

AN-009-WUK

How to Call in CSD Mode on a MRD-315 and MRD-355

Using the MRD as a Modem Emulator in CSD mode



How to Enable (CSD) Circuit Switched Mode on The MRD router

Overview

Please note: CSD mode is not available on the MRD-455 router

In order to use the MRD-315/355 in CSD mode, you need to enable Circuit Switched Mode and also enable Modem Emulator mode.

You also need to ensure that you have a CSD enabled SIM card, which is a different phone number from the voice SIM card. A standard data SIM card will not work in CDS mode.

The Hayes AT command are used with the RS232 serial port.

Assumptions

This application note applies to: MRD-315 and MRD-355 3G routers and assumes the router has a factory default configuration. It is also assumed that have a CSD enabled SIM card.

Corrections

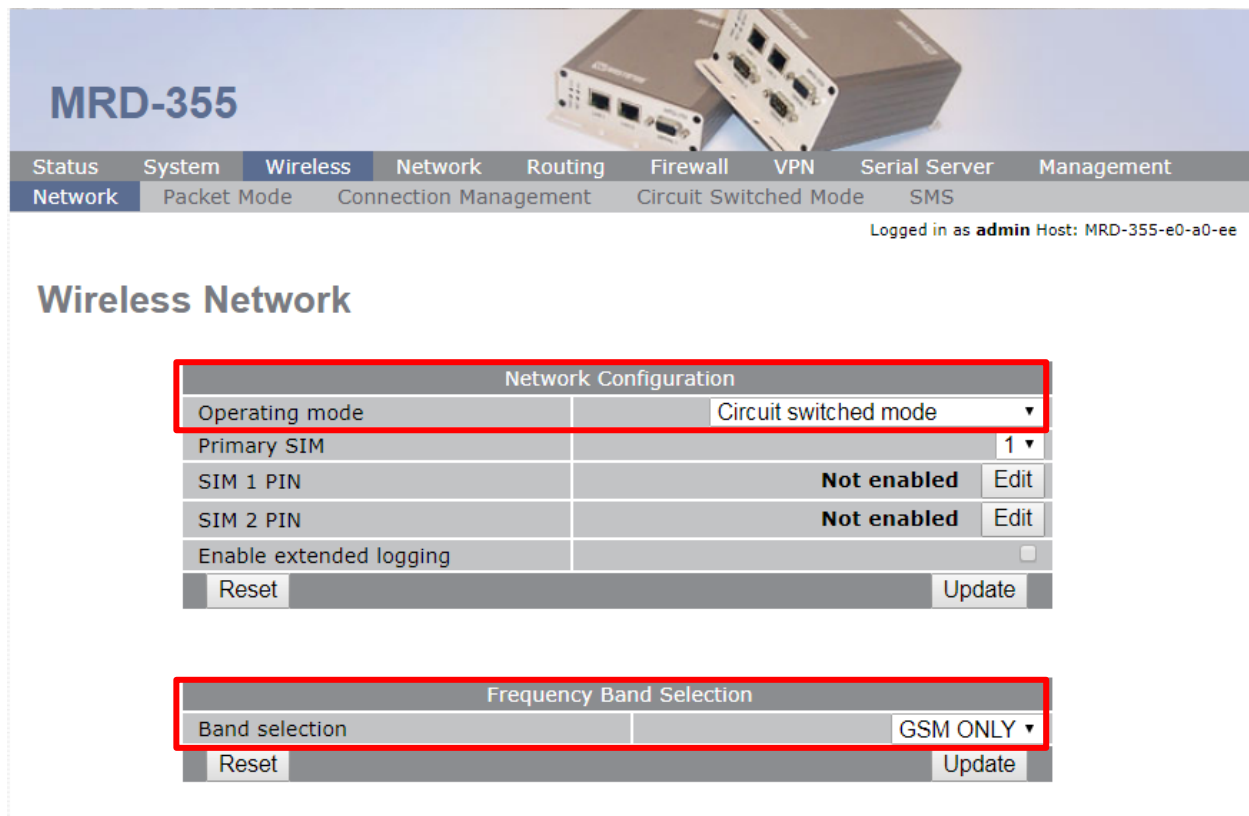
Requests for corrections or amendments to this application note are welcome and should be addressed to technical@westermo.co.uk

