Application Note
Omron MX2 Inverter and CX-Drive

This document guides you through the setup of proprietary vendor specific software installed on you PC. Your supervisor may provide you with additional or alternative instructions.

The document consists of standard instructions that may not fit your particular solution. Please visit our support website for latest revisions of documentation and firmware:

http://www.secomea.com

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Table of Contents

Prerequisites for This Guide

The following guide will assist you to setup a remote and online connection to the Omron equipment placed on the customer site using your Omron CX Drive software installed on your PC.

Prerequisites for this guide are:

- You have an operational LinkManager installed on your PC with a GateManager certificate that allows you to connect to the SiteManager agents.
- You have the Omron software installed.
- You have the Omron device agent installed and configured on the SiteManager at the remote site, and there is access between the SiteManager and the Omron inverter.
  - A network attached inverter must be configured with agent device type **Omron / Ethernet inverter** on the SiteManager.
  - A USB attached Inverter (such as the MX2 inverter) must be configured with agent device type **Omron / USB Inverter** on the SiteManager. Note that this connection type requires a SiteManager model with USB support and minimum SiteManager version 12035 and LinkManager version 12081.

If any of these prerequisites are not met, you should contact the person / department responsible within your own company or at the company responsible hereof.

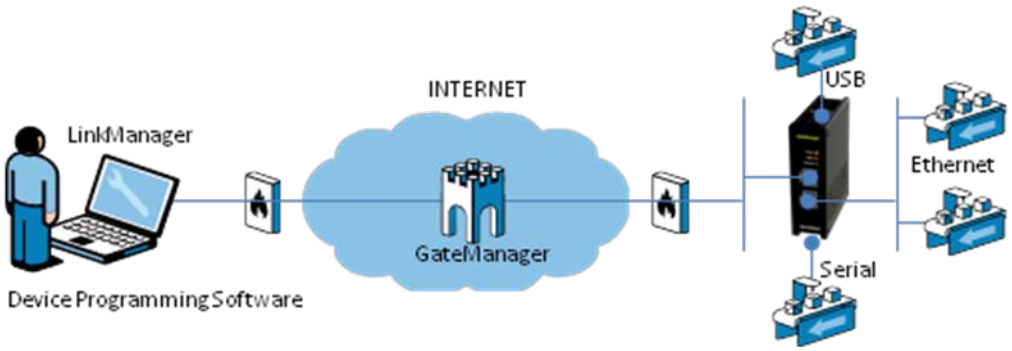
System Overview

The communication path is as follows:

CX-Drive → LinkManager → GateManager → SiteManager → PLC.

This guide will elaborate on the components marked with **bold.**

The following system overview depicts a SiteManager 1029 at the customer location:



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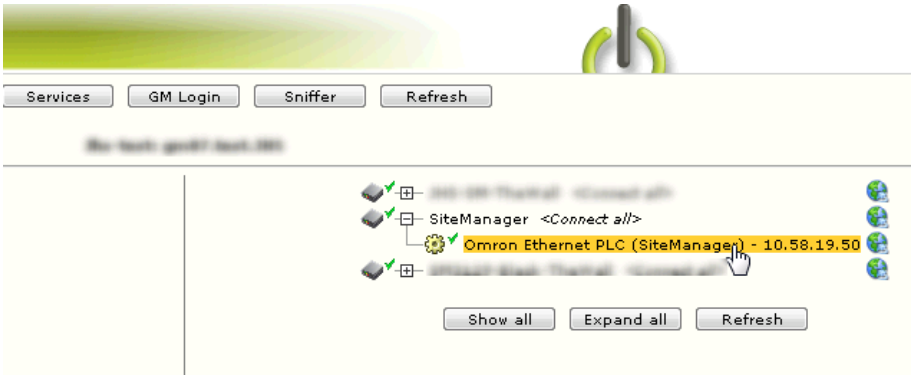
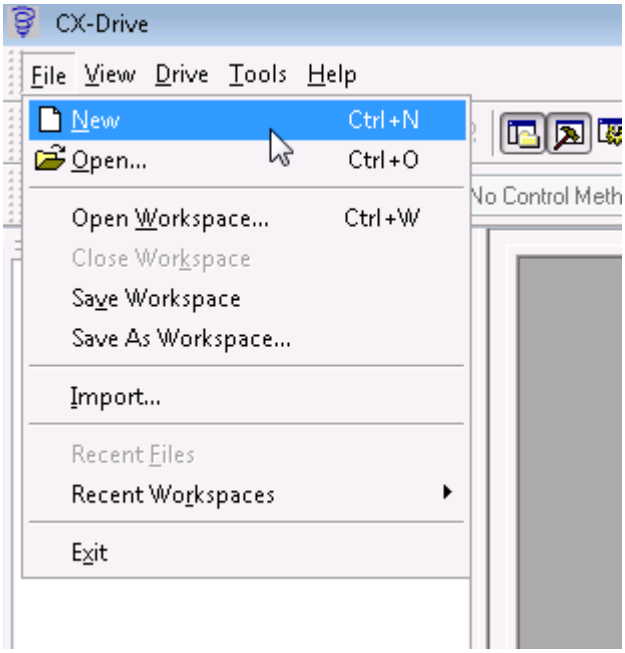
1. Ethernet connection

To establish an Ethernet connection to the inverter through the LinkManager, you need to have a PLC working as a Gateway for the inverter. This setup is not covered in the guide. For details on how to do this, please consult your local Omron support.

