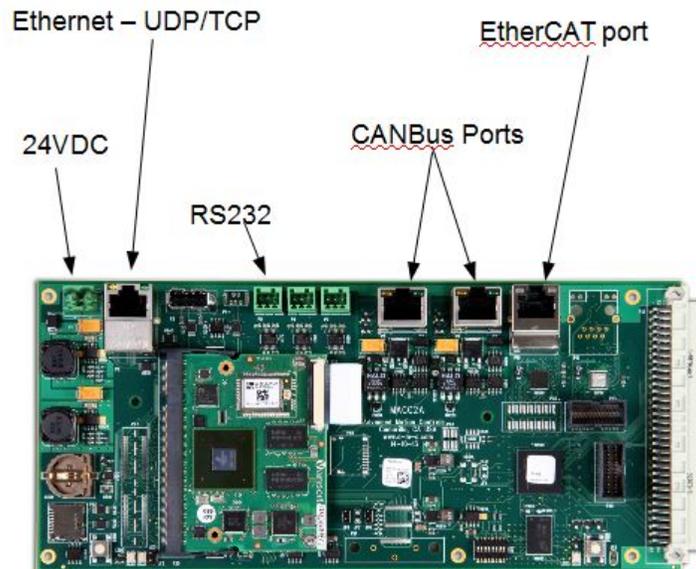


RUNNING A PROJECT ON THE MACC CONTROLLER WITH A PC BASED HMI:

Hardware Introduction:

The Motion Automation Control Card (**MACC**) is an embedded controller used to allow Click&Move® projects to run with “hard” real time control (RTOS), and provide motion programs a path to their respective servo drives and I/O (via CAN bus or MACCIO cards). Click&Move will also allow project debugging and HMI control through a “Gateway Project” which will typically communicate to the drive via Ethernet port. There are several connections, and protocols that can be supported. See the picture below:



Requirements for this Application Note:

- 1.** A familiar servo configuration will be needed (meaning use a pre-integrated motor drive combo in known working condition) and some preliminary ability to generate and configure basic C&M projects is assumed.
- 2.** A working Click&Move project with an HMI running on a PC. It is suggested to start with one of the existing templates. We will use the Two CAN Axes project template in this Application Note
- 3.** Working communication between the PC and the MACC (We will actually set this up as part of the App Note)

Setup Networking Hardware

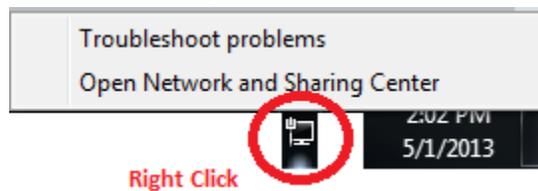
This section discusses some configuration using Windows, concerning how to get a network card setup to talk properly to the MACC. This is absolutely necessary for Click&Move to work with the MACC. A simple ping test will verify if the hardware is awake and communicating properly. This process is outlined step by step below:

Be Aware Which Plug to Use:

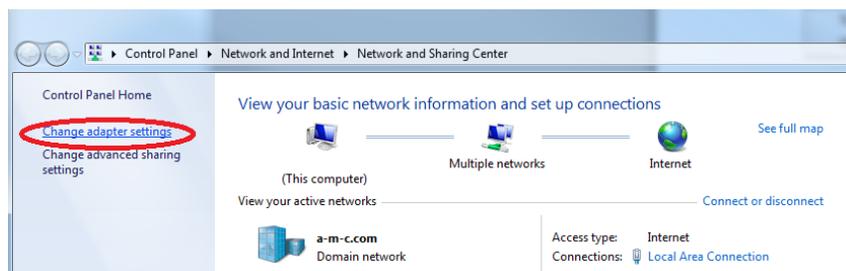
Care should be taken in the selection and use of an RJ45 connector applied to the MACC, and PC respectively. The MACC has 2 CAN ports, that will accept a RJ45 plug, DO NOT PLUG ETHERNET INTO CAN. On the computer side, it may be best to have to Network Cards (NIC) installed. IP address configuration for IPv4 will have to take place on at least one of the NIC's if this is done on the wrong card, loss of internet may result.

Setting the IP on a Network card:

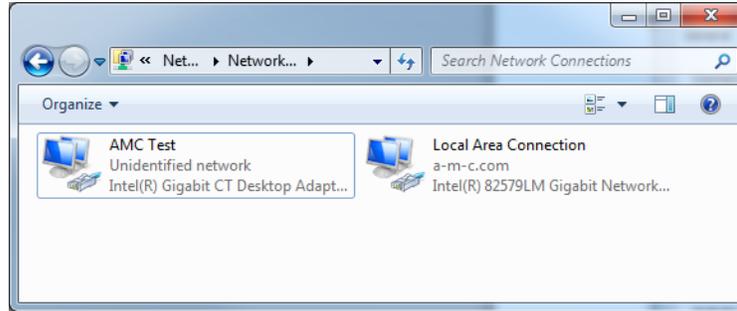
Start by opening the Network and Sharing center



