Application Note
Schneider PLC/HMI and SoMachine/Vijeo Designer

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

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Prerequisites for This Guide

This guide will assist you to setup a remote and online connection to the Schneider equipment placed on the customer site using SoMachine software (and optionally the Vijeo Designer add-on)

This guide concentrates on the Schneider Electric M238 TM238LFAC24DR and the Schneider Magelis HMISTU655 HMI, but may also work with other Schneider products and software packages. (Also see the separate guide "**Schneider PLC and Unity Pro XL**")

Prerequisites for this guide are:

- You have an operational LinkManager version 5.4 (build 13453) or newer installed on your PC and witha LinkManager certificate that allows you to connect to the SiteManager agents.
- You have the Schneider PLC and the SoMachine software installed.
- You have the Schneider device agent installed and configured on a SiteManager with firmware version 5.4 (build 13453) or newer at the remote site, and there is access between the SiteManager and the PLC by one of the following methods:
  - A Ethernet attached PLC that is configured with agent device type **Schneider Electric / Ethernet**
  - or, a USB attached PLC that is configured with agent device type **Schneider Electric / USB PLC** on the SiteManager.
  - or, a USB attached HMI that is configured with agent device type **Schneider Electric / USB HMI** on the SiteManager.

If this is not the case, we kindly ask you to contact the person / department responsible within your own company or at the company responsible hereof.

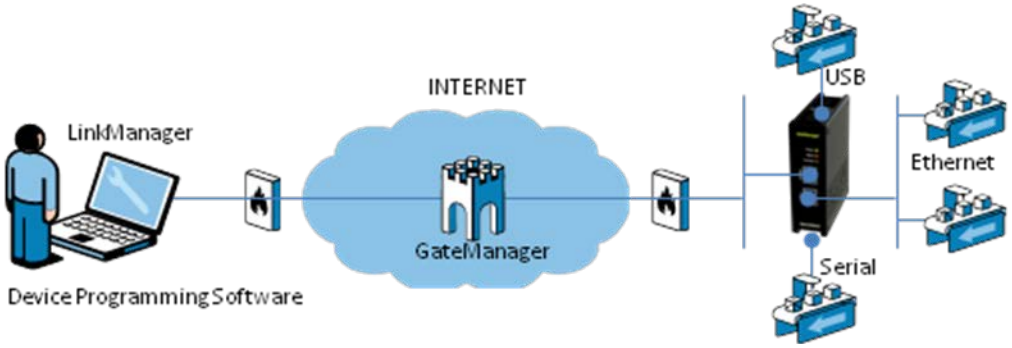
System Overview

The communication path is as follows:

SoMachine → LinkManager → GateManager → SiteManager → PLC.

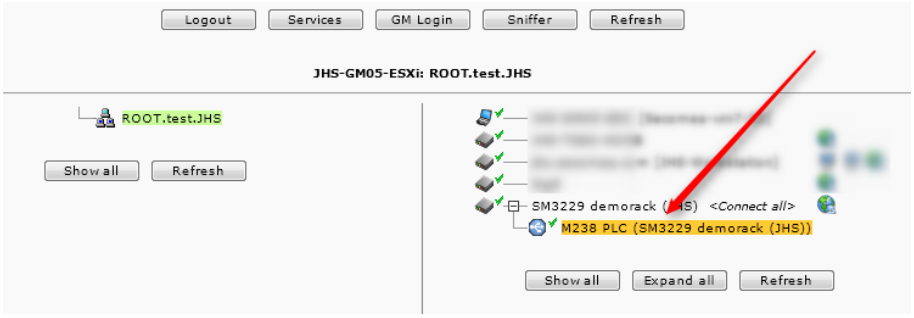
This guide will elaborate on the components marked with **bold.**

The following system overview depicts a SiteManager 3229 at the customer location:



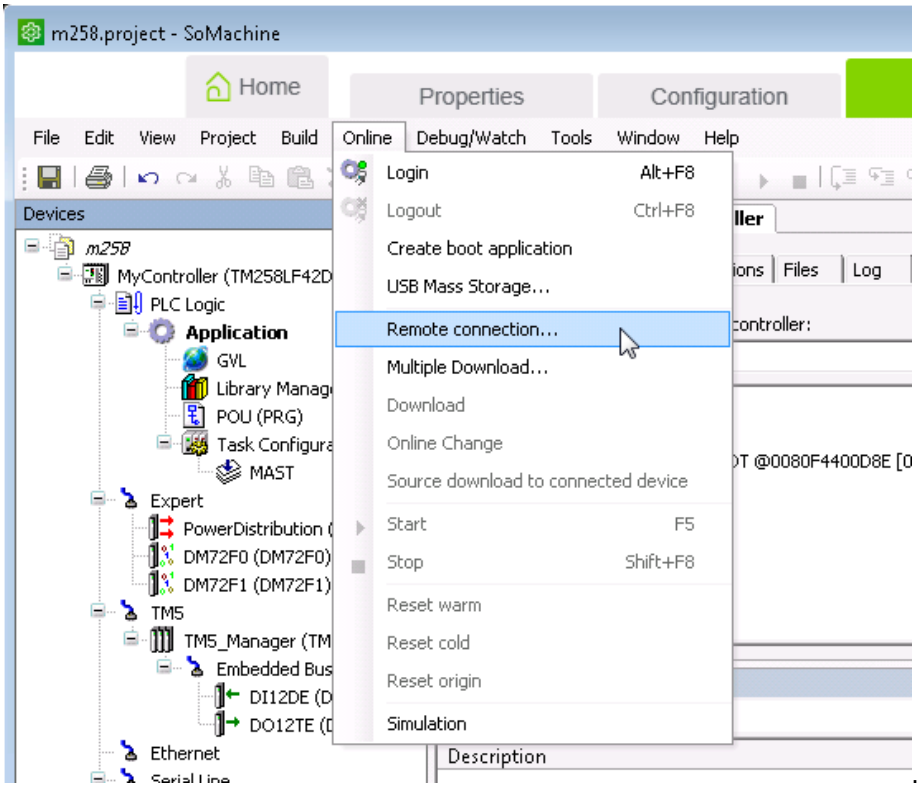
1. Ethernet connection

1. Locate the Schneider Ethernet agent and click on it to establish a connection to it:

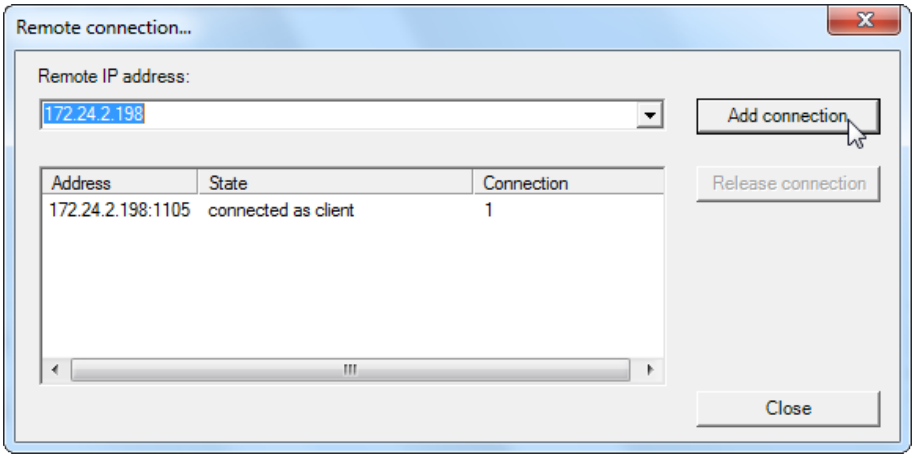


2. To be able to connect to your Ethernet connected Schneider device, you must first add a remote connection.

   First, go to the menu **Online > Remote connection**

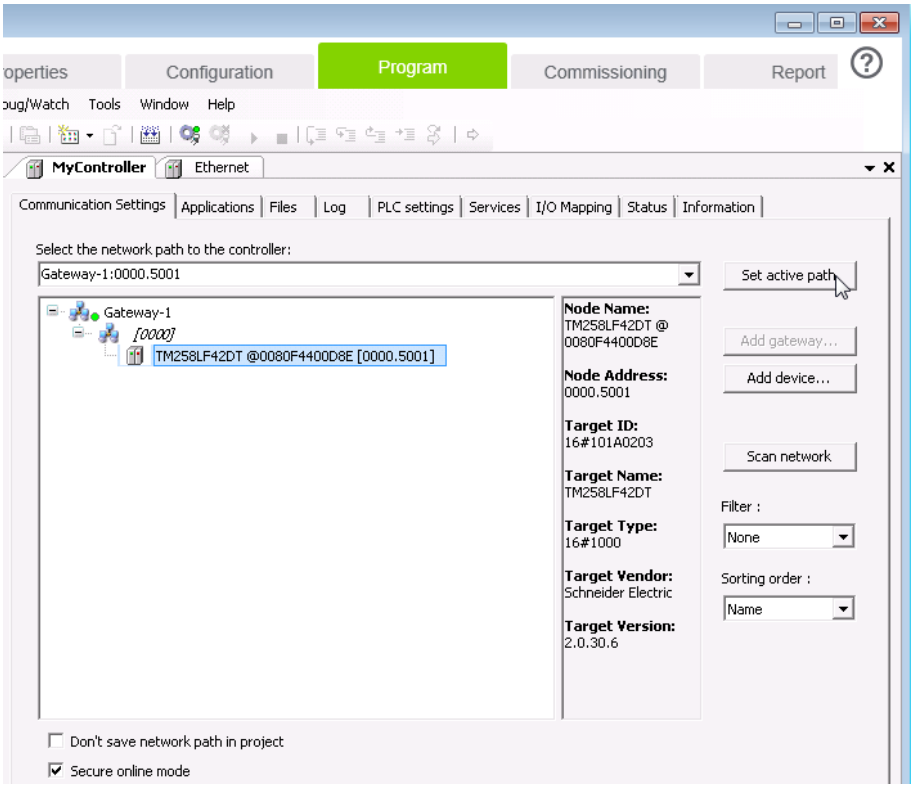


3. Then, add the IP address of your Ethernet connected Schneider device and click **Add connection**.

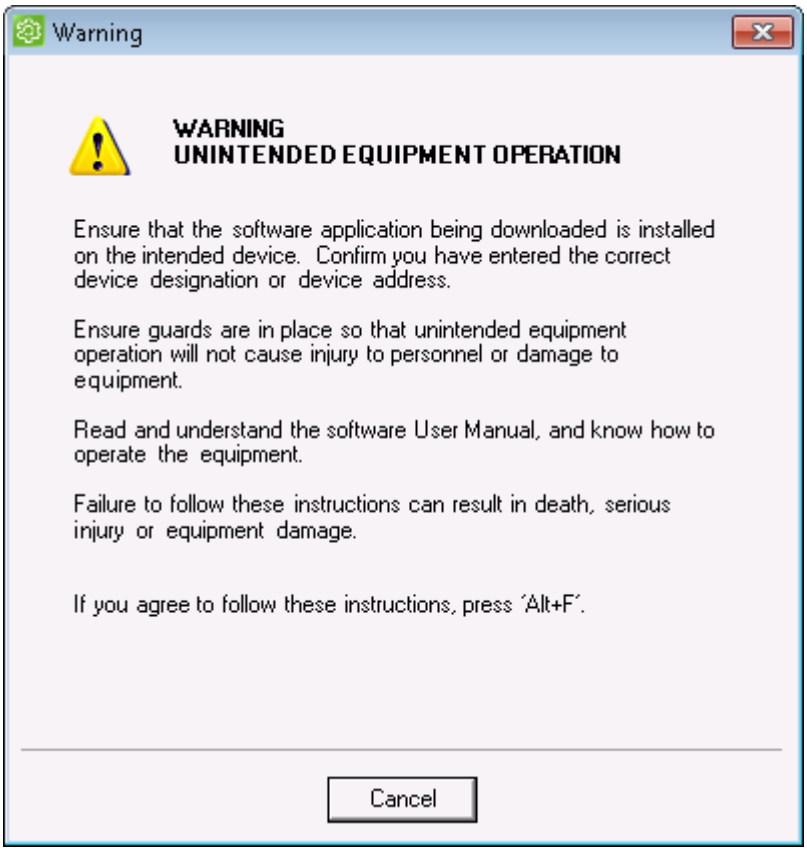


You should now see “connected as client” in the status, as shown above example.

