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Application Note
Omron HMI/PLC and Sysmac Studio

This document guides you through the setup of proprietary vendor specific software installed on your 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

Version: 1.1, June 2015

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Document version history

Version	Change log
0.9	Initial version
1.0	Official release
1.1	Updated version – included instructions for connecting to NA5 HMI

Prerequisites for This Guide

This guide will assist you to setup a remote and online connection to the Omron equipment placed on the customer site using your Omron Sysmac Studio software installed on your PC. The version of Sysmac Studio used in this guide is 1.13; earlier versions might not have support for Omron's HMI NA5.

The processes of connecting Sysmac Studio to an HMI and PLC is quite similar, therefore this guide will demonstrate only a connection to an HMI and will point out if there are any differences with the connection to a PLC.

The 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 an access from SiteManager to the Omron HMI/PLC.

    - A network attached HMI must be configured with an agent device type **Omron / Ethernet HMI** on the SiteManager (minimum version 15175).

    - A network attached PLC must be configured with an agent device type **Omron / Ethernet PLC** on the SiteManager.

    - A USB attached HMI (such as the NA5-9W001S) must be configured with agent device type **Omron / USB HMI** on the SiteManager.

    - A USB attached PLC (such as the NJ501-1300) must be configured with agent device type **Omron / USB PLC** on the SiteManager.

Note: A USB connection requires a SiteManager model with USB support and minimum SiteManager version 13035 and LinkManager version 13025.

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.
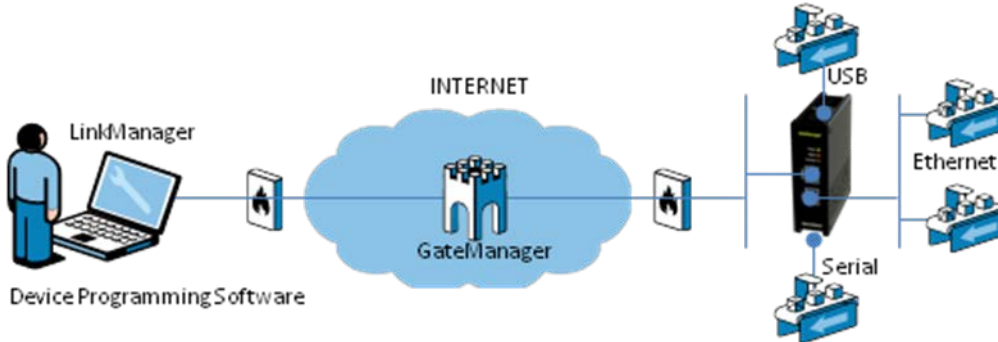
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System Overview

The communication path is as follows:

Sysmac Studio → **LinkManager** → GateManager → SiteManager → HMI/PLC.

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

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


1. TCP Ethernet Access

The following instructions describe how to connect Omron Sysmac Studio to an Omron HMI/PLC that is attached to a SiteManager via Ethernet. The description shows a NA5-9W001S, but it could be any other Ethernet enabled Omron device.

Note: A network attached HMI must be configured with an agent device type **Omron / Ethernet HMI** on the SiteManager.
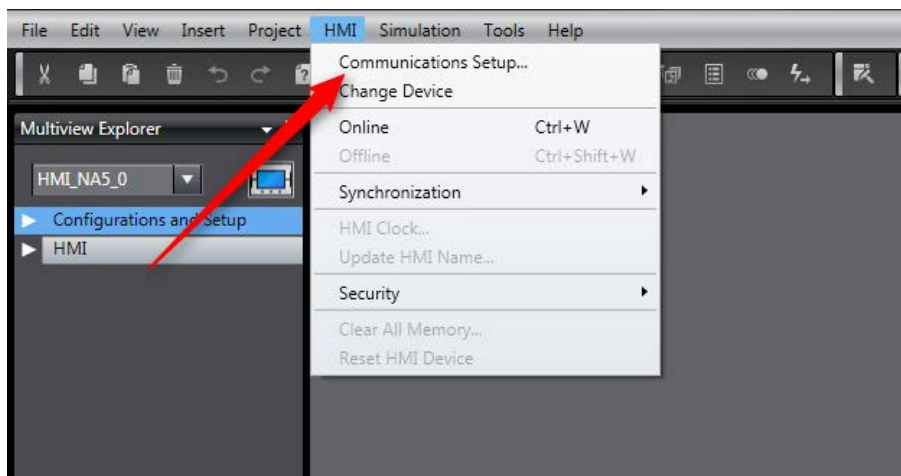
1. Locate the agent that represents your TCP/IP attached Omron HMI/PLC, and click on it:

