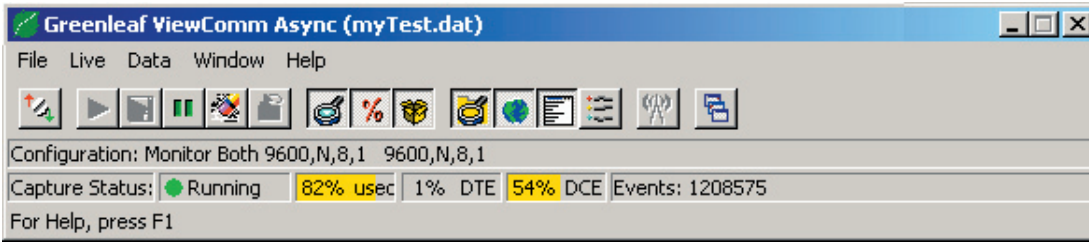




Greenleaf ViewComm Async



Windows based Async Serial Data Monitors and Protocol Analyzers for RS-232, RS-422, RS-485



VCS System Control Window

This is the master control for all VCS models. With it you can open other windows, set options, start and stop capturing data...the list goes on.

First, let's take a look at the difference VCS makes by showing a diagram of how serial comm works in Win32.

In a normal application, serial data must come through command and control pathways including the CPU and memory.

When the serial port UART needs attention, it raises an IRQ. The CPU responds only to the specific request:

1. Transmit buffer empty: Needs more.
2. Receive buffer full: Take some data out.
3. Status Change: inform application, which is responsible for determining specific status polarity / transition.
 - (a) Receiver Line Status
 - (b) Modem Status Change

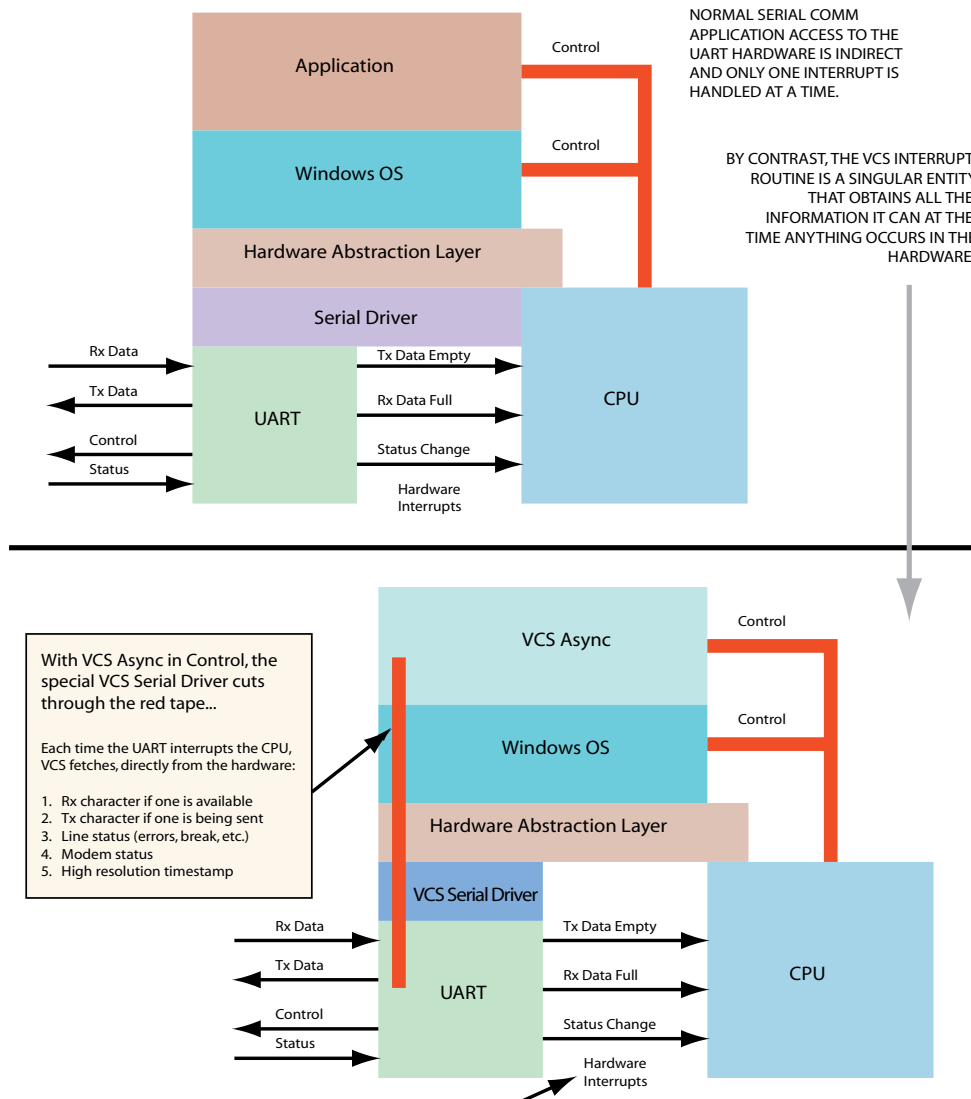
There is no direct path between the application and the serial port UART. This is by design. Windows precludes applications from direct access to hardware resources.

VCS cuts through the taboo area by means of a special serial driver which allows VCS to access the serial port UART directly.

Each time one of the (four, see above) interrupts are generated, VCS obtains all of this:

1. Rx Character if available
2. Tx Character if available
3. Line status including errors
4. Modem status and control lines
5. High resolution (< 1 microsecond) timestamp.

From the RS-232/422/485 line we get into the UART. From the UART we get events.



NORMAL SERIAL COMM APPLICATION ACCESS TO THE UART HARDWARE IS INDIRECT AND ONLY ONE INTERRUPT IS HANDLED AT A TIME.

BY CONTRAST, THE VCS INTERRUPT ROUTINE IS A SINGULAR ENTITY THAT OBTAINS ALL THE INFORMATION IT CAN AT THE TIME ANYTHING OCCURS IN THE HARDWARE.

With VCS Async in Control, the special VCS Serial Driver cuts through the red tape...

Each time the UART interrupts the CPU, VCS fetches, directly from the hardware:

1. Rx character if one is available
2. Tx character if one is being sent
3. Line status (errors, break, etc.)
4. Modem status
5. High resolution timestamp

NOTES: While shown as three hardware interrupt levels, the UART actually uses one more; the Receiver Line Status Interrupt and Modem Status Change Interrupt levels are treated as one by VCS, which reacts to either of these two interrupts using similar logic.