

OTA MMS SETTINGS

Version 1.0

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1. GENERAL

The following document describes how to compose and send Multimedia Messaging (MMS) settings to Nokia MMS-capable handsets over the air (by using short message). Chapter 2 illustrates how the XML document is formed and Chapter 3 describes how the XML document should be converted to a binary string. The final chapter provides an example of how the encoded binary XML is transferred using two short messages.

This document also includes Multimedia Messaging settings and Access Point settings.

2. XML DOCUMENT CONTENT

The structure of MMS settings is always illustrated in the form of an XML document, as the example below demonstrates. The CHARACTERISTICS element groups the browser settings into logical units (ADDRESS, ID, URL, NAME, MMSURL, and BOOKMARK). The PARM elements are used to provide actual values for the individual setting parameters within each CHARACTERISTICS element.

```
<?xml version="1.0"?>
<!DOCTYPE CHARACTERISTIC-LIST SYSTEM "/DTD/characteristic_list.xml">
<CHARACTERISTIC-LIST>
  <CHARACTERISTIC TYPE="ADDRESS">
    <PARM NAME="BEARER" VALUE="GPRS"/>
    <PARM NAME="PROXY" VALUE="123.123.123.123"/>
    <PARM NAME="PORT" VALUE="9201"/>
    <PARM NAME="GPRS_ACCESSPOINTNAME" VALUE="mmsc.nokianokianok.com"/>
    <PARM NAME="PPP_AUTHTYPE" VALUE="PAP"
  </CHARACTERISTIC>
  <CHARACTERISTIC TYPE="MMSURL" VALUE="http://mmsc.com"/>
  <CHARACTERISTIC TYPE="NAME">
    <PARM NAME="NAME" VALUE="MMS NOKIA GPRS"/>
  </CHARACTERISTIC>
</CHARACTERISTIC-LIST>
```

3. BINARY ENCODED XML DOCUMENT

The XML document must be converted to binary form; it is binary encoded according to the WBXML (WAP Binary XML Content Format) specification, which is available at <http://www.openmobilealliance.org/>. Information can also be found in the Over-the-Air Settings Specification v 7.0, from Forum Nokia, at <http://www.forum.nokia.com>.

NOKIA

OTA MMS Settings

Version 1.0

```

01 06 2C 1F 2A 61 70 70 6C 69 63 61 74 69 6F 6E
2F 78 2D 77 61 70 2D 70 72 6F 76 2E 62 72 6F 77
73 65 72 2D 73 65 74 74 69 6E 67 73 00 81 EA 01
01 6A 00 45 C6 06 01 87 12 49 01 87 13 11 03 31
32 33 2E 31 32 33 2E 31 32 33 2E 31 32 33 00 01
87 14 61 01 87 1C 11 03 6D 6D 73 63 2E 6E 6F 6B
69 61 6E 6F 6B 69 61 6E 6F 6B 2E 63 6F 6D 00 01
87 22 70 01 01 86 7C 11 03 68 74 74 70 3A 2F 2F
6E 6F 6B 69 61 6E 2E 6F 6B 69 61 6E 6F 6B 69 61
6E 6F 6B 69 61 2E 63 6F 6D 3A 38 30 30 32 2F 00
01 C6 08 01 87 15 11 03 4D 4D 53 20 4E 4F 4B 49
41 20 47 50 52 53 00 01 01 01

```

Table 2

01 = Push ID

06 = PDU Type (push)

2C = Headers length (content type + headers)

1F 2A Value length

```

61 70 70 6C 69 63 61 74 69 6F 6E 2F 78 2D 77 61 70 2D 70 72 6F 76 2E 62 72 6F 77 73 65 72
2D 73 65 74 74 69 6E 67 73 = MIME-Type= application/x-wap-prov.browser-settings

```

00 = end inline string

81 EA = Char set (UTF-8 short int.)

01 01 = Version WBXML 1.1

6A = Char set (UTF-8)

00 = String table length

45 = CHARACTERISTIC-LIST with content

C6 = CHARACTERISTIC with content and attributes

06 = TYPE=ADDRESS

01 = END PARMeter

87 = PARM with attributes

12 = NAME=BEARER

49 = VALUE=GPRS

01 = END PARMeter

87 = PARM with attributes

13 = PROXY

11 = VALUE

03 = Inline string

```

31 32 33 2E 31 32 33 2E 31 32 33 2E 31 32 33 = 123.123.123.123

```

00 = end inline string

01 = END PARMeter

87 = PARM with attributes

14 = PORT

61 = token for port number 9201

01 = END PARMeter

87 = PARM with attributes

1C = GPRS_ACCESSPOINTNAME

11 = VALUE

```

6D 6D 73 63 2E 6E 6F 6B 69 61 6E 6F 6B 69 61 6E 6F 6B 2E 63 6F 6D = mmsc.nokianokianok.com