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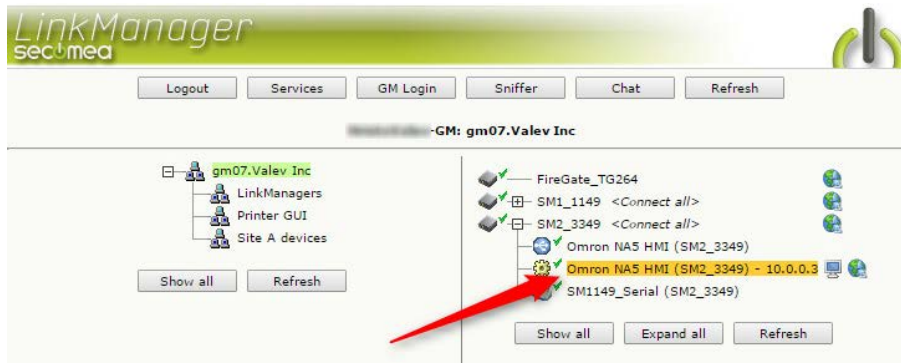
2. You will not see any activity on it yet. This only starts when you connect to the HMI/PLC via your project in Sysmac (Make a note of the IP address of the HMI/PLC):
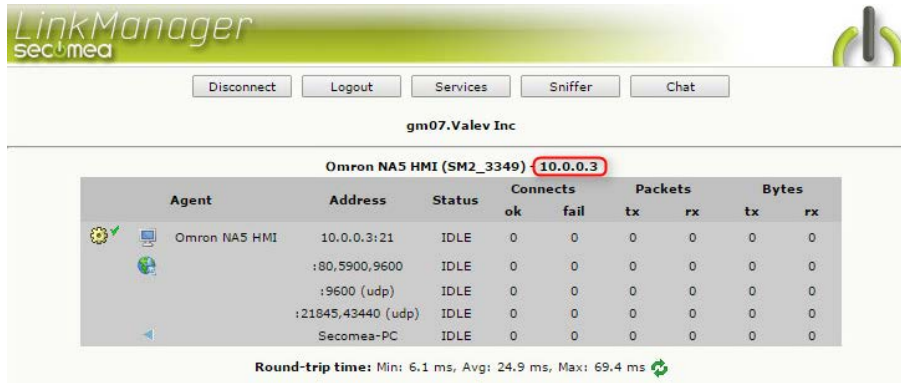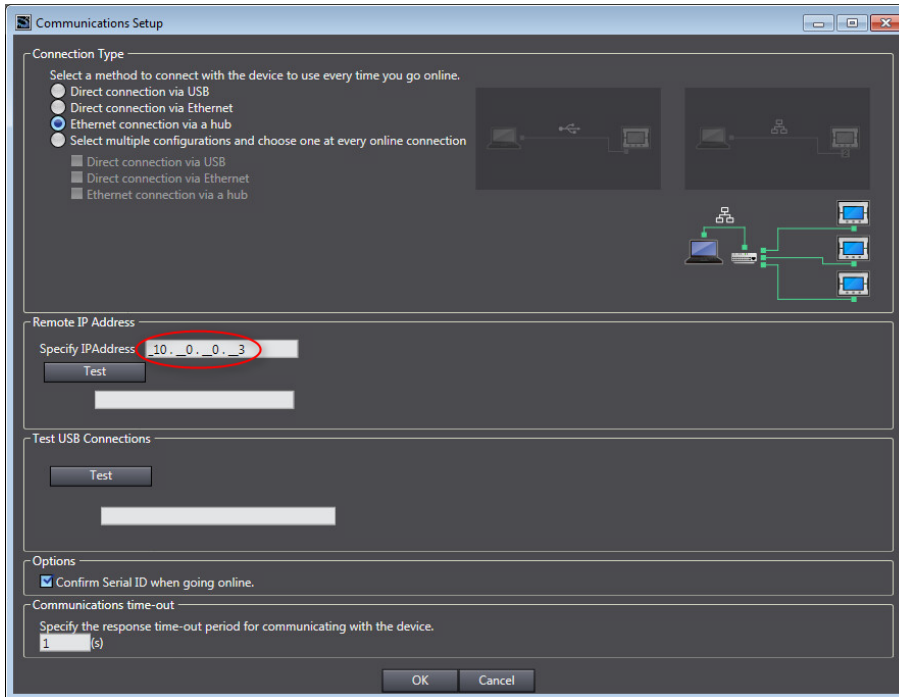

3. In Sysmac Studio, select **HMI → Communications Setup…**

Note: If you are trying to connect to a PLC instead of an HMI, this menu will be called **Controller**.

