The GSMSMS Driver

The GSMSMS driver provides an SMS gateway to a North device. The driver can route alarms, via SMS text message, to a user; and process incoming SMS text messages from a user, replying with values from Essential Data module. Available for Commander and ObSys.

This document relates to GSMSMS driver version 1.1 to 1.2

Please read the *Commander Manual* or *ObSys Manual* alongside this document, available from *www.northbt.com*

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Compatibility with GSM Modem

The GSMSMS driver provides an SMS gateway to a North device. The driver can route alarms, via SMS text message, to a mobile device; and process incoming SMS text messages from a user, replying with values from Essential Data module.

The driver connects, via a serial RS232 connection, to a GSM compatible modem (Fig. 1).

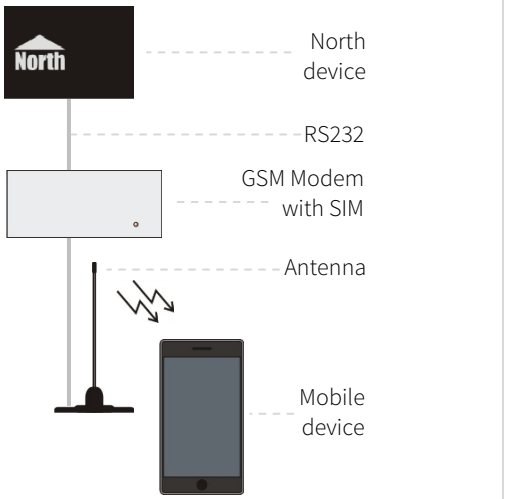

Fig. 1 North to GSM Modem

Equipment

The driver is compatible with GSM modems that support text mode of the *3G TS 27.005 specification*. These are available from North, order code MISC/GSM.

Values

The GSMSMS driver can route North-format alarms to a mobile device.

You can connect to the SMS gateway by sending a text message. The gateway presents values from any North device's Essential Data, which contains 480 values on Commander, and 960 values on ObSys.

The driver can send alarms to the North system when the SMS gateway receives a request.

Prerequisites

The GSM modem must be fitted with a valid SIM card and be in-range of a phone signal. The driver only sends and receives text messages, so a data plan is not required.

To check your modem supports text mode, send the AT command 'AT+CMGF=1' using a terminal program. If the response is 'ERROR', then you cannot use the modem for sending SMS messages in text mode.

Using the Driver

On ObSys and Commander, the GSMSMS driver is pre-installed. On all of these North devices, you can use the driver to create an SMS gateway. Once started, you will need to set up the driver before it can communicate.

The GSMSMS driver uses zero licence units.

Making the Cable

Using the RS232 cable specification (Fig. 2), connect the North device COM port to the GSM modem. Connector types at each end of the cable are shown.

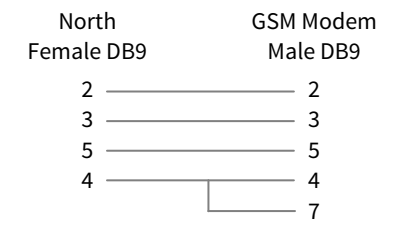

Fig. 2 North to GSM Modem cable

The maximum RS232 cable length is 15m.

Cables are available from North, order code CABLE/GSMSMS.

Starting the Interface

To start an interface using the GSMSMS driver, follow these steps:

- → **Start Engineering** your North device using ObSys
- → Navigate to **Configuration, Interfaces,** and set an unused **Interface** to 'GSMSMS' to start the particular interface
- → Navigate to the top-level of your North device and re-scan it

The driver setup object (Mc), labelled **GSM-SMS Setup**, should now be available.

Setting up the Driver

To set up the driver, follow these steps:

- → Navigate to the **GSM-SMS Setup** object (Mc). For example, if you started interface 1 with the driver earlier, then the object reference will be 'M1'
- → Set **RS232 Com Port** object (RS.COM) to select which serial port number on the North device the modem is connected to.
- → If a PIN is required for the SIM card, set this in the **SIM card PIN** object
- → Configure each **User** with privileges to access Essential Data and a telephone number to route alarms
- → Navigate to the North device's **Alarm Delivery** object (AR), and add a **Destination** to send alarms to the SMS Gateway object, e.g. S1.ALARM

Checking Communications

You can check that the interface is communicating with the modem by reading the **Modem Present** object (DS). A value of 'Yes' indicates the driver has initialised the connected modem.

