

Sending SMS with System 800xA SMS and e-mail Messaging

This instruction assumes the SMS and e-mail Messaging System Extension is properly installed and loaded

1. Get a valid SIM card with a) no PIN code, or b) known PIN code

Why not testing the SIM & PIN in some phone to verify it being able to connect to the network and send SMS?

2. Install SIM into GSM-modem and wire it up to the computer using a serial port

On ESXi "port forwarding" is required to forward the physical port to a virtual port inside the virtual machine. USB→RS232 "dongles" may work but is not documented by ABB to do so.

3. Configure Westermo MRD-xxx 3G/4G modem (optional if such hardware is used)

Refer to Appendix A

4. Stop the Messenger Service provider

5. Optional steps: verify that the modem is accessible over the serial interface

WinXP: HyperTerminal

Other: PuTTY (freeware)

a) AT + <Enter>

b) AT&F + <Enter>

c) AT+CGMI + <Enter>

d) AT+CMGF=1 + <Enter>

e) AT+CMGF? + <Enter>

f) AT+CMGS="0702098635" + <Enter> + text + <CTRL-Z>

...

should return "OK"

factory reset on most modems

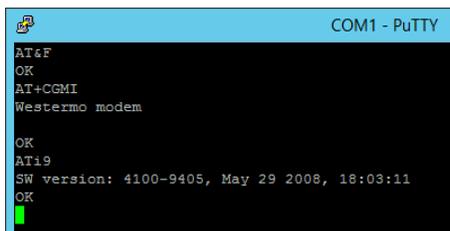
request manufacturer identification

set text mode

query mode (must return "1" = text mode)

send SMS via AT commands

Additional, vendor specific commands may be necessary. Read On-line Help.



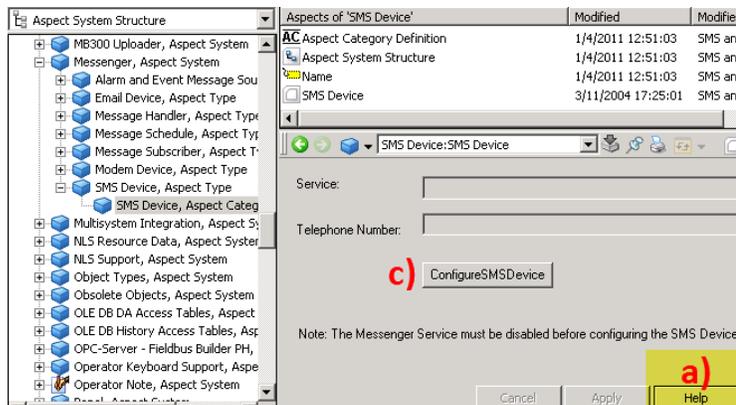
```
COM1 - PuTTY
AT&F
OK
AT+CGMI
Westermo modem
OK
AT+I9
SW version: 4100-9405, May 29 2008, 18:03:11
OK
█
```

6. Configure modem (up to and including System 800xA version 5.1)

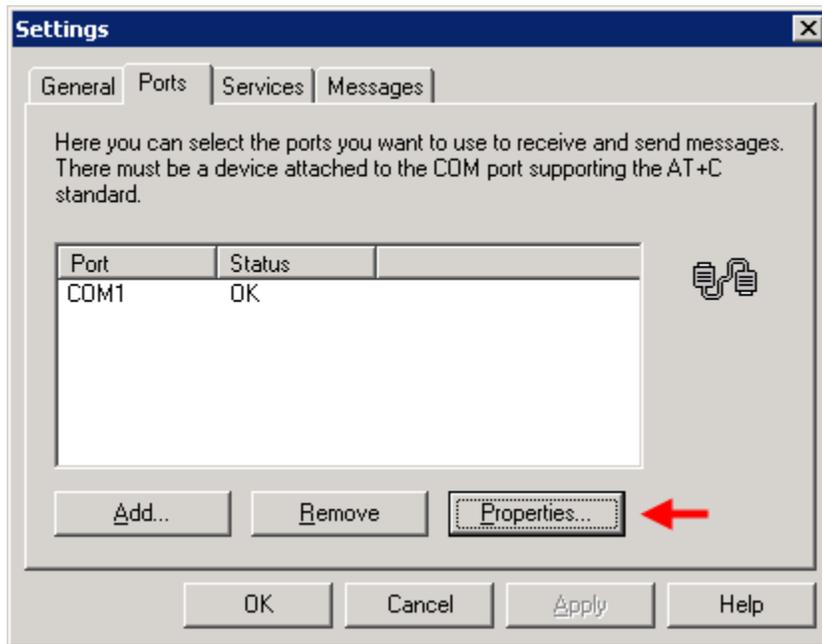
a) Read On-line Help!

