

MCETOOLV2 User Manual

Rev 1.2

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1. Introduction

MCETOOLV2 (IR Cable V2) is designed to program IRMCK099 series Digital ICs on the user's target board (final application board) or on IRMCx Reference Design kit, to help engineers design the application code during development.

MCETOOLV2 contains the following basic configuration and functions:

- Power: 5V DC power supply (Powered through USB Mini B type interface)
- PC interface: USB to virtual communication port with baud rate of up to 256Kbps
- Isolated 3.3VDC Output for target
- Isolated output interface:
 - 8 Pin JTAG
 - 4 Pin UART

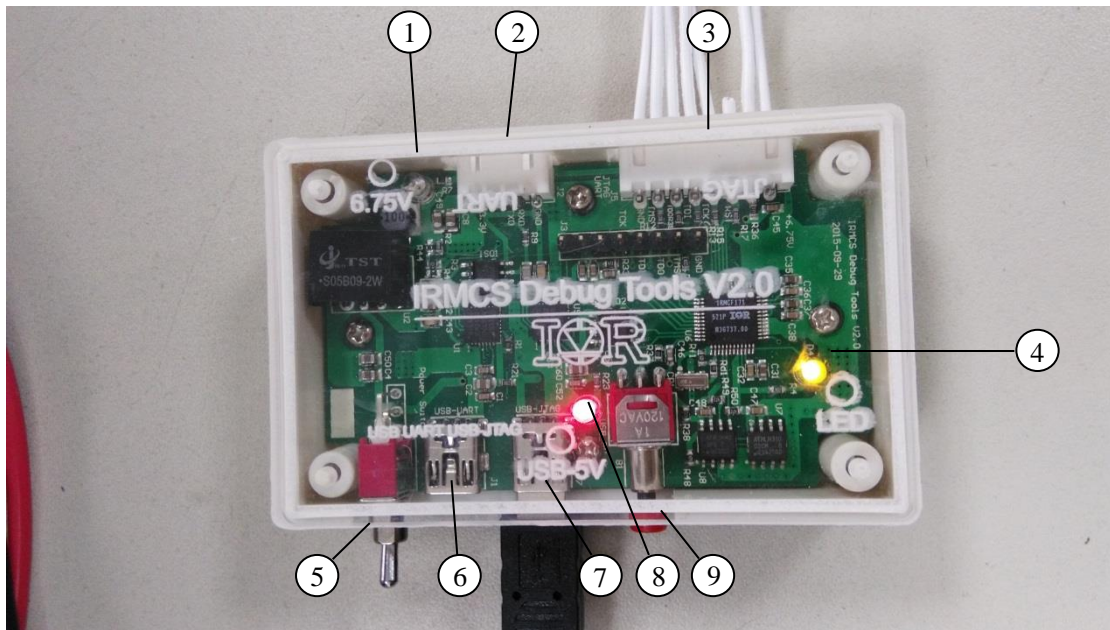


Figure 1: MCETOOLV2

1. Green LED1
2. Isolated UART port
3. Isolated JTAG port
4. Yellow LED D4
5. Switch SW1
6. PC USB cable port for UART operation
7. PC USB cable port for JTAG operation
8. Red LED6
9. Push button B1

To use as an isolated USB to UART converter, PC USB cable plugs in to “USB-UART”, and the UART output port is used. The pinout for UART connector (J2) is as shown in figure below

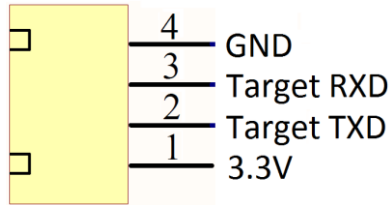


Figure 2: UART Connector pinout

To use as an isolated USB to JTAG converter, PC USB cable plugs in to “USB-JTAG”, and the JTAG output port is used. The pinout for JTAG connector (J3) is as shown in figure below

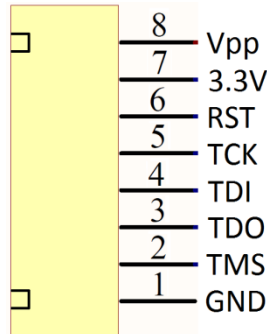


Figure 3: JTAG Connector pinout

Switch SW1 is used to power target from isolated DC-DC converted on MCETOOLV2. If switch is in upward position, target is powered from MCETOOLV2 and if it's in downward position, target is powered from external source.

