

Application Note

IFM Ecomat CR0505 with IFM Download or CoDeSys



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

The following guide will assist you to setup a remote and online connection to a IFM CR0505 PLC placed on the customer site using your IFM Download utility or alternatively the CoDeSys software.

This guide may also work with other IFM PLCs than the FX3U compact series

Prerequisites for this guide are:

- You have an operational LinkManager installed on your PC with a LinkManager certificate that allows you to connect to the SiteManager agents.
- You have the CR0505 PLC and the IFM Download utility and/or the CoDeSys software installed. (Generally the IFM Download application seems more reliable than downloading programs from inside CoDeSys. If experiencing problems with CoDeSys, consider if the actions can be handled by the IFM Download application instead)
- You have the IFM device agent installed and configured on the SiteManager at the remote site, and there is access between the SiteManager and the PLC. (The CR0505 should be connected with a null-modem cable to the SiteManager, and the SiteManager must be configured with agent device type **IFM Electronics / Ecomat Serial**).

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.

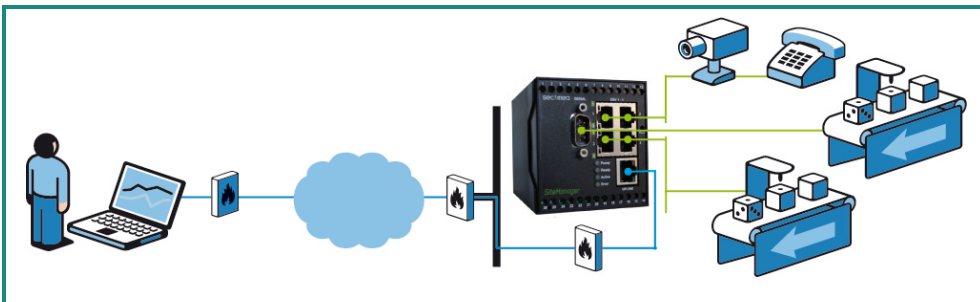
System Overview

The communication path is as follows:

IFM/CoDeSys → **LinkManager** → GateManager → SiteManager → PLC.

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

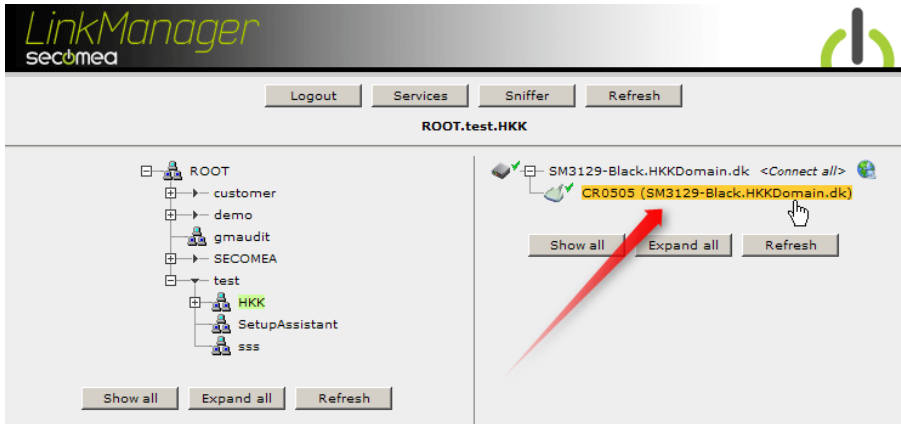
The following system overview depicts a SiteManager 3134 at the customer location.



The procedures in the following apply to any SiteManager model.

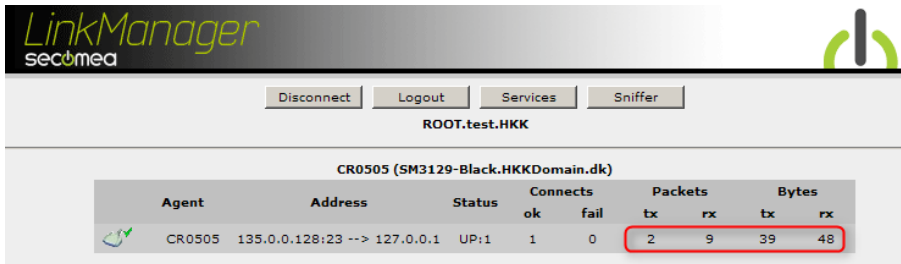
1. Connecting to the PLC with LinkManager

1. Locate the agent that represents your serial attached IFM PLC. Click the text (that turns orange at mouse over) to connect to the PLC.