b) Optional: import list of preconfigured GSM service providers by running SrvSetup.exe (see On-line Help)

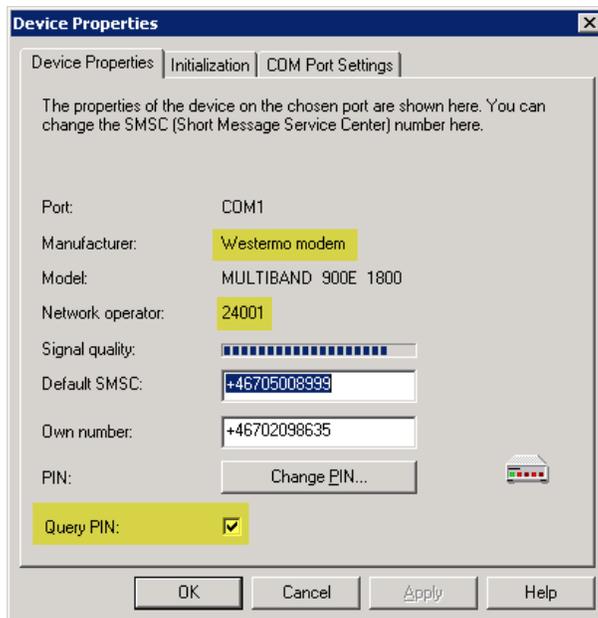
c) Click **ConfigureSMSDevice**



d) On **Ports** tab, add/configure a port connecting the modem (COM1?) and click **Properties**



e) If SIM is protected with PIN code – enable **Query PIN**, click **OK** and restart the configuration tool.

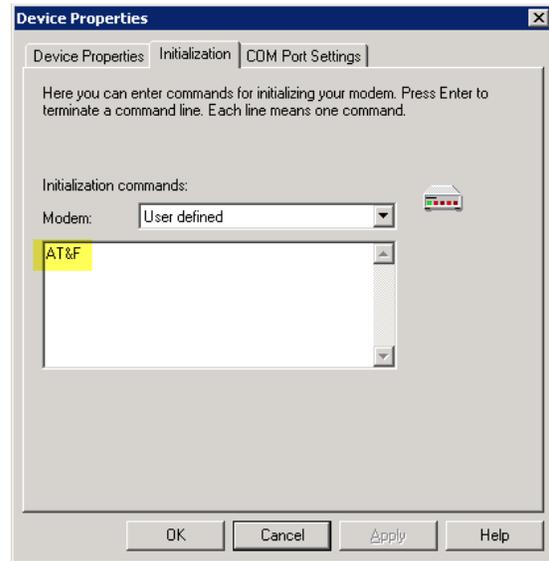
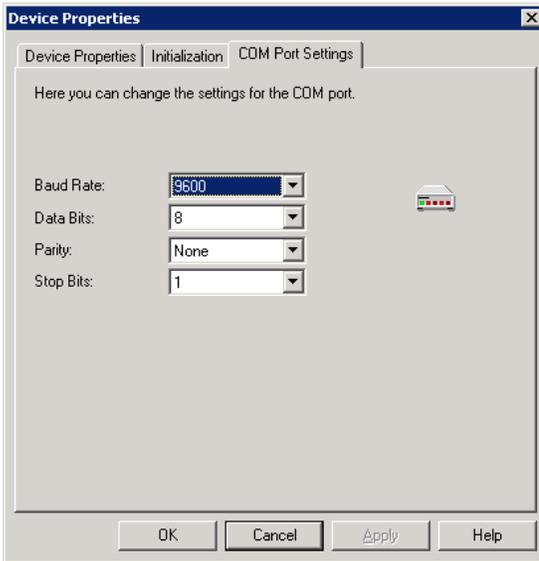


f) At second launch, the PIN code will be requested. After entering correct PIN, the **Network operator** should be filled in (using numbers; Cellular Network Codes can be looked up on Internet; “24001” is Telia in Sweden).

