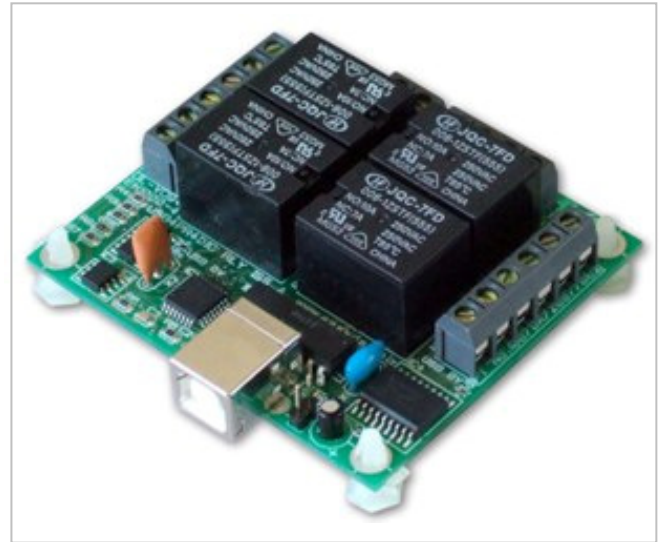
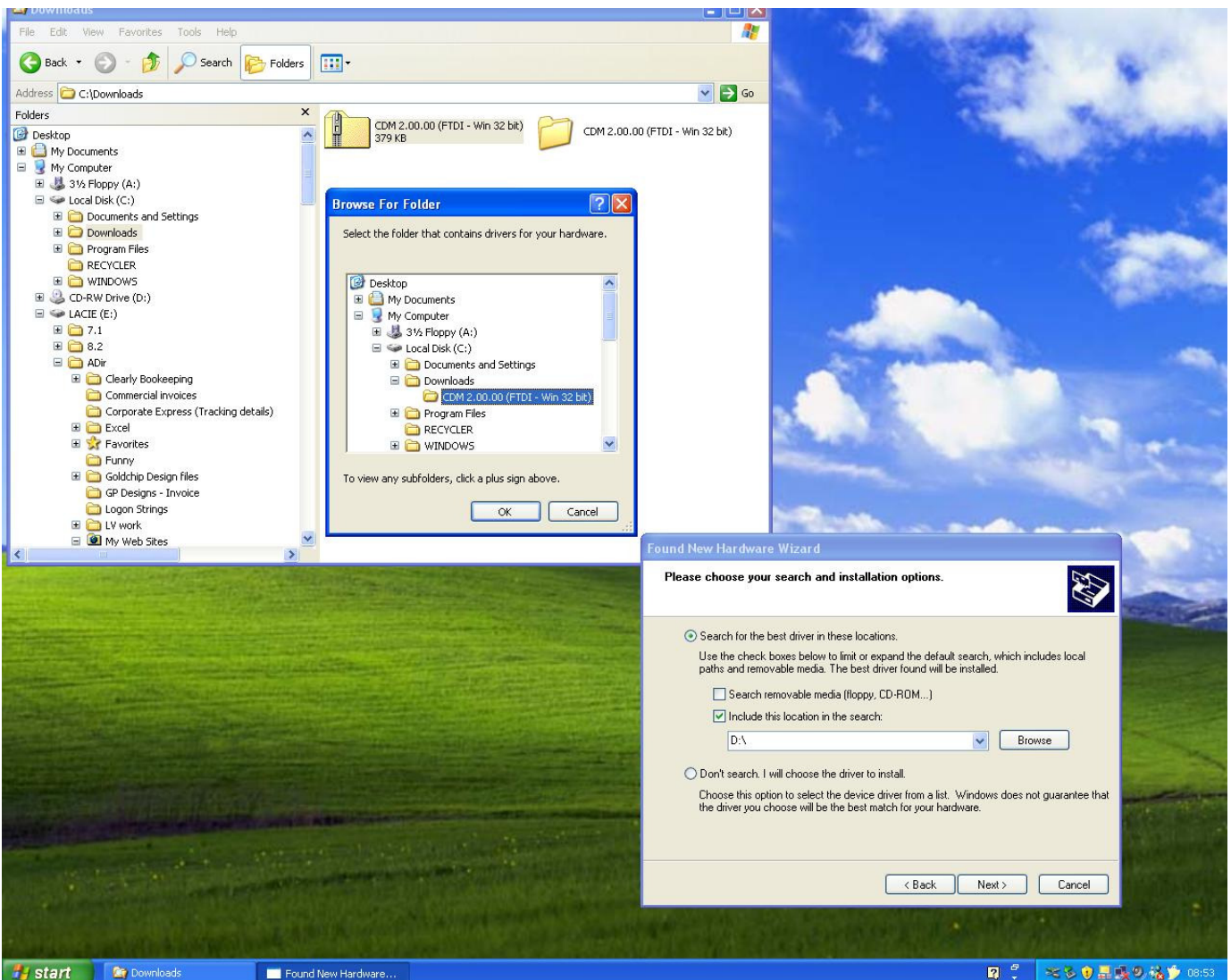


