MicroScribe:
Connection problems between the MicroScribe and your PC

If you are having problems with your MicroScribe-to-PC connection, this is the document for you. The MicroScribe-3D uses a standard RS-232 serial port connection to communicate with your PC. MicroScribe G2 products can use a serial port or USB port on your PC. This document is designed to help you resolve serial or USB port conflicts and successfully connect your MicroScribeto your PC running Windows NT, 2000 and XP. Any questions that may still be unanswered by these directions can be directed to support@immersion.com

MicroScribe G2 Products

Communication Problems

USB Port

Typically, the USB port detects when a device is connected and determines automatically what resources are needed and makes them available without any user intervention. However, connection problems are possible. Some of the more common ones include the possibility of the USB port being disabled, the PC is unable to detect the USB components or there may be a conflict with another device. It is very important that the MicroScribe is plugged into a powered USB port or powered hub, otherwise the MicroScribe will not function.

Serial/COM Port

For serial port connection problems, please refer to the MicroScribe 3D Products section.

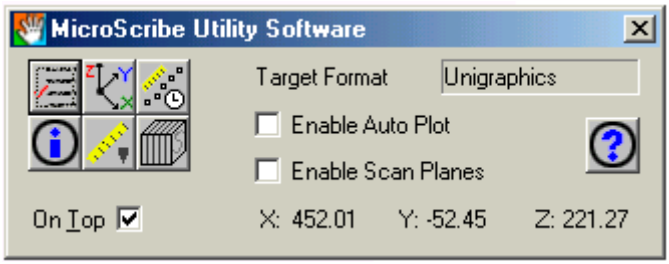
Connection through MicroScribe Utility Software (MUS)

If you are having USB port communication difficulties, please install Immersion's MicroScribe Utility Software (MUS). MUS is a software program distributed by Immersion that allows you to enter data into most Windows-based programs that accept entries from the keyboard. Information on MUS can be found on the Immersion web site: http://www.immersion.com/

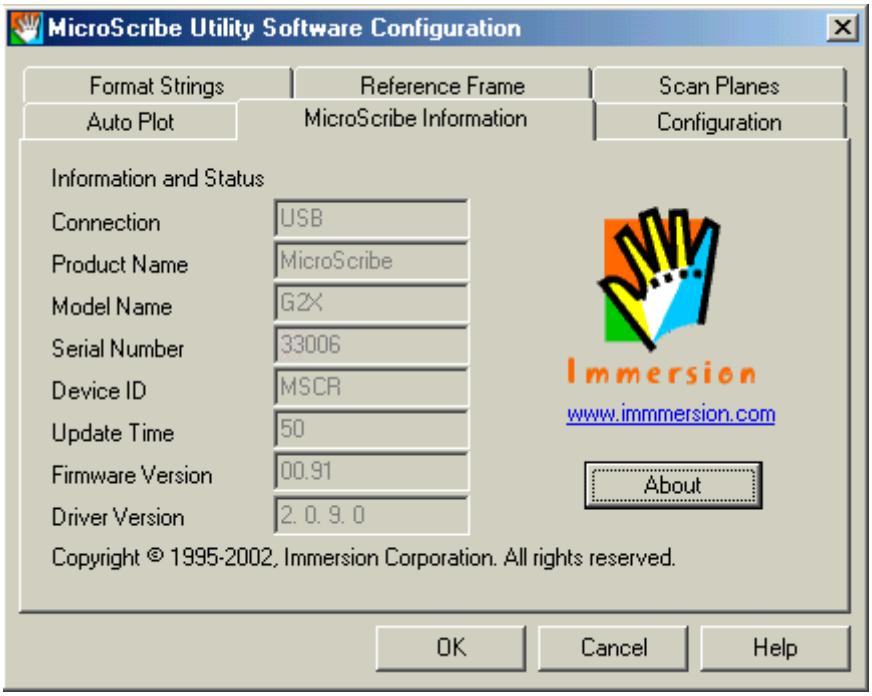
MUS attempts to connect to the MicroScribe automatically when it is launched. It is worth a try to attempt connecting through this utility first before moving onto other troubleshooting techniques. Here is how:

1. Check all the cable connections between the MicroScribe and the PC.
2. Place the MicroScribe in the home position and press the "Home" button located on the back of the base plate.

