Troubleshooting Guide

It is useful to have an understanding of what ***Direct***SOFT32 does with the communication resources on your PC to be able to communicate with a PLC. The following information is provided to help resolve PC to PLC communication problems.

DS400.ini File

DirectSOFT32 can connect to the PLCs serially using a COM port, a modem or a USB–to–serial adapter. It can also connect via Ethernet using an ECOM module. You can control which communications resources on your PC you want to let ***Direct***SOFT32 use. This is done through entries in DS400.ini. This file will be in your ”Windows Folder”. By default, it will be in different places for different operating systems. For Windows 98/ME/XP, the file will be the ”C:\Windows” and for Windows 2000 / Windows NT, it will be the C:\WinNT” folder. The DS400.ini file can be opened by clicking on the DS400.ini icon ***Direct***SOFT32 launch window Utilities folder. You can edit this file with any text editor program such as Notepad. You must restart ***Direct***SOFT32 if any changes are made to the DS400.ini file.

The sections of the DS400.ini file we’re concerned with are [devasync.dll] and [devether.dll]. These groups are where you can enable and disable communication resources for ***Direct***SOFT32 to use. These settings do not affect other applications on your PC that use these resources; they only affect ***Direct***SOFT32. Here’s what these sections look like after a normal installation:

```
[devasync.dll]
COM1Enable=1
COM2Enable=1
COM3Enable=1
COM4Enable=1
ModemEnable=1
COM5Enable=0
COM6Enable=0
COM7Enable=0
COM8Enable=0

[devether.dll]
EthernetEnable=1
```

Setting a particular entry to a value of 0 excludes that resource from ***Direct***SOFT32’s use. A value of 1 enables it for ***Direct***SOFT32’s use. You should set the values for these entries so they match the resources that are physically present on the PC and are available for ***Direct***SOFT32 to use.

Example PC Configuration: Using an Ethernet card

Let's consider a common PC configuration with:

- one serial port (COM1)
- a built–in modem using COM2 that ***Direct***SOFT32 will not use
- an Ethernet card that ***Direct***SOFT32 will use to communicate via an ECOM module

Your DS400.ini can be configured to look like this:

```
[devasync.dll]
COM1Enable=1
COM2Enable=0
COM3Enable=0
COM4Enable=0
ModemEnable=0
COM5Enable=0
COM6Enable=0
COM7Enable=0
COM8Enable=0

[devether.dll]
EthernetEnable=1
```

Example PC Configuration: Using a Modem

Let's consider a laptop PC with:

- no serial ports
- USB–to–serial adapter configured as COM5 that ***Direct***SOFT32 will not use
- a built–in modem using COM2 that ***Direct***SOFT32 will use
- an Ethernet card that ***Direct***SOFT32 will not use

Your DS400.ini can be configured to look like this:

```
[devasync.dll]
COM1Enable=0
COM2Enable=0
COM3Enable=0
COM4Enable=0
ModemEnable=1
COM5Enable=0
COM6Enable=0
COM7Enable=0
COM8Enable=0

[devether.dll]
EthernetEnable=0
```

NOTE: If you make changes to DS400.ini, you must restart *Direct*SOFT32 to make the changes active.

Startup Issues

The first time ***Direct***SOFT32 starts up its communication server, it attempts to build links to PLCs that it can find based on the resources that are enabled by DS400.ini. The communications server will try fixed combinations of baud rate, parity and station number for both K–Sequence and ***Direct***NET protocols. If a PLC responds, a Link will be created.

It's this attempt to create a Link that can cause problems. Most of the time, if ***Direct***SOFT32 attempts to use a resource that physically isn't present on the PC nothing happens. But this action can have adverse effects on some PCs, especially in situations like leaving EthernetEnable=1 on PCs that don't have an Ethernet card installed and configured or if the IPX protocol is not installed.

If you make changes to DS400.ini, you must restart *Direct*SOFT32 to make the changes active.

USB–to–Serial Converters

The use of USB–to–Serial adapters has become an issue since more and more PC vendors remove serial ports from their PCs in favor of additional USB ports. In theory, there should be no problems with this as long as the USB–to–Serial drivers function like a standard PC serial port. We have made some changes to the communications server to better handle these adapters.

It is highly recommended to install the device drivers for the USB–to–Serial adapters before you physically attach the adapter to your PC. This is common practice for all USB devices and it does matter for some vendor's products.

Microsoft ActiveSync

ActiveSync is the software used to synchronize data between the PC and a PDA running Windows CE or Pocket PC. This software has a undesirable habit of attaching itself to the serial ports on the PC it's installed on so that it can auto–detect the presence of the PDAs.

The symptom of this problem you see in ***Direct***SOFT32 is the error dialog:
"Error connecting to PLC! "
"Error: cannot access comm port. The port may not be present or another app may be using it"

You can restrict the COM ports that ActiveSync has control of under it's File–>Connection Settings menu.

Adding AutoSense=0

Once you have created Link(s) to your PLCs, these links will be validated each time you start ***Direct***SOFT32. The communication server will use the Link's parity, baud rate, protocol and station number settings to see if the PLC is still available. This process can take quite a bit of time if you have several Links or if you have Links to PLC that are not hooked up because the attempts to communicate must time out. You can add an entry to the [comm server] group in DS400.ini that will keep ***Direct***SOFT32 from validating any links on startup.

Add Autosense=0 and restart ***Direct***SOFT32:

[Comm Server]
Autosense=0

Adding Dump=1

Add Dump=1 to the [devasync.dll] group in DS400.ini to enable some low level communications debugging for serial and modem connections. Use DBWin32, a debugging aid for Window NT/95, to view the debugging information. To start DBWin32, click on Start–>Programs–>***Direct***SOFT32–>***Direct***SOFT32 Program Tools–>DBWin32 Logger. The DBWin32 dialog window will be displayed. When you launch ***Direct***SOFT32, you will be asked if you want to enable the debugging mode. If you answer yes, the debugging output will be sent to the DBWin32 dialog window.

Add Dump=1 and restart ***Direct***SOFT32:

```
[devasync.dll]
COM1Enable=1
COM2Enable=0
COM3Enable=0
COM4Enable=0
ModemEnable=0
COM5Enable=0
COM6Enable=0
COM7Enable=0
COM8Enable=0
Dump=1
```