4. Make sure you select **Ethernet connection via hub**. Type in the address obtained in step 2 and click **OK**.


Note1: If you try to test the connection by pressing the **Test** button, the result will, in most cases, be negative. This is a known issue with Sysmac Studio. Nevertheless, you can test the connection by sending ping (from Command Prompt on Windows OS or any other similar tool) to the IP address.
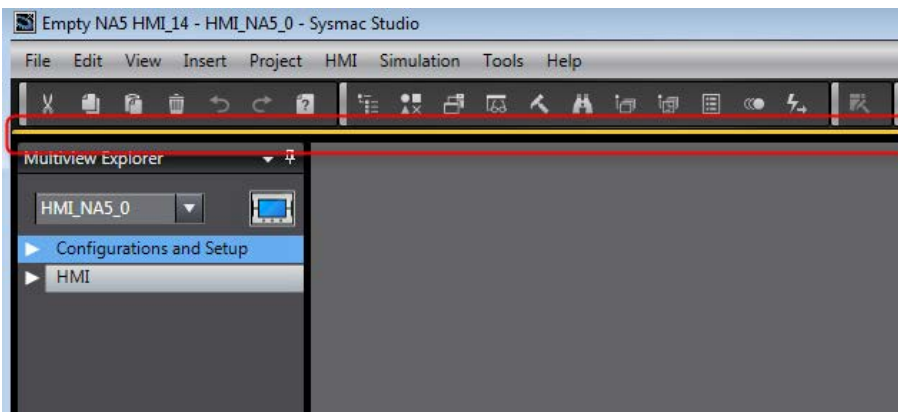
Note2: In case you are trying to connect to a PLC, there will be an additional method to connect – **Remote Connection via USB**, and the window will look slightly different:

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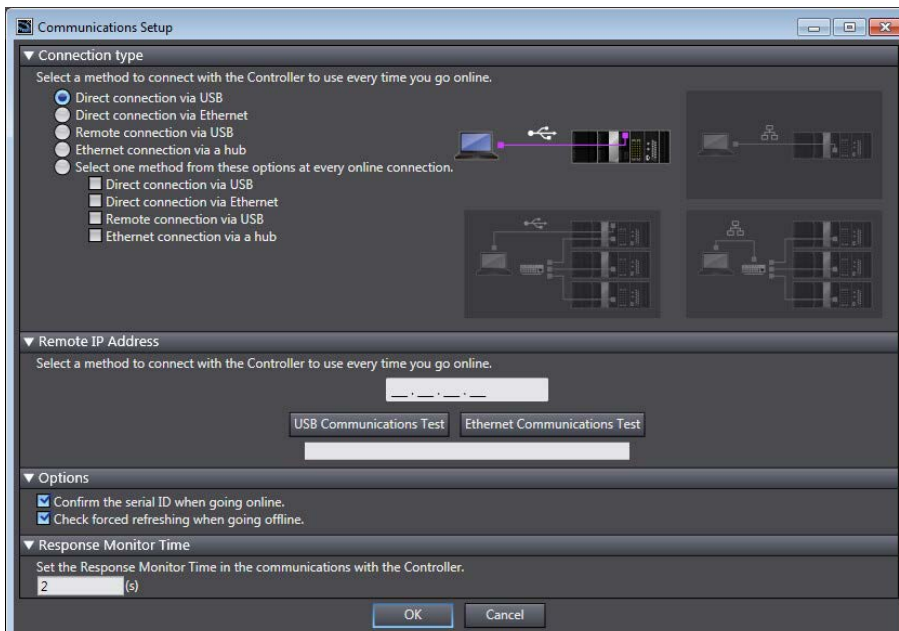
5. You can now go online with the HMI/PLC.
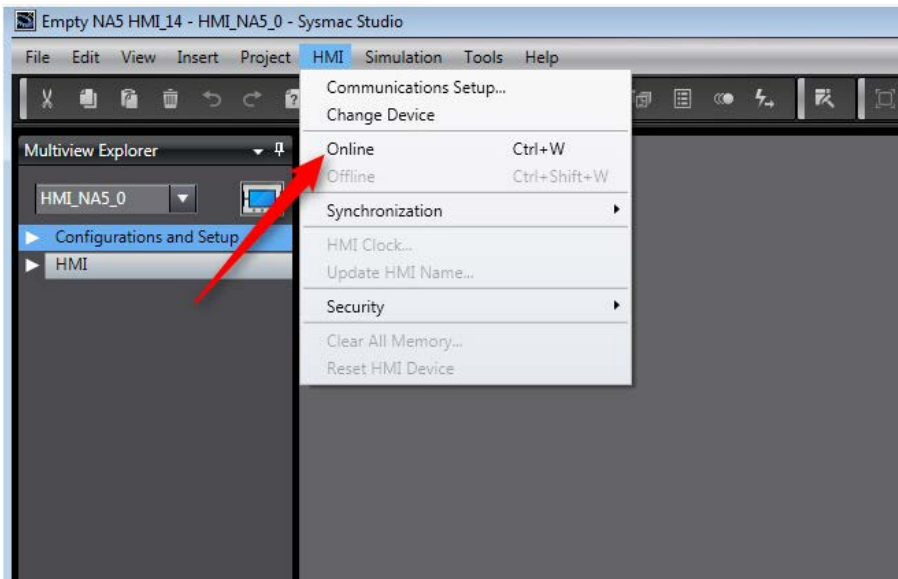
6. If successful, you will see a yellow line at the top of the project window. This means that you are online with the HMI/PLC.