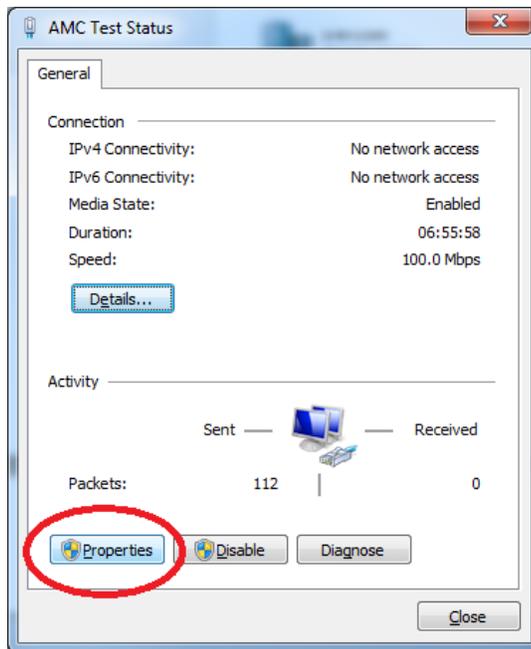
Select Change adapter settings on the left.



Select the device that is not attached to the internet

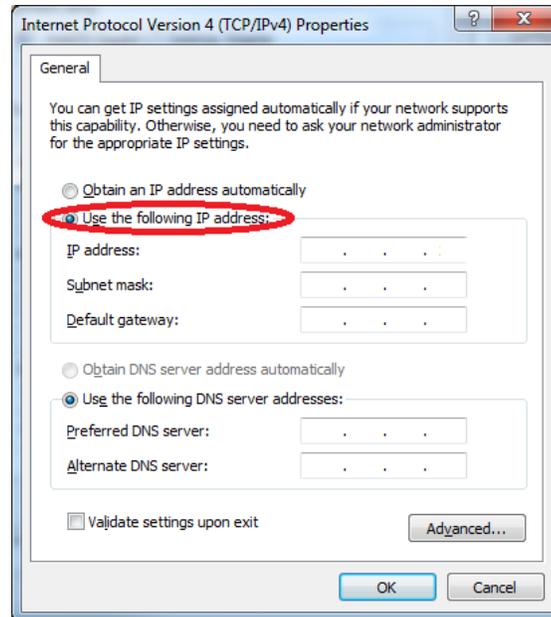


Choose properties



Select IPv4 Properties:

Select Use this IP address. Enter in the **IP address 192.168.100.240** (anything other than 192.168.100.50 will work; 240 is the default for this demo) Enter **for the subnet: 255.255.255.0**



Plug in the MACC and wait for the system to boot. (1 minute or so)

Connect the Ethernet Port on the MACC to the correct NIC on the computer.

Open a command prompt in Windows (in the run menu type cmd):

```
Administrator: Command Prompt
Microsoft Windows [Version 6.3.9600]
(c) 2013 Microsoft Corporation. All rights reserved.

C:\Users\cfournier>ping 192.168.100.50

Pinging 192.168.100.50 with 32 bytes of data:
Reply from 192.168.100.50: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.100.50:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\cfournier>
```

Ping the MACC at its **default address: 192.168.100.50**

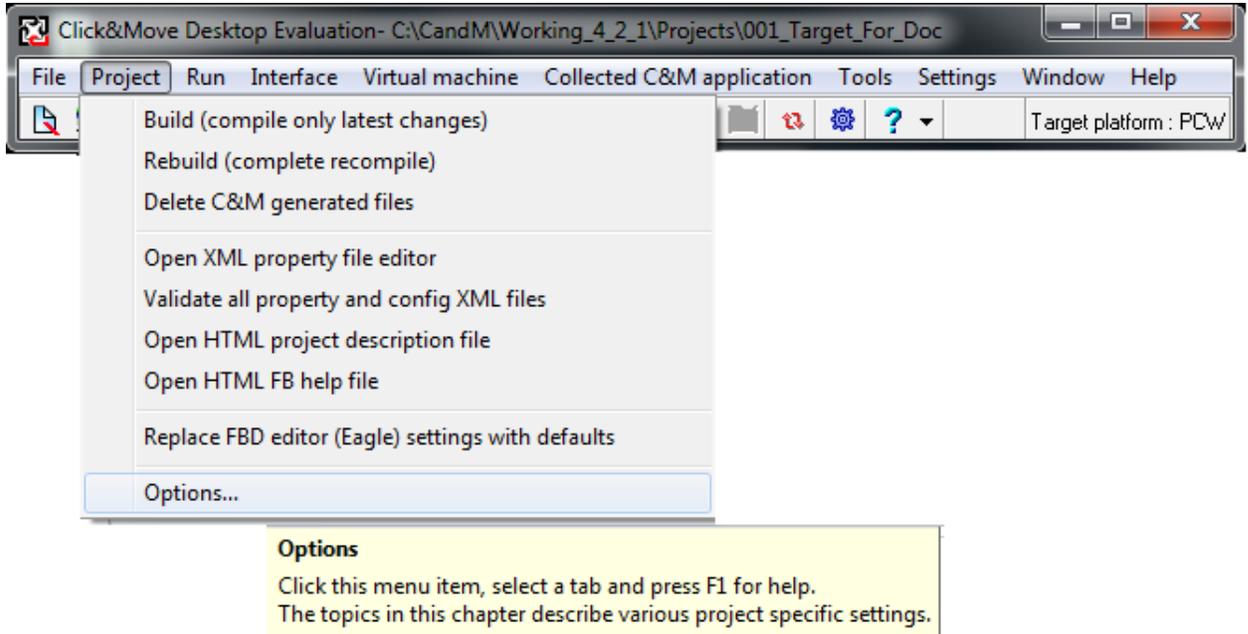
If all packets are lost, the connecting is somehow incorrect.