```

00 = end inline string

```

01 = END PARMeter
87 = PARM with attributes
22 = NAME=PPP_AUTHTYPE
70 = VALUE=PAP
01 = END PARMeter
01 = END PARMeter
86 = CHARACTERISTIC-LIST with attributes
C7 = TYPE=MMSURL
11 = VALUE
68 74 74 70 3A 2F 2F 6E 6F 6B 69 61 6E 2E 6F 6B 69 61 6E 6F 6B 69 61
6E 6F 6B 69 61 2E 63 6F 6D 3A 38 30 30 32 2F = http://nokian.okianokianokia.com:8002/
00 = end inline string
01 = END PARMeter
C6 = CHARACTERISTIC with content and attributes
08 = TYPE=NAME
01 = END PARMeter
87 = PARM with attributes
15 = NAME=NAME
11 = VALUE
03 = Inline string
4D 4D 53 20 4E 4F 4B 49 41 20 47 50 52 53 = MMS NOKIA GPRS
00 = end inline string
01 = END PARMeter
01 = END PARMeter
01 = END PARMeter
    
```

4. SMS MESSAGE HEADERS WHEN USING AT COMMANDS

In order to deliver these settings to a mobile recipient, the binary string must be attached to a short message. There are many ways to compose this message but, in addition to the string created above, a Transfer Protocol Data Unit (TPDU) and a User Data Header (UDH) must be added. In this example, the maximum number of bytes allowed for one short message (140) has been exceeded, thus, the message needs to be separated into two individual parts. With a concatenated message (two or more separate messages are created), the parts will be re-integrated to one message again in the recipient's handset.

4.1 Transfer Protocol Data Unit

The TPDU tells the Short Message Service Center (SMSC) where to send the message and what the parameters are for the message. It includes the MSISDN of the recipient and the MSISDN number of the SMSC.

When using the 00 value at the SMSC address, the default SMSC number from the SIM card will be used instead.

The meaning of the header 00 51 00 0C 91 53 48 74 38 00 00 00 F5 AA 8C is explained below:

00 = NO SMSC ADDRESS PRESENT
51 = MESSAGE HEADER FLAGS (0x51)
 Message type: SMS Submit
 Reject duplicates: No
 Validity: Relative
 Reply path: No
 UDH present: Yes
 Req. status report: no
00 = Message reference: 0 (0x00)
0C = Length of TPDU
91 53 48 74 38 00 00 = Recipient number (+358447830000)
00 = Protocol identifier
F5 = Message class, data coding scheme (8-bit)
AA = Validity period
8C = Length of data

The configuration message must be split into two SMS messages. The header for the second part is almost the same, with only one value different—the length of the data (00 51 00 0C 91 53 48 74 38 00 00 00 F5 AA **46**).

4.2 User Data Header

The UDH part of the message is transferred all the way to the phone. This part of the message allows the Nokia handset to recognize the message as a configuration message. The header can be encoded as follows: 0B 05 04 C3 4F 00 00 00 03 C2 02 01.

0B = Length of the UDH
05 = Port addressing (16 bit)
04 = Information element length (bytes)
C3 4F = Destination port (49999d)
00 00 = Source port (0d)
00 = Concatenation 8-bit reference
03 = Information element length (bytes)
C2 = SMS reference number
01 = Sequence number
02 = Number of messages in the concatenation

Just as the TPDU header is almost the same for both messages, the UDH is alike. Here, the only difference is the sequence number of the message, which grows by one in each message: 0B 05 04 C3 4F 00 00 00 03 C2 02 **02**.

4.3 Sending Messages with Terminal Software

The following AT-command interface example shows how messages can be sent using a data-enabled phone connected to PC terminal software. The SMS mode Terminal is set to PDU mode by using the AT+CMGF=0 command. The message was sent using the AT+CMGS command. PDU strings must be terminated with a <ctrl-z> character.

```
at+cmgf=0
OK
at+cmgs=154
>0051000C9153487438552200F5AA8C0B0504C34F00000003C2020101062C1F2A6170706C696
36174696F6E2F782D7761702D70726F762E62726F777365722D73657474696E67730081EA0101
6A0045C6060187124901871311033132332E3132332E3132332E313233000187146101871C11
036D6D73632E6E6F6B69616E6F6B69616E6F6B2E636F6D00018722700101867C1103687474703
A2F2F␣
+CMGS: 42
```

OK

```
at+cmgs=84
>0051000C9153487438000000F5AA460B0504C34F00000003C202026E6F6B69616E2E6
F6B69616E6F6B69616E6F6B69612E636F6D3A383030322F0001C60801871511034D4D5
3204E4F4B4941204750525300010101␣
+CMGS: 43
```

OK

5. RECEIVING THE OTA MMS SETTINGS

When an MMS-capable handset receives the configuration message, it prompts the user to accept the message. Depending on the user interface category, the user is asked to select the settings as primary or secondary settings. Figure 1 shows an example of a Series 60 device.

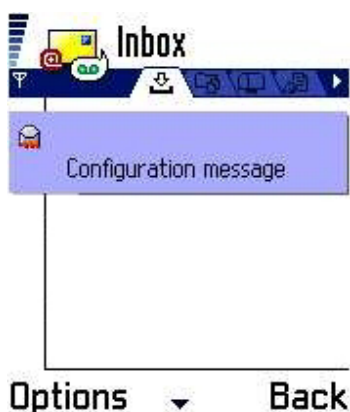


Figure 1: Configuration message received

LIST OF TERMS AND ABBREVIATIONS

Term or Abbreviation	Description
MMSC	Multimedia Message Service Center
SMSC	Short Message Service Center
TPDU	Transfer Protocol Data Unit
UDH	User Data Header
WBXML	WAP Binary XML Content Format