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2. USB Connection to HMI/PLC

The following steps have been performed with Sysmac Studio 1.13 and USB drivers already installed on the PC, and an established USB connection from a SiteManager to an NA5-9W001S HMI. The same steps apply for Omron PLCs as well. (NB: You can also connect to an Omron G9SP Safety PLC using the G9SP configuration. Refer to the separate guide for this)

Note: During Secomea lab testing, it was discovered that the USB connection is very fragile to slow internet connections including ones with high latency. With a high-speed broadband connection, synchronizing and transferring took almost 3 times longer than normal. With a mobile broadband connection, it was impossible to transfer a project. Therefore, we suggest that you read the remote IP address of the HMI/PLC via USB (if possible) or obtain it through the person / department responsible for the initial configuration within your own company or at the company responsible, and then use Ethernet connection to transfer the project.

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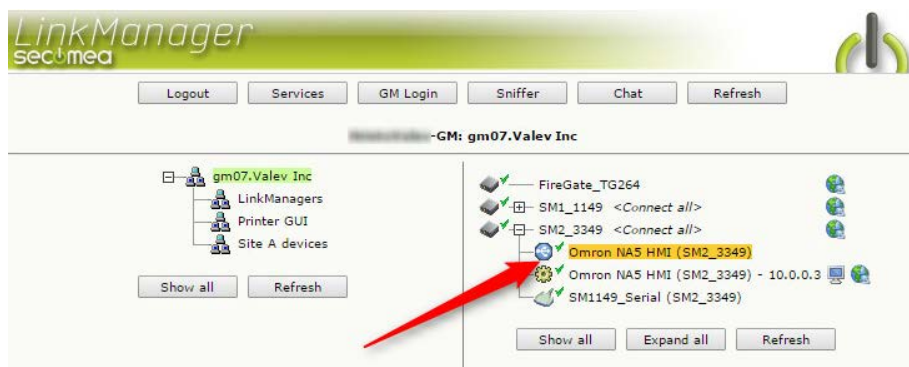

Note: The icon in front of the Agent is signifying the type of connection this Agent is using. This can help to distinguish between agents with the same name but different properties.
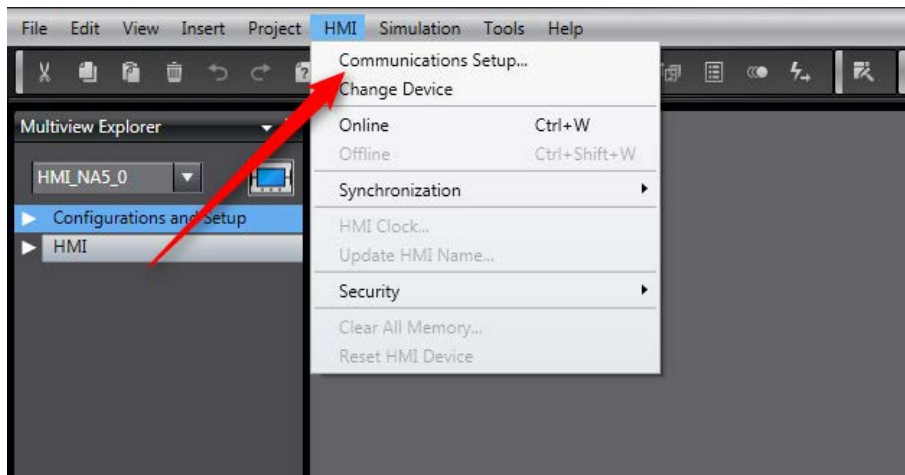
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2. When connecting, the USB device should install itself as an Omron USB DirectLine modem. You can verify that the driver started correctly by opening the Device Manager and looking under Modems for the OMRON USB DirectLine device:
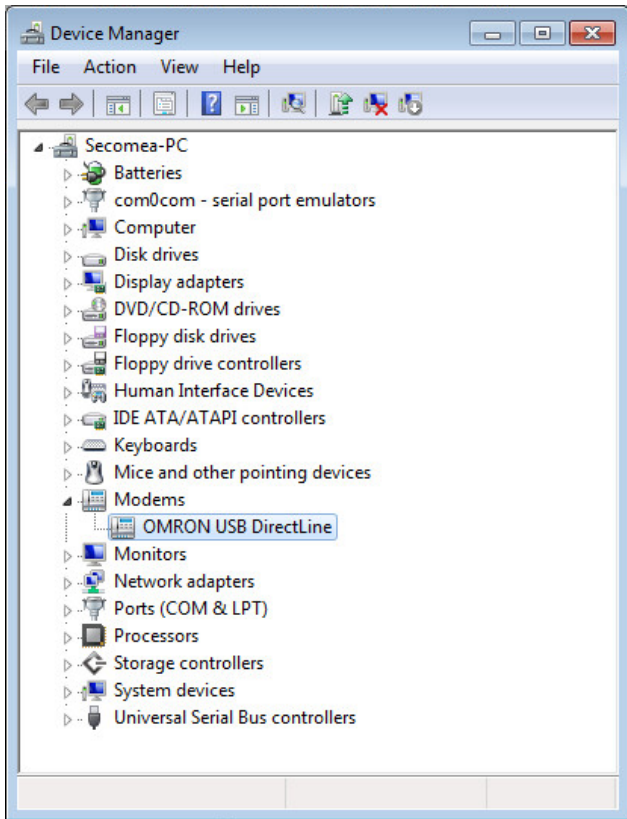
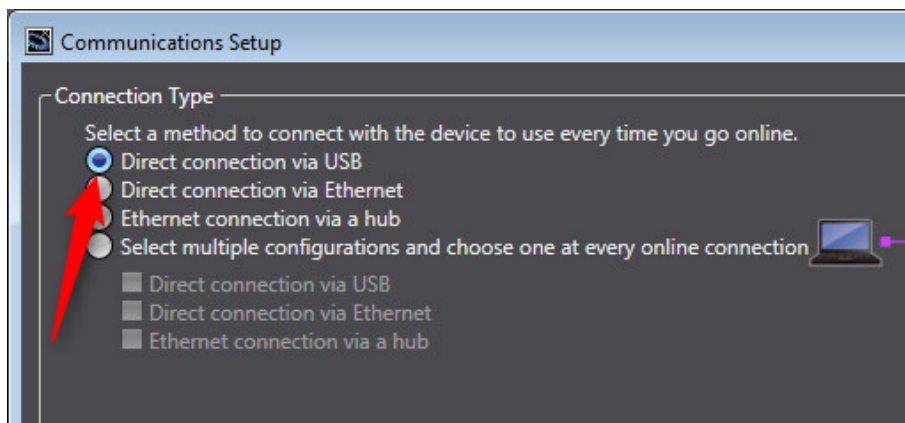3. Check that device status says "This device is working properly".