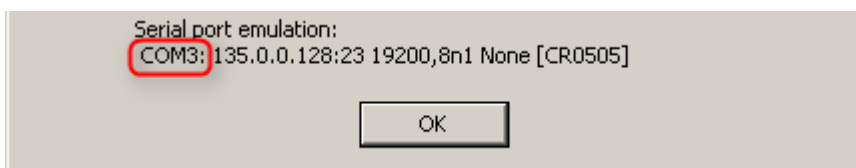


2. When connecting, you should after a few seconds see some activity in the tray icon area, which is the auto-configuring of a virtual COM port driver facilitated by the LinkManager.

If your SiteManager, and PLC are correctly attached, you should also see the status of the agent become OK, and a few bytes of data traffic:

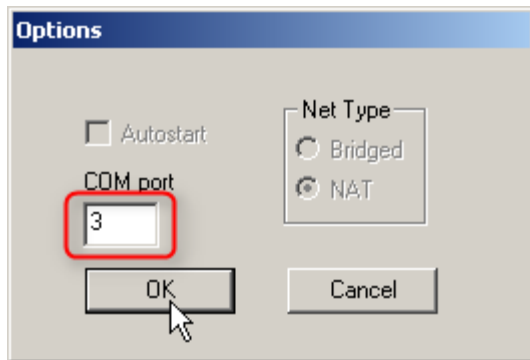


3. Now right click the LinkManager system tray icon, and select **Status**. Make note of the Serial port that has been assigned (in this case COM3):



Right click the LinkManager system tray icon again, and select **Options**. Enter the number of the COM port you found. This will ensure that you will always get this port in the future.

Note that if you set or change the COM port setting you must Stop and Start the LinkManager for the changes to take effect.

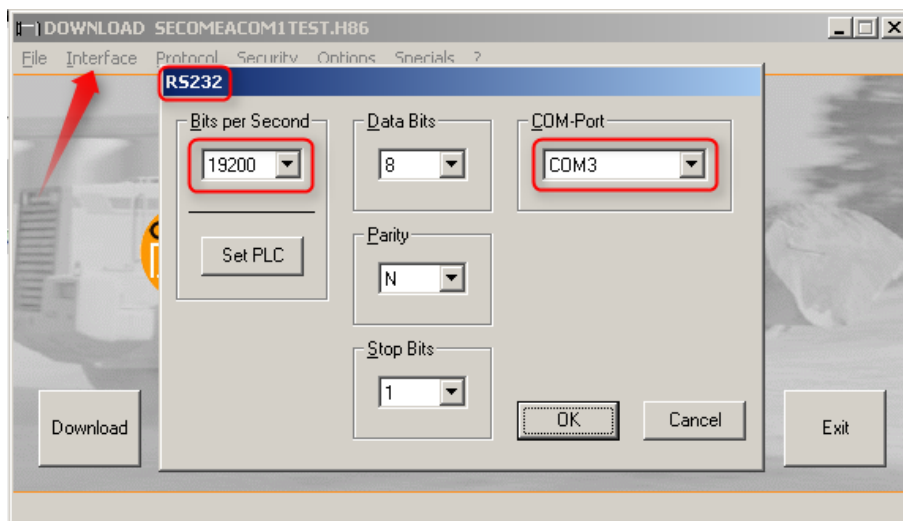


Hint: You can also force another COM port (e.g. COM2). Just ensure in your Windows device manager, that the port is not conflicting with an existing COM port. See Appendix A for info on how to organize COM ports.