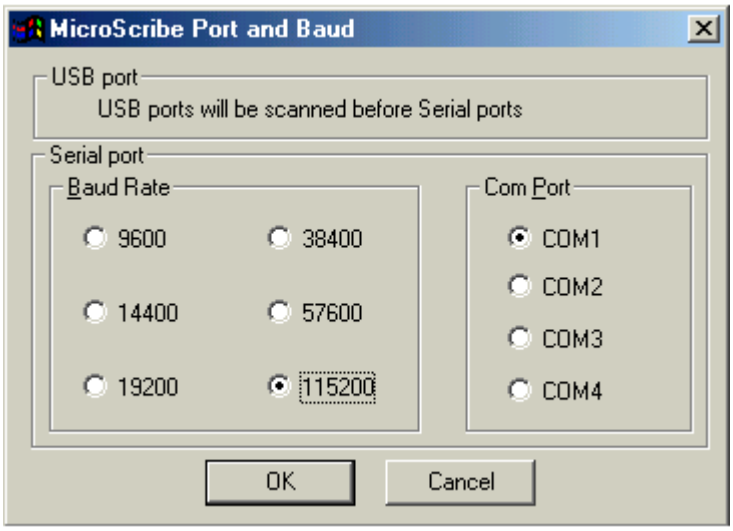
3. Launch MUS.
4. Click OK at the bottom of the 'Welcome To MicroScribe Utility Software' screen.
5. If your MicroScribe is communicating properly you will see the following:



6. To find out the device information, click on the MicroScribe Info icon, second one down from the left. This information will appear in the interface:



7. If the MicroScribe has difficulty connecting to the PC you will see the following screen:



8. This means that MUS could not find the USB port that the MicroScribe was connected to. Either the MicroScribe is not connected or there is a problem with the USB port.

Device Status LED

The Device Status LED is located on the base of the MicroScribe. The following indicates the current state of the MicroScribe through the LED:

OFF – The device is not powered through USB or external power supply.
RED (Flashing) – The device is not "homed" and not communicating with the CPU.
RED – The device is communicating with the CPU but has not been "homed."
GREEN (Flashing) – The device has been "homed," but is not communicating with the CPU.
GREEN – The device has been "homed" and is communicating with the CPU.

How to Learn the Port Configuration on Your PC

It is best to have the documentation (manual) for your PC or the services of a system administrator to analyze your PC to determine how the USB ports are configured. Often the vendor of the PC can advise on how the ports were set up before sale. Failing those things, experimentation is required.

- **Windows NT**

From the Start menu, choose *Settings*, then *Control Panel*. From the list choose *Universal Serial Bus controllers*. Double-click on any listed Ports or select *Settings* to view details about this port.

- **Windows 2000**

From the Start menu, choose *Settings*, then *Control Panel* and double-click *System.* In the *System Properties* window, select *Hardware* and click on *Device Manager*. Under *Universal Serial Bus controllers*, double-click on any listed Ports or select *Properties* to view details about this port.

- **Windows XP**

From the Start menu, choose *Settings*, then *Control Panel* and double-click *System.* In the *System Properties* window, select *Hardware* and click on *Device Manager*. Under *Universal Serial Bus controllers*, double-click on any listed Ports or select *Properties* to view details about this port.

MicroScribe 3D Products

Communication Problems

There are a wide variety of reasons why a serial connection may not be obtained between your MicroScribe-3D and your PC. In your PC, there are subtle interactions between programs running in the background together, especially those accessing the communications ports. Communication between different computers, including the interaction between your MicroScribe-3D and your desktop PC, adds an additional dimension to these problems. The following is intended for the inexperienced user.

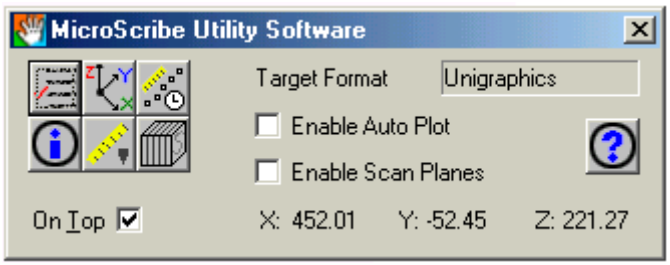
In order to run any of our 3D digitizing products you must have an available COM port attached to a serial socket on your PC. Most standard PC's come with COM port 1 (COM 1) ready to accept an external device. Before proceeding, please determine if you have any other external devices connected to your PC on COM port 1. These devices may include an external modem, a digitizing tablet, a personal digital assistant, a mouse, or others.