Push button B1 is used to change communication mode when MCETOOLV2 is used with MCE Designer or MCE Programmer. By default or at power up MCETOOLV2 communication mode is configured to work with MCE Designer (LED D4 blinking rate 0.5 Hz or once every 2 sec) and to use MCETOOLV2 with MCE Programmer, communication mode is changed by pressing push button B1 for more than 0.3 sec. In MCE Programmer communication mode LED D4 blinks at rate of 1 Hz or once every second. MCETOOLV2 communication mode could be changed anytime from one mode to another by pressing push button B1 for more than 0.3 sec.

The user operation interface for MCETOOLV2 is integrated in

- MCE Programmer (v3.0.1.1 and above)
- MCE Designer (v1.2.0.0 and above)

2. Software installation for MCETOOLV2

MCETOOLV2 is supported by MCE Programmer as well as by MCE Designer and needs CP210x virtual com port drivers to communicate with PC. The installation procedure for MCE Programmer, MCE Designer and CP210x virtual com port drivers is as follows

2.1 MCE Programmer, MCE Designer and CP210x driver installation

MCE Programmer, MCE Designer and CP210x drivers are part of software package 99SeriesKitMCEInstallerV1.0 (or higher version) which contains the following support items for IRCable:

- Pre-Requisite software
- MCE Programmer software
- MCE Designer software and
- CP2102 driver.

Software installation step by step

Step 1: Double click “99SeriesKitMCEInstallerVx.x.exe” file. Installation process will check if the PC already has the software: “Microsoft Visual C ++ Runtime 11.0” and “Microsoft .NET Framework 3.5”or above version. If there is no such software, the installation will install them, otherwise it will go to the next step.

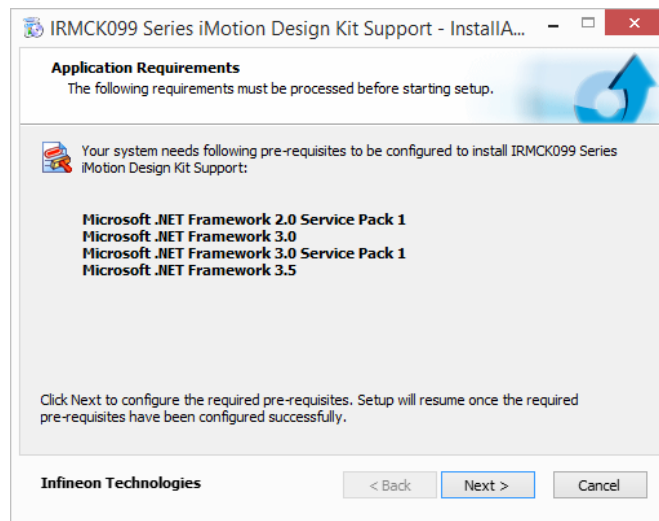


Figure 4: Pre-Requisites software installation

Step 2: After the pre-requisite software installs, it will install MCE Designer, MCE Programmer and other packaged application software.

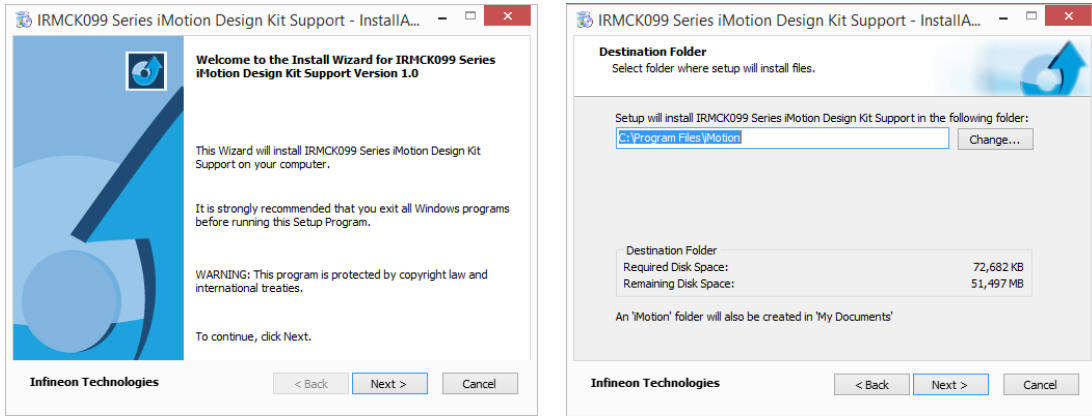


Figure 5: MCE Designer, MCE Programmer and other software installation

Press “Next” to select the install path, the default path is C:\Program Files\iMotion. This will overwrite previously installed files. The user can select a different path to preserve an earlier version of 99SeriesKitMCEInstallerVx.x. Then press “Next” and start the 99SeriesKitMCEInstallerVx.x software installation.

