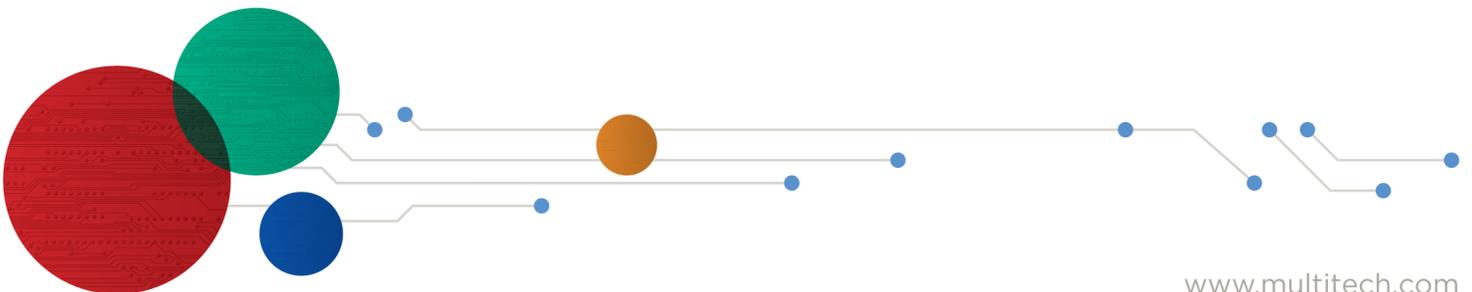


# USB Driver

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## Installation Guide for LTE Devices



## USB Driver Installation Guide for LTE Devices

For the following devices: MTSMC-LEU1-U, MTSMC-LAT1-U, MTSMC-LVW2-U, MTSMC-LAT3-U, MTSMC-LVW3-U, MTSMC-LSP3-U, MTSMC-MAT1-U, MTSMC-LV3-U, MTSMC-MNA1-U, MTSMC-L4N1, MTSMC-L4E1, MTQ-LAT3-B01, MTQ-LAT3-B02, MTQ-LVW3-B01, MTQ-LVW3-B02, MTQ-MNA1, MTD-MAT1, MTD-MVW1, MTD-MNA1, MTC-LNA4-B03, MTC-LEU4-B03, MTC-MAT1-B03, MTC-MVW1-B03, MTC-LAT1-B03, MTC-MNA1-B03

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# Chapter 1 – Linux Drivers for LTE Cat 1 and Cat 4 Devices

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## Installing on Linux

This chapter applies to LTE Cat 1 and Cat 4 devices. This includes the following models: -LAT3, -LVW3, -LSP3, -LNA3, -LSB3, -LDC3, -LNA4, and -LEU4.

## Troubleshooting Linux

If Linux does not create devices, check for the kernel module:

```
# lsmod | grep cdc_acm
```

If entries aren't found, load the kernel module with root privileges:

```
# modprobe cdc-acm
```

If this returns an error response, such as

```
# FATAL: Module cdc-acm
```

not found, the kernel module is not on your system. You will need to build the driver.

## Building a Linux Driver

If using the device with the Linux operating system:

1. Download latest stable kernel. Check <http://www.kernel.org> for the latest stable kernel. In the terminal window, enter the following:
  - a. `sudo su`  
and then the password to put it into root mode.
  - b. `cd /usr/src`
  - c. `wget https://www.kernel.org/pub/linux/kernel/v3.x/linux-x.x.x.tar.xz`  
where x.x.x equals the version number for the latest stable kernel
2. Untar the kernel. To do this, enter:  
`tar -xvJf linu-x.x.x.tar.xz`
3. Edit option.c source file for the LE910 module:
  - a. `gedit linux-x.x.x/drivers/usb/serial/option.c`
  - b. Verify if the following #define statement exists:  
LE910 module:  
`#define TELIT_PRODUCT_LE910 0x1201`
  - c. If the #define statement does not exist, add the statement.
  - d. Add the following struct:  

```
static const struct
    option_blacklist_info telit_le910_blacklist = {
    .sendsetup = BIT(0), .reserved = BIT(1) | BIT(2)
```

- ```
};
```
- e. Add the following line to `usb_device_id option_ids[]` structure:
 

```
{ USB_DEVICE(TELIT_VENDOR_ID,
              TELIT_PRODUCT_LE910), .driver_info =
              (kernel_ulong_t)&telit_le910_blacklist},
```
  4. Edit `qmi_wwan.c` source file for the LE910 module:
 

```
gedit linux-x.x.x/drivers/net/usb/qmi_wwan.c
```
  5. Add the following line to `usb_device_id products[]` structure:
 

```
{QMI_FIXED_INTF(0x1bc7, 0x1201,2)], /*Telit LE910*/
```
  6. Compile the drivers.
    - a. `cd linux-x.x.x`
    - b. `make menuconfig`

If a menu window was not made. Install ncurses library.