Connection through MicroScribe Utility Software (MUS)

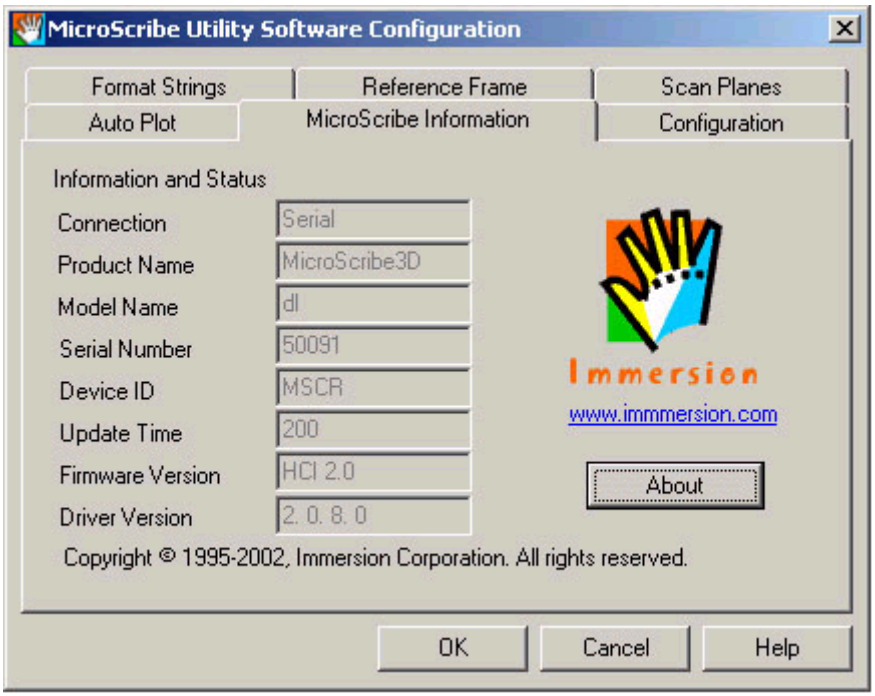
If you are having serial port communication difficulties, please install Immersion's MicroScribe Utility Software (MUS). MUS is a software program distributed by Immersion at that allows you to enter data into most Windows-based programs that accept entries from the keyboard. IInformation on MUS can be found on the Immersion web site: http://www.immersion.com/

MUS attempts to connect to the MicroScribe automatically when it is launched. It is worth a try to attempt connecting through this utility first before moving onto other troubleshooting techniques. Here is how:

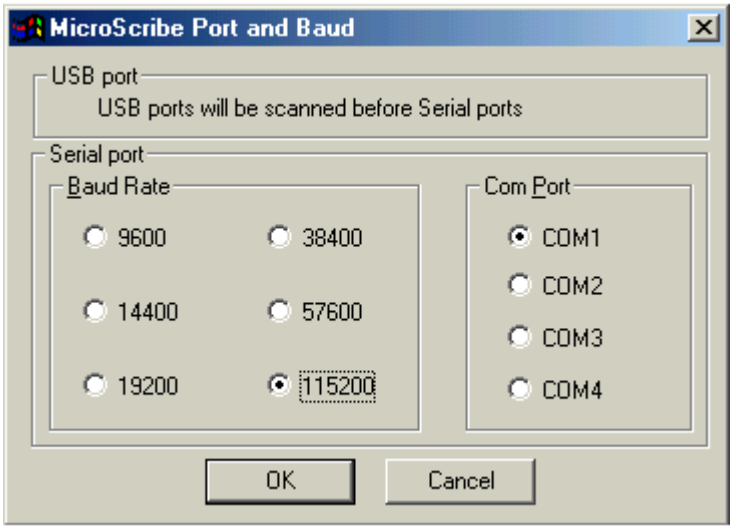
1. Check all the cable connections between the MicroScribe and the PC. Power on the MicroScribe while it is in the home position.
2. Launch MUS.
3. Click OK at the bottom of the 'Welcome To MicroScribe Utility Software' screen.
4. If your MicroScribe is communicating properly you will see the following:



5. To find out which serial port the MicroScribe is connected to click on the MicroScribe Info icon, second one down from the left. This information will appear in the interface:



6. This information then may be used in other 3D programs to specify the Com Port on start-up. If the MicroScribe has difficulty connecting to the PC you will see the following screen:



7. This means that MUS could not find the serial port that the MicroScribe was connected to. This may happen for several reasons, outlined below.