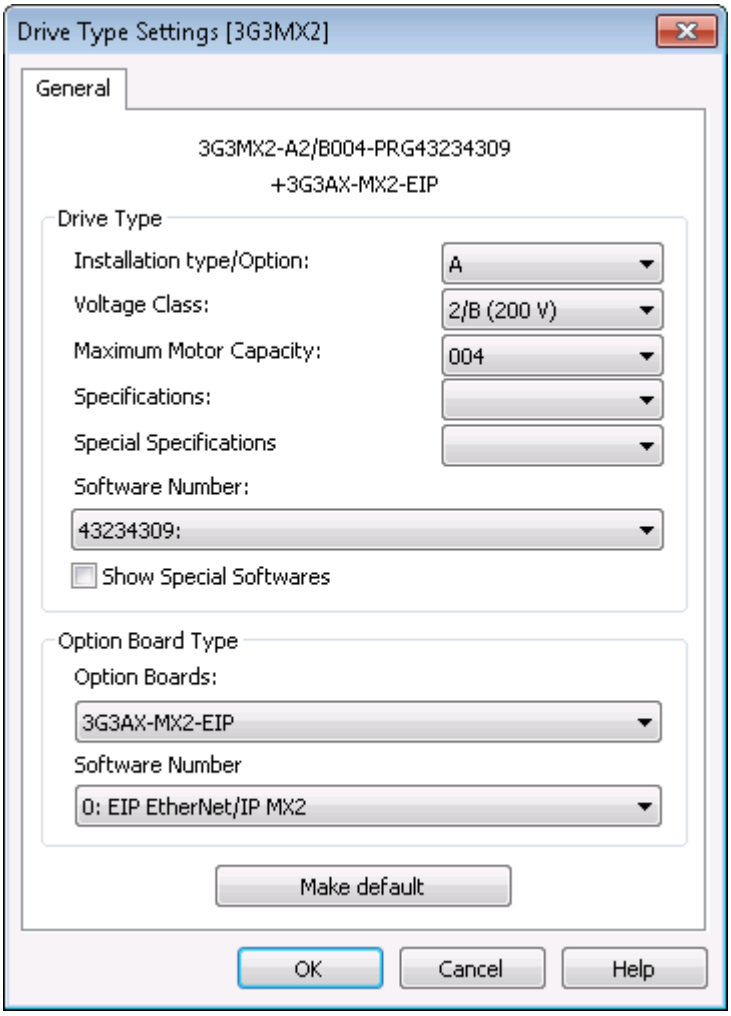
1. You need to establish an Ethernet connection to the Omron PLC, before you can connect to the MX inverter. So first click on the agent which represents your Ethernet connected Omron PLC



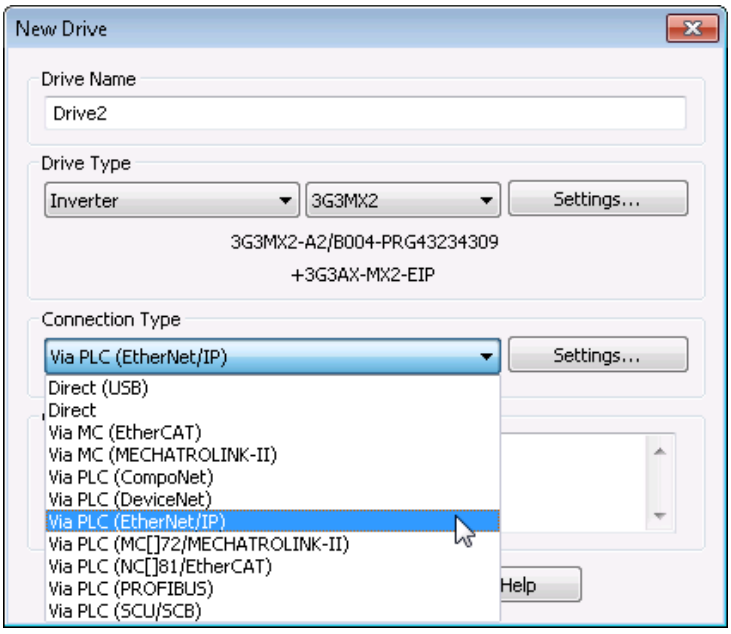
2. Go to CX-Drive, select File → New



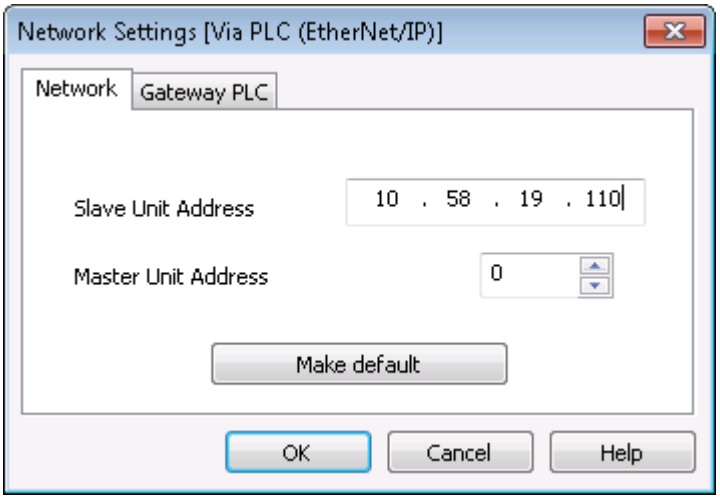
3. Select the correct Drive Type, and click Settings. Set up the values to match your setup. In our scenario, we used the following setup:



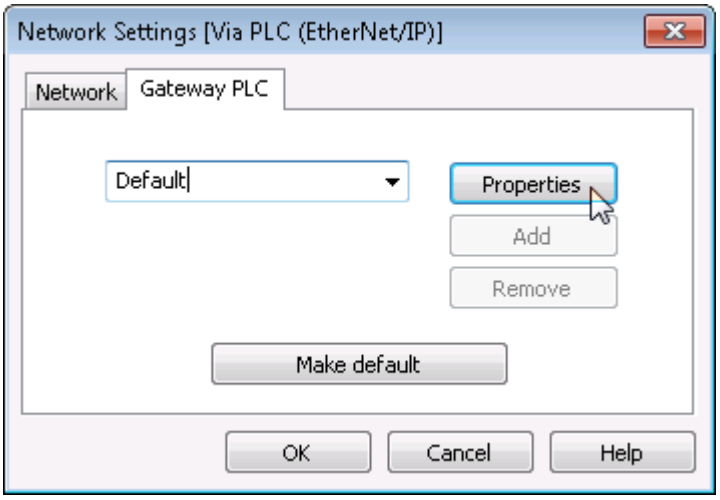
4. Click OK, and then select Connection Type → Via PLC (EtherNet/IP). Click Settings