After configuring a user with your mobile number, or enabling the wildcard user, send a blank text message to the GSM modem's telephone number. The SMS gateway should respond with the welcome message.

SMS Gateway Operation

The GSMSMS driver can route North-format alarms to the mobile device of one of 20 available users.

The driver also works in conjunction with the Essential Data module, available on all North devices. Essential Data contains up to 30 pages on Commander, and 60 pages on ObSys. A page contains 16 objects, with each object holding a single value.

A recognised user sends commands, via a text message, to request information from the database. The driver will respond by sending another text message.

Text messages have a maximum length of 160 characters, and will be truncated if they exceed this length.

Alarms

North-format alarms or a simple message can either be sent to a particular user (U*x*.ALARM) or the user-on-call (ALARM).

Alarms are sent, as a text message, in the following format:

System, Point, Condition, Priority, Date, Time

Commands

The SMS gateway supports several commands to request information from Essential Data, and one command to adjust a value. Commands are not case sensitive.

Command	Send a text message containing	Receive a text message containing
Request the welcome message with commands available	? (or a blank message)	Welcome to *label*. Send LIST for all pages, Px for page, Px Ox for value, or Px Ox VALUE to adjust.
Request the list of all pages available	LIST	List of pages> P1: *label*, P2: *label*, P3: *label*
Request a page of values Where *a* is the page number	P*a*	P*a label*> O1: *label value* O2: *label value* O3: *label value* O4: *label value*
Request a single object value Where *a* is the page number, and *b* is the object number	P*a* O*b*	P*a label*> O*b*: *label value*
Set an object value Where *a* is the page number, *b* is the object number, and *value* is the new value to set. *Value* should be placed within quotes if it contains a space	P*a* O*b value*	P*a label*> O*b*: *label value*

Command Examples

Consider the following pages/values configured in the Essential Data module:

Page Label	Reference
Room 1	P1
Room 2	P2

Value Label	Reference
Temperature	O1
Heating	O2
Lighting	O3

Value Label	Reference
Temperature	O1
Heating	O2
Lighting	O3

Welcome message

After sending a blank text message, you will receive the message:

```
Welcome to SMS Gateway.
Send LIST for all pages, Px for page, Px Ox for value, or Px Ox VALUE to adjust.
```

Note: *SMS Gateway* is from the driver's system label object (DL).

List all pages

To request the list of all pages available, send the text message:

```
LIST
```

From the example, you will then receive a message containing:

```
List of pages> P1: Room 1, P2: Room 2
```

Request a page

To request values for page 1, send the message:

```
P1
```

Continuing the example, you will then receive a message containing all objects in the page:

```
P1: Room 1>
O1: Temperature 23.5
O2: Heating Off
O3: Lighting On
```

Request a value

To request page 1 object 3, send the message:

```
P1 O3
```

Continuing the example, you will then receive a message containing all objects in the page:

```
P1: Room 1> O3: Lighting On
```

Set an object value

To set page 1 object 3 to the value ‘off’, send the text message:

```
P1 O3 Off
```

This will set the new value, and you will receive the message containing the adjusted value:

```
P1:Room 1> O3:Lighting Off
```

Alarms

When the SMS gateway receives an SMS command, the driver sends a North-format alarm to the object configured in the Alarm Destination object (AO).

Format

North-format alarms contain six text fields. The GSMSMS driver places the following information into these fields:

System – copied from System Label object (DL) within driver setup

Point – see Point Field section below

Condition – SMS message sent to gateway

Priority – 4

Date & Time – from North device

Examples

System	Point	Condition	Priority	Date	Time
SMS Gateway	AL request	LIST	4	01/03/13	14:29:48
SMS Gateway	AL request	P1	4	01/03/13	14:35:12
SMS Gateway	01234567890 request	P5	4	11/03/13	14:26:26

Point Field

If the text message is from a recognised user, Point Field contains:

initials request

Where *initials* are from the User object (Ux.I).