Installing your USB Relay or USB DIO card - (only applicable first time you connect to a PC):

First stage - Virtual Com port installation:

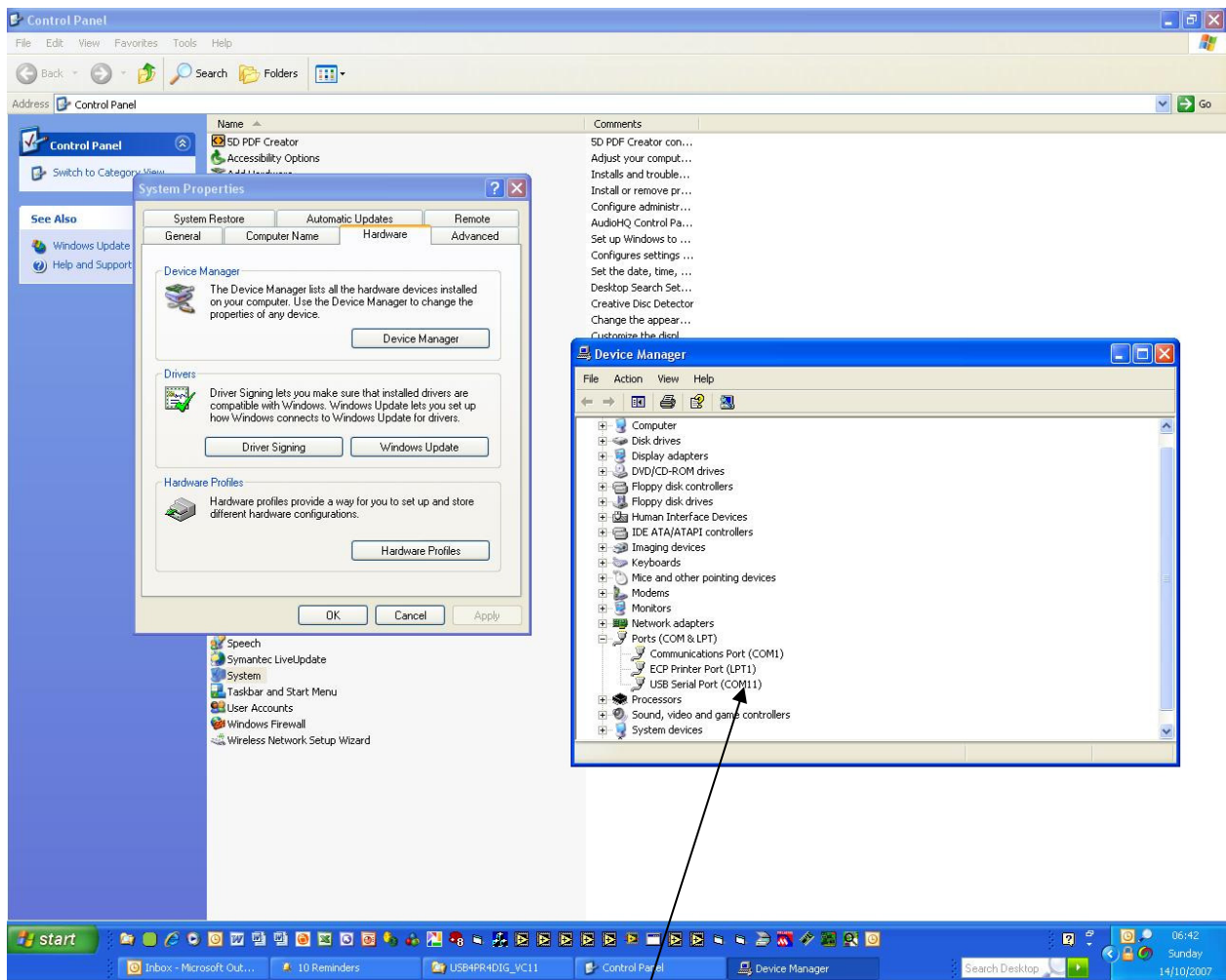
- Step 1: Download and unzip (to a known location on your hard drive) the appropriate version of the FTDI Virtual com port drivers
- **Note:** There are two versions, one for 32 bit systems and one for 64 bit systems, please ensure you download the appropriate version for your PC. Both downloads are available from the 'downloads' area of our website.
- Step 2: Connect the card to a spare USB port on your PC
- Step 3: The USB card will be auto detected by your OS – a 'New Hardware Found' wizard will be launched
- Step 4: Select 'Install from a known location' and manually direct the installer to the unzipped directory location (from step 1)
- **Note:** there are two separate stages to the install – Low level drivers and the Virtual Com Port function