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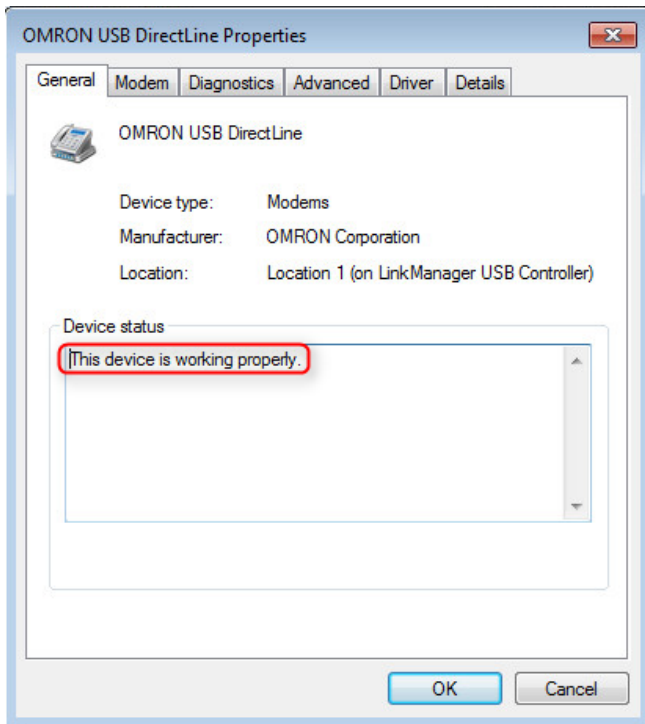
4. In Sysmac Studio, select **HMI → Communications Setup…**

Note: If you are trying to connect to a PLC, instead of **HMI** this menu will be called **Controller**.

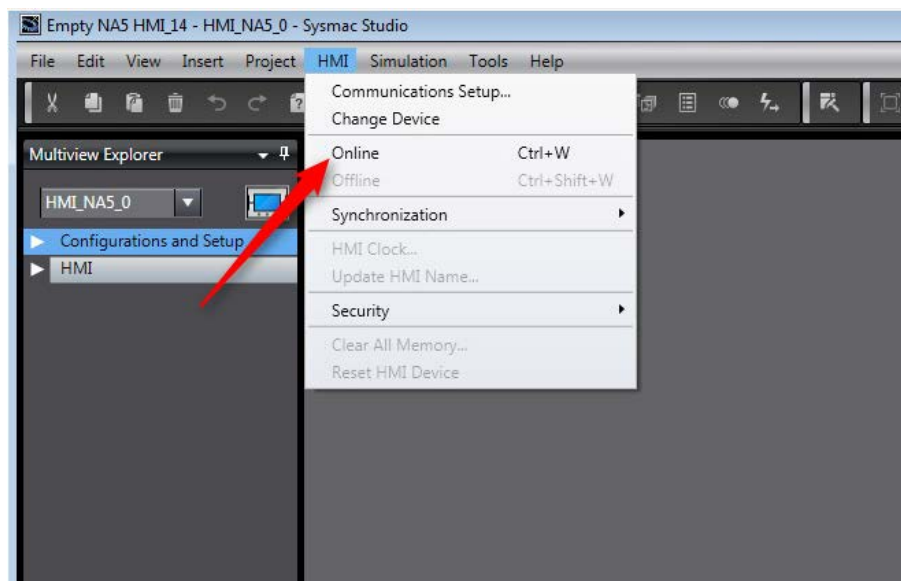5. Make sure you select **Direct connection via USB**. Then click OK.