About COM Ports and IRQ's

PCs have from one to four COM (serial) ports. These ports are often times associated to sockets on the back of the PC. COM ports are used to connect serial devices, such as a mouse, modems, PCMCIA sockets, and other computers to the PC. Each PC usually has one or two serial sockets on the back that are associated with COM ports. Often the 3rd (and 4th) COM port(s) is accessed from DOS though one of the slots on the motherboard (if they exist on your system).

Devices such as modems may be installed internally, but they still make use of a COM port, even though they are not connected to a serial socket on the outside of the PC. In these the PC redirects the COM port via the PC slot to the card. If the device uses a COM port that is normally associated with one of the sockets on the back of the PC, the port is taken away from socket and given to the device. The implications of this will be clear in a moment.

Each COM port gets the attention of the computer's processor by means of an Interrupt Request, called an IRQ. Think of these as "channels" by which the COM ports tell the processor that there is data waiting. There are only 15 IRQ's available to standard serial devices, and several are already dedicated internally. Because of this, COM ports 1 and 3 (if installed) share IRQ4, and COM ports 2 and 4 (if installed) share IRQ3. This usually means that if there is a serial device, such as the mouse, using COM1, and another using COM3, such as a modem, the two devices will experience an "IRQ conflict" which is likely to disable both. These conflicts must be resolved before the devices can be used successfully.

How to Learn the Port Configuration on Your PC

It is best to have the documentation (manual) for your PC or the services of a system administrator to analyze your PC to determine how the COM ports are configured. Often the vendor of the PC can advise on how the ports were set up before sale. Failing those things, experimentation is required.

- **Windows NT**

From the Start menu, choose *Settings*, then *Control Panel*. From the list choose *Ports*. Double-click on any listed Ports or select *Settings* to view details about this port.

- **Windows 2000**

From the Start menu, choose *Settings*, then *Control Panel* and double-click *System.* In the *System Properties* window, select *Hardware* and click on *Device Manager*. Under *Ports (COM & LPT)*, double-click on any listed Ports or select *Properties* to view details about this port.

- **Windows XP**

From the Start menu, choose *Settings*, then *Control Panel* and double-click *System.* In the *System Properties* window, select *Hardware* and click on *Device Manager*. Under *Ports (COM & LPT)*, double-click on any listed Ports or select *Properties* to view details about this port.

What Can be Done?

To make a port available you may want to unplug the external modem, if you are using one. If you are using an external modem, it is very easy to unplug the modem and plug in the cable for your MicroScribe-3D.

Many users also employ an inexpensive switch box to switch between external devices connected to the PC.

Change the IRQ and COM Port of the Modem

Move your serial mouse to COM2 and your modem to COM3 (consult your modem manual for instructions on reconfiguring its connection to your PC). You may then be able to use COM1 for your connection between the MicroScribe-3D and your 3D digitizing/modeling software if your modem is not powered on while MicroScribe communications are in progress.

Some after-market Pentium processor upgrades leave the PC with only one COM port turned on. This is not true of new PC's that come with Pentium processors installed. If you determine that this is the case, you can go into the PC's setup and turn on the second COM port if the PC is so equipped. Follow the instructions included with your hardware on performing this adjustment.

When in doubt, please consult your hardware documentation, PC vendor, or your Systems Administrator for additional information on configuring your communications ports.

Unplug the Network Connection

On systems which have a network connection attached to a COM port socket, you may be able to disable the network software and remove the connection in order to plug in the cable for your MicroScribe. Check with your network system administrator.

Add a Serial Port Card

An additional serial port card can be added to your PC which contains one or two additional ports and sockets. These are available from stores at prices from $10 to $50+. Assign a unique IRQ value (less than 16) to the COM port on this board if possible. You will have to use a diagnostic program like Microsoft Diagnostics or Norton Utilities to determine what IRQ values are available.

Note for Laptop Users

Laptops, especially IBM ThinkPads and portables with external docking stations, are particularly susceptible to COM port configuration difficulties. Review your laptop's documentation carefully to determine what COM ports you have and what ports are available. If your laptop has an infrared (IR) port (e.g. ThinkPad 755) you may first need to disable the infrared port, before enabling the COM port that you wish to use, and then rebooting. Some laptop owners have needed to lower the speed at which they connect to their laptop’s COM port.

A Note on PCMCIA Slots

PCMCIA modems count as serial devices. If you are having serial port conflicts try unplugging your modem and rebooting.