2. Go online on the PLC

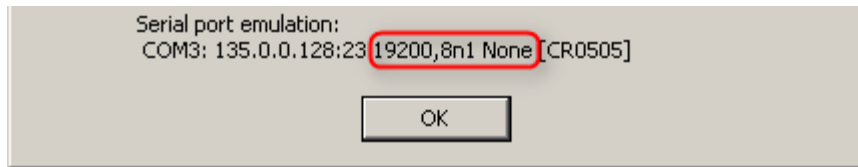
2.1. Connecting with the IFM Download utility

1. Make sure LinkManager is started and connected to the PLC.
2. Open the IFM Download utility. Select **Interface** → **RS232**. Check that the **COM-Port** is set to the same setting as in the previous section, and that the speed is set to **19200**.

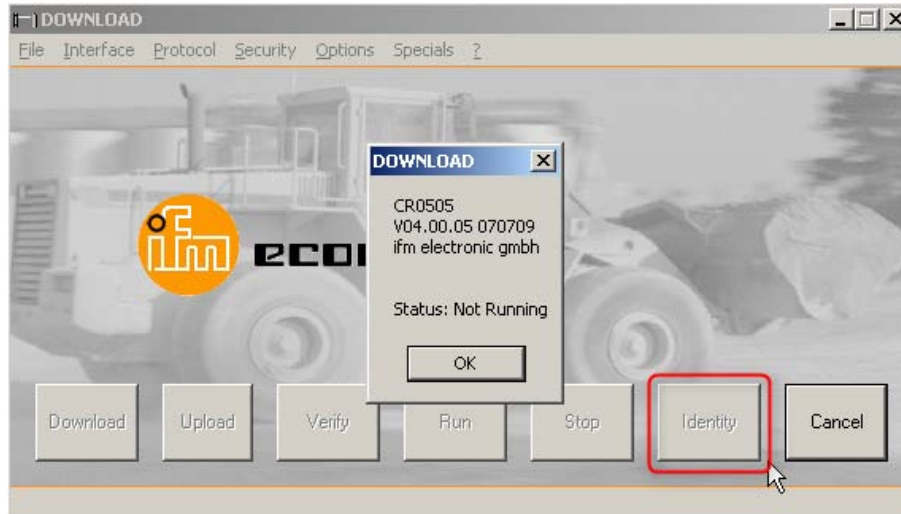


Note: If you run GX Developer inside VMWare, you should set the port to the default COM port of the client OS, which is typically **COM1** (Not the COM port that the VMWare Virtual Machine Settings defines as the physical port, and which is also the one used in the LinkManager)

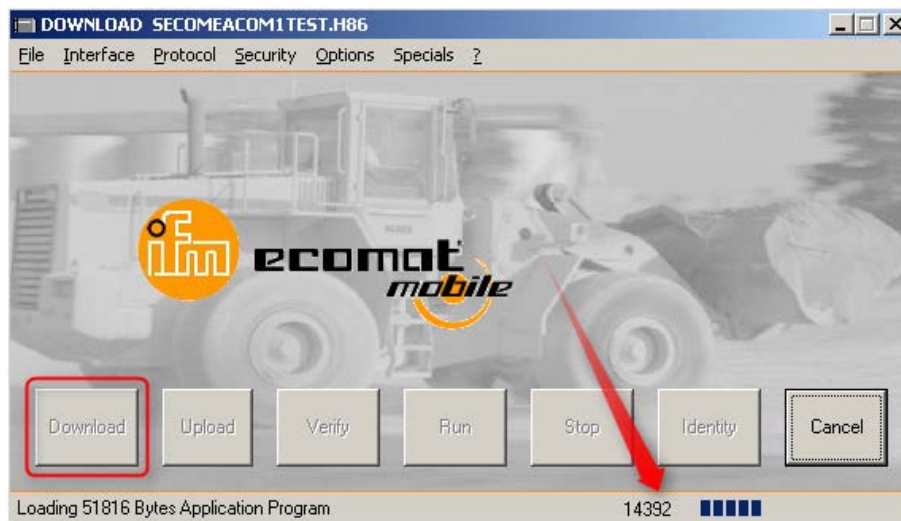
Hint: It should not be necessary to alter the other serial communication settings in the RS232 menu, as the LinkManager/SiteManager will auto-detect these settings (based on support of RFC 2217). You can verify the current settings by right clicking the LinkManager icon and select Status (only visible when LinkManager is connected to the Serial PLC):