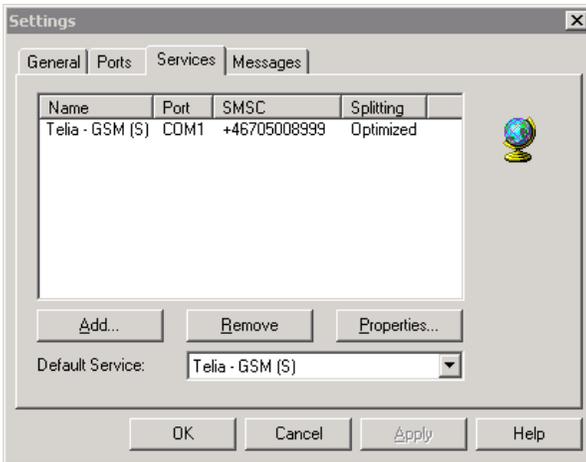
g) The SMSC (Cellular network’s SMS Center) and SIM card’s phone number must be provided. This becomes simpler if step 3b) has been completed.

h) Optional: Add custom settings for the modem

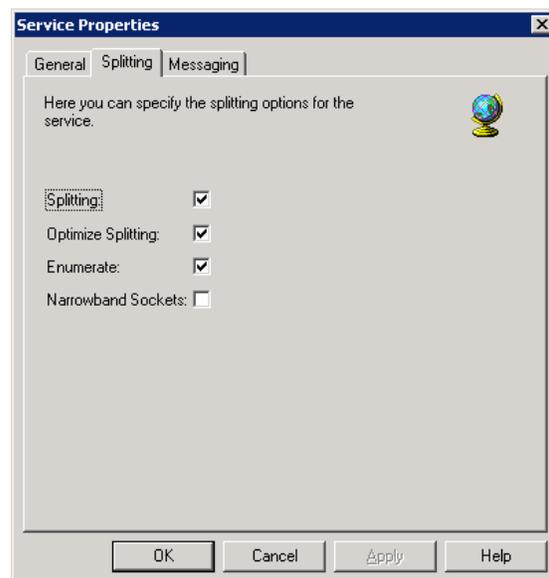
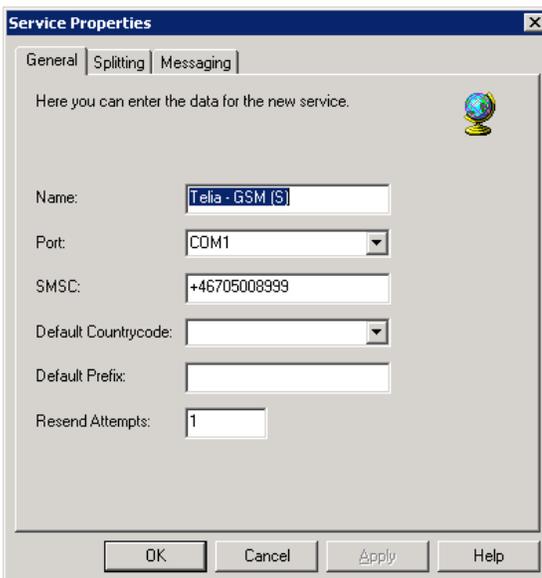
- i) Serial communication using “9600,8,N,1” should work with most modems but can be changed.
- ii) Possibly, “factory default” the modem, e.g once using HyperTerminal or PuTTY serial tool, or add “AT&F” as initialization string to factory default modem at each start.



i) On the **Services** tab, select and setup Cellular Service (then click **Properties...**)



j) If desired, make appropriate adjustments (e.g. enable splitting, word break, etc.)



k) Press **OK** to save settings and exit the tool.