Step 3: The driver installation dialog will launch during 99SeriesKitMCEInstallerVx.x installation. If the PC has installed the CP210x chip driver before, press “Cancel” to cancel the operation, otherwise follow the prompt to finish unpacking and installing the driver.

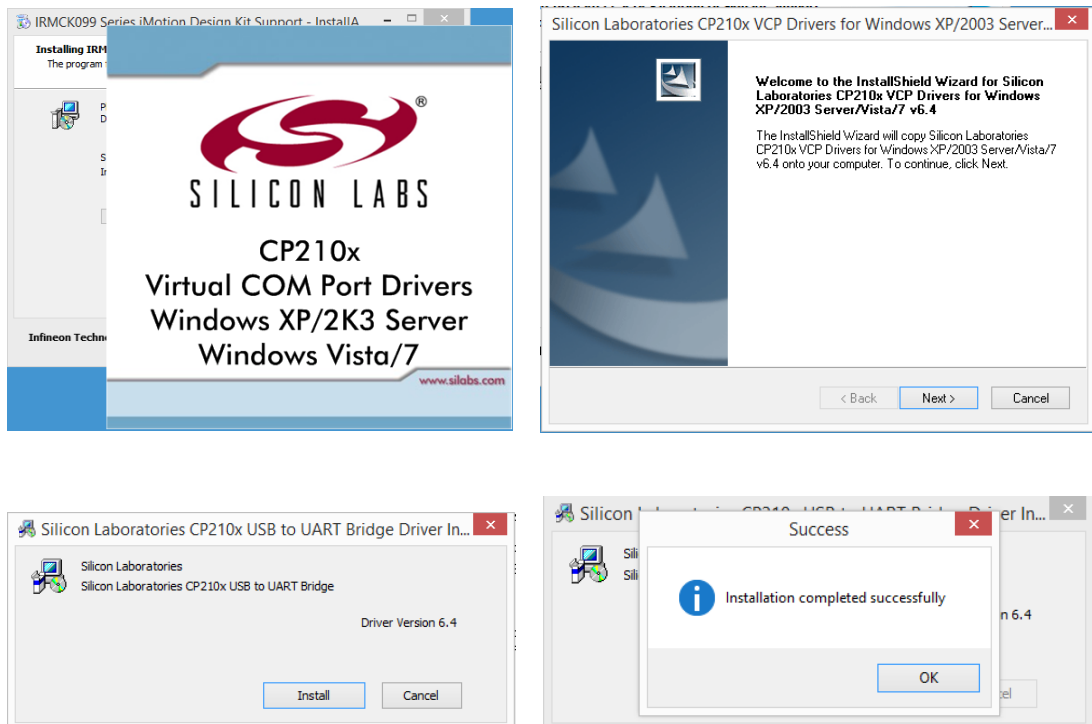


Figure 6: C210x chip driver installations

Step 4: After CP210x chip driver installation the following dialog “IRMCK099 Series iMotion

Design Kit Support” successfully installed will appear. Check/Uncheck boxes to visit iMotion support site and view release notes and press “Finish” to exit the installation wizard.

