



Connect M4E Virtual Machine to Wavecom Fastrack 20[®] GSM Modem

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For the most reliable service, a serial to host serial port connection is accomplished using the Wavecom[®] DB9 to 15 pin data cable ordered with the Wavecom Fastrack 20[®] modem. If a USB to serial bridge adapter cable is required, specify the ATEN[®] UC232 serial to USB bridge adapter. Some USB to serial adapter cables are not reliable for this application. If you have problems detecting the modem, eliminate this type of connection adapter and plug the Wavecom[®] modem data cable into the physical host serial port. The Wavecom Fastrack[®] 20 industrial GSM modem shown here is the most reliable device for this purpose. Our tests show the ATEN[®] UC232 serial to USB bridge adapter to be reliable.



Wavecom Fastrack 20[®] GSM modem kit shown with external antenna and ATEN[®] UC232A USB adapter with Wavecom[®] 9-15 pin serial data cable.

Cellular network connectivity is accomplished using a SIM card taken out of a GSM handset. GSM mobile operators in North America include AT&T[®] T-Mobile[®], Rogers Wireless[®] Wind Mobile[®] and Telus Mobility[®]. **Confirm your cellphone subscription has the unlimited SMS text messaging plan add-on.**

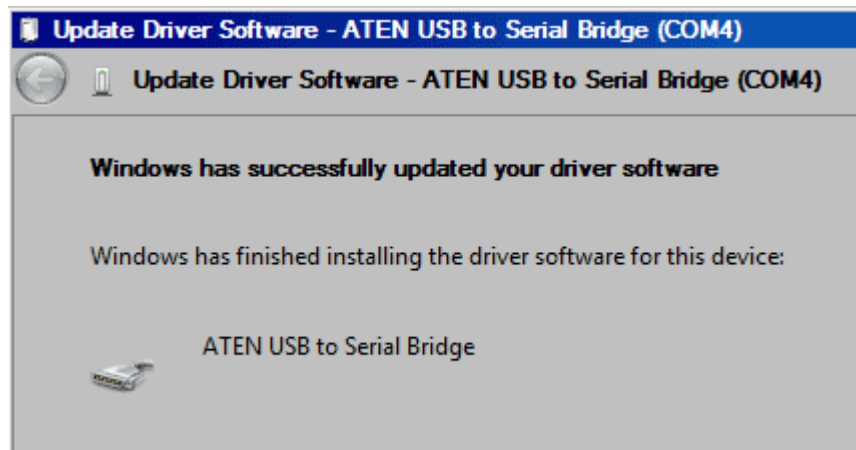
TIP: If no physical host serial port is available - source a USB bridge adapter with firmware drivers embedded in the hardware for maximum reliability. For Linux hosts, a Linux approved adapter is suggested. For MS Windows[®] hosts - a Windows[®] approved adapter is suggested. Some adapter brands are more reliable than others. The ATEN[®] UC232A adapter provides reliable GSM modem detection in this application.

If using a USB to serial adapter cable, install software drivers before connecting modem to the host computer. Verify a new virtual com port has been created in MS Windows[®] Device Manager.

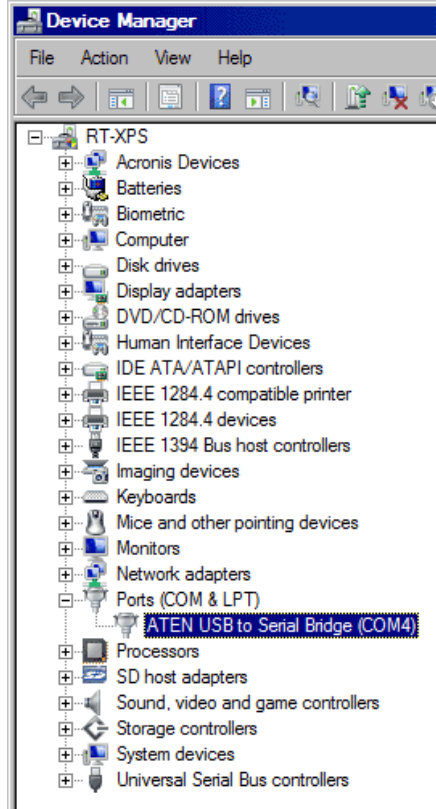
- ✓ Connect serial adapter to the Wavecom modem DB9 data cable;
- ✓ Connect Wavecom GSM modem to power supply and power on;
- ✓ Insert USB adapter cable end to host computer USB plug;
- ✓ Attach external whip antenna if included in kit;
- ✓ A red flashing LED indicator should pulse on the modem when the cell network is detected;

MS Windows[®] Hosts

In MS Windows[®] hosting environments, **install software driver BEFORE attaching the serial data communications cable to the host computer.** The software driver will create a virtual serial COM port (COM4 in this example) on the host. In VMware[®] virtual machine settings specify the COM port this USB adapter software driver has occupied in Device Manager.