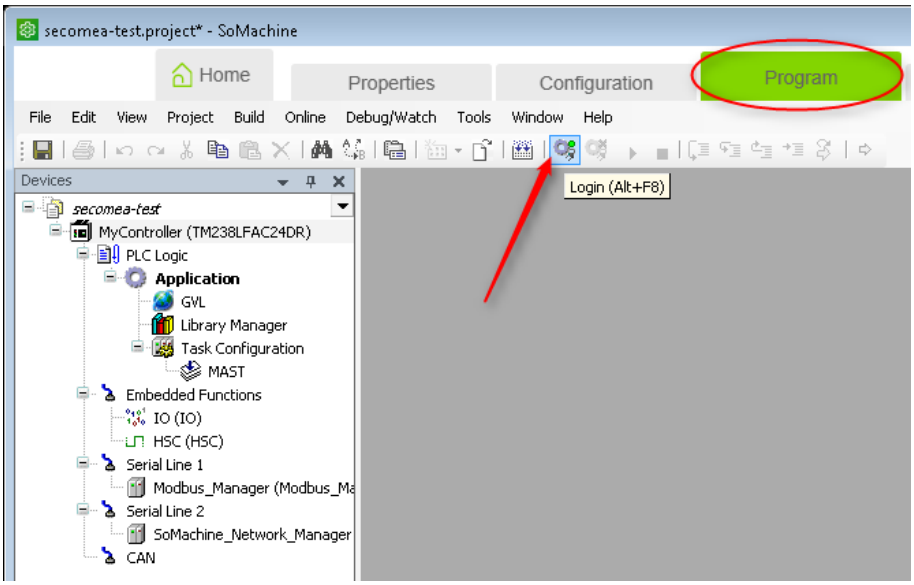
4. Click Scan Network, and you should now see your Ethernet connected device in the list. Mark it, and click **Set active path**.



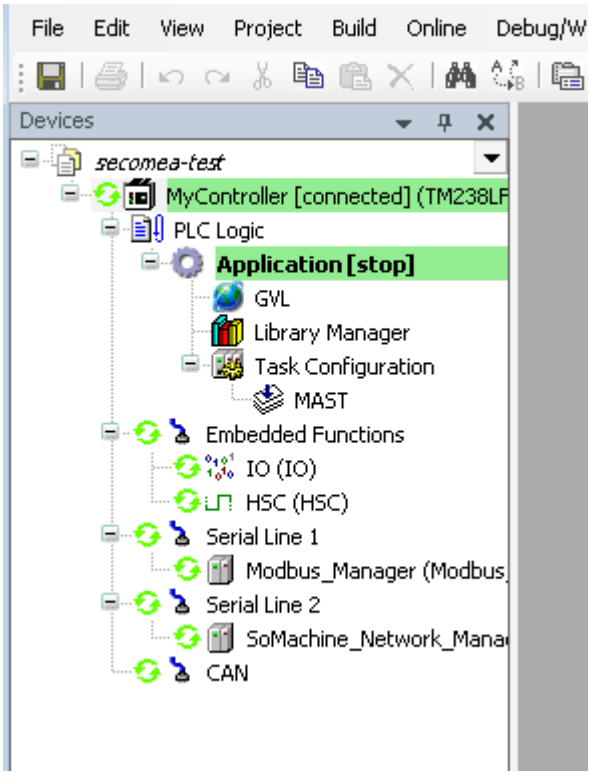
5. After this, you receive a warning note – click **ALT+F** to accept this note.



6. Select the **Program** tab, and click the **Login** button.



7. You should now be online with the PLC, which is shown by the green highlights in the left column.



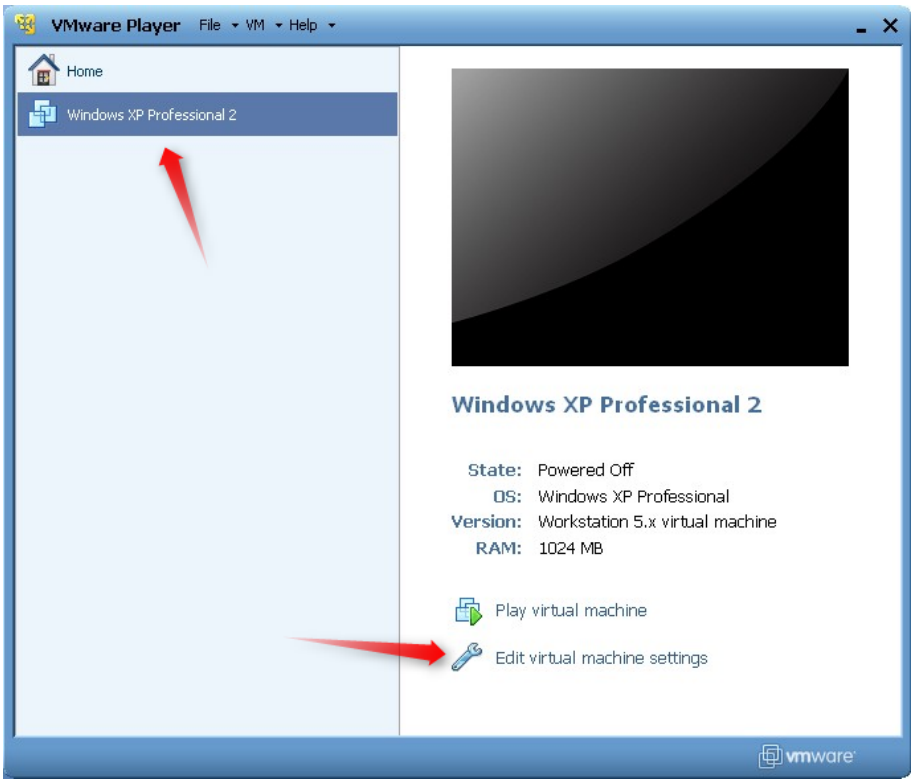
2. Ethernet Connection from Virtual Machine

You can run the SoMachine software inside a VMWare or VirtualBox machine, to a PLC that is Ethernet attached to a SiteManager.