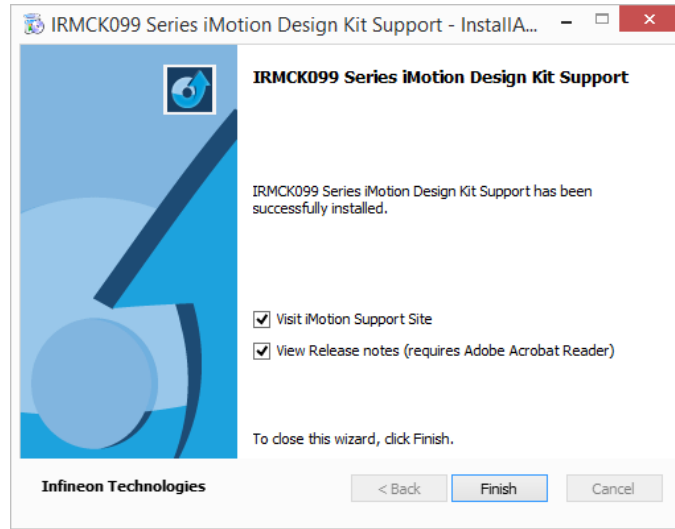


Figure 7: Installation completed dialog

3. Getting Started

3.1 Using MCETOOLV2 with MCE Programmer

3.1.1 Communication mode setup

At power up, MCETOOLV2 communication mode is configured to work with MCE Designer (LED D4 blinking rate 0.5 Hz or once every 2 seconds) but to use MCETOOLV2 with MCE Programmer communication mode needs to be changed to MCE Programmer mode by pressing push button B1 for more than 0.3 sec and then releasing it. MCE Programmer communication mode is confirmed if LED D4 blinks at rate of 1 Hz or once every second.

3.1.2 PC port configuration

When MCETOOLV2 is used for the first time or the COM port number has changed, configure the connection port and the baud rate. If there is no connection or the configuration has problem, MCE Programmer will prompt warning information.

Launch MCE Programmer and select “Tools—>IR Cable V2 Serial Port Setup”. Choose the right serial port and set the baud rate to “57600 bps (IRCable V2 default)”.

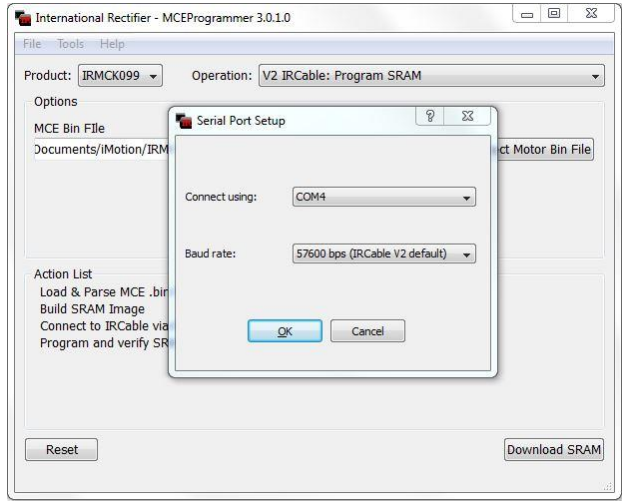


Figure 8: Configuring the connection port

NOTE:

If there is no MCETOOLV2 connection to the PC or the configuration is mismatched, the following error messages will appear. Please reconfigure the port settings.

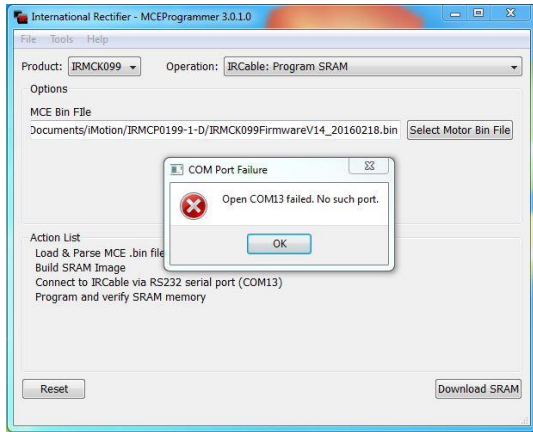


Figure 9: Open COM port failed

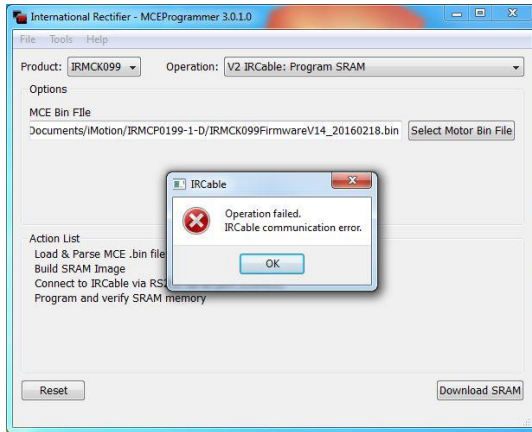


Figure 10: Port configured incorrectly

3.1.3 Target device programming

Select desired operation for MCETOOLV2 from drop-down list, select .bin file and click “Download” or “Program + Verify” button (depending upon desired operation)