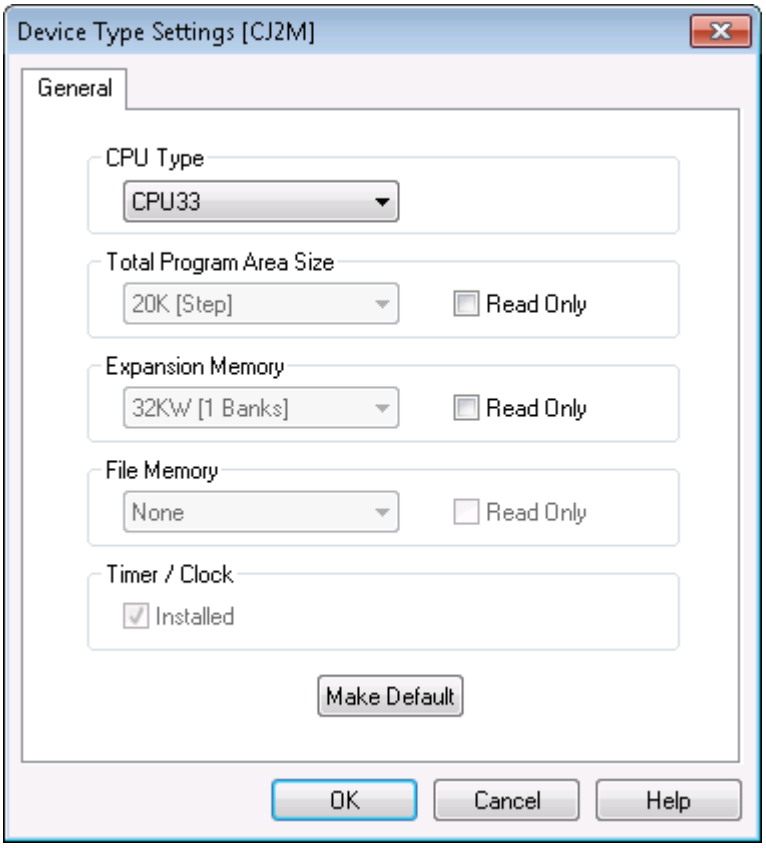
5. Type the address of the MX Inverter and the Unit number of the PLC. Then, select the tab Gateway PLC



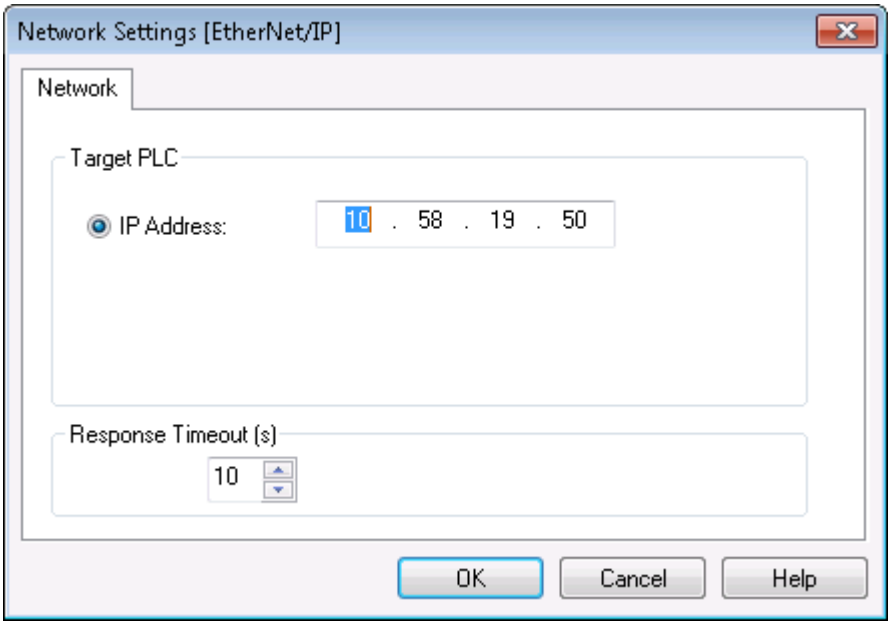
6. Select Properties



7. Choose the PLC type, and click Settings and choose the right CPU (in this scenario, we used a CJ2M-CPU33



8. Click OK, and set the Network Type to EtherNet/IP. Then, click Settings and type in the IP address of the PLC. Click OK four times, and the Drive is created in CX-Drive.



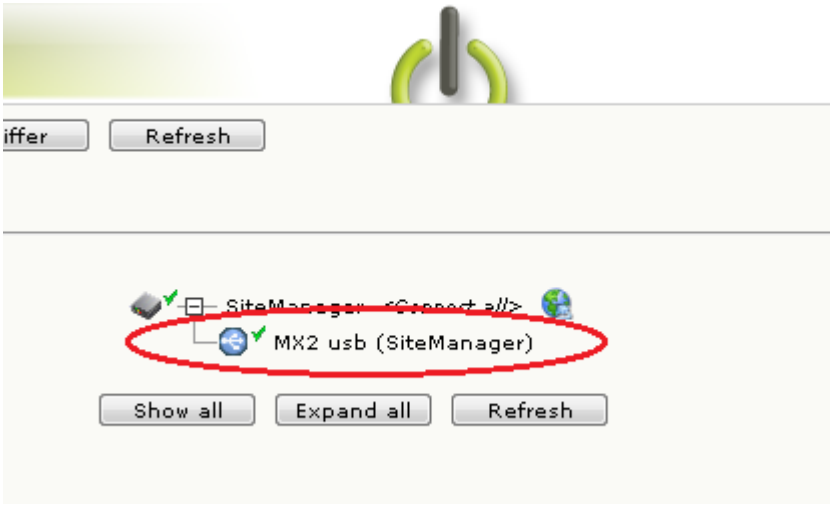
9. You are now able to go Online with the MX Inverter through the PLC.

2. USB Connection

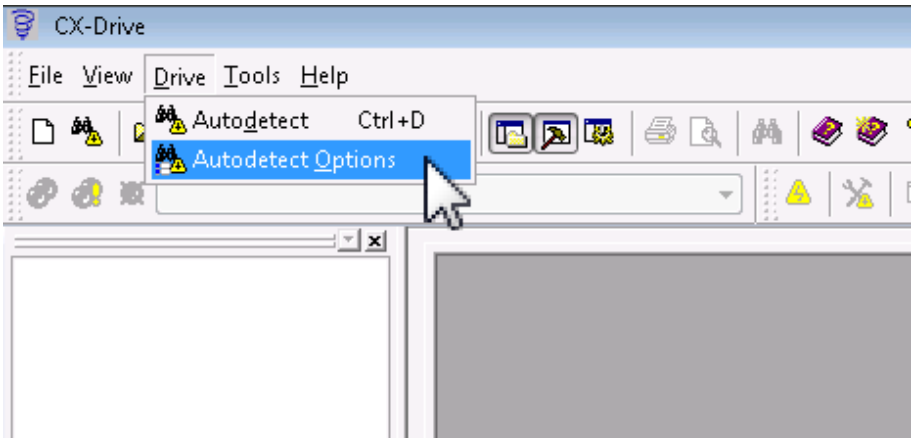
To establish a USB connection to the inverter through the LinkManager, you will need to upgrade your LinkManager and SiteManager to the latest firmware (v13063 or later for LinkManager and v13025 or later for SiteManager).