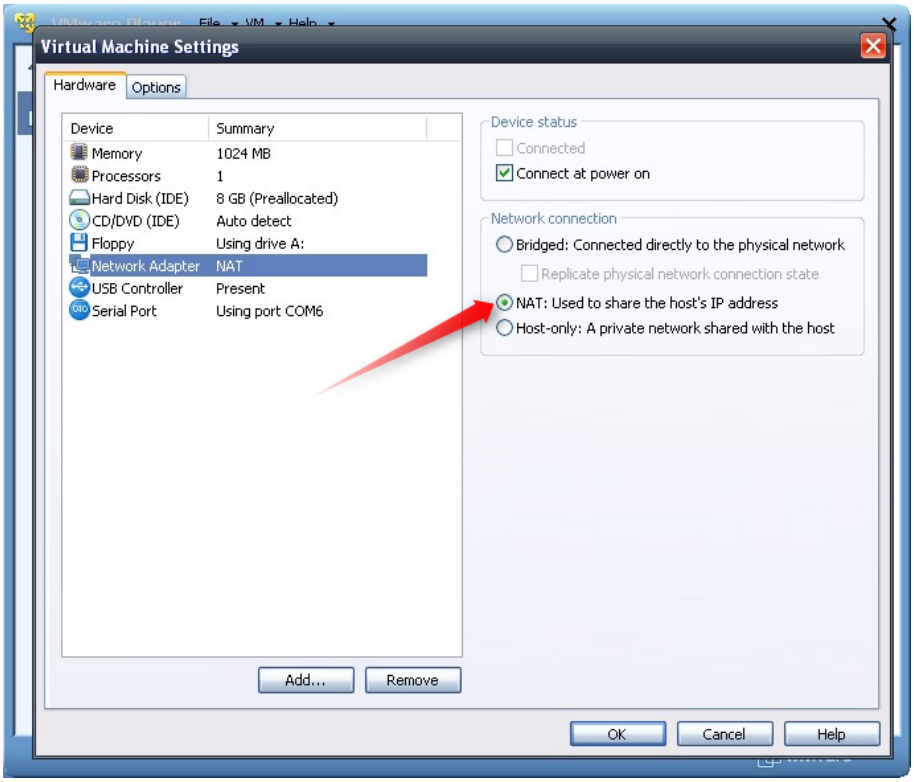
You can choose to run the LinkManager in-side or outside the virtual machine. Note that LinkManager can only run inside the virtual machine if the host OS is Windows 7 or 8 and the PC's CPU has support for virtualization.

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 VM that has the SoMachine software 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** to get access to the PLC via LinkManager

3. USB Connection

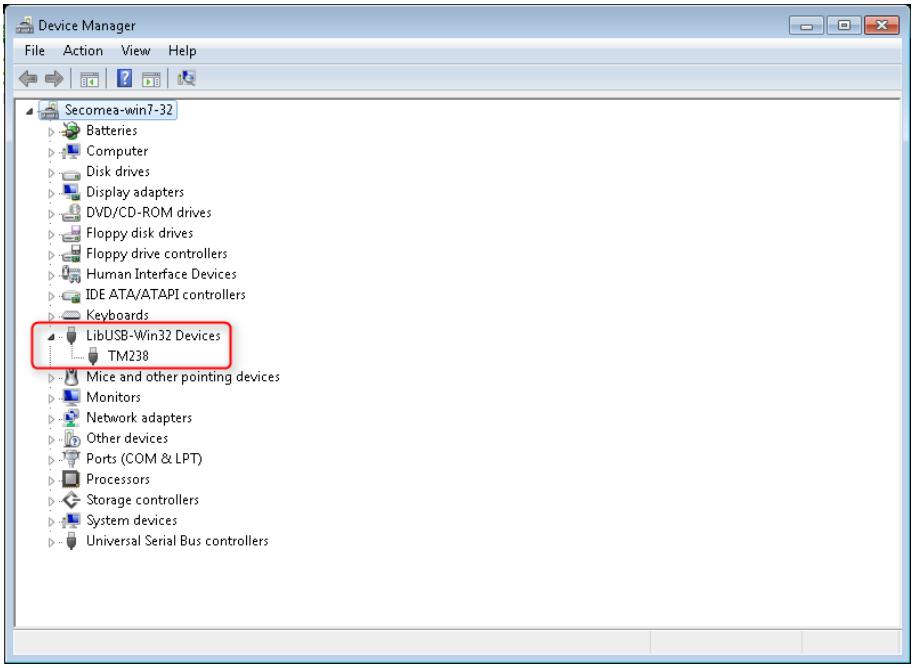
Currently the Schneider USB PLC and USB HMI agents of the SiteManager covers the following configurations:

- Telemecanique Modicon M340
- TSX C USB 485 (USB-RS485 Adapter for Inverter, Brushless)
- Telemecanique XBT ZG935 (Adapter/Cable for XBTGT HMIs)
- Telemecanique Modicon M238/258.
- Schneider Magelis HMISTU655 HMI

The LinkManager will, when connecting to the agent, create a USB controller on the PC that will perform redirection to the USB port on the SiteManager.

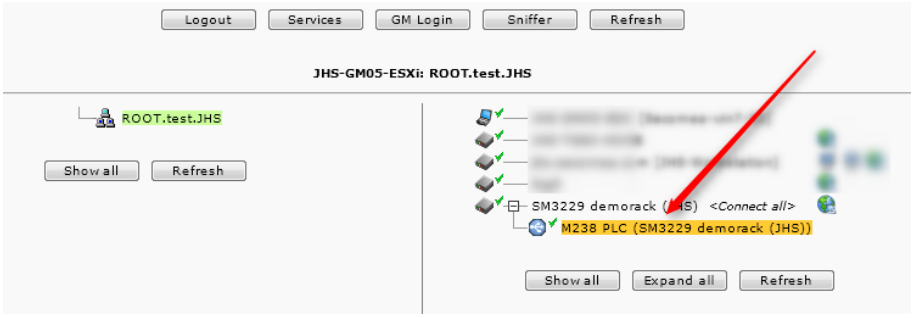
If you have installed the complete package of the SoMachine software, the USB drivers is also installed. To verify you have the correct drivers installed, take a look at the device manager on your machine, after you connect to the device through the LinkManager. It should have installed a new USB device under LibUSB-Win32 Devices.

NOTICE: If you are connecting to a Schneider Magelis HMI STU655, you will probably experience some issues, because this type of HMI restarts when downloading a project. Refer to **Appendix B** for a workaround for this.