Otherwise, the MACC is alive and you can move to the next step.

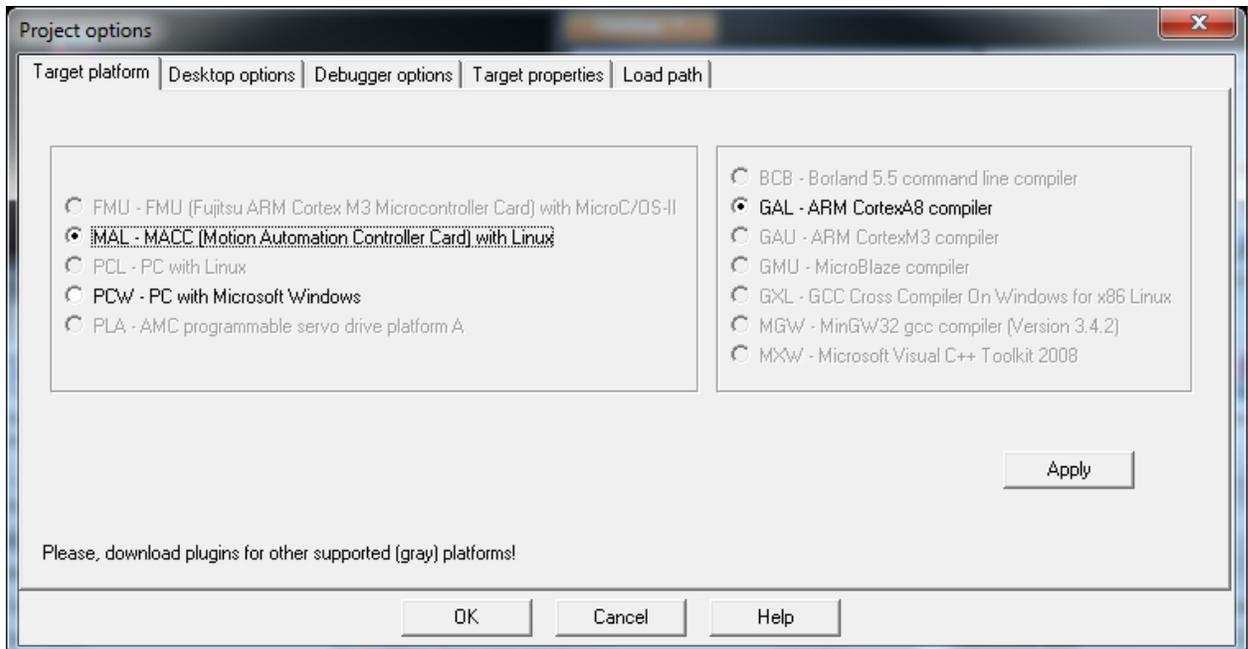
Start with your PC based Project

You should have a working project already tested on the PC with HMI built. For the purposes of this App note, we will be using the Two Axes With CANOpen Network existing template. Its default will have been to have the Compiler set for PCW. The first thing we must do, is to change the compiler for the project to support the MACC. See below:

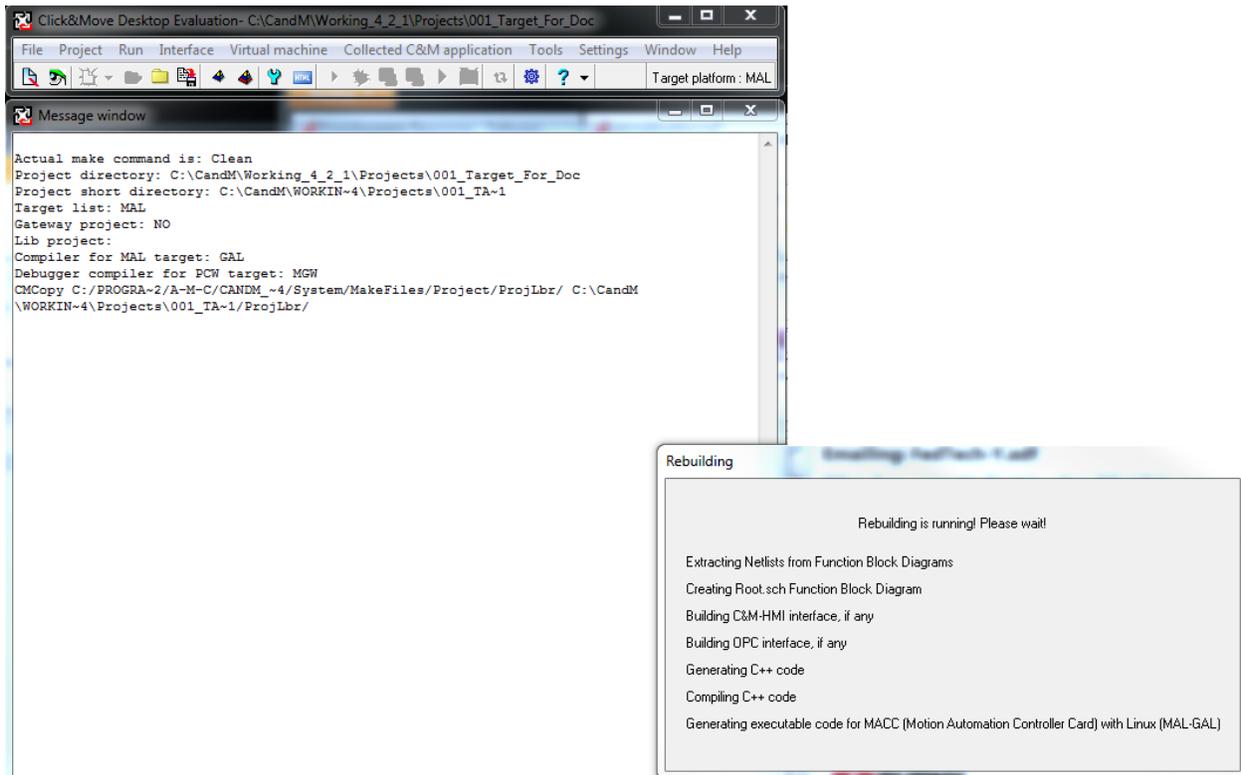
1. Set options target to MAL-MACC



Select MAL and GAL:

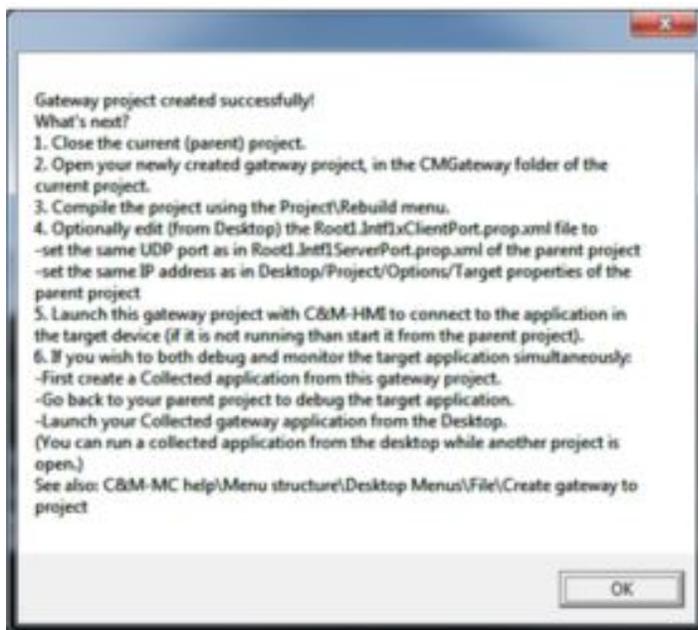


2. Rebuild the project and note the different compiler:



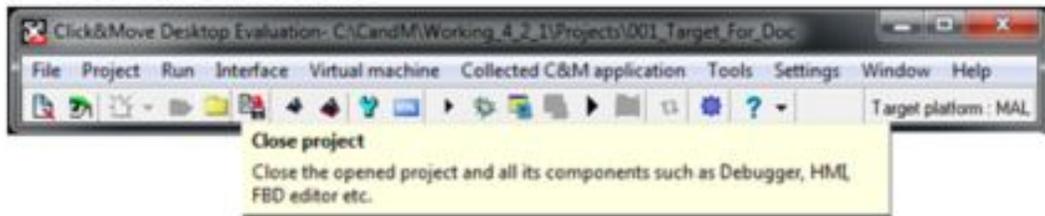
3. Click File -> Package Collected Application from Project

