MultiConnect® microCell

MTCM2-L6G1 Configuration Guide

MultiConnect microCell Configuration Guide

Model: MTCM2-L6G1

Part Number: S000774 1.0

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Chapter 1 – Configuring on the Windows/Linux Operating System

Setting Up the MTCM2-L6G1 on Windows

1. Download and install Windows Driver and Connection Manager at ftp://ftp.multitech.com/wireless/mtcm2-l6g1/connectionmanager-2.1.0.3.msi
2. Connect hardware and bring up the Connection Manager. More details are available in MultiConnect® microCell MTCM2-L6G1 User Guide

   a. Connect two antennas.

   b. Insert the SIM card into the SIM card slot with the contact side facing up as shown. When the SIM card is installed, it locks into place.

   c. Connect the USB modem to a Windows PC and bring up Connection Manager.

   d. Setup the SIM APN if required.

   It takes a few minutes for the Connection Manager to detect the modem and live cellular network, if the cellular signal and cellular network are available

3. After Connection Manager shows connected, check the Details tab. If it shows a valid cellular IP address, the cellular connection is now active and internet access is available.

If custom AT commands and APN settings are required, refer to Cassiopeia Module Use Cases with AT Commands and Sequans Cassiopeia AT Commands Manual.

Setting Up the MTCM2-L6G1 on Linux

The Linux driver should be part of most Linux kernel / OS systems.

For some Linux systems, you may have to disable Connection Manager using the following command for this USB modem to function properly:

```
systemctl disable ModemManager
```

After modem hardware is installed, the Linux system should show these ports:

- One com port = CDC_ACM (/dev/ttyACM0)
- Two ethernet ports = CDC_ether (eth1 and eth2)

Use the following Linux commands to start the cellular connection after the modem is setup, configured and registered:

```
 ifconfig eth1 up (cellular IP)
 ifconfig eth2 up (debug interface)
 udhcpc -i eth1
 udhcpc -i eth2
 ifconfig eth1 (check if cellular IP address is assigned successfully to this
ethernet interface)
```

You need to setup and configure routing, DNS, and default gateway for the system to have access over the private LTE network via the Ethernet cellular IP address interface.

Use troubleshooting guide, if your Linux Ethernet interface cannot obtain a cellular IP address and there are connectivity issues.

Troubleshooting Cellular Connectivity Issues

When there are cellular connectivity issues:

- Check SIM card and make sure it is activated and allow to connect to private LTE network
- Does the SIM card require specific APN setting? If so, set APN accordingly using AT commands. Refer to the AT Commands topic for details.
- Check LED SIM to insure SIM card is detected
- Check LED signal strength to insure network signal is available
- Check LED LS to insure network registered
- Use terminal software and AT command to query modem information and status

AT Commands

Check modem version:

```
AT+CGMM
AT+CGMR
ATI
```

Check SIM status:

```
AT+CIMI
AT+CPIN?
```

Setup and check APN:

```
AT+CGDCONT=1,”IP”,”apn name”
AT+CGDCONT?
AT+CGCONTRDP
```

Check signal strength:

```
AT+CESQ
```

Check network registration:

```
AT+CEREG?
AT+COPS?
```

Check modem setting for auto network connection:

```
AT+SQNAUTOCONNECT?
```

```
AT^AUTOATT?
```

Check CA (carrier aggregation) status during an active cellular connection:

```
AT!=showscellstat
```

Chapter 2 – Configuring on the Apple Mac Operating System

Setting Up the MTCM2-L6G1 on an Apple Mac

1. Download and install Mac OS serial terminal software (CoolTerm) https://freeware.the-meiers.org/
2. Connect hardware.
   a. Connect two antennas.
   b. Insert the SIM card into the SIM card slot with the contact side facing up as shown. When the SIM card is installed, it locks into place.

3. Plug in the USB modem, open terminal software and issue AT commands to USB Modem virtual com port.

```
at+sqnbypass=0
at+sqnusbenum="ecm+acm"
at^reset
```

   USB modem should reboot with new settings. Modem LEDs should be on and LS LED should be blinking

With the above setup, USB modem is assigned with the private IP 192.168.15.x to the Apple Mac OS virtual Ethernet interface.

Limitations are it can only support outbound traffic and it does not allow remote access into the Mac via the cellular IP address.

Note: Mac OS sleep mode is not supported. USB modem requires reset (AT^RESET or unplug and plug back the USB modem) after Mac wakes up from sleep mode

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AT^AUTOATT?
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Check CA (carrier aggregation) status during an active cellular connection:

```
AT!=showscellstat
```

Chapter 3 – Configuring on a Google Chromebook

Setting Up the MTCM2-L6G1 on an Google Chromebook

MTCM2-L6G1 USB modem must be setup and configured using a Windows PC. Ensure the modem and SIM are working properly with a live CBRS/Private LTE cellular network connection before installing modem into Chromebook.

1. Download and install Windows Driver and Connection Manager at ftp://ftp.multitech.com/wireless/mtcm2-l6g1/connectionmanager-2.1.0.3.msi
2. Connect hardware and bring up the Connection Manager. More details are available in MultiConnect microCell MTCM2-L6G1 User Guide

   a. Connect two antennas.

   b. Insert the SIM card into the SIM card slot with the contact side facing up as shown. When the SIM card is installed, it locks into place.

   c. Connect the USB modem to a Windows PC and bring up Connection Manager.

   d. Setup the SIM APN if required.

   It takes a few minutes for the Connection Manager to detect the modem and live cellular network, if the cellular signal and cellular network are available

3. After Connection Manager shows connected, check the Details tab. If it shows a valid cellular IP address, the cellular connection is now active and internet access is available.
4. Before moving the USB Modem to ChromeBook, issue the following AT command in the Connection Manager Terminal Tab. Wait for 1 minute and then remove the USB modem from the Windows PC.

   Note: Once the following command is issued, the modem stops responding to AT commands. If troubleshooting is required, follow the steps in the next topic to reset the modem.

   ```
   AT+SQNUSBENUM="ecm"
   ```

5. Plug the USB modem into Chromebook. The Chrome OS sees the modem as an Ethernet port. If working. it shows the cellular IP address and it should have full internet access. If it is not working, Ethernet Port l shows the IP address = 192.168.15.x

Troubleshooting When the Modem is Not Working on Chromebook

You need to use a Windows PC to troubleshoot the modem and cellular network issue.

1. If you have not done so, do Steps 1-3 in *Setting Up the MTCM2-L6G1 on an Google Chromebook*.
2. Download and install the windows tool to reset the modem back to factory default ftp://ftp.multitech.com/wireless/mtcm2-l6g1/mtcm2-l6g1-apph.zip.
3. Unzip the files into a Windows folder, go to the folder, double click and run the **Set-USB.bat** file.
4. Press **Enter** to get the prompt 0>
5. Type **AT** and press **Enter.** Make sure it returns OK.
6. Type the following and press **Enter.**

   ```
   AT+SQNUSBENUM="ecm+acm+ecm"
   ```
7. Press **Enter** again to get the prompt -->
8. Type **quit** to exit the program.
9. Use the Windows Setup section to test and use the following troubleshooting connection.

Troubleshooting Cellular Connectivity Issues

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