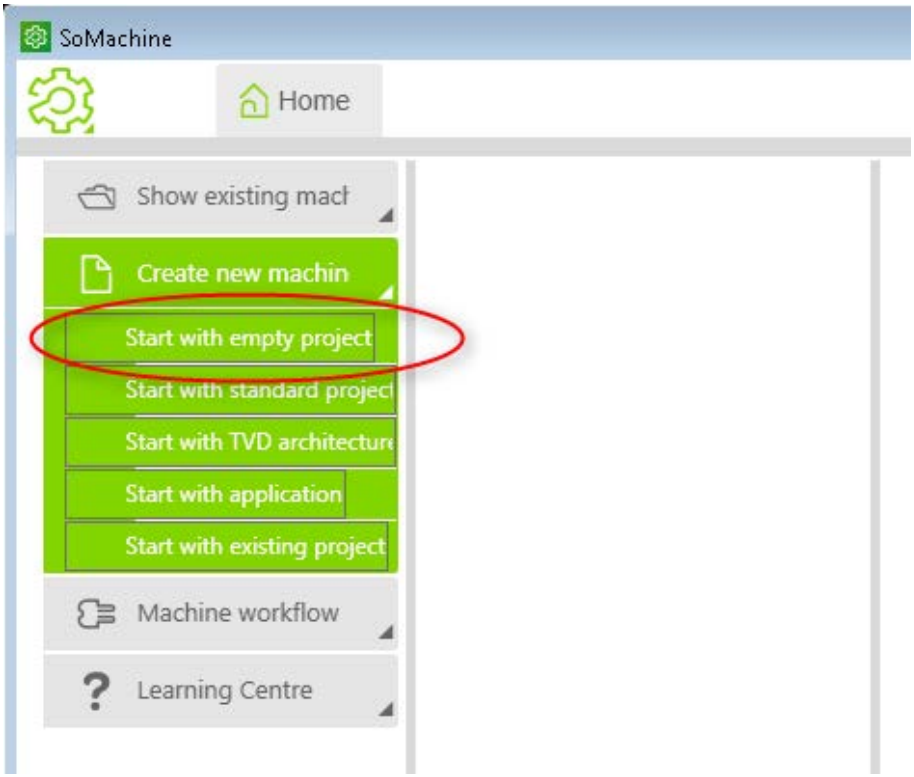
The following steps have been performed with the SoMachine software and USB drivers already installed on the PC.

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

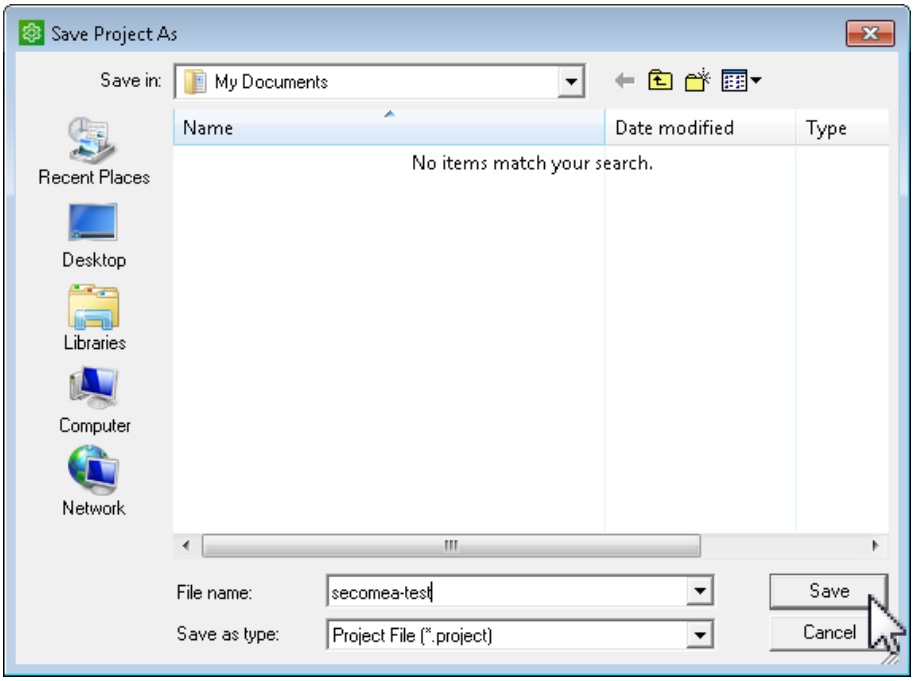


If the drivers were successfully installed, then the USB connection should be established without further notice. See USB connection to check if the connection is established properly.

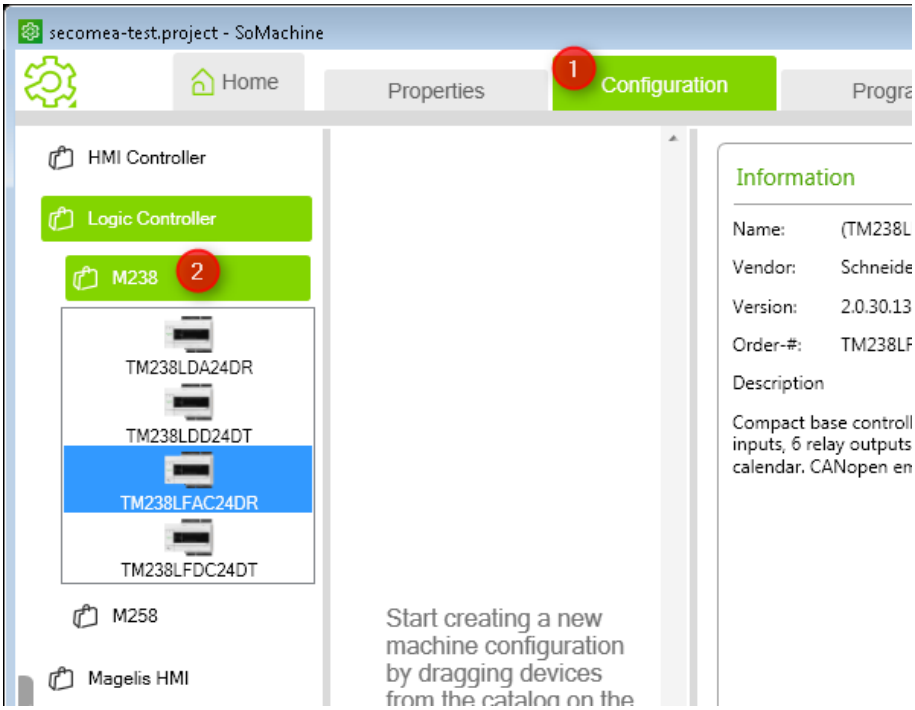
2. In the SoMachine Software, open a project (or create a new one). In this guide, we create a new, empty project.



