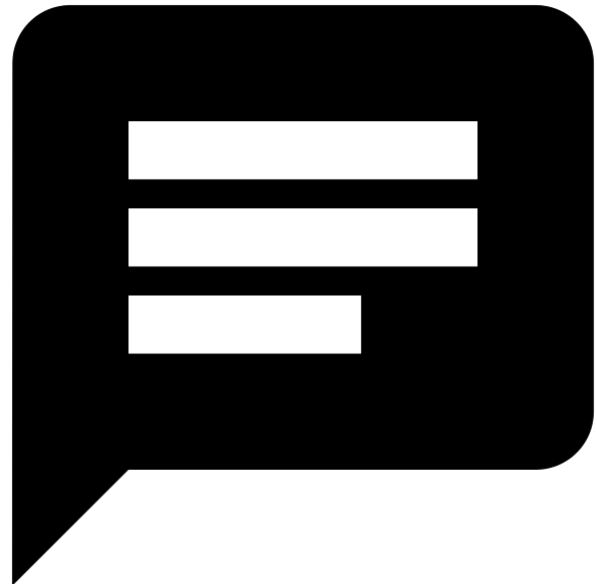


QUICK NOTE: QN-001-WUK

Sending SMS Messages

Applies to the MRD-455, MRD-355, MRD-315 Routers.



MRD-455: Sending SMS

Introduction

There are 3 methods of sending SMS using the Westermo MRD-455 4G router.

1. Modem Emulation Mode:
Sending SMS with Hayes AT commands to the RS232 serial port.
2. SSH or Telnet Command Line:
Sending SMS by with CLI commands.
3. SMS Event Alarms:
Trigger an SMS alarm based on software events affecting the MRD-455.

Assumptions

This application note applies to; MRD-455 4G and MRD-355/315 3G routers and assumes the router has a factory default configuration.

Corrections

Requests for corrections or amendments to this application note are welcome and should be addressed to technical@westermo.co.uk

Requests for new Application Notes and Quick Notes can be sent to the same address.

MRD-455: Sending SMS

1. Modem Emulation Mode:

Sending SMS with AT commands to the RS232 serial port.

Sending SMS messages using **Modem Emulation** mode over a serial link allows your PLC or terminal emulator to have full control of the messaging process. Including which phone number to send to and the content of the message.

Browse to **Serial Server** → **Port Setup**



Serial Server

Port	Function	Serial	Network	Edit
1	Modem Emulator			
Reset				Update

Port 1: Function: Modem Emulator.

Click **Update** then **Edit**.

Port Configuration	
Baudrate	115200
Data bits	300
Stop bits	600
Parity	1200
Flow control	2400
Line state when disconnected	4800
Network congestion backoff signal	9600
Packet Framing	
Maximum packet size	19200
Minimum size before sending	38400
Timeout before sending (milliseconds, min 10)	57600
Immediate send character matching	115200
Match characters (hex)	230400
Characters to wait after match	0
Enable extended logging	<input type="checkbox"/>
<input type="button" value="Cancel"/> <input type="button" value="Update"/>	

Select the serial port settings that match exactly the serial port settings of the device you are connecting to the router. E.g. 115200 baud, 8 data bits, 1 stop bit, none parity.

MRD-455: Sending SMS

Modem Emulation Mode continued...



Serial Server

Port	Function	Serial	Network	Edit
1	Modem Emulator	115200 8N1	Accept: 6001, Dial: :6001	
Reset			Update	

Port Control
Reset Port 1

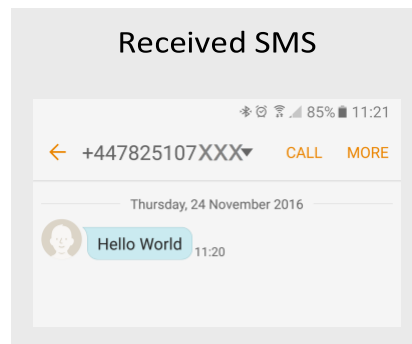
AT Commands

The following AT command set sends the SMS message “Hello World” to mobile phone number 07880123456.

NB: Commands from the PLC are in **red text**. Responses from the MRD-455 are in **black**.

```

AT+CMGF=1<CR>
OK
AT+CMGS="07880123456"<CR>
> Hello World<Ctrl>+<Z>
+CMGS: 44
OK
    
```



Commands breakdown.

AT+CMGF=1 Selects **SMS text mode** (as opposed to SMS PDU mode).

AT+CMGS="<phone number>" Sends the SMS text message to the specified number.

<message text><Ctrl>+<Z> Indicates end of message and the command to send.

NB: The carriage return <CR> and Ctrl- Z terminating characters are implemented differently, depending on the PLC manufacturer. The most common forms are;

<CR> Ctrl ^M or Char: CR Dec: 13 Hex: 0D

<Ctrl>+<z> ^Z Char: SUB or → Dec: 26 Hex: 1A

Status → System Log

If successful, a message similar to this should appear in the system log.

```
Nov 24 11:20:36 msp: SendsSMS 07880123456: SMS sent
```

MRD-455: Sending SMS

2. SSH or Telnet Command Line:

Sending SMS with CLI commands.