Note: In case you are trying to connect to a PLC, there will be an additional method to connect – **Remote Connection via USB**.
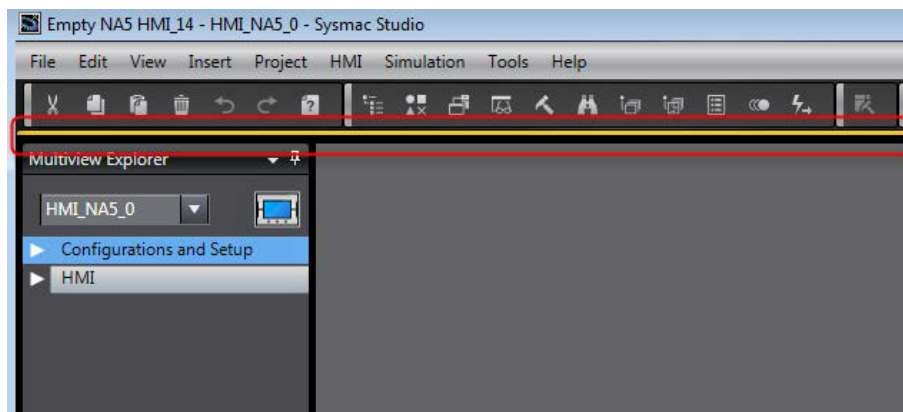
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6. Before connecting to the HMI/PLC you can test the USB connection by pressing the **Test** button.
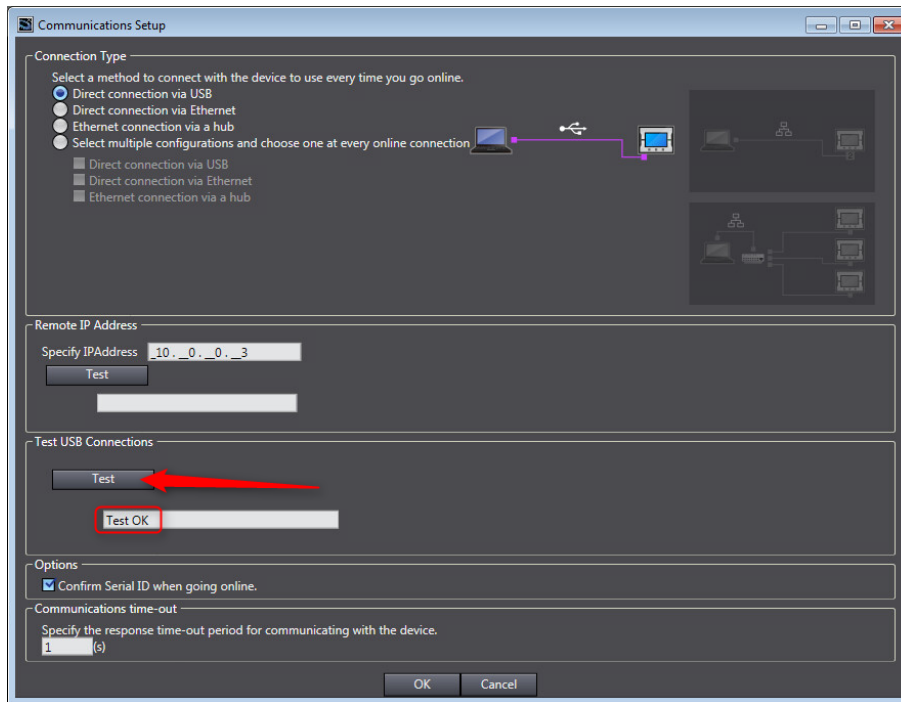
7. You can now go online with the HMI/PLC.