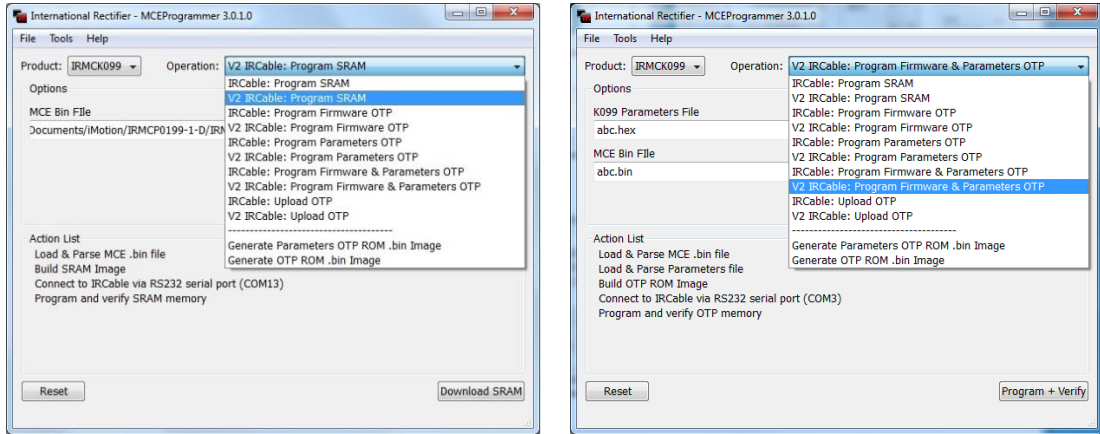


Figure 11: Select desired programming option

And wait for desired operation to finish.

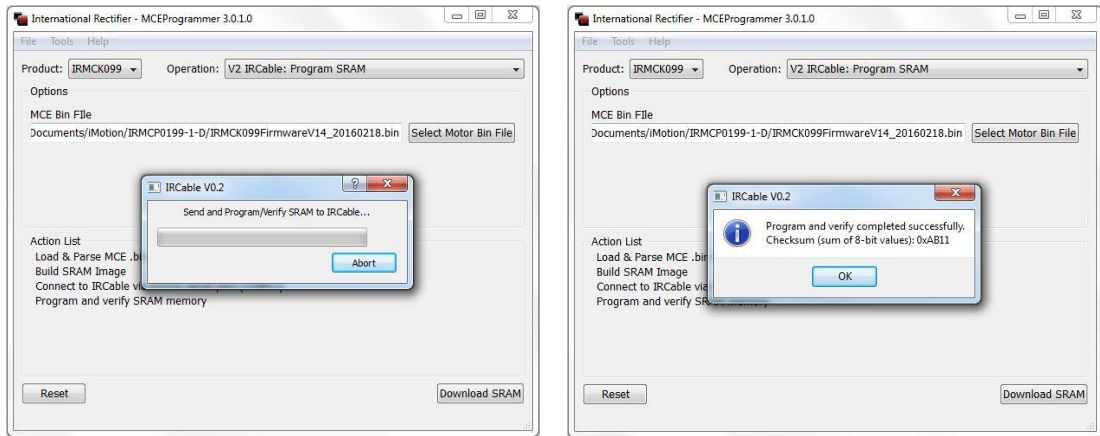


Figure 12: Programming complete

3.2 Using MCETOOLV2 with MCE Designer

3.2.1 Communication mode setup

At power up, MCETOOLV2 communication mode is configured to work with MCE Designer (LED D4 blinking rate 0.5 Hz or once every 2 seconds). However, if MCETOOLV2 is in MCE Programmer Communication mode (LED D4 blinking rate 1 Hz or once every second), the communication mode needs to be changed to MCE Designer mode by pressing push button for more than 0.3 sec and then releasing it. MCE Designer communication mode is confirmed if LED D4 blinks at a rate of 0.5 Hz or once every 2 seconds.

