



## GMSplus Customer Connection Test Procedure

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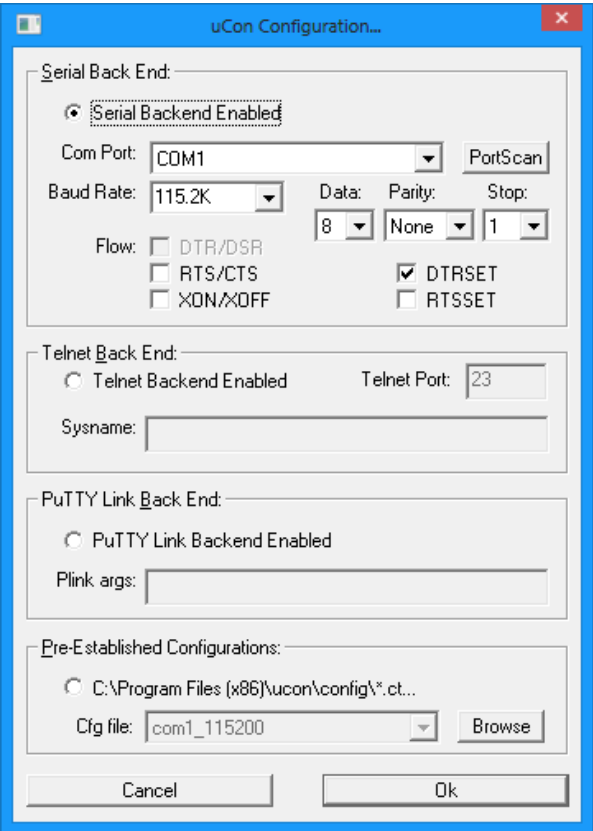
## 1. Needed tools

- Notebook/ PC
- Cardreader for CF cards (in some PC's /Notebook already integrated)
- RS-232 cable (If your PC has no serial port, use a USB to RS-232 converter -> check [Appendix A](#))
- GeoDAS software >version 2.20
- Terminal software e.g. Windows Hyper Terminal, [Ucon](#) etc.
- Hexagon key No. 5 (unscrew cover)

## 2. GMSplus LED indication

<p>The LED's on the top indicates the status of the instrument</p>	 <p style="text-align: center;">Fig 1. LED's on the top</p>		
<p>In <b>normal</b> operation they are as following:</p> <p>For further explanation check also the <a href="#">GMSplus manual</a> chapter 3.3 downloadable from our website <a href="http://www.geosig.com">www.geosig.com</a></p>	<p><b>Color</b></p>	<p><b>Indication</b></p>	<p><b>States</b></p>
	<p><b>GREEN</b></p>	<p><b>AC</b> indicator</p>	<p>When ON, The GMS is powered by AC.</p>
	<p><b>GREEN</b></p>	<p><b>RUN</b> indicator</p>	<p><b>Blinking 20% ON, 80% OFF at 1 sec period:</b> Normal operation of the instrument, data acquisition is running</p>
	<p><b>YELLOW</b></p>	<p><b>EVENT</b> indicator</p>	<p><b>OFF:</b> Unit is not recording and no events are on the CF card</p> <p><b>Blinking:</b> Indicates the amount of memory used on the CF card (&lt;25%, &gt;25%, &gt;50%, &gt;75%)</p> <p><b>ON:</b> The unit is recording at the moment</p>
	<p><b>BLUE</b></p>	<p><b>LINK</b> indicator</p>	<p><b>OFF:</b> Link with the data server is established, no communication ongoing</p> <p><b>Blinking at 1 sec period:</b> Problem with the link to the data server</p> <p><b>ON:</b> Link with the data server is established, communication or data transfer ongoing</p>
	<p><b>RED</b></p>	<p><b>ERROR / STATE</b> indicator</p>	<p><b>OFF:</b> No problem or warning</p> <p><b>Blinking at 2 sec period:</b> Warning is present</p> <p><b>Blinking 1 sec period:</b> Error is present</p> <p><b>ON:</b> Data acquisition is not running, e.g. during start up</p>
	<p>Fig 2. LED indication table</p>		