If the text message is from an unrecognised user, and Wildcard User is enabled, then Point field contains:

telno request

Where *telno* is the originating telephone number of the request.

Object Specifications

Once an interface is started, one or more extra objects become available within the top-level object of the device. As with all North objects, each of these extra objects may contain sub-objects, (and each of these may contain sub-objects, and so on) - the whole object structure being a multi-layer hierarchy. It is possible to navigate around the objects using the ObSys Engineering Software.

Each object is specified below, along with its sub-objects.

For more information on objects and object specifications, refer to the North device product manual.

Example Object Reference

An example of a reference to an object in the same device: the SMS Gateway (S1) contains an Alarm to User 1 (U1.ALARM). Therefore, the object reference will be 'S1.U1.ALARM'.

An example of a reference to an object in a different device: the IP network object (IP) contains Default Commander object (CDIP), which contains the object above (S1.U1.ALARM) – therefore the complete object reference is 'IP.CDIP.S1.U1.ALARM'.

Device Top-Level Objects

When an interface is started using the GSMSMS driver, the objects below become available within the top-level object of the device. For example, if interface 1 is started, then the object references 'M1' and 'S1' become available.

Description	Reference	Type
GSM-SMS Setup Set up the GSMSMS driver, started on interface *c* (*c* is the interface number)	M*c*	Fixed Container: On the Commander platform this will be *[CDM v20\GSMSMS v12]* On the ObSys platform this will be *[OSM v20\GSMSMS v12]*
SMS Gateway Access GSM-SMS system connected to interface *c* (*c* is the interface number)	S*c*	Fixed Container: *[GSMSMS v12]*

GSMSMS Driver Setup

Object Type: *[OSM v20\GSMSMS v12]*
Object Type: *[CDM v20\GSMSMS v12]*
Object Type: *[OSM v20\GSMSMS v11]*
Object Type: *[CDM v20\GSMSMS v11]*

The GSMSMS driver contains the following objects:

Description	Reference	Type
RS232 COM Port	RS.COM	Obj\Num: 1…8; Adjustable
Baud Rate	RS.BR	Obj\Num; Adjustable Values: 1200, 2400, 4800, 9600, 19200, 38400
System Label Label displayed when scanning the system and within alarms	DL	Obj\Text: Max. 20 chars; Adjustable
SIM card PIN Some SIMs require a PIN of '0000'	PIN	Obj\Text: Max. 4 chars; Adjustable
Modem Initialisation Send additional AT command on initialisation. This value will be prefixed with 'AT'	MI	Obj\Text: Max. 20 chars; Adjustable
Modem Present Physically connected and responding to initialisation command. Not available in driver version 1.1 or earlier	DS	Obj\NoYes
UserData Object Location of the Essential Values object, e.g. 'UD'	UDO	Obj\Obj; Adjustable
Alarm Destination Destination alarm object to send notification of SMS command requests. E.g. 'AH.ALARM'	AO	Obj\Obj; Adjustable
Served Page Count A count of the SMS gateway replies sent	SC	Obj\Num:0…4294967295
User-on-Call Selector Selects which user that alarms sent to Alarm to User-on-call object (ALARM) are routed to	AU	Obj\Num; Range: 0..10; Adjustable
Wildcard User Enable and configure privilege levels to access data for any incoming text message.	WU	Fixed Container: On the Commander platform this will be *[CDM v20\GSMSMS v12\Wild]* On the ObSys platform this will be *[OSM v20\GSMSMS v12\Wild]*
User *n* Configure privileges levels to access data, and a mobile number to route alarms. The user number, *n*, is in range 1 to 20. In driver version 1.1, *n* is in the range 1 to 10.	U*n*	Fixed Container: On the Commander platform this will be *[CDM v20\GSMSMS v12\User]* On the ObSys platform this will be *[OSM v20\GSMSMS v12\User]*

User

Object Type: *[OSM v20\GSMSMS v12\User]*
Object Type: *[CDM v20\GSMSMS v12\User]*
Object Type: *[OSM v20\GSMSMS v11\User]*
Object Type: *[CDM v20\GSMSMS v11\User]*

GSMSMS User

A User object contains an enable flag, the user's mobile telephone number, and privilege levels.