3.2.2 PC port configuration

Launch MCE Designer, open desired configuration file (with extension .irc)

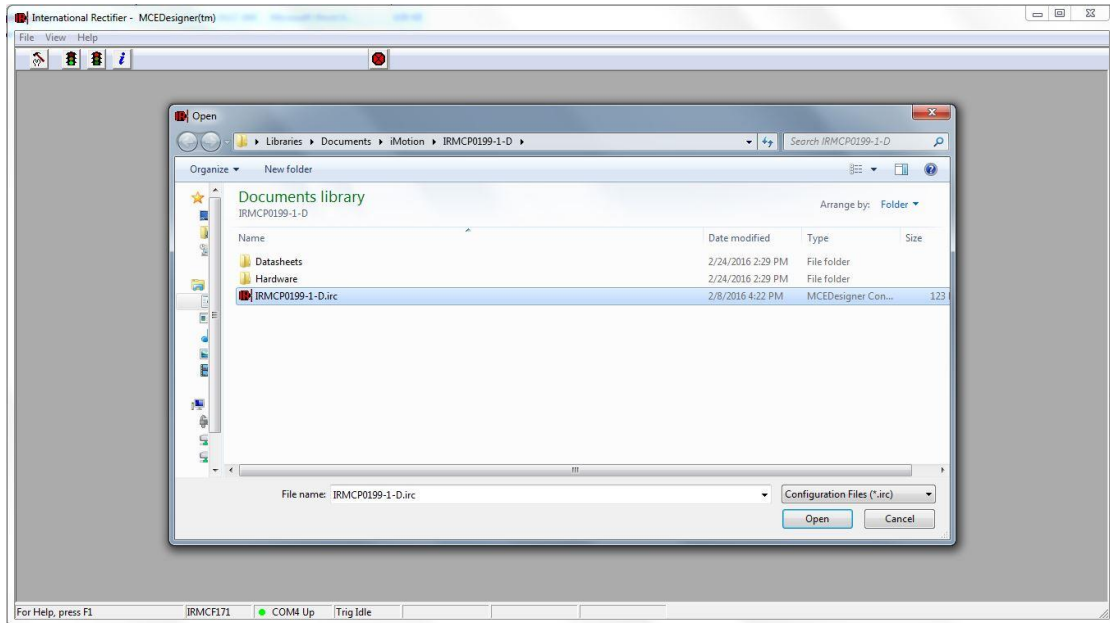


Figure 13: Configuration file selection

Highlight or click child window with title “System – XXX.irc” and select “Preferences → Connection”. Select proper com port from drop down list and press “OK” button.