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

Enabling CSD mode on the MRD router

1. Circuit Switched Mode and Modem Emulator

- Navigate to Wireless-> Network tabs
- Now click the dropdown menu under **Operation mode** and select “Circuit switched mode”. Click update
- Then ensure that **Band selection** is set to “GSM ONLY”. Click update



The screenshot shows the MRD-355 router configuration interface. At the top, there is a navigation bar with tabs for Status, System, Wireless, Network, Routing, Firewall, VPN, Serial Server, and Management. Below this, there are sub-tabs for Network, Packet Mode, Connection Management, Circuit Switched Mode, and SMS. The user is logged in as 'admin' on host 'MRD-355-e0-a0-ee'.

Wireless Network

Network Configuration

Operating mode	Circuit switched mode
Primary SIM	1
SIM 1 PIN	Not enabled Edit
SIM 2 PIN	Not enabled Edit
Enable extended logging	<input type="checkbox"/>
Reset	Update

Frequency Band Selection

Band selection	GSM ONLY
Reset	Update

- Navigate to Wireless->Circuit Switched Mode

MRD-355

Status System **Wireless** Network Routing Firewall VPN Serial Server Management

Network Packet Mode Connection Management **Circuit Switched Mode** SMS

Logged in as **admin** Host: MRD-355-e0-a0-ee

Circuit Switched Mode

Operating Mode		Summary		Edit
Direct to single port ▾		Port: 1		
Reset			Update	

Port	Setup	Mode	Rings until answered	DCD Mode	DTR Function	Edit
1	19200 8N1	Modem	2	Follow carrier	Disconnect	

Reset Port

- Click on the icon to edit any of the Port settings
- Now navigate to Serial Server->Port Setup

MRD-355

Status System Wireless Network Routing Firewall VPN **Serial Server** Management

Port Setup Phone Book

Logged in as **admin** Host: MRD-355-e0-a0-ee

Serial Server

Port	Function	Serial	Network	Edit
1	Modem Emulator ▾	19200 8N1	Accept: 6001, Dial: :6001	
Reset			Update	

Port Control

Reset Port 1

- Select “Modem Emulator” from the drop down menu and click update.

- Navigate to Status->Alarms and ensure there are no faults.

MRD-355



Status	System	Wireless	Network	Routing	Firewall	VPN	Serial Server	Management
Alarms	Wireless	LAN	VPN	GRE	Serial Server	System Log		