The screenshot shows a Windows XP desktop environment. In the background, a File Explorer window is open to the 'Downloads' folder, displaying two files: 'CDM 2.00.00 (FTDI - Win 32 bit)' (379 KB) and 'CDM 2.00.00 (FTDI - Win 32 bit)'. A 'Browse For Folder' dialog box is overlaid on the File Explorer, showing the same file structure. In the foreground, the 'Found New Hardware Wizard' is open, displaying the 'Please choose your search and installation options.' screen. The wizard has two radio button options: 'Search for the best driver in these locations.' (which is selected) and 'Don't search. I will choose the driver to install.' The selected option includes instructions to use check boxes to limit or expand the search. There are three check boxes: 'Search removable media (floppy, CD-ROM...)' (unchecked), 'Include this location in the search:' (checked), and a text box containing 'D:\' with a 'Browse' button next to it. At the bottom of the wizard are '< Back', 'Next >', and 'Cancel' buttons.

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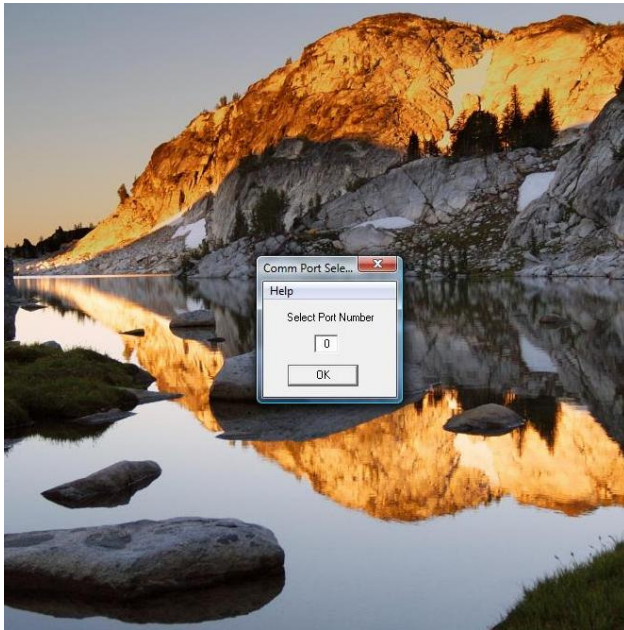
- Step 5: Following installation of the Virtual com port drivers, as described above, the USB card will appear on your Hardware Device Manager and be assigned a Com Port number. Note: You can manually re-assign the COM port number (via the Device Manager) if you want to, or if you need to set a specific COM port number to match your software.
- See image below:



After USB card has been installed, use the Control Panel Hardware Device Manager to identify (or change) the Com Port number that has been assigned to your device (in this case Com 11)

Second stage (Option 1) - Download and run the generic (VC) test module (executable) :

- If you have not already done so, please download the generic test module from the following link: [http://www.easydaq.biz/Downloads/USB4Mx_Quicktest \(VC\).zip](http://www.easydaq.biz/Downloads/USB4Mx_Quicktest_(VC).zip)
- Ensure that the USB Relay/DIO card is connected to your PC
- Run the executable and you will see the initial menu screen shown below:

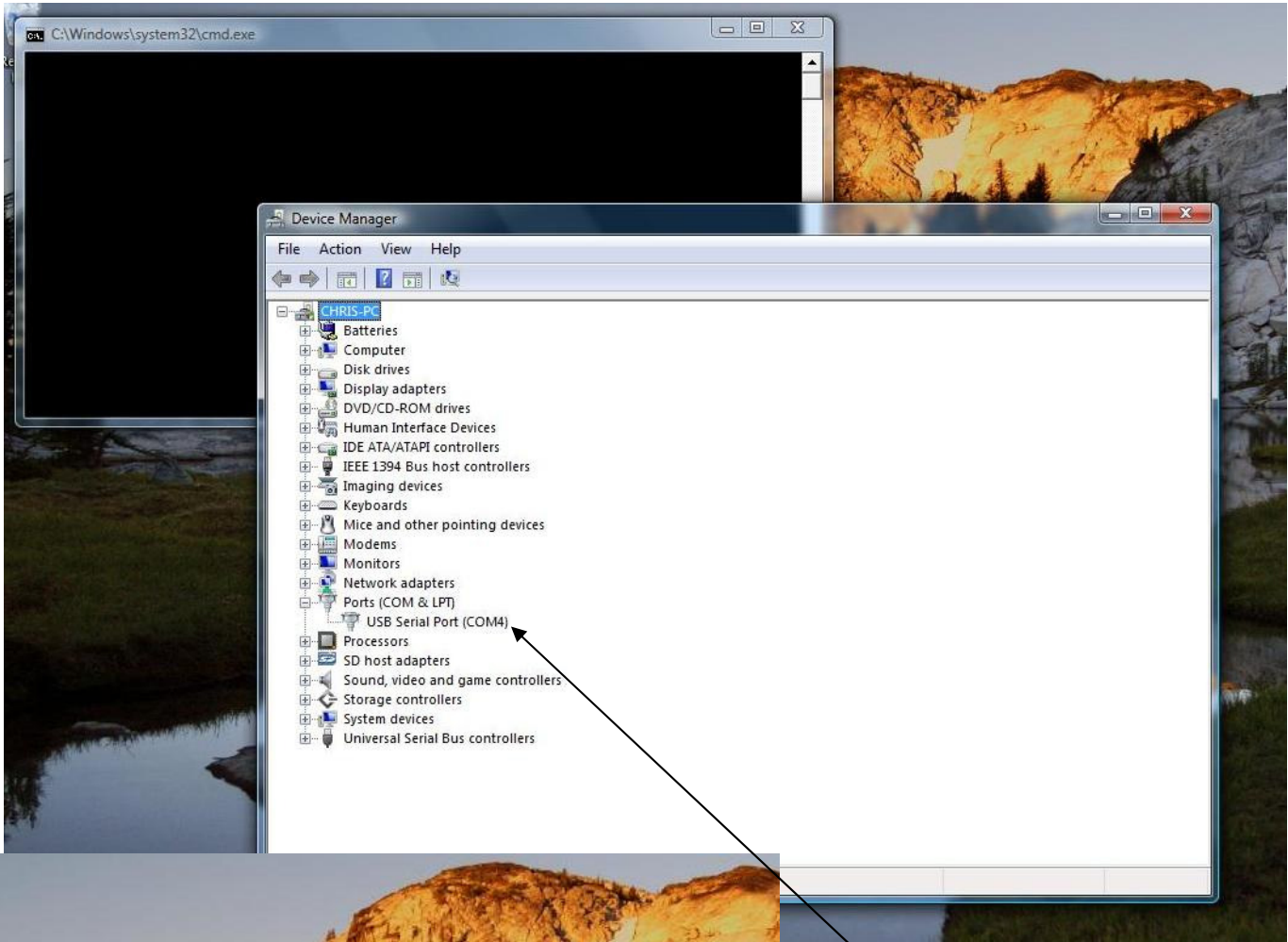


Click on the 'Help' menu option

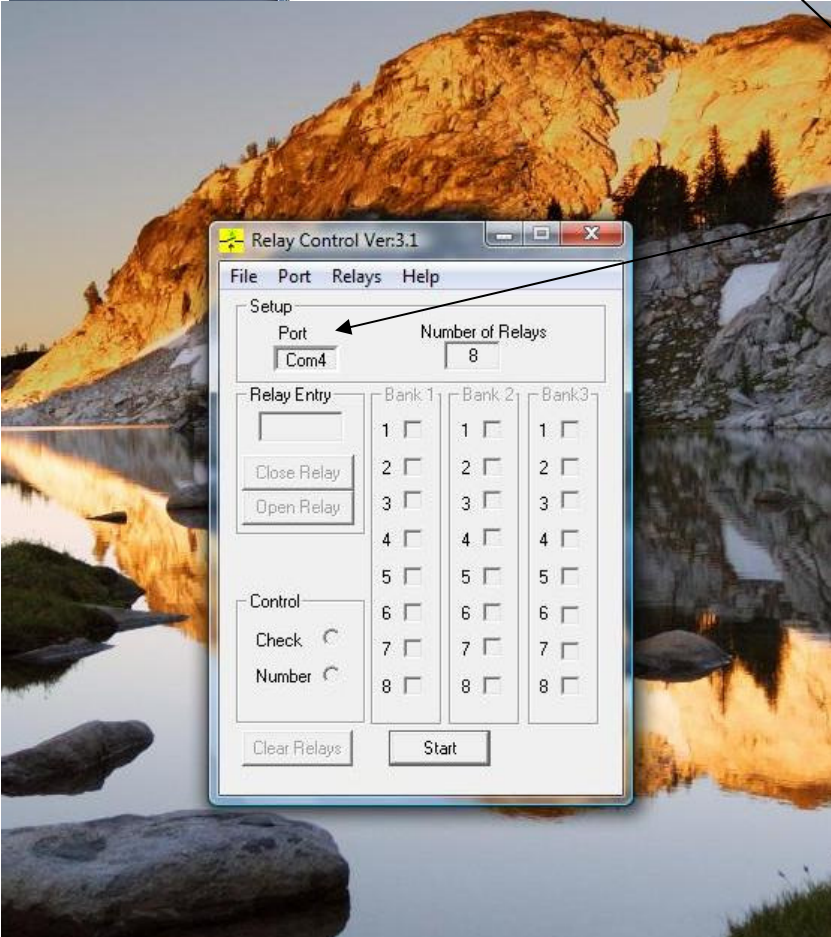
Select the 'Device Manager' option (with Vista, you may need to click on the 'permission to continue' option).

