("Process Completed");
return;
}
setTitle("Inbox");
Vector ColumnNames = new Vector();
Vector rows = new Vector();

try{
    ResultSetMetaData metaData =DisplayResults.getMetaData();
    for (int x = 1; x<= metaData.getColumnCount(); ++x)
        ColumnNames.addElement(metaData.getColumnName(x));
    do{
        rows.addElement(DownRow (DisplayResults, metaData));
    }while(DisplayResults.next());
    DataTable = new JTable (rows, ColumnNames);
    JScrollPane Scroller = new JScrollPane (DataTable);
    getContentPane().add(Scroller, BorderLayout.CENTER);
    validate();
}
catch(SQLException error){
    System.err.println("Data Display error" + error);
    System.exit(4);
}
}

private Vector DownRow(ResultSet DisplayResults, ResultSetMetaData
MetaData)throws SQLException
{
    Vector currentRow = new Vector();
    for (int x = 1; x<=MetaData.getColumnCount();x++)
        switch(MetaData.getColumnType(x)) {
        case Types.VARCHAR:
            currentRow.addElement(DisplayResults.getString(x));
            break;

```

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```
    }
    return currentRow;
}
public void Disconnect(){
    try{
        Database.close();
    }
    catch(SQLException error){
        System.err.println("cannot break connection" + error);
        System.exit(5);
    }
}

//update the inbox from new to old
public void Update(){
    try{

        String qs = "UPDATE Inbox " +
                    "SET Status = 'Old' WHERE Status = 'New'";
        DataRequest = Database.createStatement();
        Results = DataRequest.executeQuery(qs);
        DataRequest.close();
    }
    catch(SQLException error){
        System.err.println("SQL Error" + error);
    }
}

/* Main sub for send and read SMS
public static void main(String[] args) {
    // TODO Auto-generated method stub

    final SMSEngine link =new SMSEngine();

    //send sms
```

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```
link.SendMessage();

//read sms
link.ReceiveMsg();

//exit button
link.addWindowListener(
    new WindowAdapter(){
        public void windowClosing(WindowEvent
Winevent)
        {
            link.Disconnect();
            System.exit(0);
        }
    }
);
}
*/
}
```

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JDBC

String url = "jdbc:odbc:SMSENGINE";

- The first thing you need to change here is the name of your database you name it in ODBC. In this example the name of the database in ODBC is "SMSENGINE".
- Example, String url = "jdbc:odbc:**SMSENGINE**"

SENDING SMS

String query = "INSERT INTO Outbox(Message, Mobile, DateTimeQueue,SentStatus) VALUES ('Alert', '0163311600', '07/04/2007 03:20pm', 'P')";

To send SMS, you need to insert a record with 4 values:

1. (**Alert**, ' 0163311600 ', ' 07/04/2007 3:20PM ', 'P')
 - Here is where you put your message. In the example above we use **Alert** as our message
2. (Alert', '**0163311888**', ' 07/04/2007 3:20PM ', 'P')
 - Here is where you put your the recipient mobile number.
3. ('Alert', ' 0163311600 ', '**07/04/2007 3:20PM**', 'P')
 - The date and the time you want to sent the message will be put here.
 - You must use the PC's setting for value of date and time.
4. ('Alert', ' 0163311600 ', ' 07/04/2007 3:20PM ', '**P**')
 - This is where you put your message status. If you want to sent message you have to insert **P** (pending) as your parameter.

RECEIVING SMS

String query = "Select Message From Inbox WHERE Status = 'New'"

- This is where you put your SQL command. The SQL statement will retrieve all new messages from the "Inbox" table.

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MAIN PROGRAM

In the main program you can choose whether to :

1. Send Message

- if you want to sent the message only, you have to comment/disable the line of code:

```
link.ShowTable();
link.addWindowListener(
    new WindowAdapter() {
        public void windowClosing(WindowEvent Winevent)
        {
            link.Disconnect();
            System.exit(0);
        }
    });
```

2. Receive Message

- if you just want to show the content of the table only, you have to comment/disable the code `link.SendMsg();`

3. Send and Receive Message

- If you want to do both simultaneously, don't comment/ disable anything.

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TERMS AND CONDITIONS ON THE USE OF THE JAVA SOURCE CODE

Acknowledgement: Mr. Aizuddin Aizat B. Abdul Rahman (student of MULTIMEDIA UNIVERSITY MALAYSIA) has contributed to the development of this source code and programme.

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