Logged in as **admin** Host: MRD-355-e0-a0-ee

Alarms

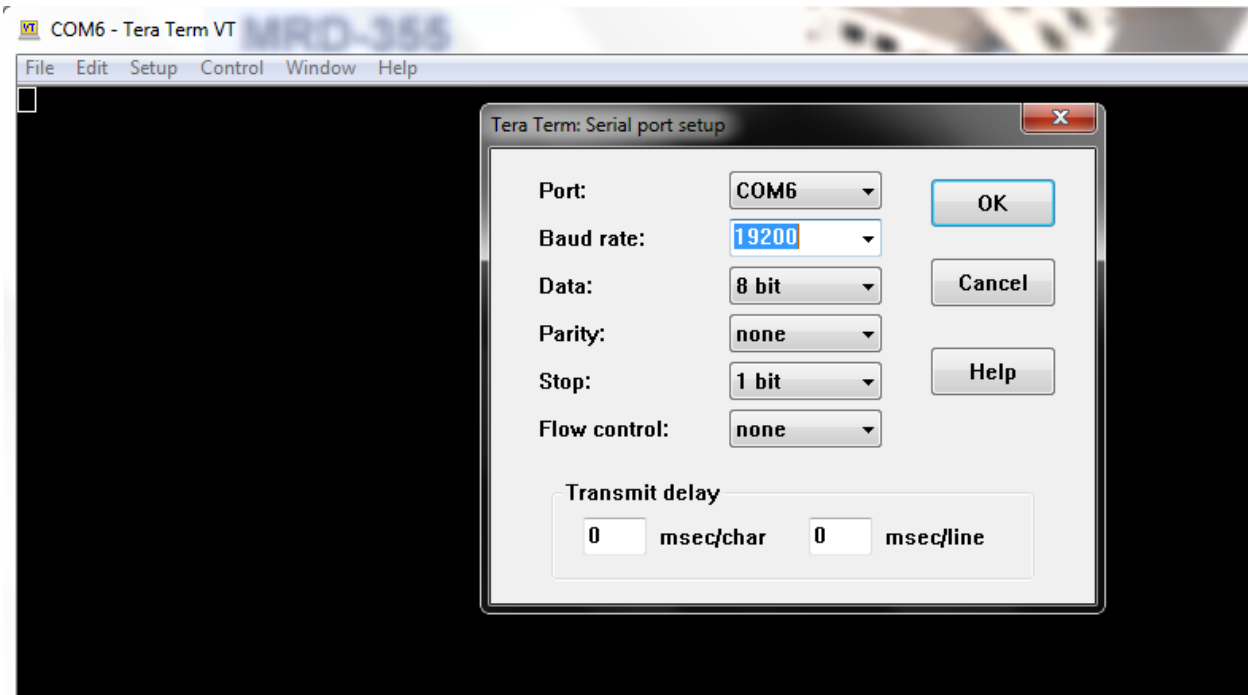
11:04:38 28/09/2017

System		
Power On Self Test		Passed
Temperature (°C)		now: 31.50, min: 25.75, max: 31.50
Uptime		00:16:18
Wireless		
Network Status		No Fault
Connection Status		No Fault
Network		
LAN		No Fault
Loopback		No Fault
Services		
DHCP Server		Disabled
VPN		Disabled
Serial Server		No Fault

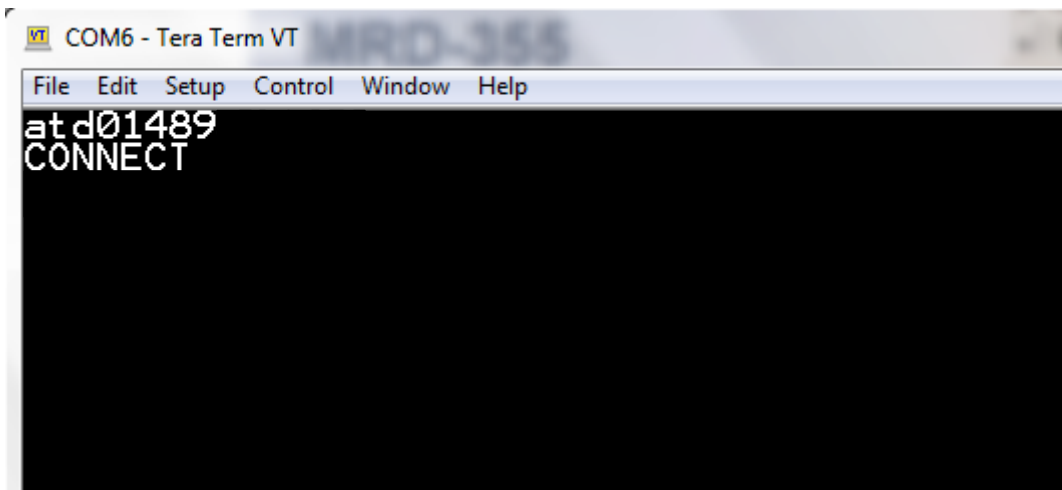
2. Application Example: MRD-355 and TD-36

The following pages illustrate an MRD-355 in CSD mode connecting to a TD-36 PSTN modem. The example used is based on the configuration in this document. The MRD can be used to call or receive calls from CSD/PSTN modems. In this example we use the MRD-355 and TD-36 (PSTN) modem.


- With the MRD configured as per document, using a Terminal software program open the correct com port and settings.