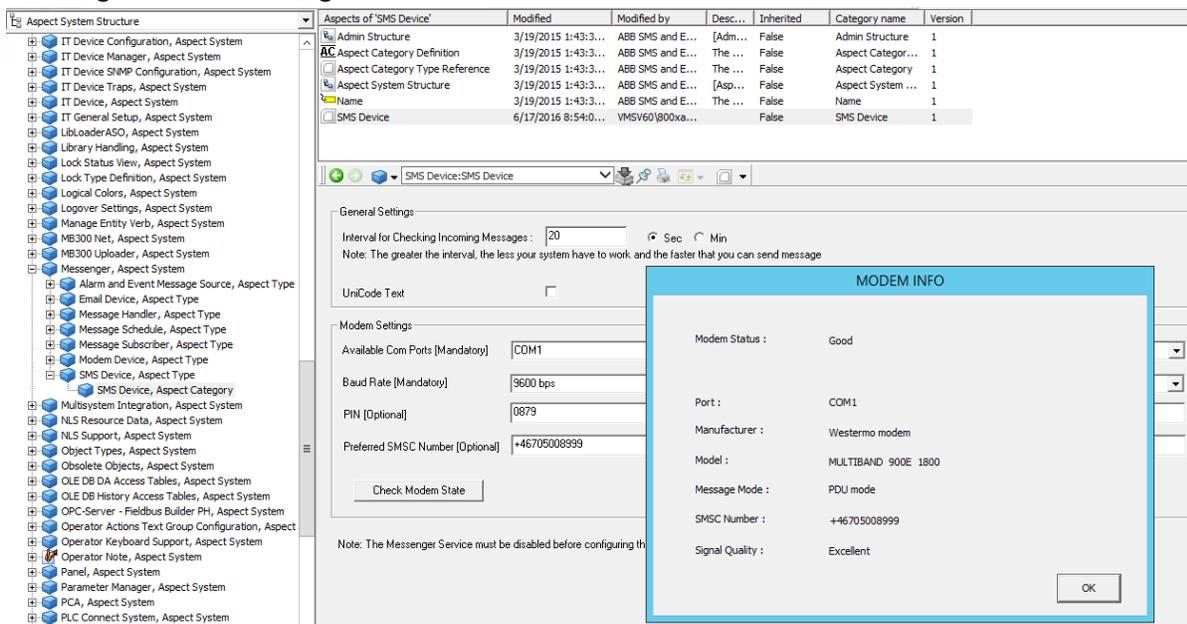
I) Do **NOT** continue with next step until you have succeeded with getting a network operator shown



7. Configure modem (System 800xA version 6.0 and forward)

- Select COM-port and speed.
- Enter PIN code (if configured)
- Enter the SMS Center (SMSC) number (see step 5 for more information on SMSC).
- Click the **Check Modem State** button

If settings are OK the dialog window should indicate Modem Status "Good".

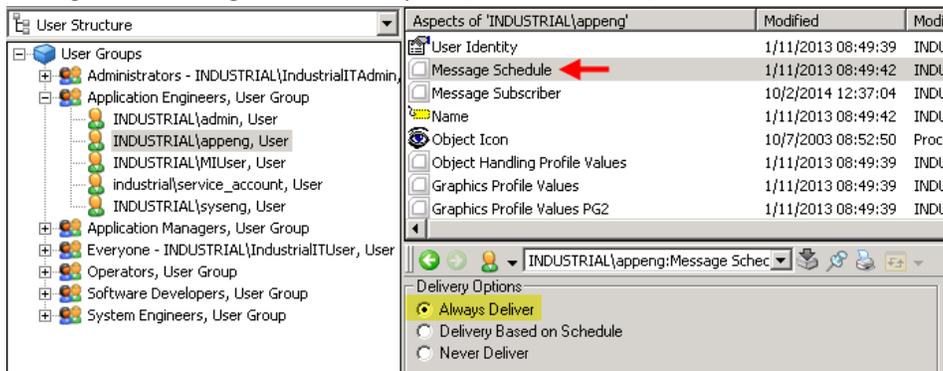


8. Start the Messenger Service provider

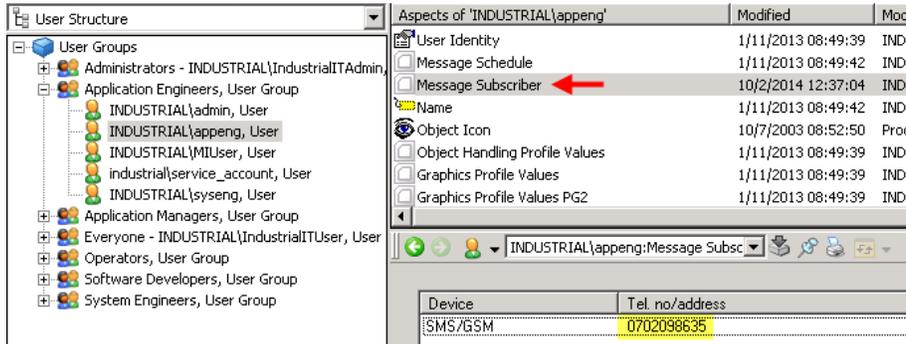
9. Make necessary configuration in aspect system

To send an SMS the following must be properly configured (only stepstones provided)

- In User Structure, for each recipient
 - Configure a **Message Schedule** aspect (=when to send)