The telephone number identifies incoming text messages from a user, and is a destination to send alarms for the user.

Use the privilege level for each of the eight security areas to control access to Essential Data when reading or adjusting a value using the SMS gateway.

Security Areas and Levels

Within the North security model, there are eight security areas. Security areas could be actual areas in a building, but are normally functional areas – for example, 'environmental control' and 'North engineering' areas would allow a user to have different privileges in controlling set points and engineering Commanders.

A user is assigned a privilege level in each of the eight areas. The level is in the range zero to seven, seven being the most powerful. When a user wishes to pass a door, his/her privilege level in the door's area is checked against the minimum required for that area – and then either allowed to pass, or rejected.

The engineer must decide the use of the eight areas. The engineer must also decide the power of the privilege levels. Most systems use only a few levels per area: 0=None, 1=Guest, 2=User, 7=Administrator.

As an example, imagine a page of values in Essential Data. The page needs a user to have a minimum privilege level of 2 in area 1 before it can be viewed. The page is available in a Web browser that checks users with a security database. User A has privilege level 7 in area 1 – she can view the page. User B has privilege level 5 in area 1 – he can also view the page. User C has privilege level 1 in area 1 – she cannot view the page.

The example continues: within this page of values in Essential Data is a temperature set point object. Users need a minimum privilege level of 6 in area 1 to adjust it – therefore User A can adjust the set point, but User B cannot.

Specifying Access Security

Essential Data has Access Security objects to control who can view a page, and who can adjust an adjustable object.

Each Access Security object has a two-digit value. Each controls the access to a particular feature - such as viewing the page, or adjusting the value. The two-digit value is made up of the area digit (1-8), followed by the minimum privilege level (1-7) – for example, if the minimum privilege level is 6 in area 2, then the two digit value is 26. If the value is 00, then no security checks are made.

Description	Reference	Type
User Initials	I	Obj\Text: Max. 4 chars; Adjustable
Telephone number User's telephone number.	TN	Obj\Text: Max. 20 chars; Adjustable
Enable User	E	Obj\NoYes; Adjustable
Privilege level in Area *a* The area number, a, is in the range 1…8.	P*a*	Obj\Num; Range: 0…7; Adjustable Range: 0 (no access)…7 (highest privilege level)

Wildcard User

Object Type: *[OSM v20\GSMSMS v12\Wild]*
Object Type: *[CDM v20\GSMSMS v12\Wild]*
Object Type: *[OSM v20\GSMSMS v11\Wild]*
Object Type: *[CDM v20\GSMSMS v11\Wild]*

The Wildcard User object contains an enable flag and privilege levels.

If enabled, this object provides access to the SMS gateway from telephone numbers not assigned to a user.

Use the privilege level for each of the eight security areas to control access to Essential Data when reading or adjusting a value using the SMS gateway. See *Security Areas and Levels* in User object for more details.

Description	Reference	Type
Enable Allows or disallows wildcard users	E	Obj\NoYes; Adjustable
Privilege Level in Area *a* The area number, *a*, is in the range 1…8	P*a*	Obj\Num: 0…7; Adjustable Range: 0 (no access)…7 (highest privilege level)

SMS Gateway

Object Type: *[GSMSMS v12]*
Object Type: *[GSMSMS v11]*

The SMS Gateway receives North-format alarms or values.

On setting one of the ALARM objects below, the value will be routed as an SMS text message to a user.

Description	Reference	Type
Alarm to User-on-Call Alarms sent to this object are passed on to the current User-on-Call	ALARM	Obj\Alarm; Adjustable
Alarm to User *n* Alarms sent to this object are passed on to an individual user only The user number, *n,* is in the range 1…20. In driver version 1.1, *n* is in the range 1 to 10.	U*n*.ALARM	Obj\Alarm; Adjustable

Driver Versions

Version	Build Date	Details
1.1	12/8/2008	Added additional checking on incoming text messages.
1.2	30/6/2014	Users increased to 20. SMS gateway replies now include labels. Maximum SMS length extended to 160chars. Added object DS, MI

Next Steps…

If you require help, contact support on 01273 694422 or visit *www.northbt.com/support*

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