The following steps have been performed with CX-Drive 2.7.4.2 and USB drivers already installed on the PC.

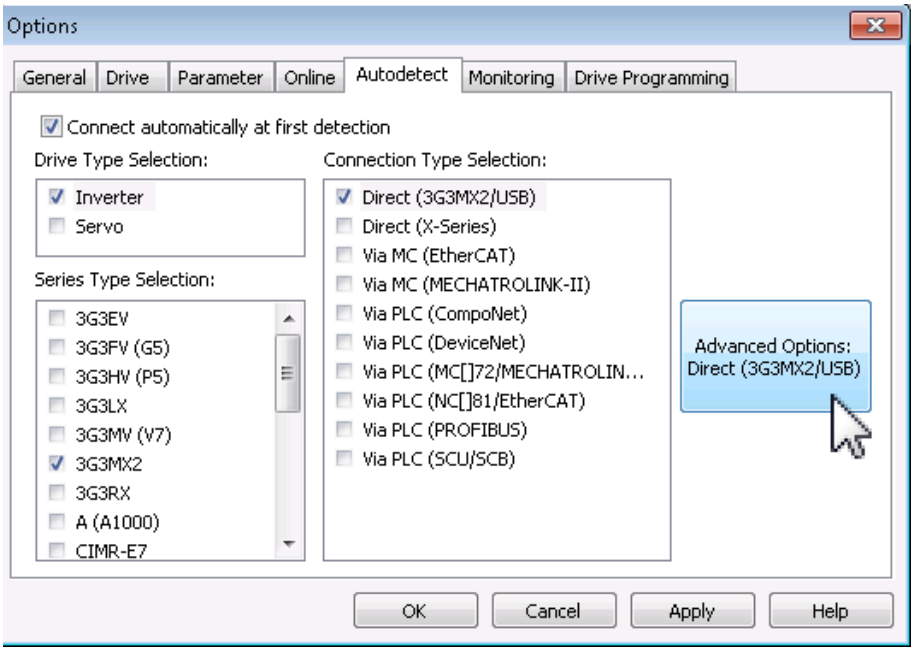
1. Locate the Omron USB Inverter agent and click on it to establish a connection to it:



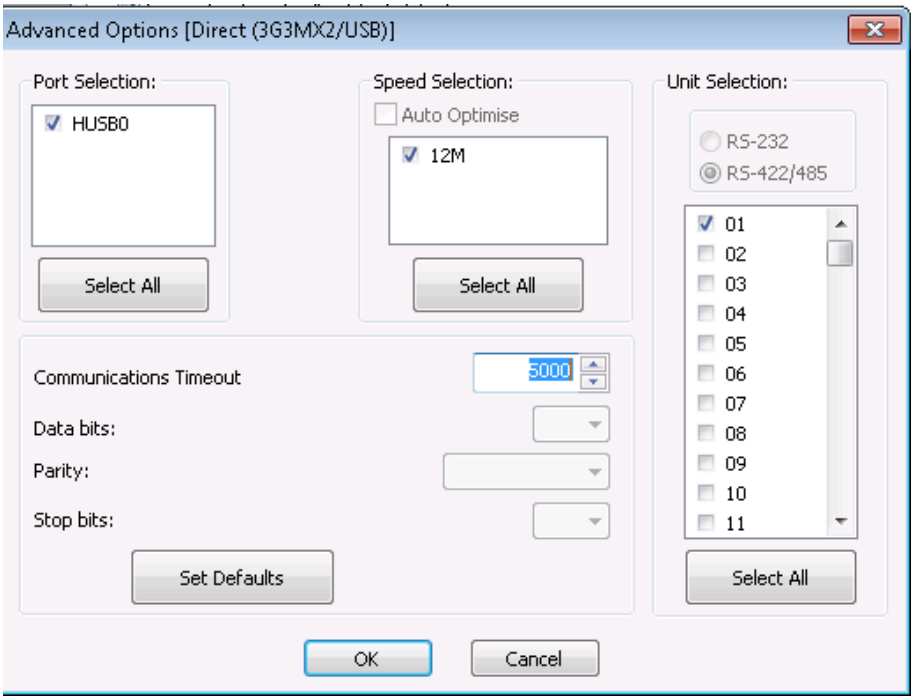
2. Next, go to CX-Drive, and select Drive → Autodetect Options



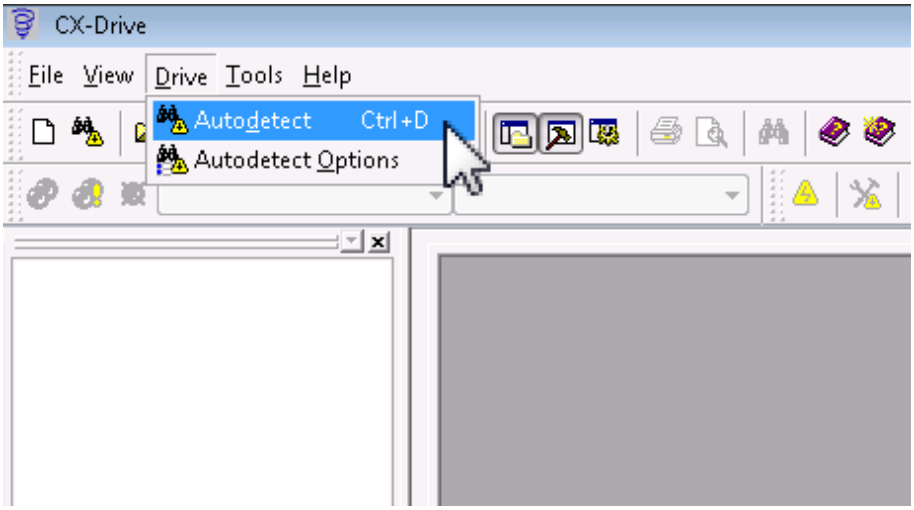
3. Select the correct type on inverter and connection (in this scenario, we used the 3G3MX2 Inverter), and click Advanced Options.