8. If successful, you will see a yellow line at the top of the project window. This means that you are online with the HMI/PLC.
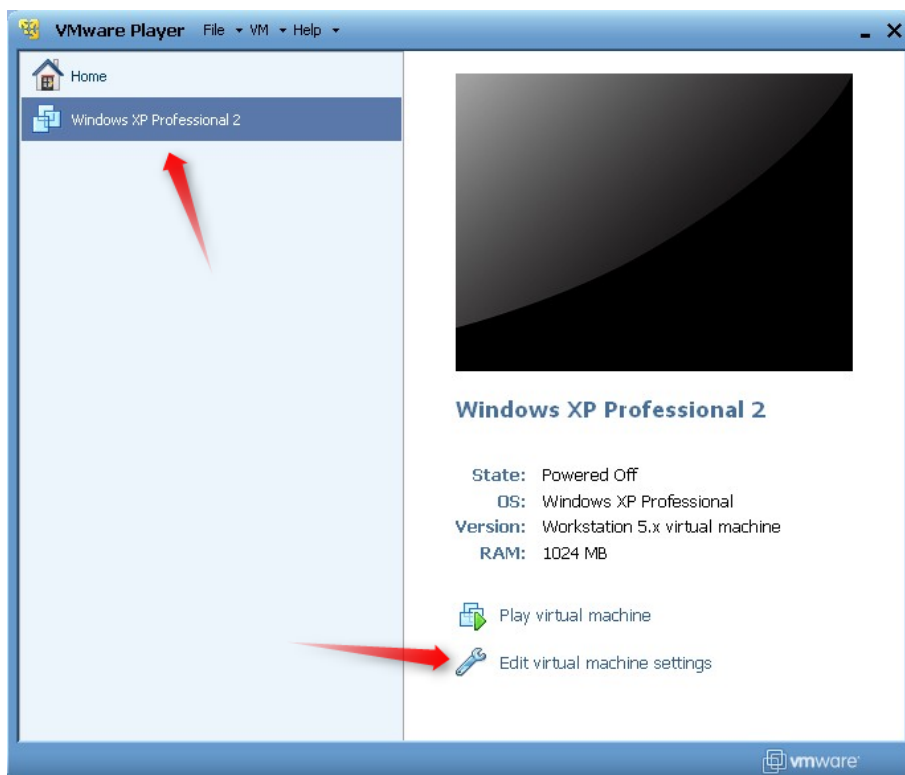
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3. Ethernet connection via Windows XP under VMWare

You can run the Sysmac Studio software inside a VMWare engine, to an Omron PLC that is Ethernet attached to a SiteManager.
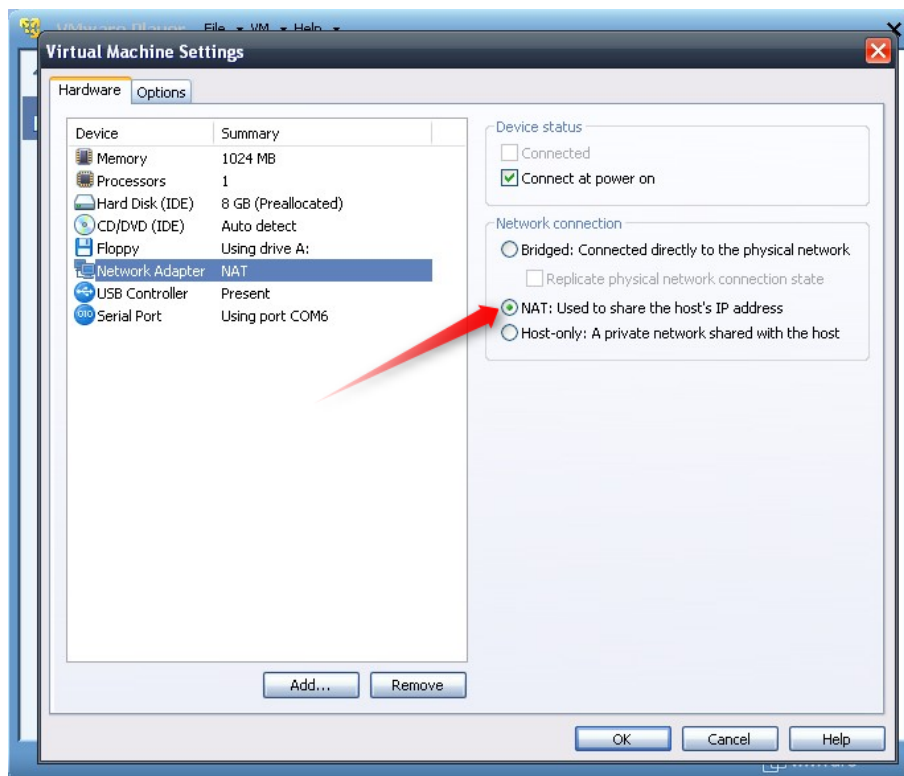
You can choose to run the LinkManager inside or outside the virtual machine. Note that LinkManager can only run inside VMWare if the host OS is Windows 7 and the PC's CPU has support for virtualization.

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

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

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

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

4. Follow the procedure in section **1. TCP Ethernet Access**, on page 4 to gain access to the PLC via LinkManager.

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4. 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 engine. 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 LinkManager running outside the virtual machine (i.e. on the host system).