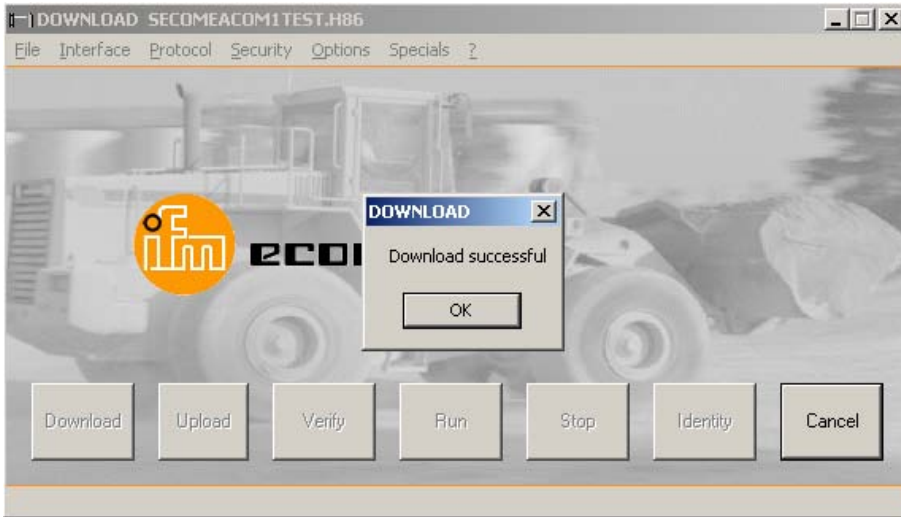
3. You can select Identify to check that the PLC is online



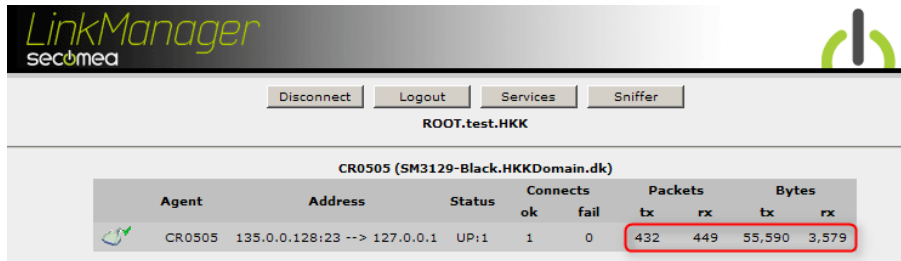
4. Select Download to open a project to download to the PLC



5. If successful the Download utility will respond with this message:



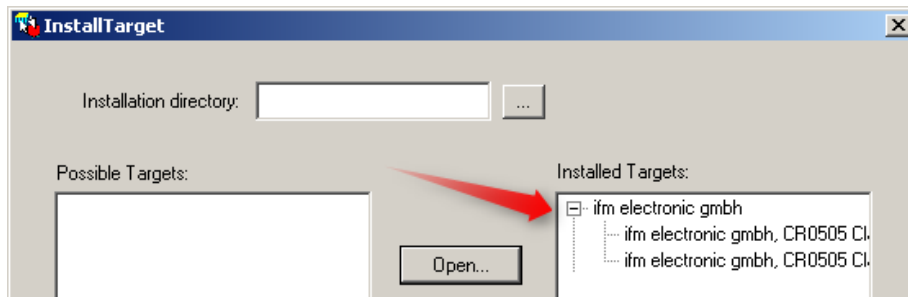
Hint: You will also notice that the LinkManager counters will show the traffic. This will give an indication of the amount of data transferred:



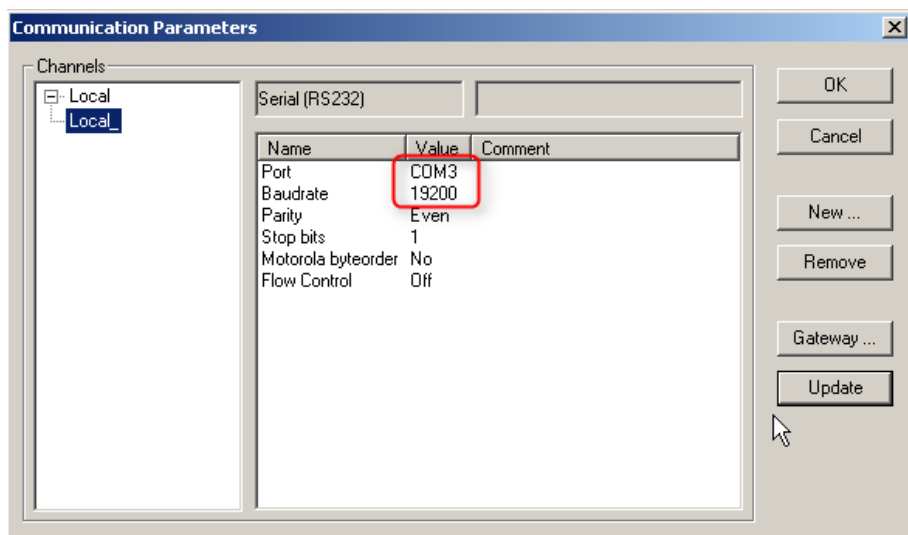
2.2. Connecting with CoDeSys

It is assumed you have set up the environment in CodeSys, so it would work if connected locally. The following is just hints on what to check, regardless of whether you connect locally or via LinkManager.

1. Make sure LinkManager is started and connected to the PLC.
2. Open InstallTarget in the CoDeSys program folder and select **InstallTarget**. Check that the CR0505 is installed. If not you need to setup the proper environment.



3. Open your project and check the communication parameters (menu **Online** → **Communication Parameters**). Check that the **COM-Port** is set to the same setting as in the previous section, and that the speed is set to **19200**.



Note: If you run GX Developer inside VMWare, you should set the port to the default COM port of the client OS, which is typically **COM1** (Not the COM port that the VMWare Virtual Machine Settings defines as the physical port, and which is also the one used in the LinkManager)

Hint: It should not be necessary to alter the other serial communication settings in the RS232 menu, as the LinkManager/SiteManager will auto-detect these settings (based on support of RFC 2217). You can verify the current settings by right clicking the LinkManager icon and select Status (only visible when LinkManager is connected to the Serial PLC):

4. Now perform your usual tasks with CoDeSys on the PLC.
Note: Generally the IFM Download application seems more reliable than downloading programs from inside CoDeSys. If experiencing problems, consider if you tasks can be performed with the IFM program instead.

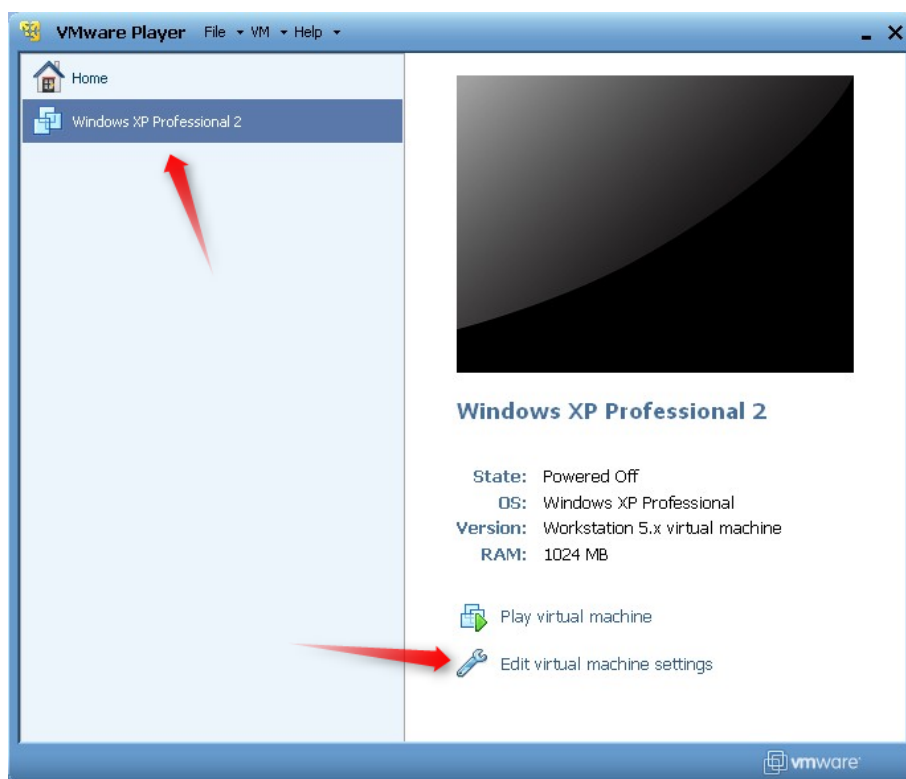
3. Serial connection via WindowsXP under VMWare