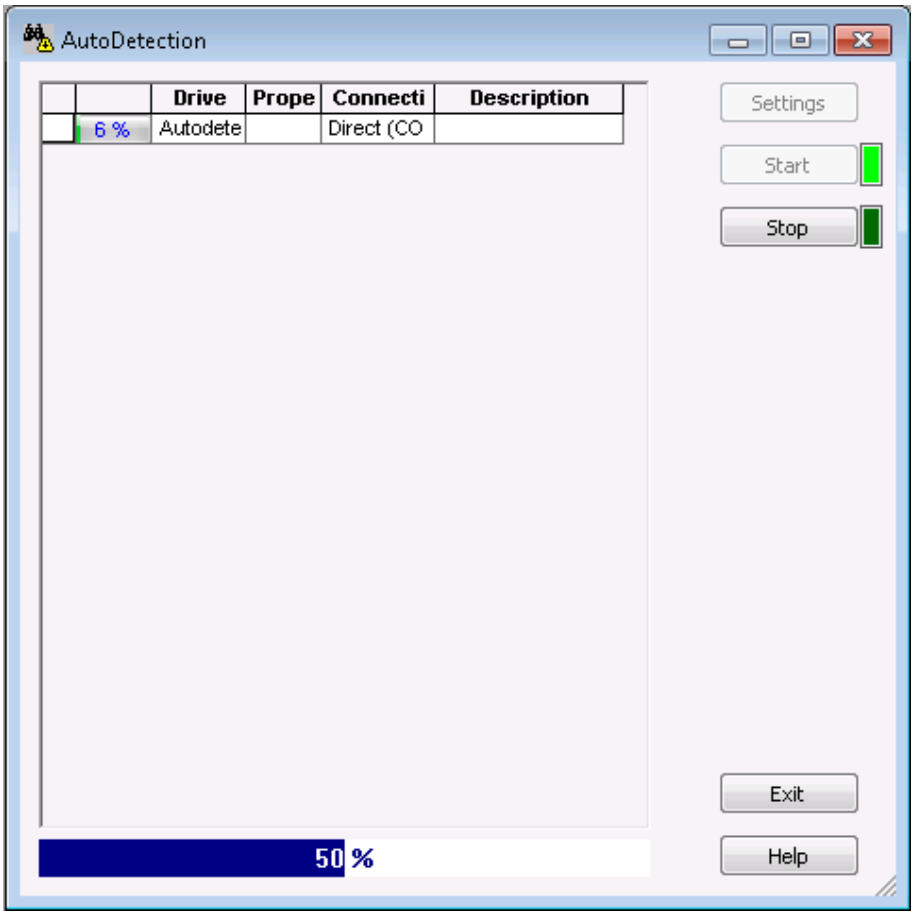
4. Adjust the Communications Timeout. For the test, we used a connection with an added delay of ~450ms. It took around 2 minutes and 30 seconds to up-load a standard program, and around 4 minutes to download it.
5000 seconds worked for us, but you may want to set it higher, if you have a slower connection.



5. Click OK twice, and select Drive → Autodetect



6. The CX-Drive software will now look for the inverter. Wait until it is finished, and you are now online with the inverter.



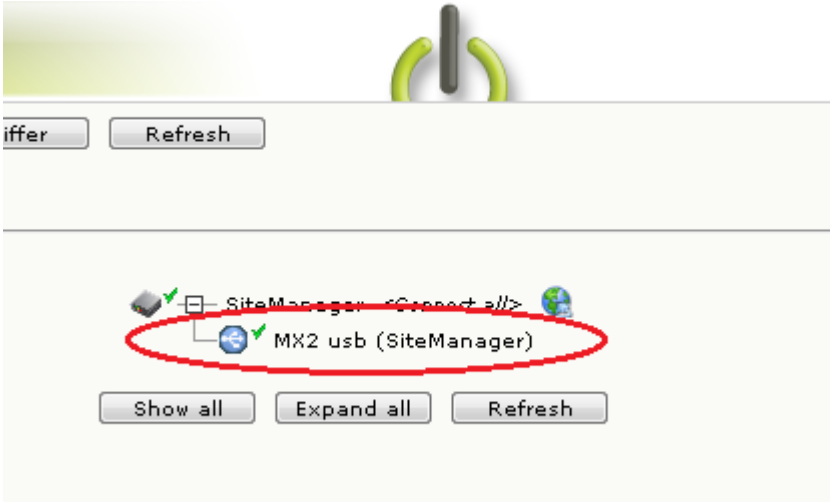
3. USB to serial cable

To establish a USB connection to the inverter through the USB to serial cable via the LinkManager, you will need to upgrade your LinkManager and SiteManager to the latest firmware (v13063 or later for LinkManager and v13025 or later for SiteManager).

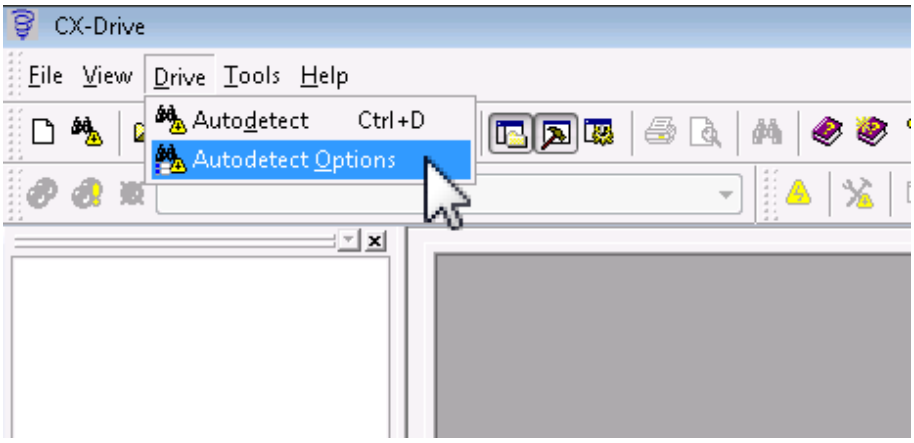
The following steps have been performed with CX-Drive 2.7.4.2 and Profilic USB to serial drivers already installed on the PC.

NOTE: This type of connection was very slow during our test. The main reason for this is the baud rate. Combined with a high delay, it took nearly xx minutes for download and about 19 minutes to upload. We also experienced that if you have a very slow internetconnection (or a high delay), then the transfer got interrupted, regardless of the timeout settings.