- Using standard AT command “ATD<number>” you will be able to call the remote modem, in this example the TD-36. Once the TD-36 answers you will see “CONNECT”



- On the remote end, TD-36 modem you will see the “RING RING” indicating a incoming call. Once its connected you will see “CONNECT 19200”

 COM1:19200baud - Tera Term VT

File Edit Setup Control Window Help

RING

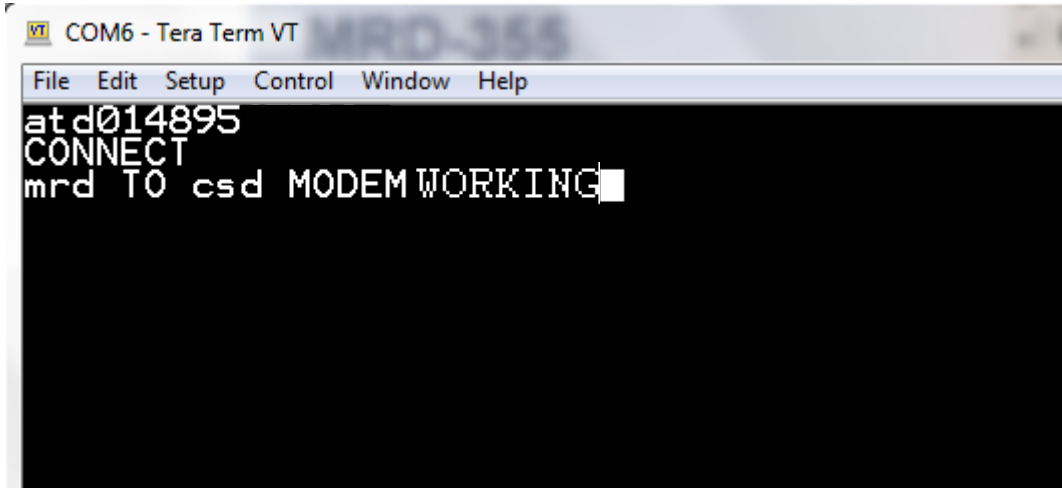
RING

CONNECT 19200

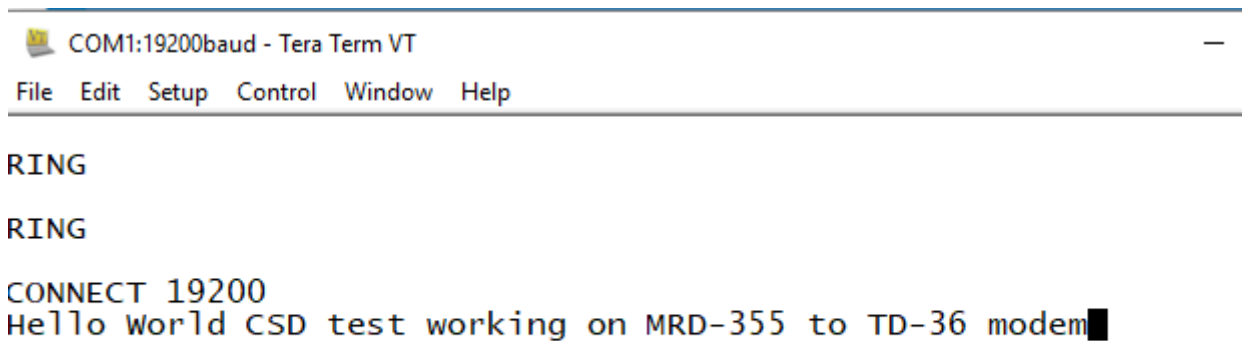


- You can now send data to and from the MRD to the TD-36

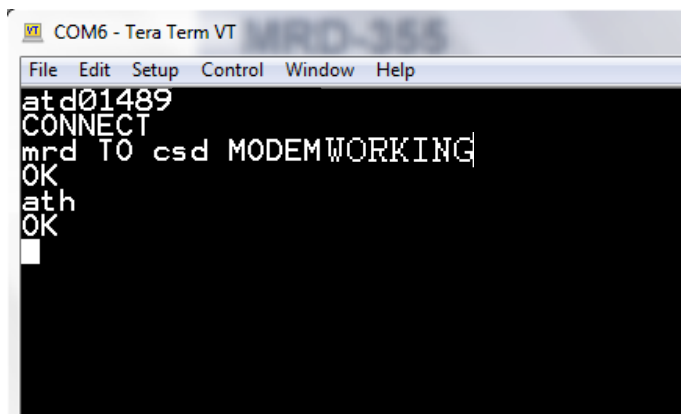
MRD-355 output window



TD-36 output window









- To hang up the call simply use AT command "ATH"



- Navigate to Status->Serial Server to see how much data has been sent and received.
- You can also any Errors that have occurred.