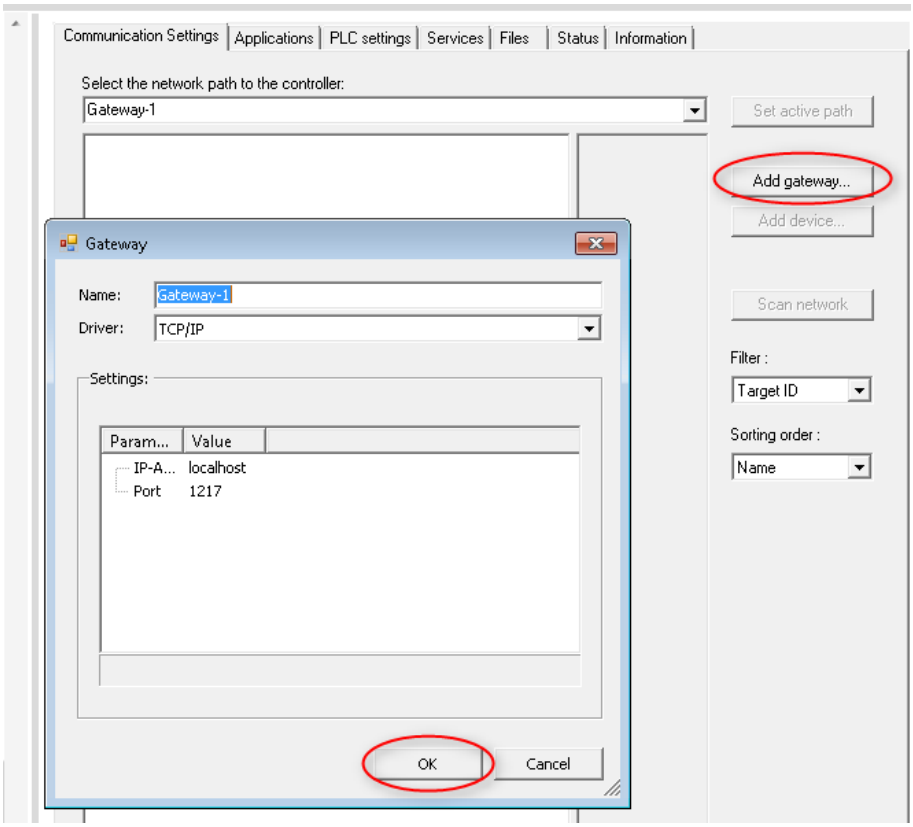
3. Select a name for your new project, and click Save:



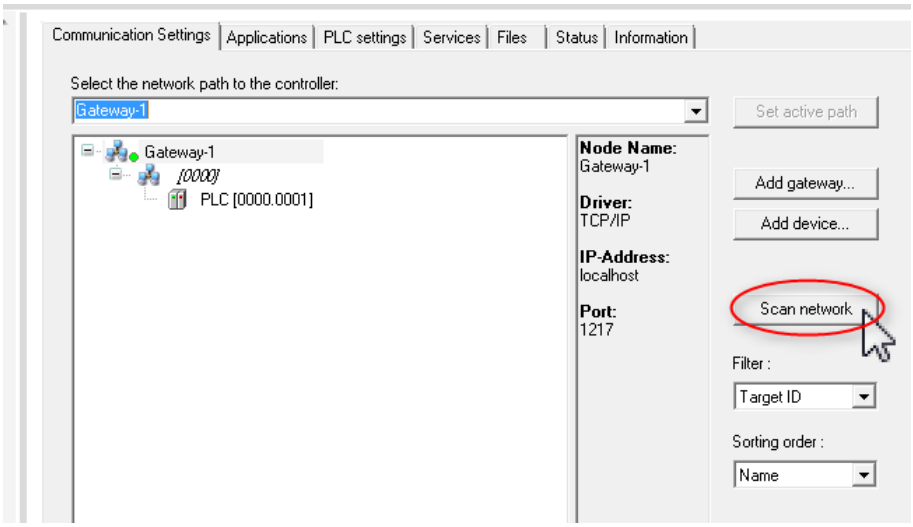
4. Next, you select which PLC to use with your project. NOTICE that you need to select the exact same model as the one you connect to. Otherwise, SoMachine will not be able to search for it. Drag the controller to the area in the middle:



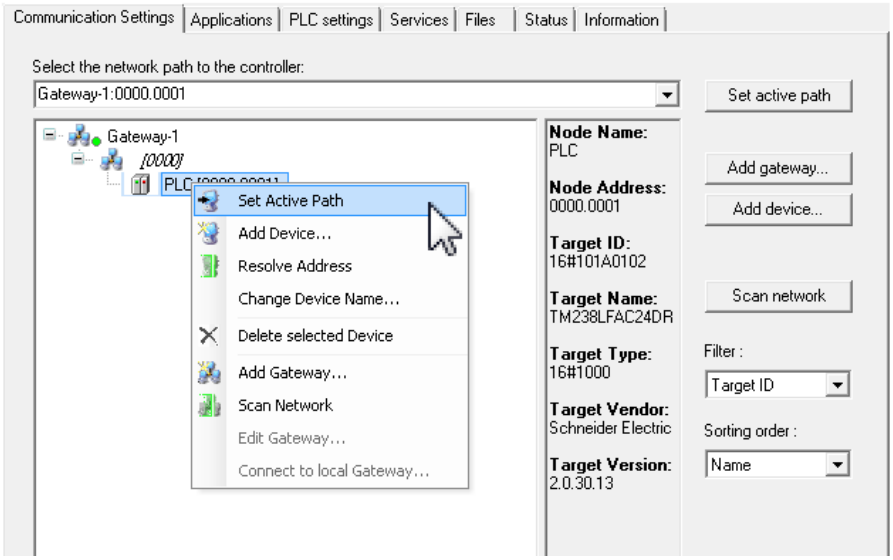
5. Double-click on the controller, to enter the settings area. If you have not already added a gateway, press “Add gateway”, enter a name, and click Ok