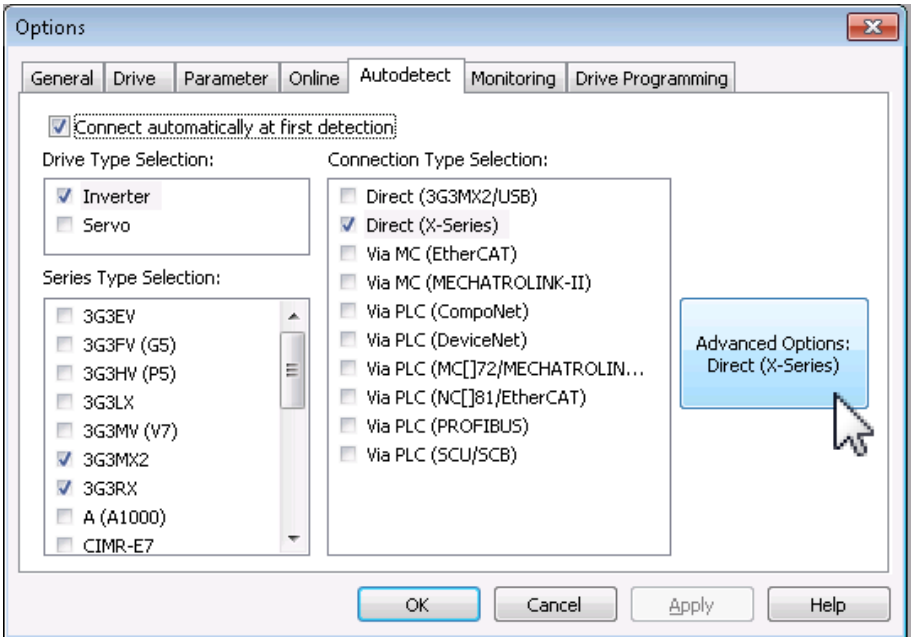
1. Locate the Omron USB Inverter agent and click on it to establish a connection to it:



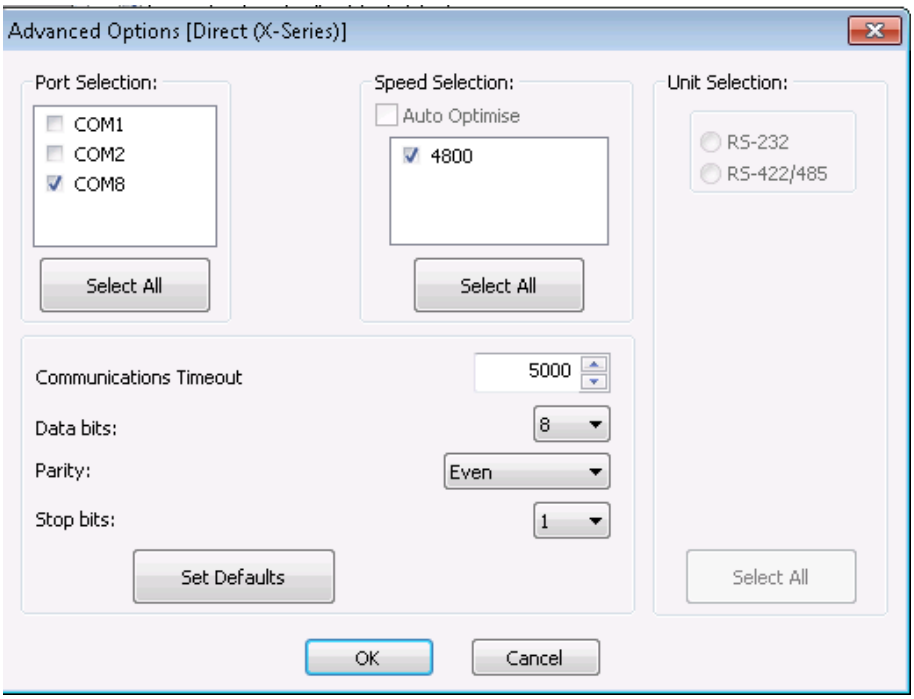
2. Next, go to CX-Drive, and select Drive → Autodetect Options



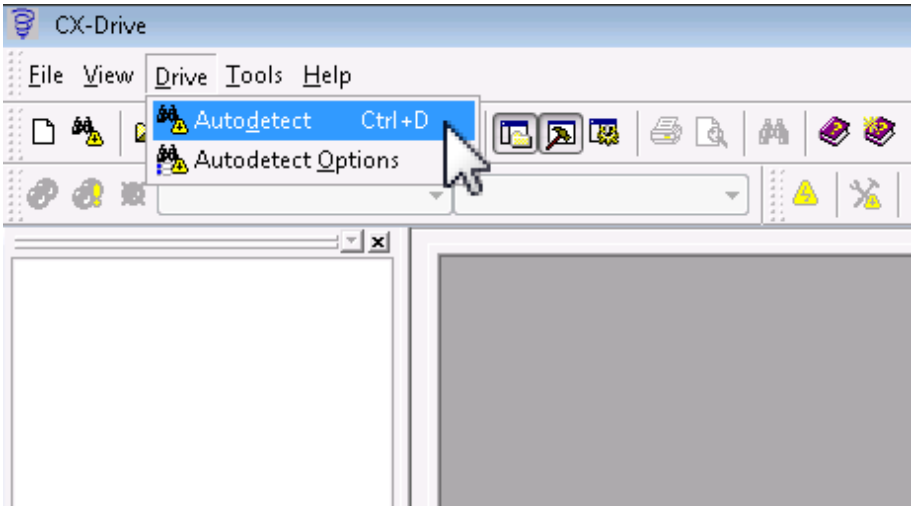
3. Select the correct type on inverter and connection (in this scenario, we used the 3G3MX2 Inverter), and click Advanced Options.