Note: If you already know the COM port number you don't need to select this option

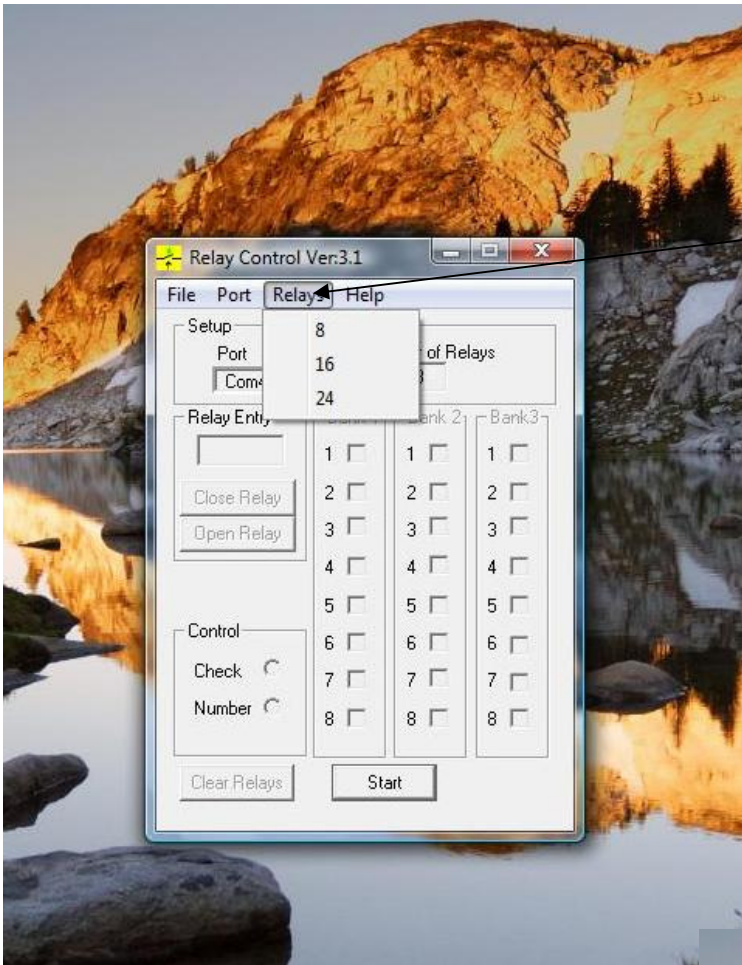
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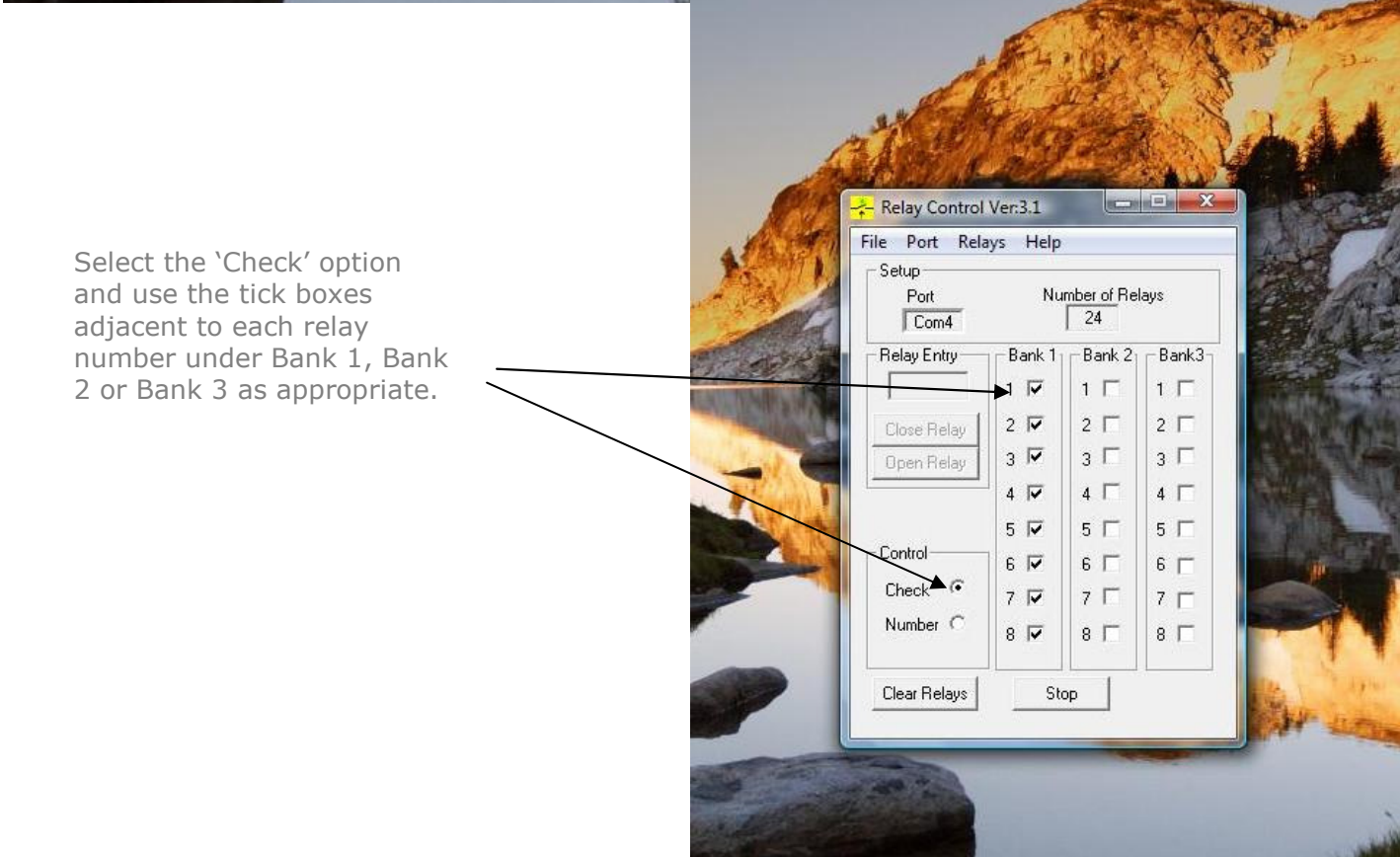
Click on the Ports (COM & LPT) menu option and note the COM port number that has been assigned by the OS to the connected USB relay/DIO card (Note: Card must be connected to your PC at this stage!).



