

Serial to Ethernet Device evaluation and testing.

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Background

A Serial to Ethernet device allows a PC connected to an Ethernet the ability to communicate with a remote serial device (connected to a LAN or WAN) as if the serial device were attached to the serial port of the local PC.

Utilizing such a device can eliminate the need for a remote PC, which is currently required for downloading many GPS receivers. The devices have been evaluated relative to UNAVCO requirements. (See Table 1)

The Devices

Four Serial to Ethernet devices were selected for evaluation. (Figure 1)

<i>Unit Tested</i>	<i>EtherLite II</i>	<i>Digi One RealPort</i>	<i>MSS100</i>	<i>DE311</i>
				
Manufacturer	Digi	Digi	Lantronix	Moxa
Cost	\$350	\$250	\$300	\$300
# Serial Ports	2	1	1	1
Linux Port Redirection Software	RealPort	RealPort	N/A	moxattyd

Testing Criteria

The devices were evaluated on seven points:

1. The device must work with Red Hat Linux version 7.1 – 7.1 is the current version of Linux supported by UNAVCO.
2. The device must work with the Trimble R-utilities software – UNAVCO utilizes the Trimble R-utilities and the Lapdogs software package to communicate with and download Trimble receivers.
3. The selected device is required to come bundled with Linux port redirection software. (For UNAVCO purposes, the Ethernet device should appear as a tty device in the Linux /dev/directory.)
4. One download PC needs to be able to access multiple remote devices. - Cost savings over the current situation of one download PC per station can only be achieved if one download computer attached to the Internet can download any number of remote field receivers.
5. Security of the Ethernet port – This is important for the integrity of the link. Only authorized hosts should be allowed access to the Serial to Ethernet device.
6. Security of the serial port access – The serial port and access to the serial device attached to that port should only be accessible to authorized users.
7. Ease of configuration – The unit should be straightforward to configure and technical support must be available.

(Table 1)

	<i>Unit</i>	<i>EtherLite II</i>	<i>Digi One RealPort</i>	<i>MSS100</i>	<i>DE311</i>
1	Compatible with Linux 7.1	Yes	Yes	Yes	N/A
2	Works with Trimble R-utilities and LAPDOGS	Yes	Yes	Yes	N/A
3	Linux Port Redirection	Yes	Yes	No	N/A
4	One PC controls Multiple remote units	Yes	Yes	No	N/A
5	Secure login	Yes	Yes	Yes	N/A
6	Secure Serial Port	No	Yes	Yes	N/A
7	Tech Support	Excellent	Excellent	Good	Poor

Table 1 compares the four units regarding UNAVCO criteria.

Conclusions:

The Digi One RealPort was the only device to meet all of the testing criteria.

Digi One RealPort -

Hardware – “Digi One RealPort”

Software – “RealPort”

The Linux Port redirection software “RealPort”, is compatible with Linux 7.1. RealPort was found to be reliable and transparent to the Trimble R-utilities.

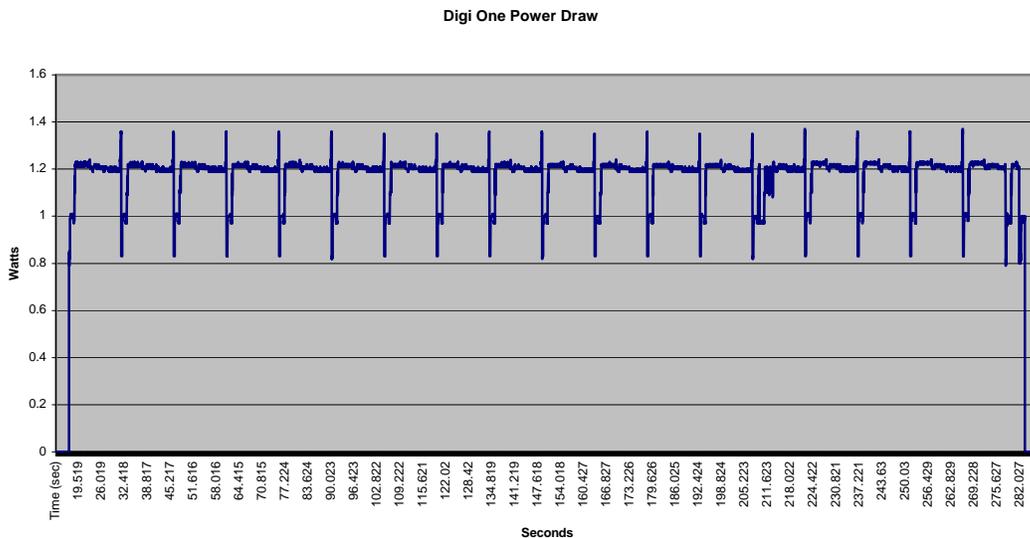
The RealPort software can provide multiple TTY devices, giving the ability for one download PC to access multiple remote devices.

In addition to the Digi One RealPort, Digi also offers the Terminal Server(TS) line of products that have up to 64 ports. The TS line of products works with the RealPort software.

The Digi One can restrict access to both the serial ports and the Ethernet port. Only authorized access to the Ethernet to serial device as well as the device attached to the serial port is allowed.

The Digi One RealPort has low power requirements as is represented in figure 2.

(Figure 2)



The three remaining devices were eliminated due to the following shortcomings discovered during testing and evaluation.

The Moxa DE311 - Could not operate under the Linux operating system even with the help of Tech support! I was unable to get the unit functioning.

The Digi Etherlite II - According to tech support, this device is in the process of being phased out. By upgrading the firmware of the Etherlite, it is able to act as a Digi One Real Port with limited functionality. Performance of the Etherlite II was acceptable but the unit suffered from lack of serial port and Ethernet port security.

The Lantronix MSS100 – This unit does not have supporting Linux port redirection software. In order to connect a Linux PC to a remote Receiver, Two MSS 100 units are needed, one at the PC and a second at the Rx. A dedicated serial tunnel is then established.