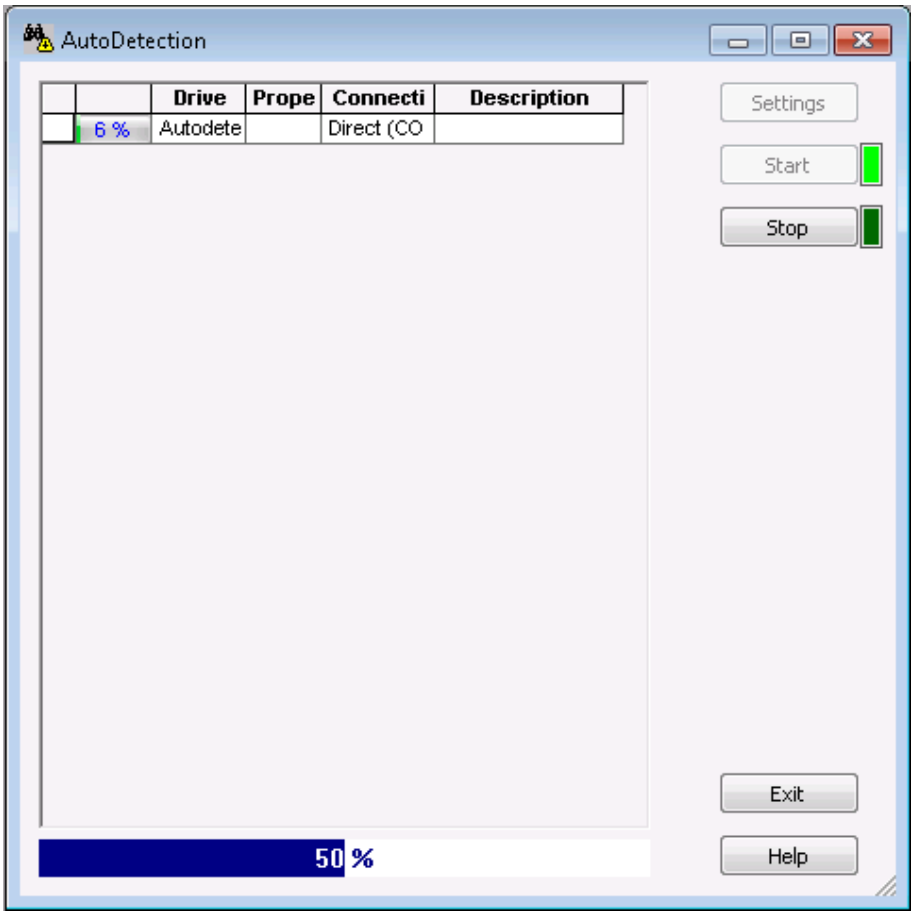
4. Adjust the Communications Timeout, and select the correct COM port. For the test, we used a connection with an added delay of ~30ms. It took around 19 minutes to upload a standard program, and around 25 minutes to download it.



5. Click OK twice, and select Drive → Autodetect



6. The CX-Drive software will now look for the inverter. Wait until it is finished, and you are now online with the inverter.



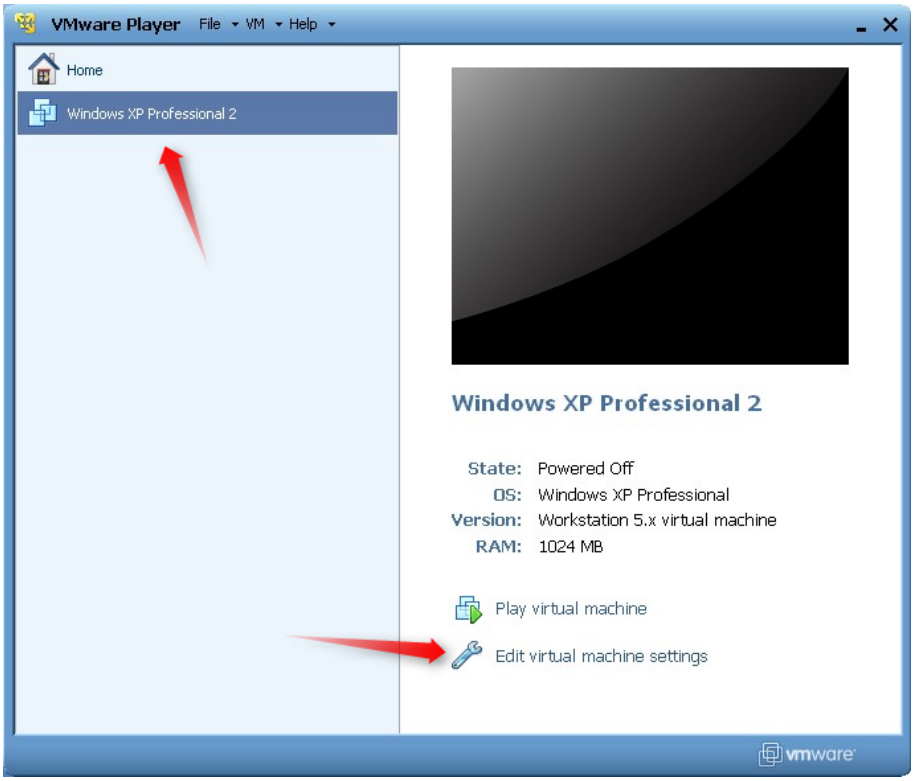
4. Ethernet connection via Windows XP under VMWare

You can run the Sysmac Studio software inside a VMWare engine, to an Omron PLC that is Ethernet attached to a SiteManager.

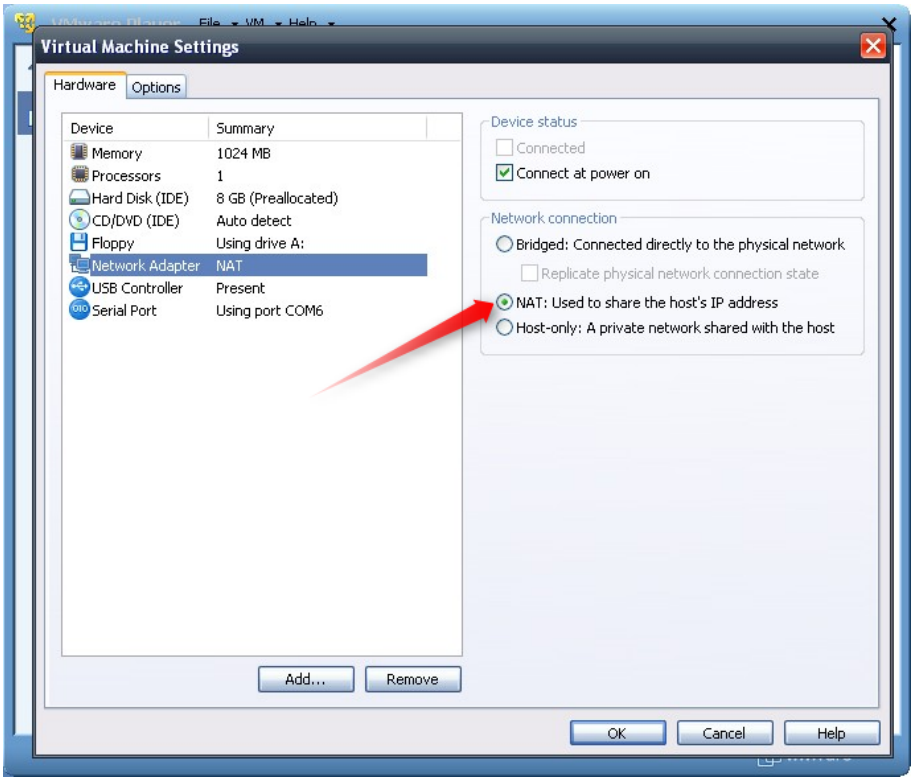
You can choose to run the LinkManager inside or outside the virtual machine. Note that LinkManager can only run inside VMWare if the host OS is Windows 7 and the PC's CPU has support for virtualization.