6. Press the Scan Network button, and your PLC should show up.

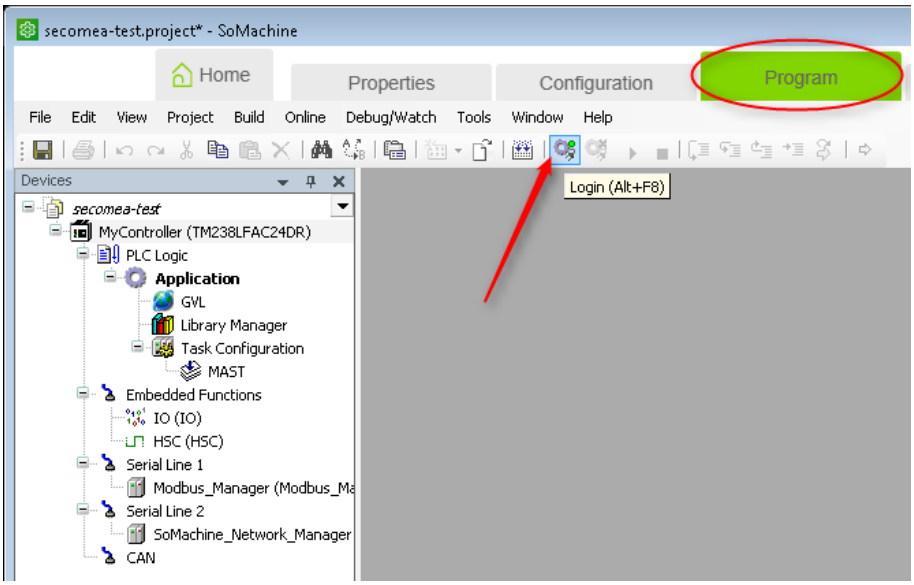


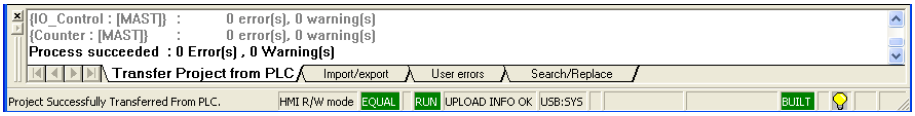
7. Right-click on the PLC, and select Set Active Path:



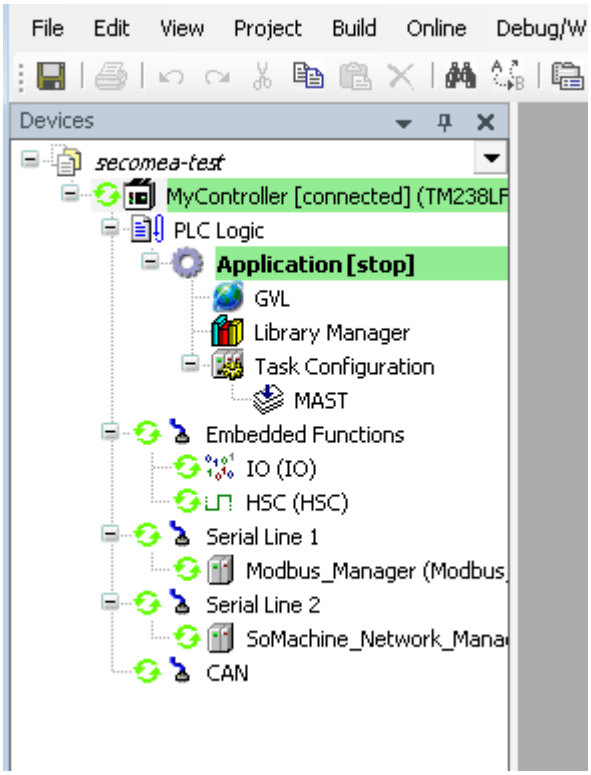
8. Press **Alt+F** on the warning-screen pop-up.

9. Select the Program tab, and click the Login button.

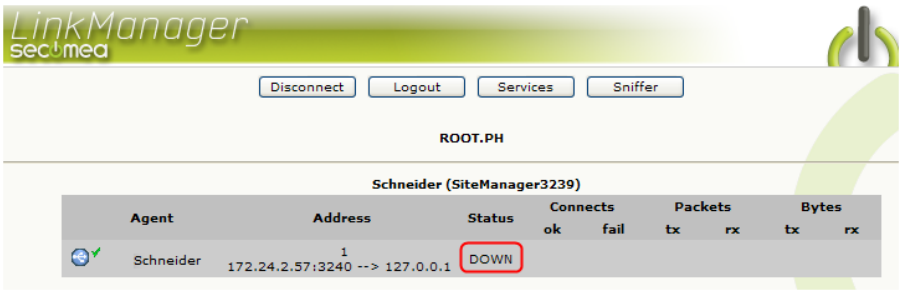




10. You should now be online with the PLC, which is shown by the green highlights in the left column.



11. **IMPORTANT:** If LinkManager status is DOWN:



You may experience that the connection is not automatically restored in case the PLC restarts, or if the cable is un-plugged/re-plugged.

It is necessary to Disconnect and re-establish the connection (first step of this section).

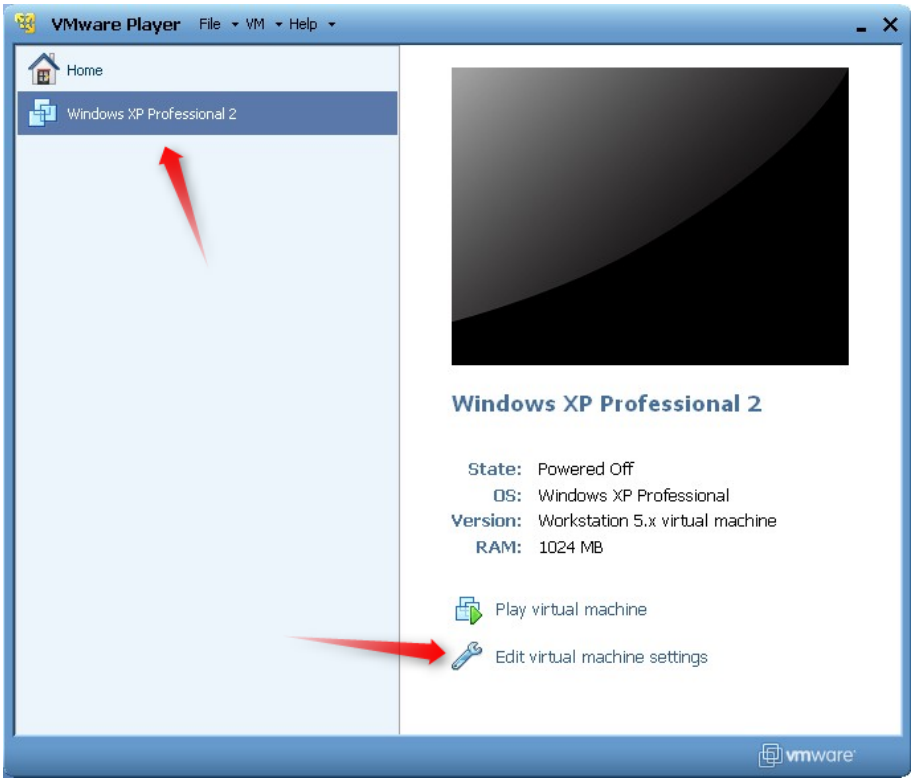
4. USB connection from Virtual Machine

You can run the SoMachine software inside a VMWare or VirtualBox machinie, to a PLC that is attached to a SiteManager via USB cable.