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

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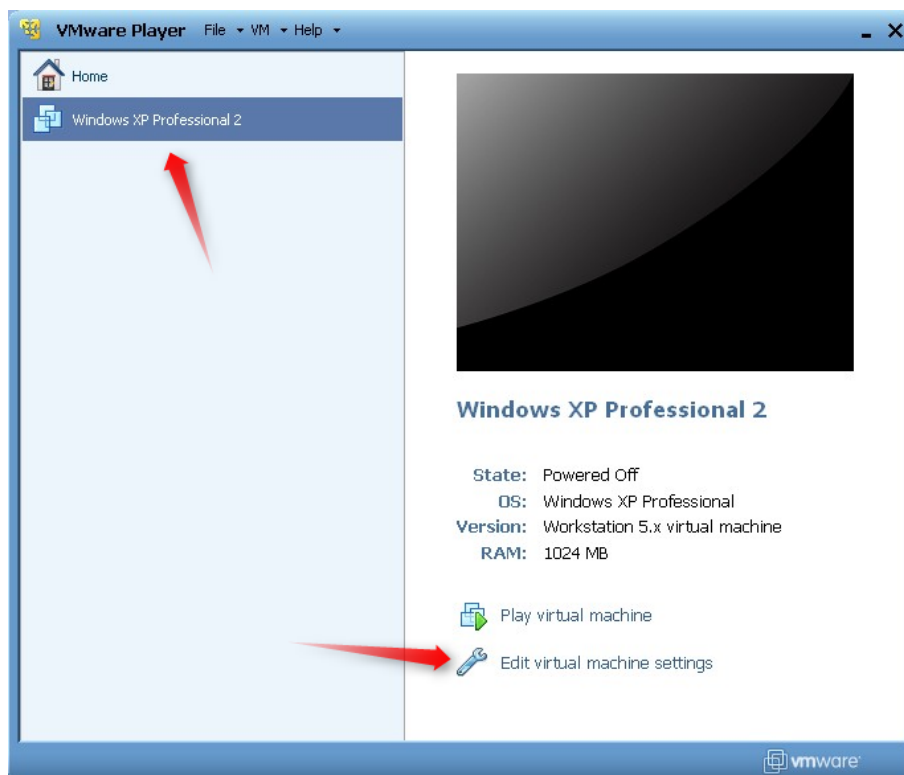
2. Make sure that **USB Controller** has been added as Hardware component**:**
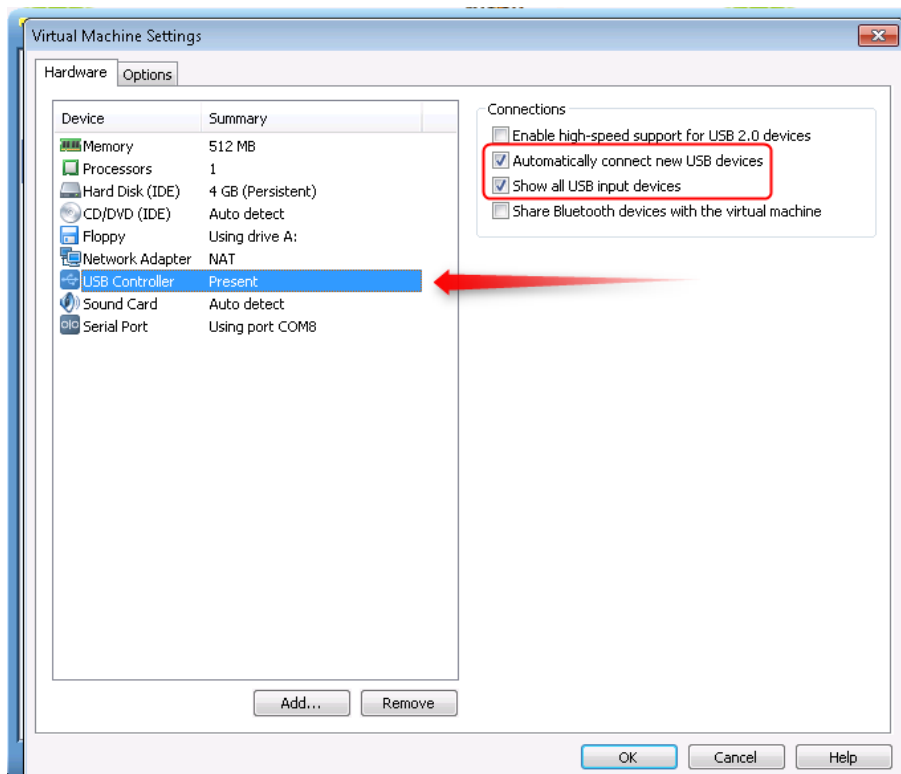
3. Start the VMWare engine and the LinkManager inside the VMWare engine.

4. Follow the procedure of section **2. USB Connection to HMI/PLC** on page 8 to gain access to the PLC via LinkManager.

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