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Click on the 'Relays' option on the upper menu bar. Select the number of relays appropriate to the USB relay card you have connected. (Select 8 for the USB4/8Mx, and 24 for the USB24Mx relay & DIO cards)



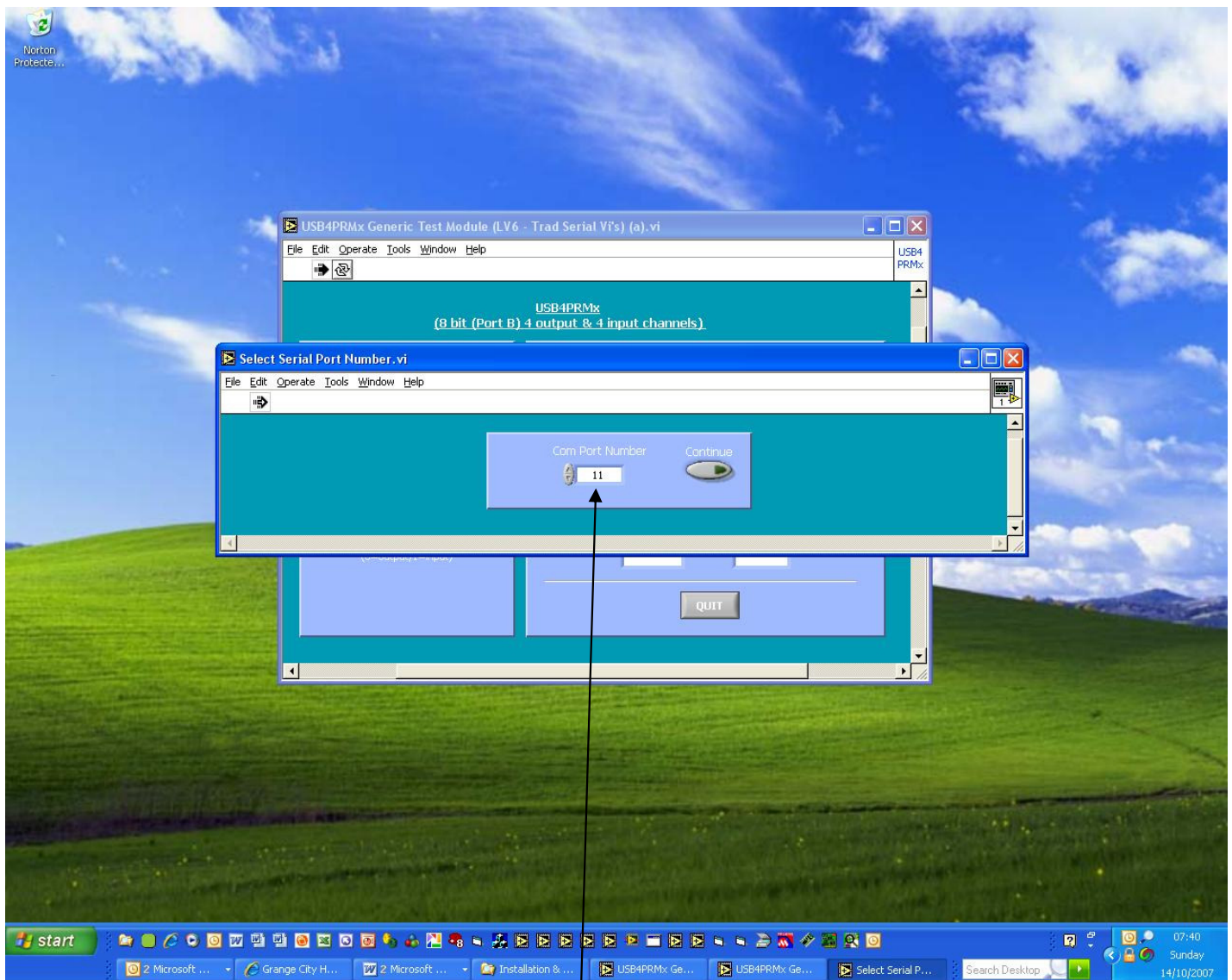
Select the 'Check' option and use the tick boxes adjacent to each relay number under Bank 1, Bank 2 or Bank 3 as appropriate.