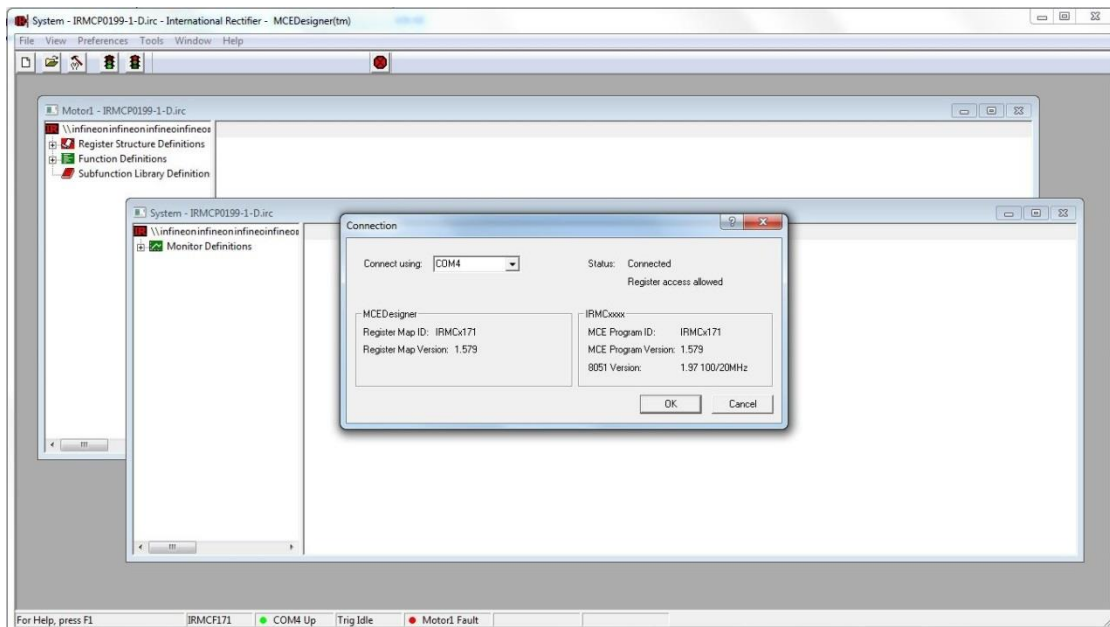


Figure 14: Com port selection

3.2.3 Programming target device

Highlight or click child window with title “System – XXX.irc” and select “Tools → Load Target”. Select desired firmware file (with .bin extension) using “Browse..” button, press “Open” button in file selection dialog and then “OK” button in “Load Target” dialog.

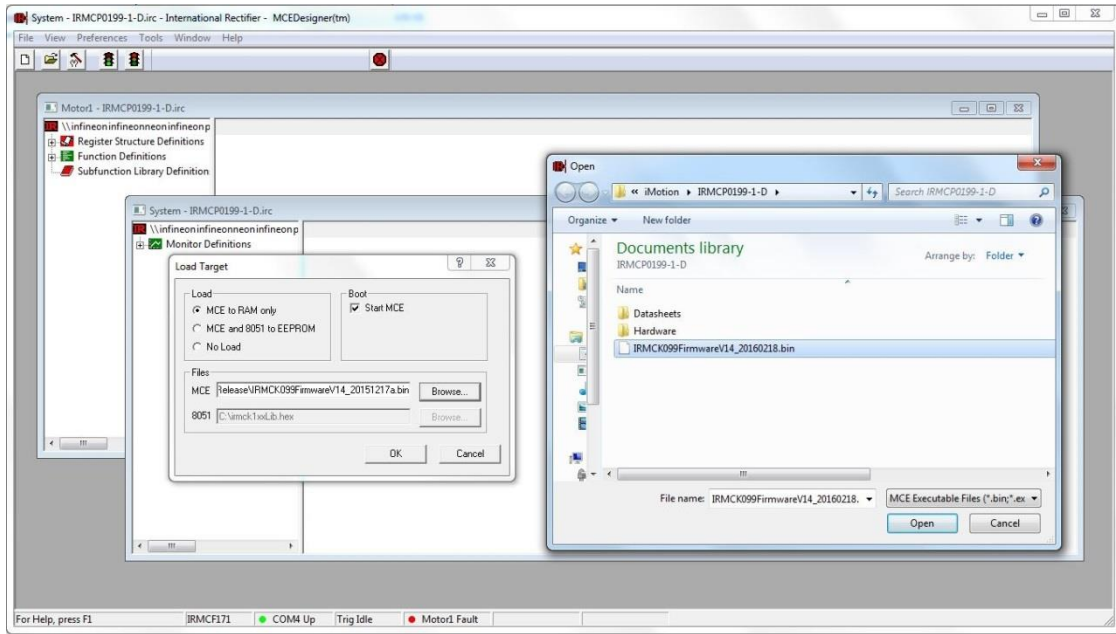


Figure 15: Firmware file selection

Wait for programming to finish.