You may be able to run the IFM Download and/or CodeSys software inside a VMWare engine.

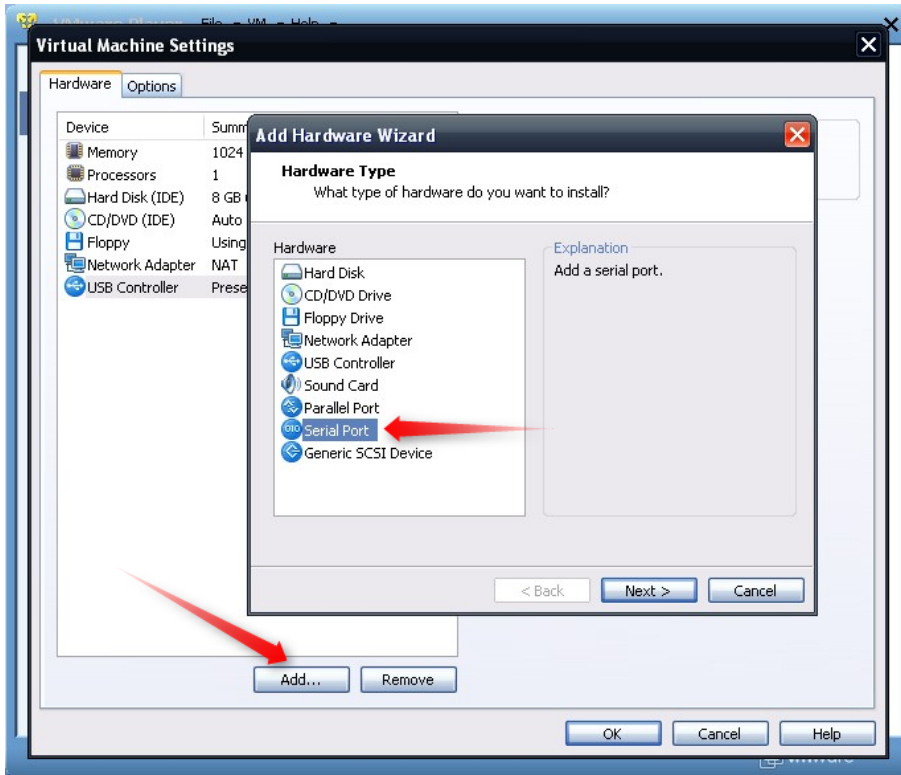
Note: LinkManager must be installed on the hosting machine - and **NOT** inside the VMWare Windows XP image. LinkManager cannot run inside a VMWare virtual machine.

