1. MOXA NPort Express TCP/IP to RS-232 server

1.1. General Explanations

The NPort Express RS-232/422/485 Device server allows equipment with RS-232 port to be connected through a TCP/IP Network. This Appendix describes the installation of the device to connect to a GSR recorder.

1.2. NPort Server Package Content

The MOXA NPort Express RS-232/422/485 server type DE-311 is a cigarette box size device supplied with a AC-DC adapter, a D-SUB-9 null-modem adapter, a CD with software and drivers and a quick installation guide.



Figure 1. Physical aspects of the DE-311

1.3. Modem or NPort Server

The NPort server is connected to the GSR like a modem, to connect the NPort server to the GSR with a standard GeoSIG RS-232 cable the D-SUB-9 Null-modem adapter must be used. The same for connecting a GSR to a standard telephone modem, a Null-modem cable or the Null-modem adapter of the NPort server needs to be used for this purpose.

		Mini Adapter		
RS-232 Signals	PIN	and the second second second	PIN	RS-232 Signals
DCD	1		-⊳ 1	DCD
TxD	2 -		- 2	TxD
RxD	3 🖛		- 3	RxD
DSR	4	~ _	- 4	DSR
GND	5 -		- 5	GND
DTR	6		- ► 6	DTR
CTS	7 -	~	- 7	CTS
RTS	8 🖛			RTS

Figure 2. Mini Null-modem adapter wiring

1.4. Principle of Connecting

The NPort server compresses the serial signals from and to the recorder to packets and sends them over LAN network with TCP/IP protocol to a computer. On computer side there is not need to connect physically a device to the RS-232 serial port, but the computer needs to be connected to the local network on which the NPort server figures. In the computer a virtual COM port will be created with the software supplied by the NPort server, all necessary steps are described in this attachment.

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1.5. Configuring the NPort Server

Following steps must be done to establish a connection between computer and GSR

1.5.1. Recorder Side (NPort Server)

- Set 3 dip switches on NPort Server to OFF (low)
- Connect NPort server to the GSR with the standard RS-232 cable supplied and use the Null-Modem mini adapter
- Connect NPort server to the network with a standard RJ45 cable (Cable is not supplied in shipment)
- Connect the AC-DC adapter, or another 12 VDC supply (Warning, with the AC-DC adapter the network communication is lost during a mains power failure)
- When Power is available the 3 LED on the front of the NPort server must be on after approximately 10 seconds (PWR: Red, Link: Green, Ready: Green) If not then refer to the MOXA manual

1.5.2. Computer Side

• Install NPort Windows Driver Manager (On USB flash drive in folder Utilities\MOXA)



Figure 3. Setup NPort Windows Driver Manager

- Continue installation and keep default settings
- Choose to run configurator (Default) and finish installation) (Configurator can be launched from the start menu → Programs → NPort Windows Driver Manager

- The NPort Windows Driver Manager is now started
- Choose button "Add" to add NPort servers

Eile <u>C</u> O	M Mapping Constant Add	g Configuration ⊻iew Help	q
No C		Address 1	Address 2
	1	2	

Figure 4. Add NPort Servers

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	Model	MAC1	Address 1	MAC 2	Address	2		
	1 DE-311	00:90:E8:04:C	192.168.127.254	- /				
Ŀ				1	1			
				L				
1								
Inp	ut Manually							
			n unaul					
	ai COM Redund	ant COM Reverse	RealCOM					
					First Mapping P	Port		
	NPort IP Address				Data Port	950		
						339		
					Commenta Por	1000		

• Choose button "Search", the network will be searched and all available NPort servers will be listed

Figure 5. Search for NPort Servers

- The factory default IP address of the NPort server is static and set to 192.168.127.254, to set up the correct device refer to the MAC Address that figures on the bottom of the device.
- Click "OK" to add selected devices
- If you confirm to activate COM Port now, next free COM ports will automatically be assigned to the NPort servers

	Do you want to act	ivate the CON	A Port now?
-			
			4
	Voc	No	

Figure 6. Activate COM Port now

- By double clicking on the row of the device to be set up, COM Port Setting Window appears
- In tab "Basic Settings" a COM Port can be chosen manually
- To work with a GSR parameters in tab "Serial Parameters" must be set. Default Value for GSR is 38400 baud, but best is to connect to the GSR directly with the serial cable and check set values for communication.

		colou.		
Basic Settings Adva	anced Settings	Serial Parame	ters Security	IPv6 Settings
F Apply All Selec	ted Ports			
These options was serial printer	will be saved on driver. In genera	registry and us al cases you ca	ed on few appl n ignore these	cations such settings.
Baud Rate	38400	_		
Parity	None	•		
Data Bits	8	•		
Stop Bits	1	•		
Flow Control	None	•		