      - `apt-get install libncurses5`
      - `apt-get install libncurses5-dev`
    - c. Go to **Device Drivers/USB Support/USB Serial Converter Support**.  
To go to the menu configuration page, highlight your selection, highlight **Select** on the bottom of the page, and press **Enter**.
    - d. Choose **USB driver for GSM and CDMA modems** and press the **M** key to make as a module.
    - e. Go to **Device Drivers/Network Device Support/USB Network Adapters**.
    - f. Choose the appropriate driver and press **M**.
    - g. Exit out of the menus until prompted, **Do you wish to save your new configuration?** Select **Yes**.  
To exit a menu, highlight **Exit** on the bottom of the page, and press **Enter**.
  7. Start building the kernel. This process may take several hours.
    - a. `make`
    - b. `make modules`
    - c. `make modules_install`
  8. Install the new kernel:
 

```
make install
```
  9. Reboot the system:
 

```
reboot
```
  10. Verify that the installed kernel version matches the version you downloaded:
 

```
uname -r
```

## Chapter 2 – Linux Drivers for LTE Cat 3 and Cat M1 Devices

---

### Installing on Linux

This section applies to LTE Cat 3 and Cat M1 devices. This includes the following models: -LAT1, -LVW2, -LEU1, -MAT1, -MVW1, and -MNA1.

Beginning with Linux Kernel 3.18, an LTE driver named option was included in Linux. If using an older version of Linux, build an updated option driver.

If the operating system recognizes the modem, devices named `/dev/ttyUSBx` are created, for example:

- `/dev/ttyUSB0`
- `/dev/ttyUSB1`
- `/dev/ttyUSB2`
- `/dev/ttyUSB3`
- `/dev/ttyUSB4`

Only the following devices can be used for AT commands:

- `/dev/ttyUSB2` (data port for PPP connections and AT commands)
- `/dev/ttyUSB3` (generic port for AT commands)

Need to know which Linux kernel we are testing on and what devices are created.

### Troubleshooting Linux

If Linux does not create devices, check for the kernel module:

```
# lsmod | grep option
```

If entries aren't found, load the kernel module with root privileges:

```
# modprobe option
```

Check `dmesg` output to see that the radio was detected:

```
# dmesg | grep option
```

```
usbcore: registered new interface driver option
option 1-2.3:1.0: GSM modem (1-port) converter detected
option 1-2.3:1.2: GSM modem (1-port) converter detected
option 1-2.3:1.3: GSM modem (1-port) converter detected
option 1-2.3:1.4: GSM modem (1-port) converter detected
option 1-2.3:1.5: GSM modem (1-port) converter detected
option 1-2.3:1.6: GSM modem (1-port) converter detected
```

If this returns an error response, the kernel module is not on your system. You will need to build the driver.

## Manually Adding Option Driver (Cat M1 only)

If the option driver doesn't include the ME910C1 module, load it manually by issuing the following commands or including them in the Linux startup scripts:

```
modprobe option
echo 1bc7 1101 > /sys/bus/usb-serial/drivers/option1/new_id
```

## Building a Linux Driver

If using the device with the Linux operating system:

1. Download latest stable kernel. Check <http://www.kernel.org> for the latest stable kernel. In the terminal window, enter the following:
  - a. **sudo su**  
and then the password to put it into root mode.
  - b. **cd /usr/src**
  - c. **wget https://www.kernel.org/pub/linux/kernel/v3.x/linux-x.x.x.tar.xz**  
where x.x.x equals the version number for the latest stable kernel
2. Untar the kernel. To do this, enter:
 

```
tar -xvJf linux-x.x.x.tar.xz
```
3. Edit option.c source file for LE910 (Cat3) or the ME910 (Cat M1) module :
  - a. **gedit linux-x.x.x/drivers/usb/serial/option.c**
  - b. Verify if the following #define statement exists:  
LE910 module:  
**#define TELIT\_PRODUCT\_LE910 0x1201**  
ME910 module:  
**#define TELIT\_PRODUCT\_ME910 0x1101**
  - c. If the #define statement does not exist, add the statement.
  - d. Add the following struct, where XX is le for LE910 or me for ME910 modules:
 

```
static const struct
    option_blacklist_info telit_XX910_blacklist = {
    .sendsetup = BIT(0), .reserved = BIT(1) | BIT(2)
    };
```
  - e. Add the following line to **usb\_device\_id option\_ids[]** structure, where XX is LE for LE910 or ME for ME910 modules and xx is le or me respectively:
 

```
{ USB_DEVICE(TELIT_VENDOR_ID,
              TELIT_PRODUCT_XX910), .driver_info =
              (kernel_ulong_t)&telit_xx910_blacklist},
```
4. *LE910 only* Edit qmi\_wwan.c source file for the LE910 module:
 

```
gedit linux-x.x.x/drivers/net/usb/qmi_wwan.c
```
5. *LE910 only* Add the following line to **usb\_device\_id products[]** structure:
 

```
{QMI_FIXED_INTF(0x1BC7, 0x0036 ,2)], /*Telit LE910*/
```
6. Compile the drivers.
  - a. **cd linux-x.x.x**