MS Windows[®] driver installation confirming virtual port presence at **(COM4)**



Windows[®] Device Manager above shows **ATEN[®] USB to Serial Bridge** port as **(COM4)** in this example. In VMware[®] virtual machine settings specify **COM4** as the serial adapter for **M4E** virtual machine.

Insert Modem SIM Card

In the next illustration, a SIM card is transferred from a smart phone to the modem card slot provided. Please use care and avoid touching gold metallic surfaces of SIM cards when handled – this can cause corrosion of contact areas. **NOTE:** T-Mobile[®] USA offers a SIM card subscription for this purpose.



Orient the SIM card as shown prior to modem slot insertion. Notice the angle on the top left corner of SIM card, in relation to position of Wavecom[®] GSM modem shown. While pressing SIM card in all the way, slide the small black lock tab towards center of the modem. The locking tab holds the SIM card in the locked position.

Direct Serial to Serial Host Connection

This approach does not rely on software drivers as virtual COM ports. That said, it is helpful to verify the physical COM port on the host is available and functioning properly. Using a program like Telnet[®] – send AT commands to the target COM port and confirm console replies. Make sure the COM port is released and not being used by another application or service. In VMware[®] virtual machine settings specify the physical COM port for the modem itself. In Ozeki NG Gateway[®], COM ports are listed in the Linux convention in the following table. The Port drop down list is selected in the Ozeki NG[®] modem configuration form.

The screenshot shows a configuration window with tabs for 'Device settings', 'MMS settings', 'Logging', 'Port settings', 'Message handling', and 'Charsets'. The 'Port settings' tab is active. Under 'Connection', there is a 'Port' dropdown menu set to '/dev/ttyS0' and an 'Autodetect' button. Below that is an 'SMS center' field and a checkbox for 'Override SMS center on SIM card'. Under 'Identification', there is a 'Telephone number' field and a 'Service provider name' field set to 'GSMModem0'. At the bottom, there is a checked checkbox for 'Connect automatically on startup.' and 'OK' and 'Cancel' buttons.

These serial ports are listening in the M4E guest operating system:

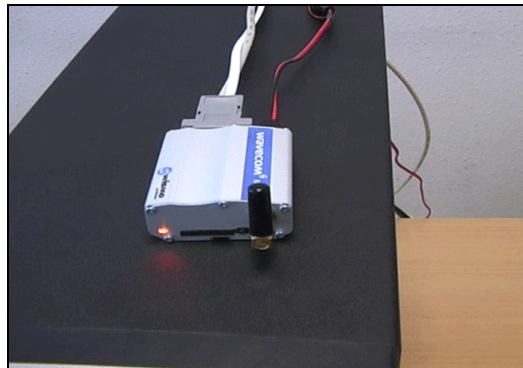
Name Under Windows	Name Under Linux	IO Address	Interrupt Request (IRQ)
COM 1	/dev/ttyS0	0x3F8	4
COM 2	/dev/ttyS1	0x2F8	3
COM 3	/dev/ttyS2	0x3E8	4
COM 4	/dev/ttyS3	0x2E8	3

```
root@ubuntu:~# dmesg | grep tty
[ 0.010000] console [tty0] enabled
[ 2.697715] serial8250: ttyS0 at I/O 0x3f8 (irq = 4) is a 16550A
[ 2.697995] serial8250: ttyS1 at I/O 0x2f8 (irq = 3) is a 16550A
[ 2.700497] 00:09: ttyS0 at I/O 0x3f8 (irq = 4) is a 16550A
[ 2.700953] 00:0a: ttyS1 at I/O 0x2f8 (irq = 3) is a 16550A
```



Attaching Wavecom[®] DB9 data cable to host serial port

Make sure the modem works. In the next figure the Wavecom[®] modem is attached to the computer. If you have inserted the SIM card in the modem correctly, a red LED pulses to the cellular network with modem powered on.



Wavecom Fastrack 20[®] GSM modem pulsing to cellular network

Troubleshooting Serial Port and Modem Autodetect

VMware Server[®] 2.0 Build 122956
VMware Workstation[®] 7.0 Build-203739.

This symptom was recently discovered after copying the **M4E** (Ubuntu 2.vmdk) VM disk file to a different host folder or network storage location – then starting **M4E** VM from the new location. There may be some issue with the serial port component in certain VMware[®] software versions in virtual machine settings. This can occur on MS Windows[®] hosts that can effect modem detection in Ozeki NG Gateway[®]. If there is a persistent problem not detecting the Wavecom[®] modem in Ozeki NG Gateway[®] via the Autodetect feature in the modem configuration screen, delete the serial port in VMware[®] virtual machine settings. Then add a new serial port. Exit the VMware[®] software program then re-start it. Specify the correct COM port based on your situation, and start **M4E** virtual machine.