The following illustrates VMWare Player, which can be downloaded free of charge from <http://www.vmware.com/support/product-support/player/>

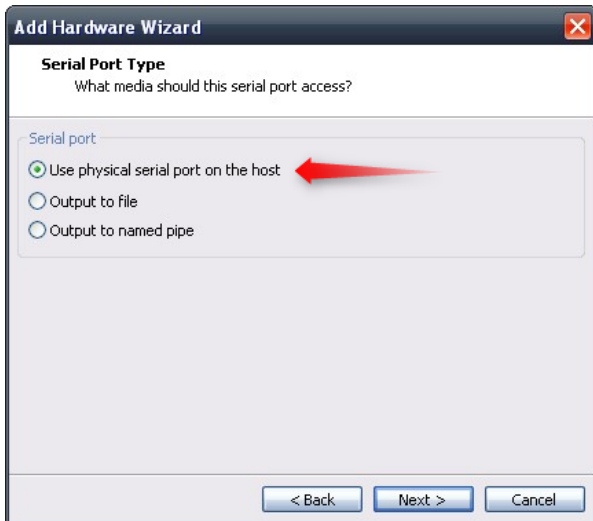
1. Follow step 1-3 of section 2. **Serial Connection** on page **Error! Bookmark not defined.**. This will create a COM port even if the PC does not have a physical COM port.
2. Locate your Windows XP that has the IFM or CodeSys software installed, and without starting it, enter **Edit virtual machine settings**.



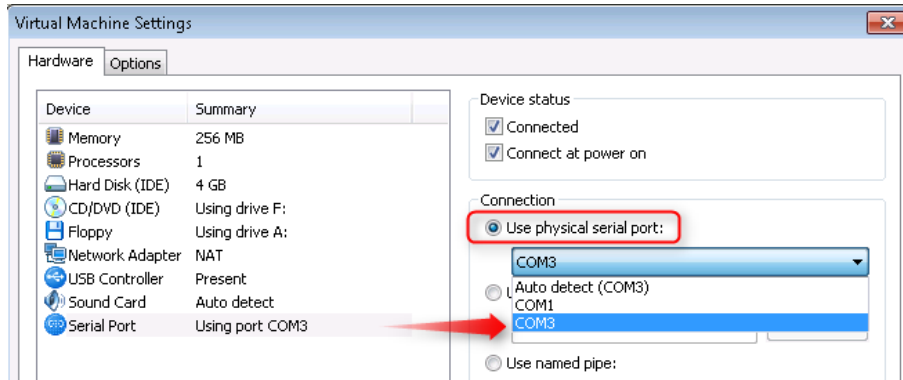
3. Add Serial Port to the Hardware list (if it does not already exist).



4. Select "Use physical port" (Even though LinkManager makes a virtual COM port, VMWare sees it as a physical port)



5. Set the port to the COM port used by the LinkManager (see section 1. **Connecting to the PLC with LinkManager** on page 4)



6. If VMWare does not allow you to add a Serial port, it may be because the PC does not have a physical Serial port.
7. Press **OK** twice, and select the Select **Finish** and **OK**, Start the VMWare WindowsXP image, and start the IFM or CodeSys software.
8. Follow the procedure described in section 3 **Serial Access** on getting access to the PLC via LinkManager.

Note: VMWare will typically make the physical COM port of the host system (e.g. COM3) appear to the virtual OS as COM1. You should configure the IFM Download or CodeSys to use the port of VMWare (COM1) and not the physical port of the host system (COM3) that is used by LinkManager.

3.1. Startup order of VMWare, LinkManager and IFM Software

If you have already preset a COM port in LinkManager as well as in VMWare, the startup order would be irrelevant. You can stop and start the components individually.

If you encounter problems, or you have changed the COM port setting of LinkManager it is recommended to do the following:

1. Stop the VMWare engine.
2. Stop LinkManager completely.
3. Start LinkManager.
4. Connect to the Serial PLC and check the assigned COM port under Status (by right-clicking the LinkManager tray icon)
5. Check the COM port settings of the Virtual Machine Settings of the Windows image.
6. Start the VMWare image.
7. Start IFM Download and connect to the PLC

Appendix A, Organizing COM ports in Windows

Clean up Windows Registry for redundant COM ports:

You may want to use a lower COM port number. In case your PC assigns a COM port of e.g. 13, it may be due to previous installs of virtual COM ports from in relation to installation of other programs.