4. Click File -> Create Gateway

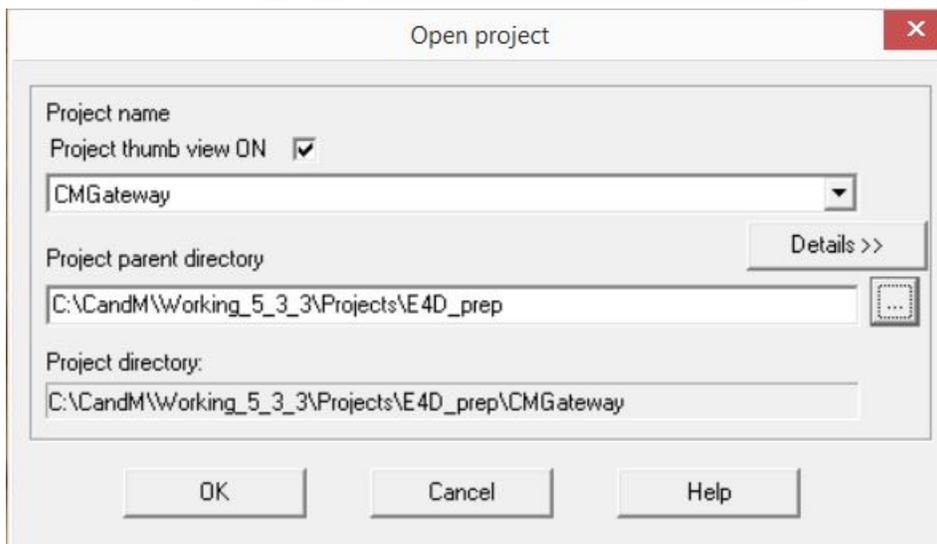
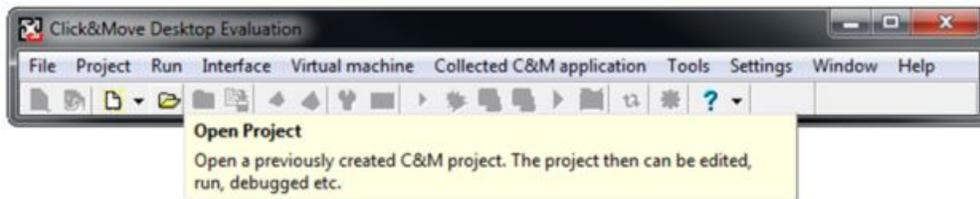