Second stage (Option 2) - LabVIEW V6 RTE installation:

- If you do not already have it installed, download and install the LabVIEW V6 Run Time Engine (this will allow you to run the 'generic.exe' application example). This download is available from the 'downloads' area of our website.

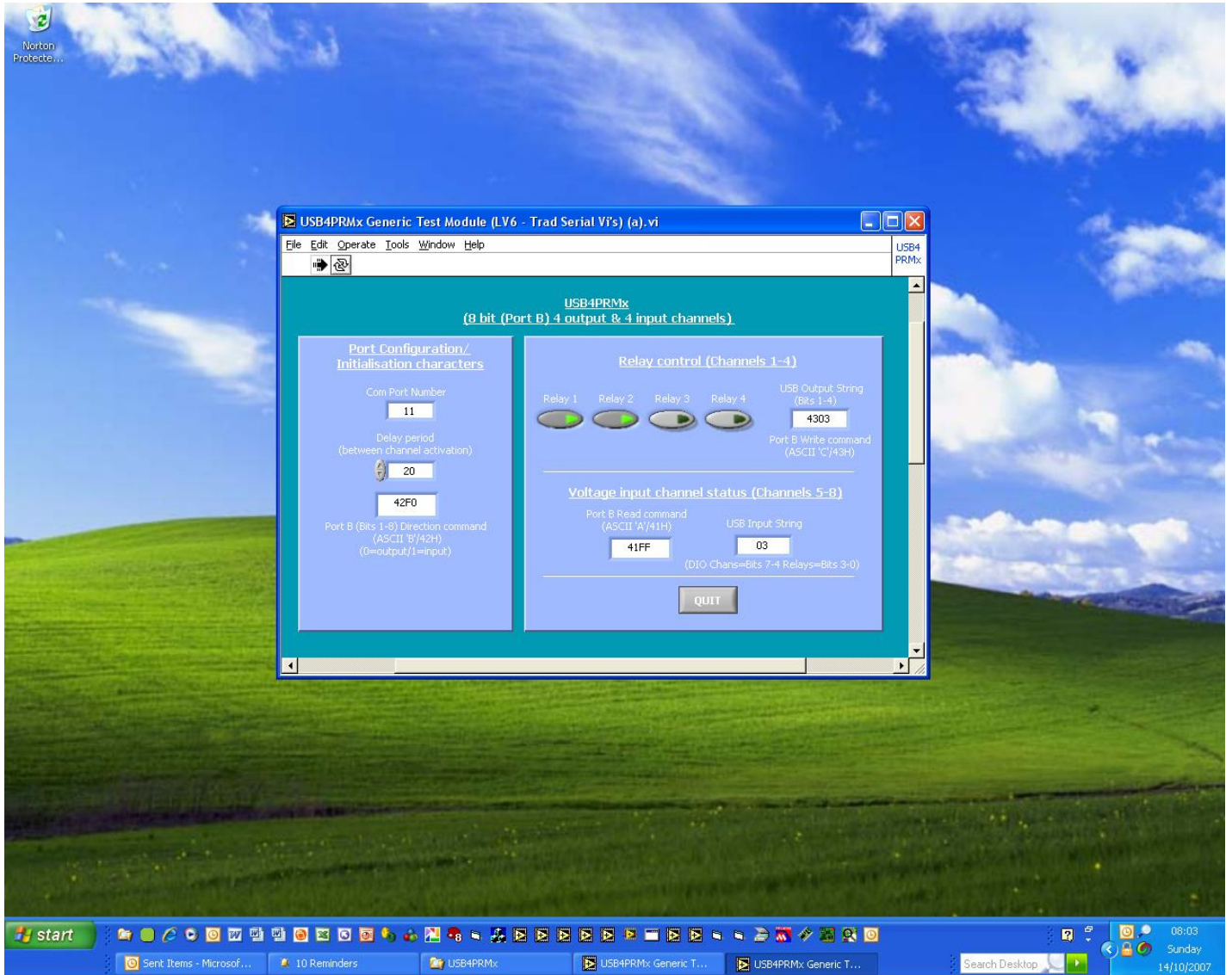
Third stage - Run the generic LabVIEW example application (.exe):