Figure 7. COM Port Setting

- Confirm with OK and apply changes in main window of NPort Windows Driver Manager
- Now NPort Server is ready to operate and GSR recorder can be configured in GeoDAS

1.5.3. Changing IP settings on NPort Server

- Note: In case of trouble the device can be reset with pressing for more than 10 seconds on the reset button, factory defaults will be restored.
- To set up IP address of NPort Server execute following steps:
- Start Telnet console session using uCon
- The factory default IP address of the NPort server is static and set to 192.168.127.254

uCon Config	guration	X
-Serial Back E	nd:	
O Serial E	Backend	
Com Port:	COM2	✓ PortScan
Baud Rate:	19.2K 💌	Data: Parity: Stop:
Flow:	DTR/DSR RTS/CTS XON/XOFF	8 ▼ None ▼ 1 ▼ ▼ DTRSET ■ RTSSET
Sysname:	nd. Backend [192.168.127.254]	AutoRestart Port. 23
	lauk Enu. /Link Backend	
Plink args:		
	ed Configurations: —	
Pre-Establish		
Pre-Establish	gram Files (x86)\ucor com1_115200	n\config*.ct Browse

Figure 8. Telnet console session

• Click "OK" to start Telnet session

- Make sure "Echo outgoing characters to screen" is unchecked in Config → Miscellaneous
- At the prompt, enter "1" for ansi/vt100 and then press Enter.

			Servers fransi		þ		
— F2 —	-F3-	- F4-	— F5 —	- F6 -	-F7-	- F8 -	- F9 -
B1	-B3-	-B5-	B7	-B9-	B11	B13	B15
B2	-B4-	-B6-	-B8-	-B10-	-B12-	-B14-	-B16-

Figure 9. Console terminal type

- Use the arrow keys to navigate between different options
- Select [serverConfig] in main menu to change IP settings

🕸 uCon							
File Edit View	Config	Logging Scripts	Servers Tra	nsfer uMon I	Help		
	0 3						
-F2-	- F3 -	-F4-	- F5 -	- F6 -	-F7-	-F8-	-F9-
B1	B3	B5	B7	-B9	-B11-	-B13-	-B15-
<u> </u>	<u> </u>	<u> </u>	-B8-	<u> </u>	<u> </u>	<u></u>	<u>B16-</u>
Config serve ESC: back to	gj op_m er sett o menu	ings Enter: sele	oct	tor Ping	Kestart EX		
Server Mo Server No Serial No	odel ame umber		DE-31 [NP526 52636	1 Rev.2 36		1	
IP Config IP Addres Netmask Gateway Ethernet MAC Addre	guratio ss Status ess	n	[Stati [] 92.1 [255.2 [100M/ 00:90	c IP] 68.127.254 55.255.0 Link :E8:04:CD:]]] 9C		
Password			ſ		1		
TELNET 192.168.12	27.254:23	TELNET SRVR OFF	MYIP: 1	192.168.127.1	ROW/COL: 24/78	3 XFER: Idl	e //

Figure 10. Server settings

 Depending on the network, either choose a static IP address, or select an IP configuration (For example DHCP if such server is available on the network). It is important to choose a correct IP address, please ask to your local network administrator who can tell which setting to use.

1.6. Working behind NAT router to private IP

If you want to allow NPort to use private IP behind your NAT/firewall, you should use NAPT protocol to map the Public IP to NPort's private IP in your NAT router. Most of routers/firewalls all support this function now. For example, when you configure NPort's private IP as 192.168.1.1, and the NAT router's Public IP is 61.x.x.x. Next, you should map TCP/UDP port numbers shown as follow:

Protocol	Public IP	Port No.	NPort Private IP	Port No.
TCP	61.x.x.x	23	192.168.1.1	23
TCP	61.x.x.x	4000	192.168.1.1	4000
TCP	61.x.x.x	950	192.168.1.1	950
TCP	61.x.x.x	966	192.168.1.1	966
UDP	61.x.x.x	1029	192.168.1.1	1029

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It is important to set the gateway properly in the device properties (see chapter <u>Configuration of</u> <u>the Device</u>).

For connecting to the device remotely, use the public IP to establish the connection.

1.7. Troubleshooting

In case GeoDAS reports an error accessing the GSR, and the correct COM port is selected, the problem is in most of the cases in the assignment of IP addresses. Verify in such case that the first three groups of values in the IP address of the device are the same as the ones on the computer, and that there is no conflict with another subscriber.