5. Close the Project

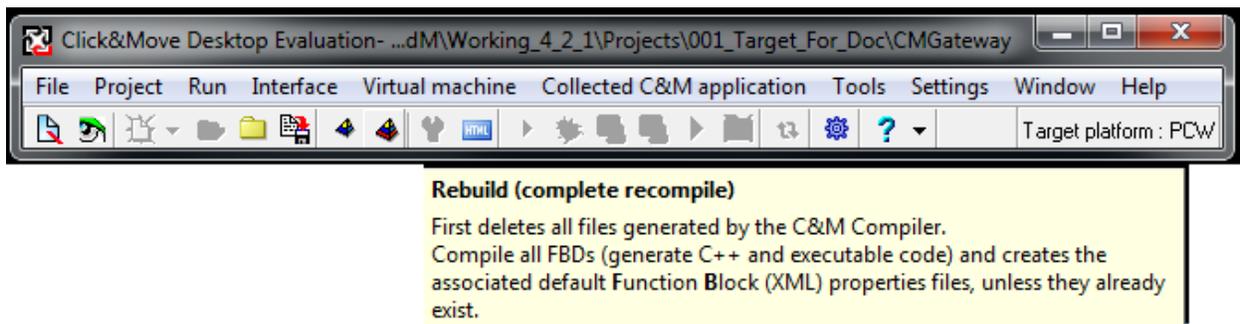
Close Current Project



6. Open the Gateway project created in Step # 4 (It's inside your project folder)



7. Build Gateway Project



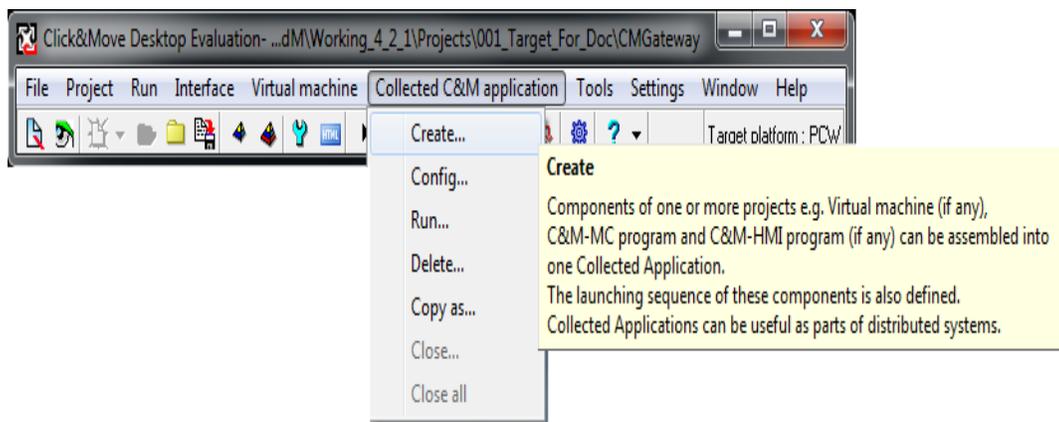
8. Close the Gateway project

Click File -> Close Project

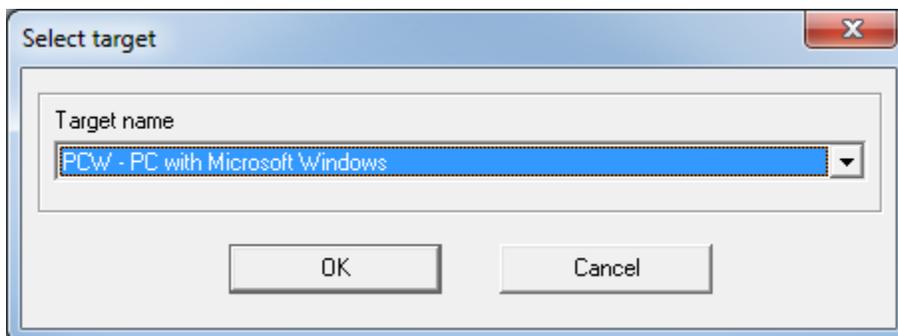
9. Open the Original Project

Click File -> Open Project

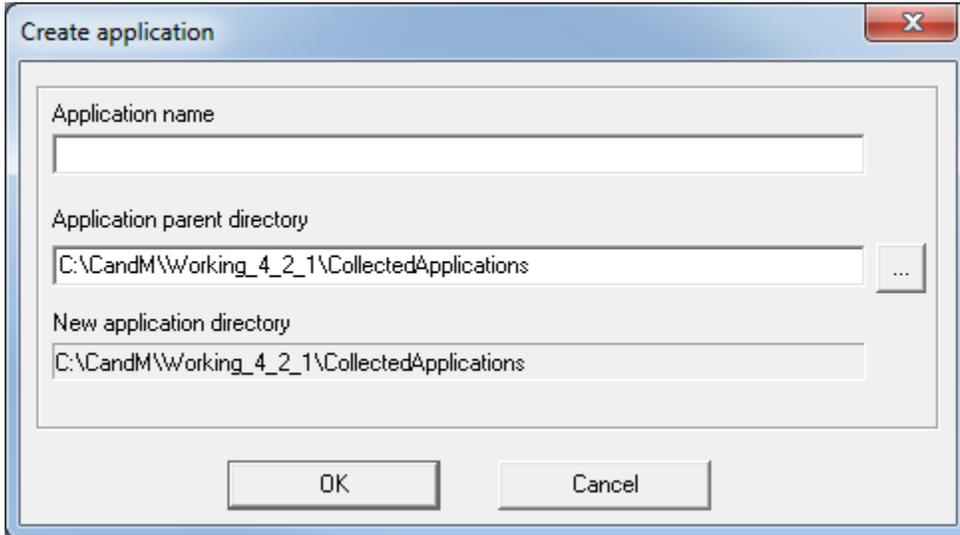
10. Click Collect C&M Application - > Create



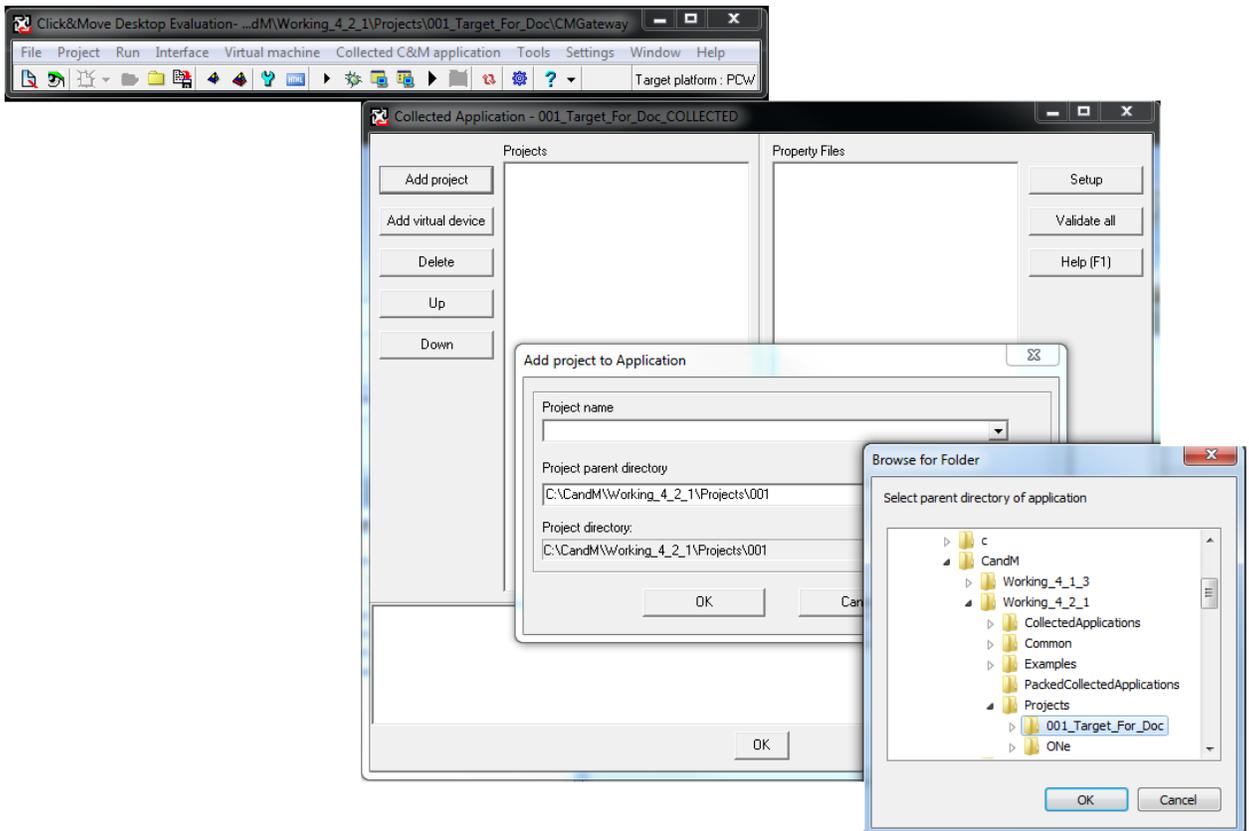
11. Select PCW as this will run on the PC:



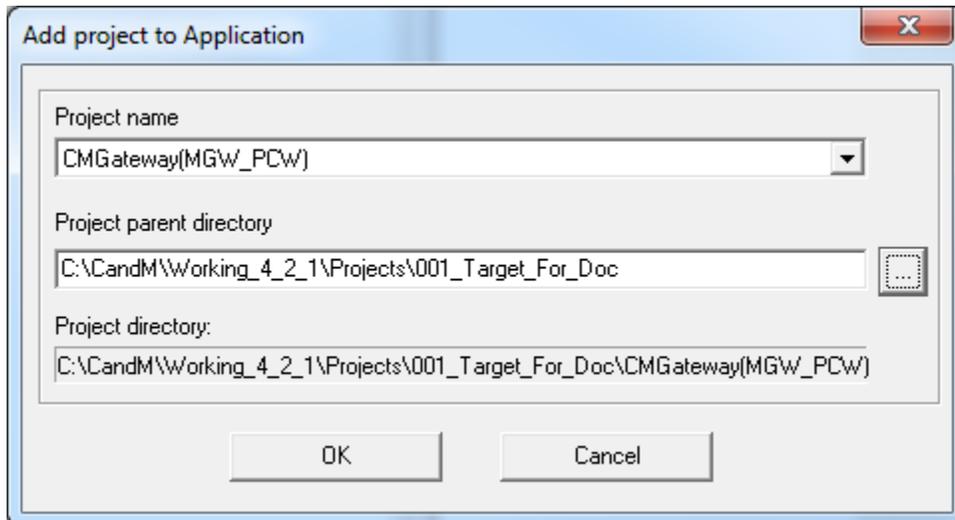
12. Enter a Unique name for the Collected Application we are creating; Click “OK”



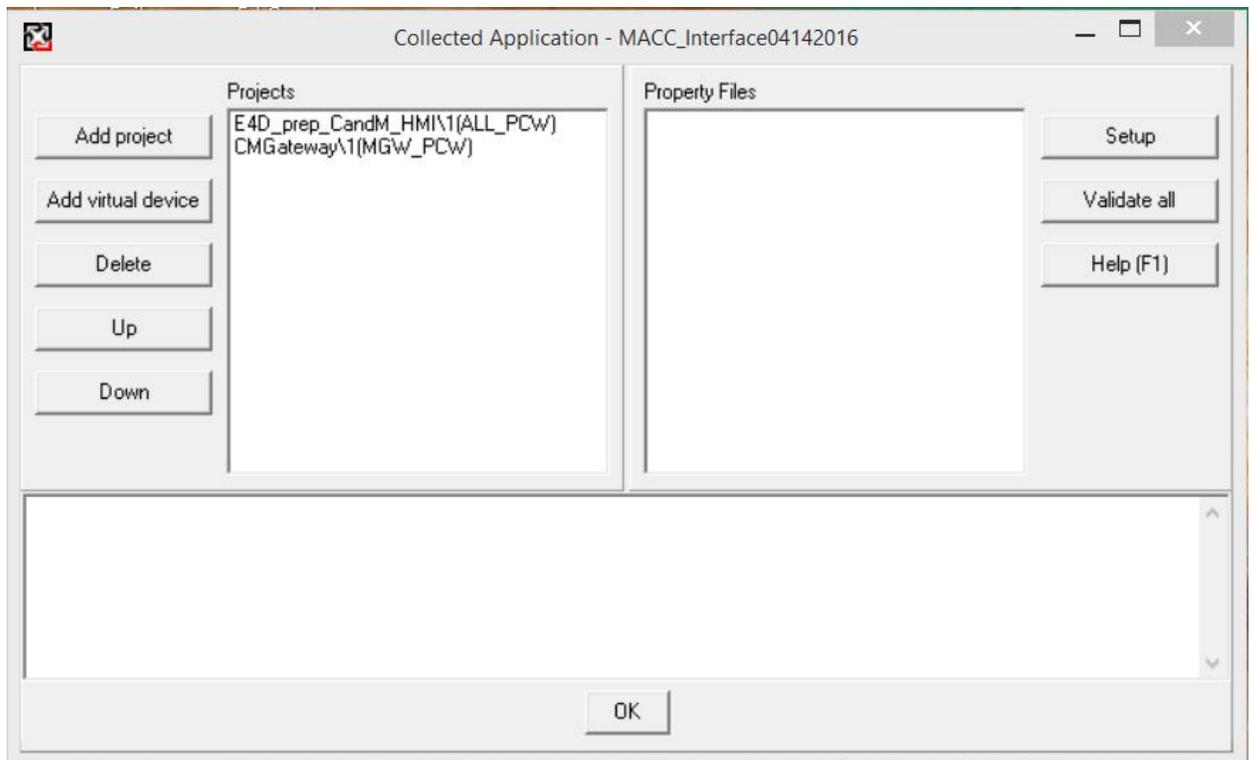
13. Click Add Project. Set the Parent directory to the Projects folder (It will default to the Examples folder)