- Download and unzip the example application applicable to your product. All product example programs are available from the 'downloads' area of our website.
- When you run the application, you will be asked to select the COM port number that your USB card is connected to:



When running Application example - Select Com Port number that has been assigned to your device (in this case Com 11)

- You should now be able to control your USB card – here is a typical screenshot of the LV6 application for the USB4Mx card which has both output (relay control) and input (DIO) functionality:



LV6 Application example - Typical screenshot

Commanding the cards and writing your own software:

- In general our USB and serial port cards are designed to be easy to use. There are example programs (available from the downloads area of our website) in LabVIEW, Visual Basic, Visual C, Delphi & Agilent VEE. If you are not using/adapting one of our programming examples, and wish to write your own software, the cards can be commanded by simple ASCII/Hex based command characters. All of our USB/serial products use the command format so you should find it easy to port your software from one product or application to another.
- The cards have either a single 8 bit port (USB4/8 = Port B), two 8 bit ports (USB16 = Ports B & C) or three 8 bit ports (USB24 = Ports B, C & D). In the case of the USB4Mx cards, the lower 4 bits are used to control the relays (therefore they need to be set as outputs) and the upper 4 connect to the four general purpose (uncommitted) DIO channels. These can be configured as either inputs or outputs, depending on your requirements.
- **Steps required to command/control the cards:**
 - 1) Configuring the 8 bit port (set the port direction):
 - ASCII B (42H) (Config Port B), followed by the hex character 00H (all zeroes) – this sets all 8 bits of the port as outputs (i.e. to control the relays). Your code only needs to do this once during initialization (only needs to be done following power up - if card is unplugged or powered down it will loose it's config settings).
 - (ASCII B (42H) followed by the hex character F0H will set the lower four channels as outputs and the upper four as inputs).
 - 2) Setting/reading individual channels:
 - ASCII C (43H) (Write Port B), followed by the individual bit status for whichever relay you want to switch on: 43H01H will switch on relay 1, 43H02H will switch on 2nd relay, 43H03H will switch on the 1st and 2nd relay at the same time and so on.
 - ASCII A (41H) (Read Port B), followed by a 'don't care' character will perform a port read function. If you send this character sequence to the card, it will perform a read of the current status of 8 bit port (even if channels are set as outputs - therefore, your software does not need to 'remember' what you previously sent to the card). When you perform a port read function, you will also need to immediately follow the command by a serial port read in order to read the characters that are transmitted back from the card to your PC.
- 16 and 24 channel cards work in exactly the same way, but use the following additional ports:
 - Port C = ASCII Exx (45H) (Config Port C), Fxx (46H) (Write Port C), & Dxx (44H) (Read Port C).
 - Port D= ASCII Hxx (48H) (Config Port H), Jxx (4AH) (Write Port D), & Gxx (47H) (Read Port D).
 - xx = 8 bit hex number (00H to FFH, where 00H = all channels off, FFH = all channels on)
- **Note 1: It is recommended that you first try the card out on a PC (using our generic demo program) to ensure that you can see it running. The demo program allows you to set individual relays or auto-cycle them. It also has a numeric display window which shows the Hex characters that are being sent to the card in order to configure & control the card.**
- **Note2 : The USBDO96 card uses the same commands but uses a latching function. Please email us for more details**