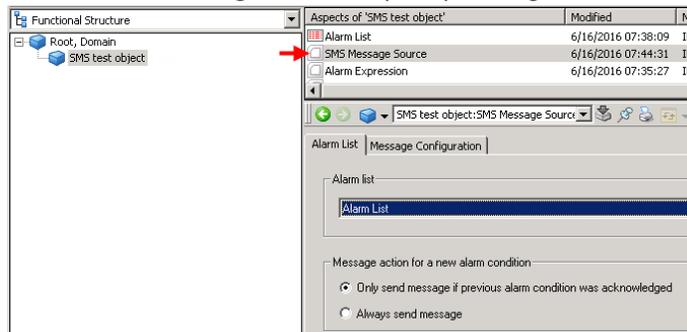


b. Configure a **Message Subscriber** aspect (=to what phone number to send the SMS)

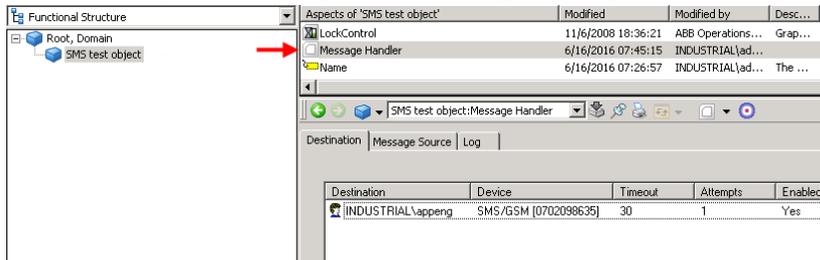


b) In some structure, e.g. Functional Structure

- Add an object to hold the configuration (e.g. a Generic “empty” object)
- Add an alarm or event list with filter for the very few alarm or event that shall be sent as SMS
Carefully create this filter! We don't want to have “Common Event List” & “All alarms” here...
- Add an **SMS Message Source** aspect pointing to the list created above



d. Add a **Message Handler** aspect connecting the recipient created previously



Note: The **Timeout** value control the time before the SMS is sent to next recipient on list. 30 seconds is probably way too short to allow a recipient to return with an Ack.

10. Trigger/generate an alarm or event included in the SMS alarm/event list filter

11. In recipient's phone, reply on SMS with Ack ID to acknowledge the transmission

Without acknowledge the Messenger Service will continue with next recipient in list (after timeout has expired)



12. Observe the progress in the Messenger Event Log

Call the [Control Structure]SMS and e-mail Messaging: Messenger Event Log

	EventTime	LongMessage
1	2016-Jun-16 08:23:36	Info - User INDUSTRIAL\appeng Device SMS/GSM - Ack - Received SMS reply (Ack ID:5f9c)
2	2016-Jun-16 08:17:53	Info - User INDUSTRIAL\appeng Device SMS/GSM - Sent (AckID:5f9c) - System Version 5;06/16/16 08:17:44;SMS test object;ALARM;751;ON;
3	2016-Jun-16 08:17:26	Info - Complete Messenger Service initialization
4	2016-Jun-16 08:17:26	Info - Alarm and Event List subscription established for - SMS test object:SMS Message Source
5	2016-Jun-16 08:17:26	Info - Begin Messenger Service initialization

EventTime

2016-Jun-16 08:23:36

2016-Jun-16 08:17:53

2016-Jun-16 08:17:26

2016-Jun-16 08:17:26

2016-Jun-16 08:17:26

LongMessage

Info - User INDUSTRIAL\appeng Device SMS/GSM - Ack - Received SMS reply (Ack ID:5f9c)

Info - User INDUSTRIAL\appeng Device SMS/GSM - Sent (AckID:5f9c) - System Version 5;06/16/16 08:17:44;SMS test object;ALARM;751;ON;

Info - Complete Messenger Service initialization

Info - Alarm and Event List subscription established for - SMS test object:SMS Message Source

Info - Begin Messenger Service initialization

13. Fine tune message format

Change settings on the SMS Message Source aspect's Message Configuration tab.

The screenshot shows the 'Message Configuration' tab for the 'SMS test object:SMS Message Source' aspect. A table lists various fields to be included in the message format, with their names and lengths in characters. The 'System Name' field is checked and highlighted in yellow. Other fields include Event Time, Object Name, Condition, Sub Condition, Priority, Severity, Category, Message Description, Actor, GUID, and Object Description. The total message length is shown as 143 characters.