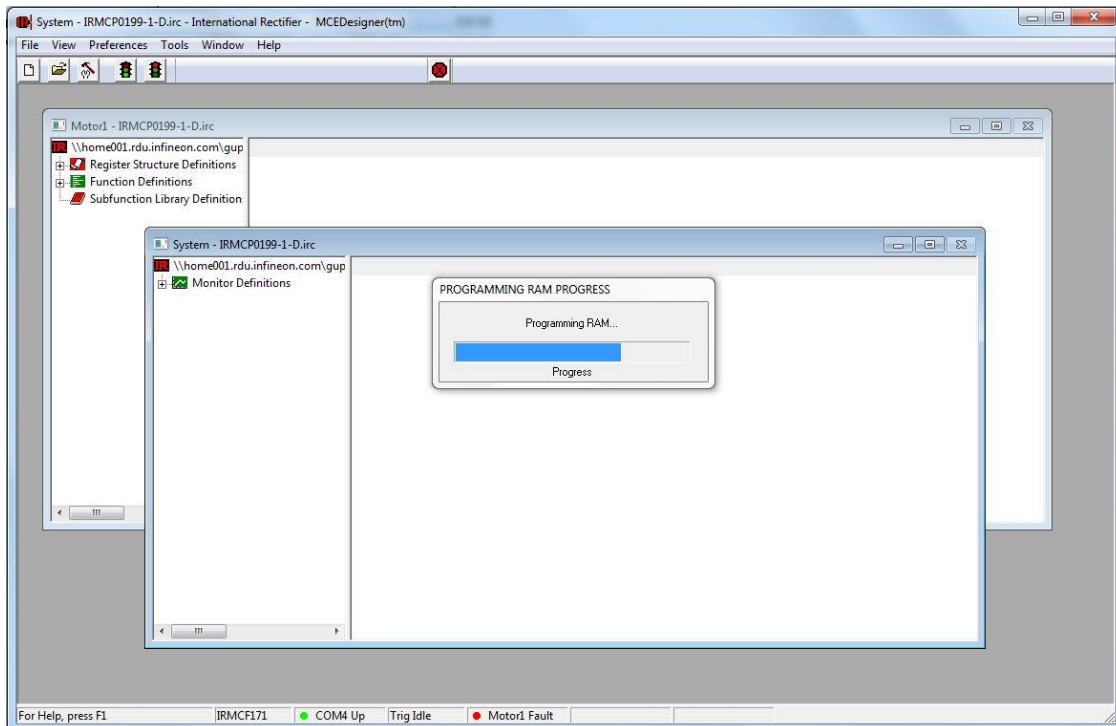


Figure 15: Programming in progress

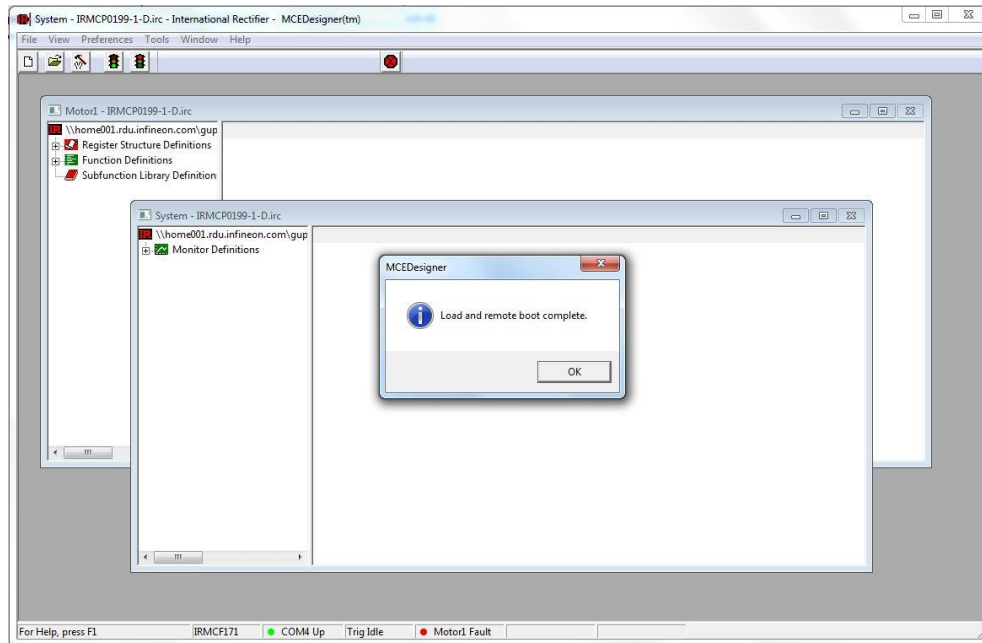


Figure 16: Programming complete

When configuration file is loaded or MCETOOLV2 is used for the first time or the COM port number has changed, configure the connection port. If there is no connection or the configuration has problem, MCE Designer will prompt warning information.

In this case, highlight or click child window with title “System – XXX.irc” and select “Preferences —> Connection”. Select proper com port from drop down list and press “OK” button.

4. LEDs illumination status

- Red LED6: Indicates 5V USB power supply. When MCETOOLV2 connects to PC, this LED shows that the MCETOOLV2 has been powered from 5V USB power.
- Yellow LED D4: D4 blinking rate specifies the communication mode for MCETOOLV2, LED D4 blinking rate 0.5 Hz or once every 2 seconds: MCE Designer communication mode
LED D4 blinking rate 1 Hz or once every second: MCE Programmer communication mode
- Green LED1: indicates when Vpp is enabled during programming the target.