Serial Server

General		Port 1
Function		Circuit Switched Mode
Network Status		Port 1
Network State		Disconnected
Remote Address		
Uptime		
Serial Counters		Port 1
Bytes Tx		1195
Bytes Rx		648
Framing Errors		0
Overrun Errors		0
Parity Errors		0
Breaks		0
Line State		Port 1
Current State	     	

- Navigate to Status->System log to see the logs confirming incoming/outgoing calls, duration and the phone number.

MRD-355



Status	System	Wireless	Network	Routing	Firewall	VPN	Serial Server	Management
Alarms	Wireless	LAN	VPN	GRE	Serial Server	System Log		

Logged in as **admin** Host: MRD-355-e0-a0-ee

System Log

11:36:08 28/09/2017

```

Sep 28 10:51:39 dnsmasq[2684]: read /etc/hosts - 2 addresses
Sep 28 10:52:18 dnsmasq[2684]: read /etc/hosts - 2 addresses
Sep 28 10:55:12 mrx[2039]: MSPDriver / CSD: port 1: outgoing call to 01489567588
Sep 28 10:55:35 mrx[2039]: MSPDriver / CSD: online
Sep 28 10:56:48 mrx[2039]: MSPDriver / CSD: offline: duration 00:01:13, tx 88, rx 66
Sep 28 10:57:15 mrx[2039]: MSPDriver / CSD: port 1: outgoing call to 01489567588
Sep 28 10:57:43 mrx[2039]: MSPDriver / CSD: online
Sep 28 10:58:55 mrx[2039]: MSPDriver / CSD: offline: duration 00:01:12, tx 256, rx 549
Sep 28 10:59:53 mrx[2039]: MSPDriver / CSD: incoming data call from 01489567588
Sep 28 11:00:13 mrx[2039]: MSPDriver / CSD: online
Sep 28 11:05:09 mrx[2039]: MSPDriver / CSD: offline: duration 00:04:56, tx 180, rx 347
Sep 28 11:06:20 mrx[2039]: MSPDriver / CSD: port 1: outgoing call to 01489567588
Sep 28 11:06:41 msp: Wireless: RSSI 23, BER 0.0%-0.2%
Sep 28 11:06:45 mrx[2039]: MSPDriver / CSD: online
Sep 28 11:07:52 mrx[2039]: MSPDriver / CSD: offline: duration 00:01:07, tx 0, rx 3
Sep 28 11:08:01 msp: Wireless: RSSI 26, BER 0.0%-0.2%
Sep 28 11:08:23 mrx[2039]: MSPDriver / CSD: port 1: outgoing call to 01489567588
Sep 28 11:08:57 mrx[2039]: MSPDriver / CSD: online
Sep 28 11:12:02 mrx[2039]: MSPDriver / CSD: offline: duration 00:03:05, tx 56, rx 24
Sep 28 11:12:29 mrx[2039]: AUTH: Login for user admin from web (192.168.2.91) successful.
Sep 28 11:17:11 msp: Wireless: RSSI 23, BER 0.0%-0.2%
Sep 28 11:18:01 msp: Wireless: RSSI 26, BER 0.0%-0.2%
Sep 28 11:18:43 kernel: PHY: 0:00 - Link is Down
Sep 28 11:35:14 kernel: PHY: 0:00 - Link is Up - 100/Full
Sep 28 11:36:06 mrx[2039]: AUTH: Login for user admin from web (192.168.2.95) successful.
                
```

[Download](#)

Revision history for version 1.0

Revision	Rev by	Revision note	Date
00			
01			
02			
03			
04			
05			
06			
07			



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