You can clean your PC for redundant COM ports in Windows registry:

1. Open regedit (Start → run → Regedit)
2. Navigate to:

**HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\COM
Name arbiter**

3. In the ComDB set all values to 00
4. Restart your PC

Enable LinkManager to use COM1:

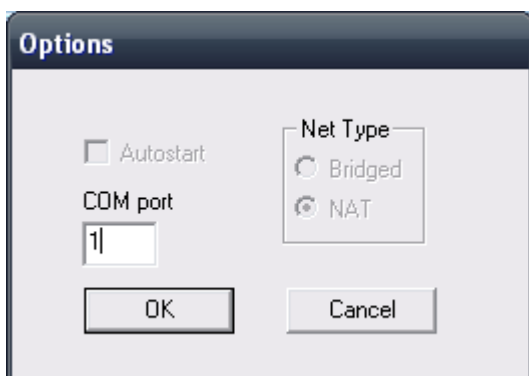
If you prefer the COM port to be COM1:

Even if no COM ports are installed on the PC, Windows will never assign a COM port lower than COM3 to the LinkManager. You therefore have to do the following to force LinkManager to use COM1:

1. Open Windows Control Panel → System → Hardware → Device Manager → Ports (COM & LPT).
2. If there already are physical COM ports listed, you must re-assign the port numbers to free up COM1.

Right click a COM port and select Properties → Port Settings → advanced

3. Change the COM port number in the drop down list.
4. Restart your PC.
5. Right click the LinkManager system tray icon and select Options.
6. Enter 1 in the COM port field.

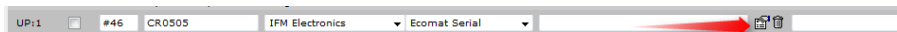


7. Stop and Start the LinkManager and start the Serial agent.

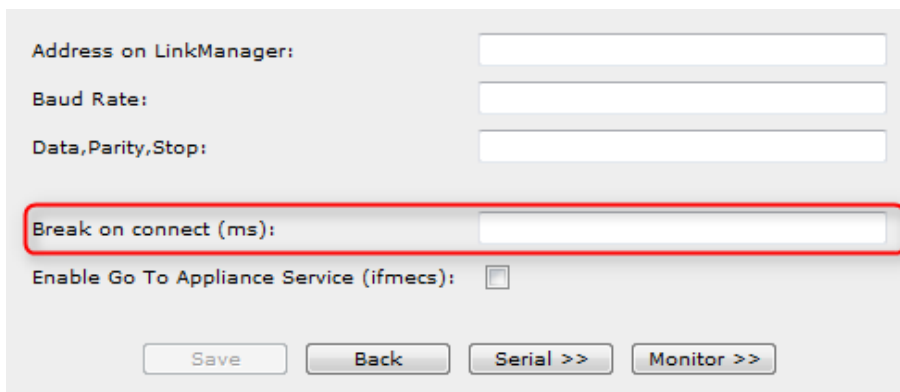
Appendix B, Trouble shoot transmission failures

The Ecomat serial interface is generally very timing sensitive, so program download may not always succeed on first attempt, and could leave the device in a non-responsive state. To remedy this, you can set the "Break on Connect" parameter to a value of 1000, ref. the below procedure. (Do not use larger values, as this can have unwanted effects on the device). Generally, using the IFM Download application for program download, seems more reliable than downloading programs from inside CoDeSys

1. Disconnect the LinkManager from the PLC.
2. Enter the SiteManager menu **GateManager** → **Agents**, and select **Parameter Details**.



3. Enter a value below 1000 in the field "Break on Connect"

A screenshot of a 'Parameter Details' dialog box. It contains several input fields: 'Address on LinkManager:', 'Baud Rate:', 'Data, Parity, Stop:', 'Break on connect (ms):', and 'Enable Go To Appliance Service (ifmecs):'. The 'Break on connect (ms):' field is highlighted with a red border. At the bottom, there are four buttons: 'Save', 'Back', 'Serial >>', and 'Monitor >>'.

4. Save the changes and Connect with LinkManager to the PLC
5. Retry the program download.

Notices

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