Name	Length (characters)
<input checked="" type="checkbox"/> System Name	20
<input checked="" type="checkbox"/> Event Time	20
<input checked="" type="checkbox"/> Object Name	20
<input checked="" type="checkbox"/> Condition	25
<input type="checkbox"/> Sub Condition	25
<input checked="" type="checkbox"/> Priority	8
<input type="checkbox"/> Severity	8
<input type="checkbox"/> Category	8
<input checked="" type="checkbox"/> Message Description	50
<input type="checkbox"/> Actor	20
<input type="checkbox"/> GUID	38
<input type="checkbox"/> Object Description	50

Message Prefix:
 Message Suffix:
 Field delimiter: ;
 Total message length 143 characters

14. Adjust alarm/filter filter, schedule, multiple recipients, etc.

Appendix A – Configuring Westermo MRD-xxx 3G/4G router as SMS device

1. Connect via Ethernet-port (default IP is 192.168.2.200) and a browser (default user/pw is admin/westermo)
2. Configure SIM pin on Wireless→Network page



Wireless Network

Network Configuration	
Operating mode	Packet mode (HSDPA/GPRS) <input type="button" value="Edit"/>
SIM PIN	Enabled <input type="button" value="Edit"/>
Enable extended logging	<input type="checkbox"/>
<input type="button" value="Reset"/> <input type="button" value="Update"/>	

Frequency Band Selection	
Band selection	Automatic <input type="button" value="Edit"/>
<input type="button" value="Reset"/> <input type="button" value="Update"/>	

SIM PIN Control

Enable	<input checked="" type="checkbox"/>
PIN	••••
Confirm PIN	•••• <input type="button" value="Eye"/>
<input type="button" value="Cancel"/> <input type="button" value="Update"/>	
<input type="button" value="Close"/>	

3. Setup a Modem Emulator using the Serial Server
 - a) Add Modem Emulator
 - b) Edit settings (baudrate, data and stop bits, parity, flow control, etc.) to match computer port

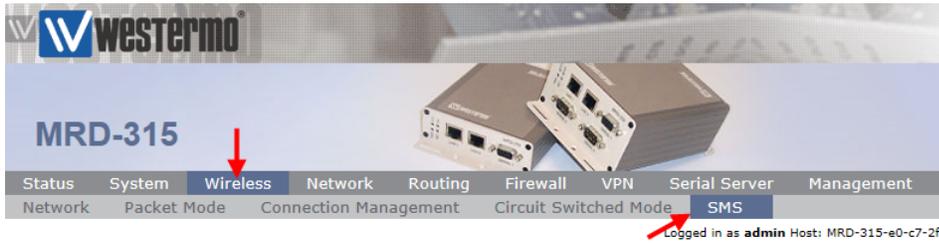


Serial Server

Port	Function	Serial	Network	Edit
1	Modem Emulator	9600 8N1	Accept: 6001, Dial: :6001	<input type="button" value="Edit"/>
<input type="button" value="Reset"/> <input type="button" value="Update"/>				

Port Control	
<input type="button" value="Reset Port 1"/>	

4. Setup modem to forward incoming SMS to the serial port



SMS

SMS Triggers			
Action	Enabled	Match on	Trigger
System			
Status query	<input type="checkbox"/>	Exact	Query status
Reboot	<input type="checkbox"/>	Exact	Reboot
Wireless			
Packet mode	<input type="checkbox"/>	Exact	Mode packet
CSD mode	<input type="checkbox"/>	Exact	Mode CSD
VPN			
VPN control	<input type="checkbox"/>	Starts with	VPN
Unhandled SMS Control			
Forward to email distribution list	<input type="checkbox"/>		
Forward to SMS distribution list	<input type="checkbox"/>		
Forward to serial ports	<input checked="" type="checkbox"/>		
Reset		Update	

SMS Access Control				
Label	Phone Number	Action	Edit	Delete
Default policy		Accept	Update	
Add new access control				

5. Verify

Network Status = No Fault

Serial Server = No Fault

If the device only shall be used as a SMS device, wireless connection status may be left as "Disabled"



Alarms

14:03:00 23/06/2016

System	
Power On Self Test	Passed
Temperature (°C)	now: 32.50, min: 32.25, max: 32.50
Uptime	00:14:57
Wireless	
Network Status	No Fault
Connection Status	Disabled
Network	
LAN	No Fault
Loopback	No Fault
Services	
DHCP Server	Disabled
VPN	Disabled
Serial Server	No Fault