14. Select the CandM_HMI (ALL_PCW) file from your project ; Click “OK”
15. Click Add Project again and set the parent directory to your project folder as above.
16. Choose the CMGateway (MGW_PCW) gateway file ; Click “OK”

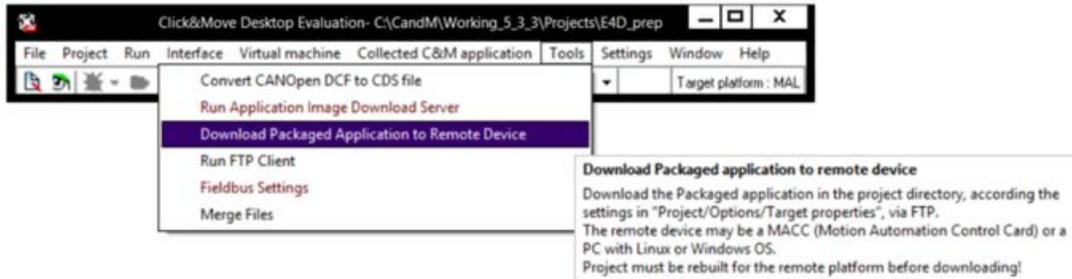


17. Click “OK” at the bottom of the collected application window

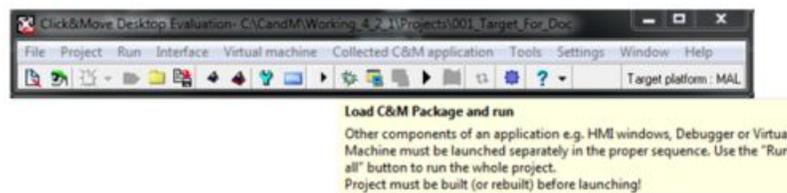


Running your Application

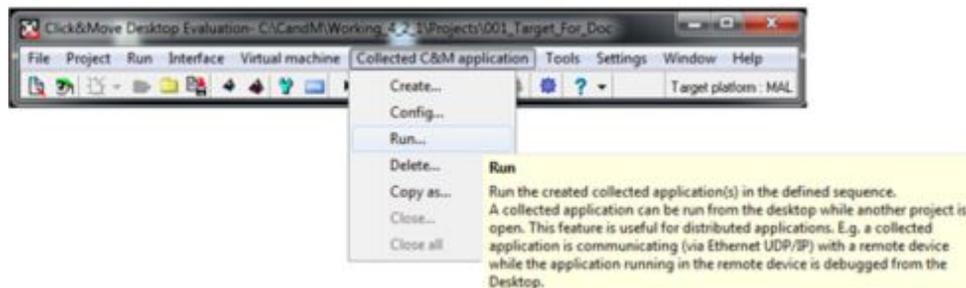
1. Click Tools -> Download Packaged Application to Remote device



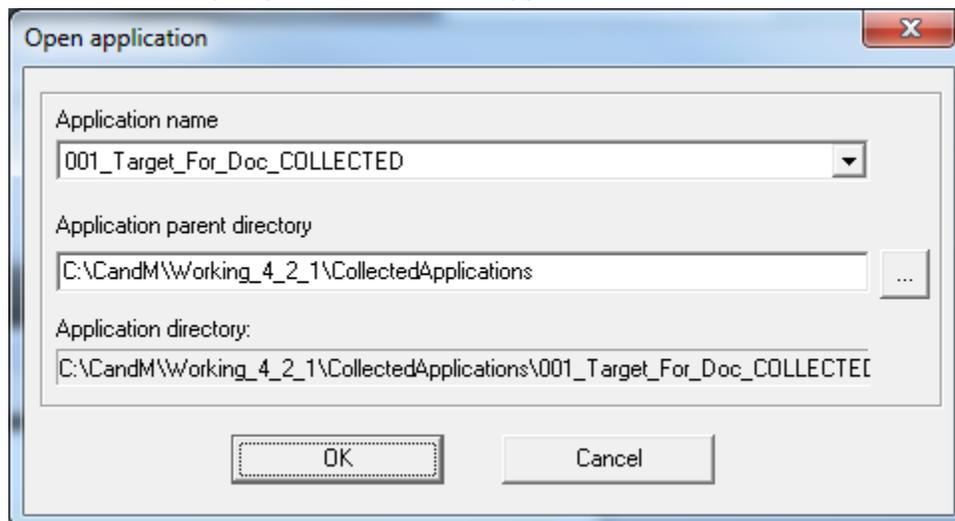
2. Click Run -> Load C&M Package and Run



3. Click Collected C&M Application -> Run



4. Select the name you gave the Collected Application, Click "OK"



5. If everything went well, you should watch the HMI load, the project is running on the MACC, and you can use the HMI to control it.