## Chapter 3 – Windows Drivers

### WHQL Windows 10 Driver

For some devices, download options include a WHQL driver for Windows 10. WHQL drivers have been tested and signed by a Windows Hardware Quality Lab. Windows uses digital signatures to verify the driver package integrity.

You may use either the Windows Desktop driver or the WHQL Windows 10 drivers for 32- and 64-bit systems. If using the Windows Desktop driver, Windows displays a security warning dialog box during the installation process. You can click to install the driver software anyway. You do not get the prompt with the WHQL driver.

### Downloading the Windows USB Driver

If you haven't downloaded the driver:

1. Go to [multitech.com](http://multitech.com) and search to find your device's model page. Your device's model number is on the product label.
2. Under **Downloads**, click on the **WindowsDesktopDriversInstaller** or, for the signed driver, **Windows10WHQLDriversInstaller**. A popup window appears.
3. Click to **Download** the driver zip file to your computer.
4. Extract the files to your computer.

### Installing on Windows 10, 8.1, 8, or 7

This process installs multiple drivers and ports. You need administrator rights to install drivers.

**Note:** If you previously installed USB drivers for this device, uninstall them before installing or re-installing this driver. Uninstall all existing drivers for this device. Refer to [Uninstall Windows Drivers](#) for details.

Before you connect the device (disconnect the device if you connected it):

**CAUTION:** If you connected the device before installing the drivers, Windows may install drivers automatically. Your device may not operate correctly with these drivers. Uninstall the drivers before proceeding. See [Remove Microsoft Installed Drivers](#) for details.

1. Go to the location where you extracted the driver and double-click on file for your system:

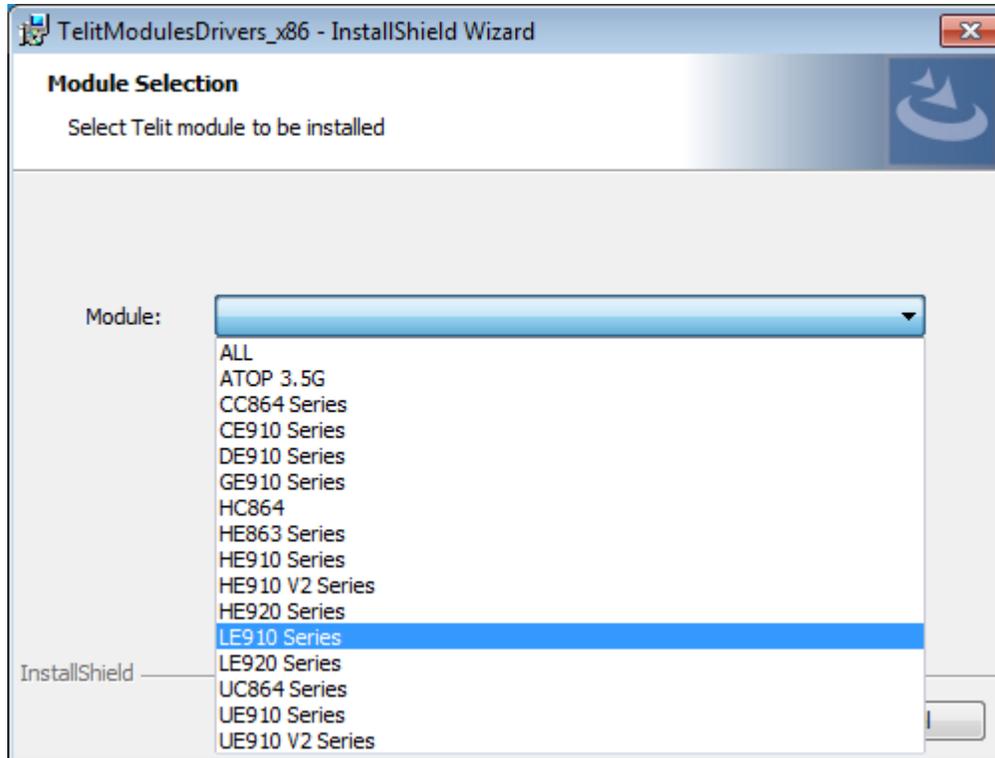
For the Windows desktop drivers:

- For 32-bit use **TelitModulesDrivers\_x86.msi**
- For 64-bit use **TelitModulesDrivers\_x64.msi**

For the WHQL Drivers:

- For 32-bit use **Telit WHQL Drivers x86.msi**
- For 64-bit use **Telit WHQL Drivers x64.msi**

2. Click **Next** in the Welcome pane.
3. For Cat 1 devices (LAT1/LEU1/LVW2), select **LE910 Series** from the Module Selection pane and click **Next**. Skip this step for Cat 3, Cat 4, and Cat M1 devices.



4. Leave the default **Complete (suggested)** Setup Type and click **Next**.
5. Click **Install** each time you are prompted. You may be prompted to allow the installer to install the program on your computer, click **Yes**.
6. Click **Finish**.
7. Connect USB cable from the device to a USB port on your computer. Windows indicates when the device is ready to use.

## Uninstalling Windows Drivers

### Windows 10

To uninstall drivers from Windows 10:

1. Open the Start Menu and click **Settings**.
2. Click **System**.
3. Click **Apps & Features**.
4. In the Apps & Features pane, scroll down to **TelitModulesDrivers\_x##** or **Telit WHQL Drivers x##**, where ## is 64 or 86, and click **Uninstall**. Confirm that you want to uninstall the driver.

Uninstalling the TelitModulesDrivers, uninstalls all related Telit modems, ports, and drivers, so you don't need to uninstall these individually.

### Windows 8 or 8.1

To uninstall drivers from Windows 8 or 8.1:

1. Open Windows **Programs and Features**.

2. Scroll to **TelitModulesDrivers\_x###**, where ## is 64 or 86, and click Uninstall. Confirm that you want to uninstall the driver.

Uninstalling the TelitModulesDrivers, uninstalls all related Telit modems, ports, and drivers, so you don't need to uninstall these individually.

## Windows 7

To uninstall drivers from Windows 7:

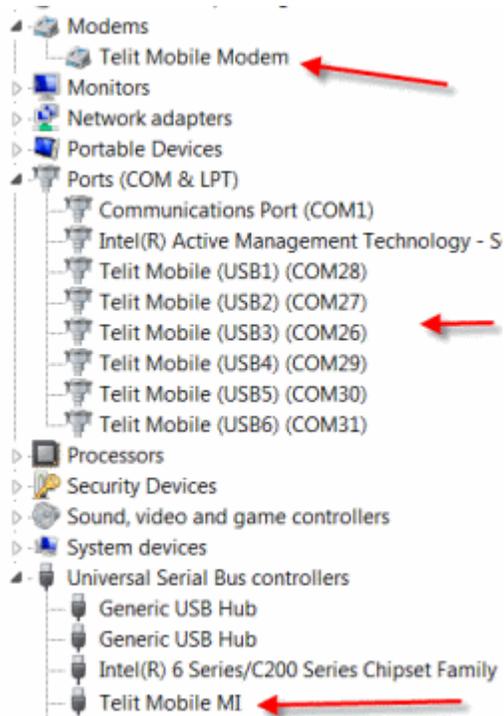
1. Open **Programs and Features** from the Windows Control Panel.
2. Scroll to **TelitModulesDrivers\_x###**, where ## is 64 or 86, and click Uninstall. Confirm that you want to uninstall the driver.

Uninstalling the TelitModulesDrivers, uninstalls all related Telit modems, ports, and drivers, so you don't need to uninstall these individually.

## Remove Microsoft Installed Drivers

If using Windows 7 and connect the device before installing drivers, Windows Update automatically installs drivers. Your device may not operate correctly with these drivers. To remove these drivers:

1. With the device plugged in, open the **Device Manager**.



2. Right-click on the Telit Mobile Modem and select **Uninstall**.
3. Select **Delete the driver software for this device** and click **OK**.
4. Repeat the removal steps to uninstall each Telit port and the Telit Universal Serial Bus Control.