The following illustrates VMWare Player, which can be downloaded from http://www.vmware.com/support/product-support/player/, and for LinkManager running outside the virtual machine (i.e. on the host OS system)

1. Locate your Windows XP that has Sysmac Studio installed, and enter **Edit virtual machine settings.**



2. Make sure the Network Adapter settings is set to **NAT:**



3. Start the VMWare engine and on the host PC start LinkManager.

4. Follow the procedure of section **1 Ethernet connection** to get access to the PLC via LinkManager.

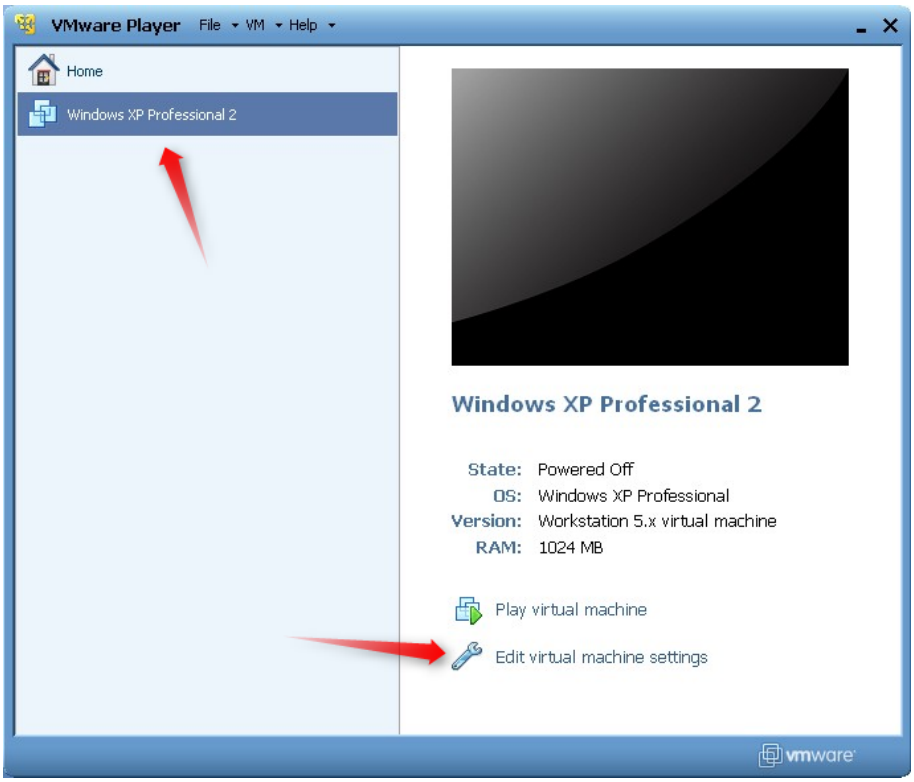
5. USB connection via Windows XP under VMWare

You can run the Sysmac Studio software inside a VMWare engine, to an Omron PLC that is USB attached to a SiteManager.

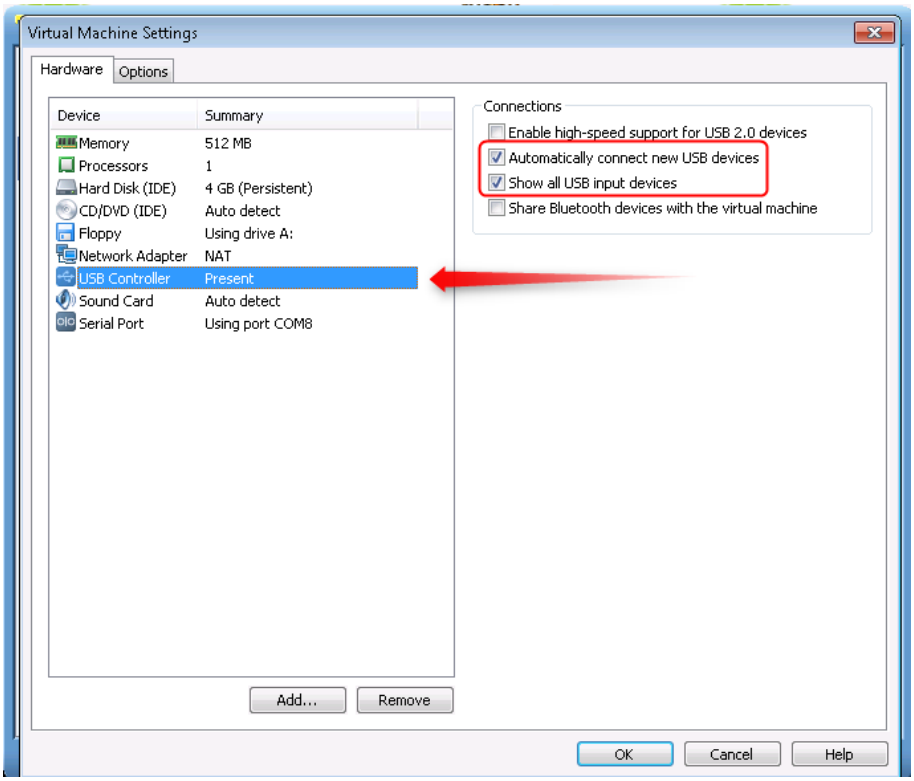
Important: LinkManager must run inside the virtual machine also. Note that LinkManager can only run inside VMWare if the host OS is Windows 7 and the PC's CPU has support for virtualization.

The following illustrates VMWare Player, which can be downloaded from http://www.vmware.com/support/product-support/player/, and for LinkManager running outside the virtual machine (i.e. on the host system)

5. Locate your Windows XP that has Sysmac Studio installed, and enter **Edit virtual machine settings.**



6. Make sure that **USB Controller** has been added as Hardware component**:**



7. Start the VMWare engine and the LinkManager inside the VMWare engine.

8. Follow the procedure of section **2 USB Connection** or section **3 USB to serial cable** to get access to the PLC via LinkManager.

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