

PICAXE COM to TCP/IP Redirection Service

Understanding the system components.

The COM>TCP/IP redirection system allows software on the master computer to download via a PICAXE cable connected to the COM port on the separate slave computer. Naturally the two computers must be connected by a wired or wireless network!

The COM>TCP/IP redirection system uses three main system components:

- 1) Virtual COM port drivers. These drivers are installed onto the system at both ends of the connection and interact with the Windows operating system to create/maintain the virtual COM ports. Drivers for each operating system (XP, Vista, Vistax64 etc) are included by default and automatically selected without user interaction.
- 2) sec_service.exe file. This is a Windows 'service' file that runs automatically when the computer is restarted. This file instructs the drivers to create/destroy/redirect the virtual COM ports as required.
- 3) Windows registry settings. The registry settings are used by the sec_service.exe file to save and retrieve user defined settings (e.g. which COM port number the virtual COM port is to use).

Installation and configuration of all the above is achieved via the Wizards found within the Programming Editor software.

Installation:

1) Before you start you need to know:

On the slave computer (computer where the cable is installed)

- a) The IP address (which we will call slave address). This is displayed by the configuration wizard. Ideally this computer should have a static IP address so that it can not change (networks using DHCP can have changing IP numbers). You also need to select a network port number – 5010 is recommended as the default setting.
- b) The COM port number (slave COM port) that the cable is connected to. This can be either a real COM port for a serial cable or a 'virtual' COM port (e.g. generated when using an AXE027 USB cable). Note that when using a USB cable you must ensure that it is always left in the computer in the same USB port, if not the service will fail when the computer is next re-started, as that USB COM port only exists when the USB cable is physically inserted in the same USB port.

On the master computer (computer where the Programming Editor software is doing the download)

- a) An empty COM port number that can be used to create the brand new COM port for redirection.

2) On the slave computer

Install either the Programming Editor software or just the VSP wizard software. Make sure the AXE026 serial or AXE027 USB cable is already inserted and recognised. It is a good idea to check that you can download a program normally on this computer via the target slave COM port.

Run the wizard :

1. Read these instructions!
2. Install the drivers if this is the first time you are using this feature.
3. Select the slave COM port number then click the start service button.

3) On the master computer

Run the Wizard from within the Programming Editor (PICAXE>Wizards menu)

1. Read these instructions!
2. Install the drivers if this is the first time you are using this feature.
3. Select the (currently unused) master COM port number. This is the number of the new 'Virtual' COM port that will be created. Next enter a time delay (at least 5 seconds is recommended when first testing, can be reduced after experimentation). When a new download is started the two computers must first 'network connect' and this takes a short amount of time, which can vary according to different network conditions. This time delay allows the network time for the connection to be fully established before the software attempts to transmit data via the virtual COM port.
4. Enter the slaves IP address.
5. (Optional) Ping the slave computer. This is just to check the two computers can actually find each other. Note that ping is a separate network test feature and does not use the sec_service.exe file or the drivers.
6. Click the start service button.

If the process is successfully completed, the new virtual COM port will be created on the master. The new virtual COM port should also be visible with the name 'PICAXE Virtual USB Port' under Device Manager.

Things to check if the system does not work:

- Try restarting the computer after the driver installation.
- A service is installed on both computers (sec_service.exe). This is to ensure the redirection automatically starts when the computer boots. To install the service you must have full administrator login rights. You can use Task Manager to see if the service is running.
- All programs involved (progedit.exe, vsp.exe, sec_service.exe) need to be able to communicate via the network. Make sure any firewalls allow these programs to communicate over the network (sec_service.exe uses port 5010 by default).
- If you have a previously failed installation, make sure you use the 'stop service' button on the wizards before attempting to re-setup the system. It may also be necessary to use Task Manager (Ctrl+Alt+Delete) to end the sec_service.exe process, as Windows system protocols mean a new version of this file cannot be installed if it is already running.
- To delete all system components you need to use three of the advanced controls to:
 - Uninstall the service
 - Uninstall the drivers
 - Delete the saved registry settings

Sharing Multiple Ports

Each time you run the wizard you work with only the current COM port selected. Therefore you may run the wizard more than once to work with multiple COM ports – for instance on the slave you may share two real serial ports, or on the master create two new virtual COM ports that connect to two completely different slave computers. However some restrictions apply:

- 1) You must use a different network port (5010, 5011, 5012 etc.) for each connection
- 2) The 'clear registry' advanced button will clear all COM port settings, so after using this command you must re-enter all connection details.