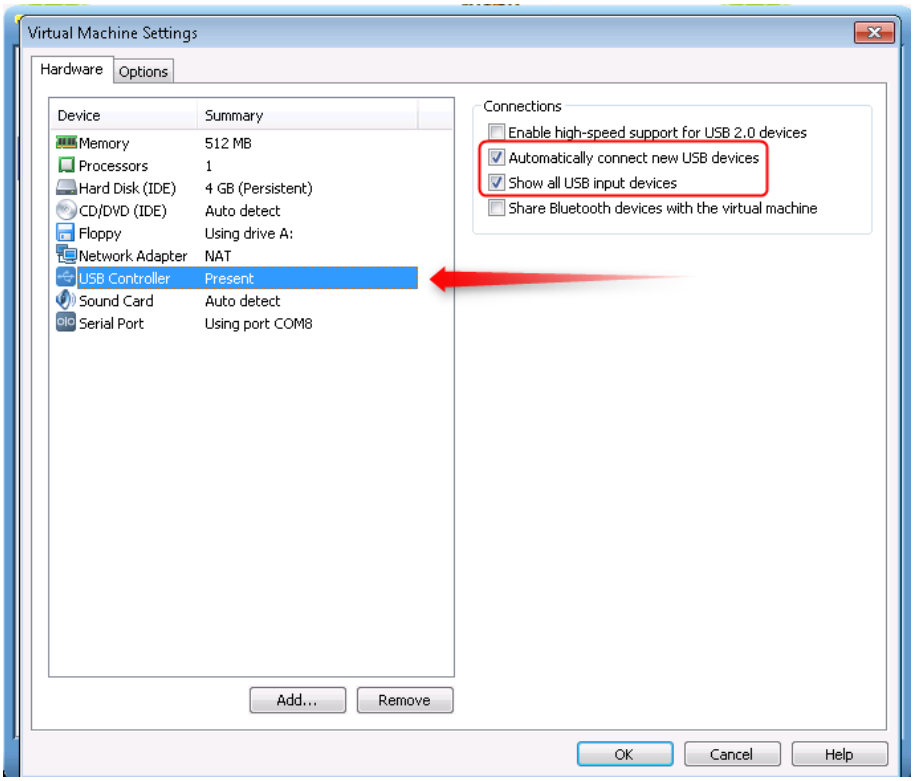
Important: LinkManager must run inside the virtual machine also. Note that LinkManager can only run inside the virtual machine if the host OS is Windows 7 or 8 and the PC's CPU has support for virtualization.

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 SoMachine 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** to get access to the PLC via LinkManager

Appendix A – Optimizing USB Performance

In cases of slow connection lines between LinkManager and the SiteManager (e.g. via GPRS/3G) you may experience very slow performance when communicating remotely from the SoMachine software via USB to the TM238/258 PLCs.

This is due to the Schneider USB driver not being optimized for slow USB connections. Schneider has indicated that such optimization is planned for a future version of the official driver.

Secomea has, however, modified a USB driver to boost the performance of the USB connection. You can download the driver from this location:

http://ftp.secomea.com/pub/partner/SecomeaOptimized-dll/libusb.dll

You must replace the driver by the same name in the folder

c:\windows\system32

Note that Windows7 will automatically roll back the old driver as result of the antivirus protection mechanisms. The following steps will allow you to replace the file via a command prompt (it can be done via the Windows GUI also, but it is more complicated):

1. Open up an elevated command prompt (Under **All Program → Accessories**, right click the program **Command Prompt**, and select “Run as administrator”)

2. In the command prompt enter:

   CD C:/Windows/system32
   (This is often not necessary, system32 is usually the default directory)

3. Now we need to take ownership of the file and we need to give our account permission to modify the file. Or you will get an error message: “You need permission to perform this action” if you try to rename libusb.dll. Enter the following:

   TAKEOWN /f libusb.dll

4. Modify your user profile to have full access to the file:

   ICACLS libusb.dll /grant USERNAME:F
   (Replace USERNAME with your exact Windows username)

5. Rename the old libusb.dll by entering e.g.:

   rename libusb.dll libusb.dll.backup

6. Copy the modified libusb.dll from the above link into the folder:

   copy libusb.dll C:\Windows\system32

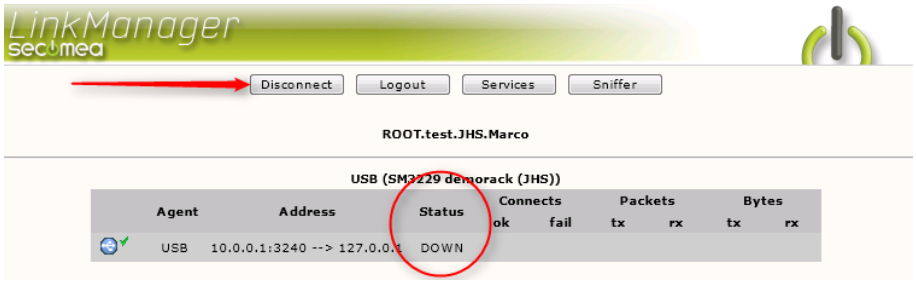
Appendix B – Work-around for communication issue with Magelis HMISTU655

When connecting to a Schneider Magelis HMISTU655 via USB, you might encounter that the HMI restarts when downloading a project, resulting in the connection breaking. This is caused by a too long delay in switching from run mode to programming mode due to the limited processing power of this HMI model.

To overcome this, you need to do the following:

Connect via the LinkManager as usual, and open your project in Vijeo Designer. When you download to the HMI, the HMI will reboot when the download reaches about 80%. During download, go to the LinkManager and check if status says “DOWN”. If it doesn’t, then wait a couple of seconds, and check again. Status will switch to DOWN when the HMI reaches the part where it reboots during download.

When status says “DOWN”, click the disconnect button, and immediately reconnect to the agent. This should allow Vijeo Designer to complete the download successfully.



After download is completed, the HMI will reboot again and subsequently disconnect from the LinkManager. So you need to disconnect and connect again, in order to communicate with the HMI again.

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