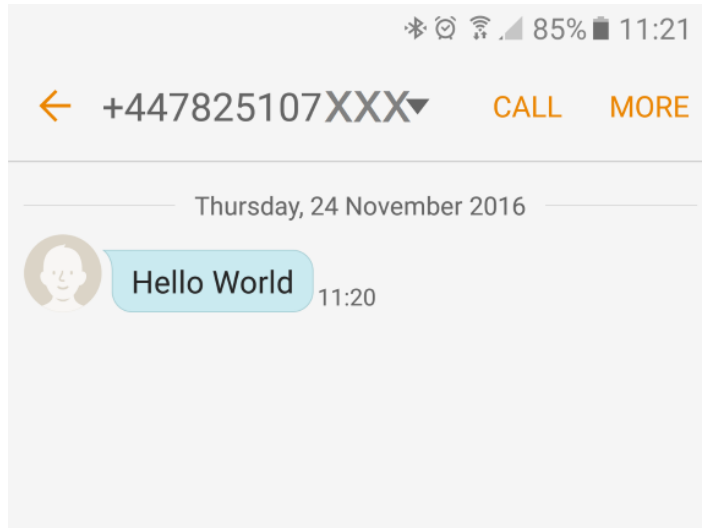
Sending SMS messages using the **CLI** relies on your application being able to make an SSH or Telnet connection to the IP address of the MRD-455 and login to the router's CLI.

If your application can do that then it's possible to control which phone number to send to and the content of the message.

```
login as: admin  
admin@172.30.1.2's password:
```

```
[admin@MRD-455] $ sms send 07880123456 "Hello World"  
SMS to 07880711349 queued for sending.
```

The SMS message should then be sent to the mobile number specified.



MRD-455: Sending SMS

3. SMS Event Alarms:

Trigger an SMS alarm based on software events affecting the MRD-455.

The MRD-455 can send system event alarms to an SMS distribution list of mobile numbers. Event alarms are events that have occurred from within the router’s software, such as loss of network registration and packet mode session disconnects (e.g. if the 3G/4G connections disconnects).

Browse to **Management → Events**

In the SMS column, select which events you want to trigger an alarm.

For testing, Network Registration and the Packet Mode options have been selected because these can be simulated by removing the antenna.



Events

Event	Report	SNMP	DNP3	SMS	Email
System					
Temperature Range: <input type="text" value="0"/> to <input type="text" value="55"/>	Exceeding range	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Returning inside range	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wireless					
Network registration	On loss	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	On return	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
RSSI Threshold: <input type="text" value="5"/>	Below threshold	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Above threshold	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Packet mode	When session connects	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	When session disconnects	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Circuit switched mode	When online	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	When offline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="button" value="Reset"/>				<input type="button" value="Update"/>	

MRD-455: Sending SMS

3. SMS Event Alarms continued.

Trigger an SMS alarm based on software events affecting the MRD-455.

Browse to **Management** → **SMS**

Add the mobile numbers to which the SMS event alarms should be sent.

Click the **Add New Destination** button.



SMS

SMS Control	
Rate limit notifications	Max. <input type="text" value="10"/> SMS events per <input type="text" value="3600"/> seconds
Add global sequence numbers	<input type="checkbox"/>
<input type="button" value="Reset"/>	<input type="button" value="Update"/>

SMS Distribution List				
Label	Phone Number	Enabled	Edit	Delete
No SMS destination entries configured.				
<input type="button" value="Add new destination"/>				

Enter a label and the mobile telephone number that should receive the SMS event alarms.

Add new SMS destination	
Label	<input type="text" value="Westermo Support"/>
Phone number	<input type="text" value="07880123456"/>
Enabled	<input checked="" type="checkbox"/>
<input type="button" value="Cancel"/>	<input type="button" value="Update"/>

Repeat to add more mobile recipients.

MRD-455: Sending SMS

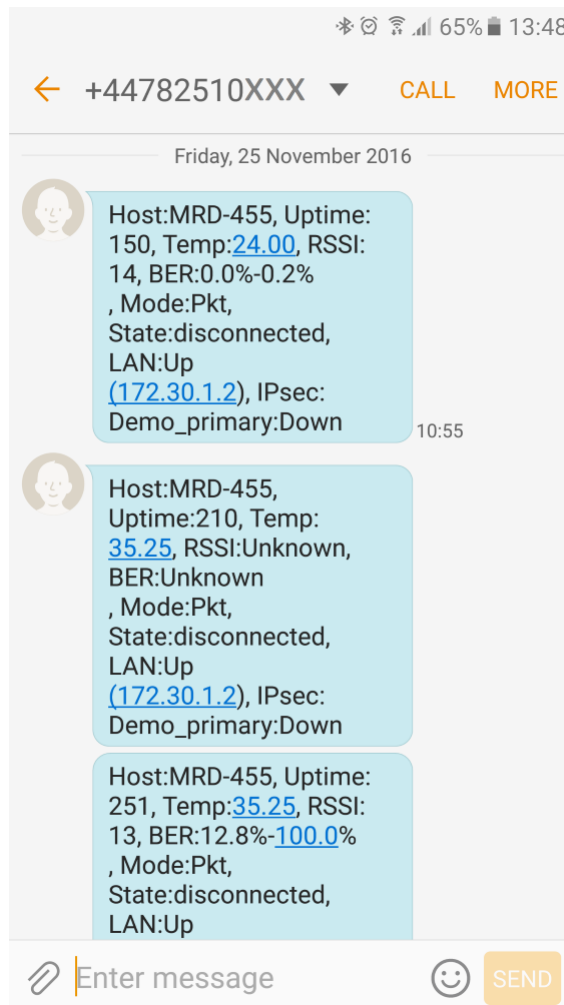
3. SMS Event Alarms Testing.

With the SMS event settings enabled as shown on page 6, it's possible to test the SMS event alarm by removing then replacing the antenna to drop the 4G link and simulate the link going down and up.

Browse to **Status** → **System log**



Nov 25 10:55:12 msp: SendSMS 07880711349: SMS sent



Revision history for version 1.0

Revision	Rev by	Revision note	Date
1.0	JM	Released	09.10.2017
1.1			
1.2			
1.3			
1.4			
1.5			
1.6			
1.7			



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