### 3. Starting the GMSplus

<p><b>3.1. Connection</b></p>	
<p>Connect a PC with the GMSplus</p>	<p>Connect a RS-232 cable with the connector on the top of the GMSplus</p> <p>Connect the supplied LAN cable to the GMSplus and the others side to the network where the GeoDAS server is connected.</p>  <p style="text-align: center;">Fig 3. Serial port on the top</p>
<p>Open a Terminal software</p>	<p>E.g. Hyper Terminal of windows, <a href="#">Ucon</a> or others</p> <p>Make sure to choose the right COM port</p> <p>If you are not sure about the right COM port, check <a href="#">Appendix A</a></p> <p>Settings should be as following:</p>  <p style="text-align: center;">Fig 4. COM Port settings (example of Ucon)</p>

<b>3.2. Start the GMSplus</b>	Press the power button on the top

The following menu will appear (see chapter 11 in the GMSplus UserManual for details):

```

Press Ctrl+Z to enter the test mode.....
Instrument serial number: 100582
Instrument MAC address: 00:50:C2:77:42:93

-----
Level          Shortcut   Password   Description
-----
User           Ctrl+U    None       Basic operations only
Powerful User  Ctrl+W    None       Also hardware options and pre-selected tests
Administrator Ctrl+A    None       Also manual tests and altering the FLASH memory content
-----
Your level [U/W/A] or press B to boot now:
    
```

- By default, no any passwords are set, so press 'U' to enter the User Mode, and then 'N' to enter the menu *Network settings*.

```

==== Network Settings ====

---- Primary network interface ----
Configure network interface (Y/N)? Y
Static IP address (1=YES, 0=AUTO)? (0 = 0x0):
    
```

- Select 'Y' to change the settings and then select if the instrument should have a static or a dynamic IP by pressing '1' (Static) or '0' (dynamic). In case a dynamic IP is chosen, a DHCP server must be available in the network to provide the IP settings.
- In case a static IP is selected, an additional message will appear asking for the *Instrument IP address*, *Instrument network mask* and *Instrument gateway IP*. In case you don't know these parameters please ask your network administrator.
- In case the instrument has a Wi-Fi module, a second interface menu appears and also here static or dynamic IP can be chosen and the available Wi-Fi networks can be scanned. Please see chapter 8.4 in the GMSplus UserManual for details.

```

---- Wireless network interface ----
Configure network interface (Y/N)? Y
Static IP address (1=YES, 0=AUTO)?
    
```

- In case the instrument is connected to the internet via a PPP connection (cellular or analog modem), then the APN and password must be configured. See chapter 10.8.3 in the MSplus UserManual for details

```

---- PPP Communication ----
Edit Analog Modem settings (Y/N)? Y
Phone number of the service provier [T313001]:
Login [demo]:
Password [demo]:
Updating configuration...
PPP settings have been updated
Edit Cell Modem settings (Y/N)? N
    
```

- The instrument allows access to the operating system from remote over SSH. This feature is not needed for the normal operation of the instrument and can be disabled in case of security concerns. By default it should be kept enabled, to disable press '1'

```

---- Miscellaneous parameters ----
Disable remote login over ssh (1=Yes, 0=Enable)? (0 = 0x0):
    
```

- It's highly recommended to put a *recovery server IP* address and *recovery server port*. The instrument will contact this server every *Recovery server contact interval* in case the connection to the main data server (configured in the configuration of the instrument) is not possible anymore. This can happen for example in case accidentally a configuration file with wrong server settings will be uploaded to an instrument.

```
Recovery server IP address (192.168.10.107):
Recovery server port (3456 = 0xD80):
Recovery server contact interval, hours (24 = 0x18):
```

- As soon the following menu appears, press '5' to start the instrument.

```
Bootloader Menu of the GMS-XX s/n 100582
Access level: User

--- Flash Images and Boot Options ---
L - List flash images
Q - Reset instrument configuration to the user default
V - Reset instrument configuration to the factory default
5 - Boot now
X - Reboot the instrument
Y - Power off

--- Hardware Setup and Monitor ---
N - Network settings

--- Security ---
O - Set password
```

-->

Wait until the GMSplus has started completely (RUN LED is blinking > [see chapter 2](#))

## 4. Checking the IP addresses

If you connect the GMSplus directly to the PC, many modern PC's can handle crossed wired cables, otherwise use a crossed cable or an unmanaged, simple switcher.

### 4.1. Checking and configuring the IP of my PC

To be able to ping the GMSplus, you have to be in the same network IP range.

- Go to "Start"
- Settings
- Control Panel
- Network connections
- Local Area Connection

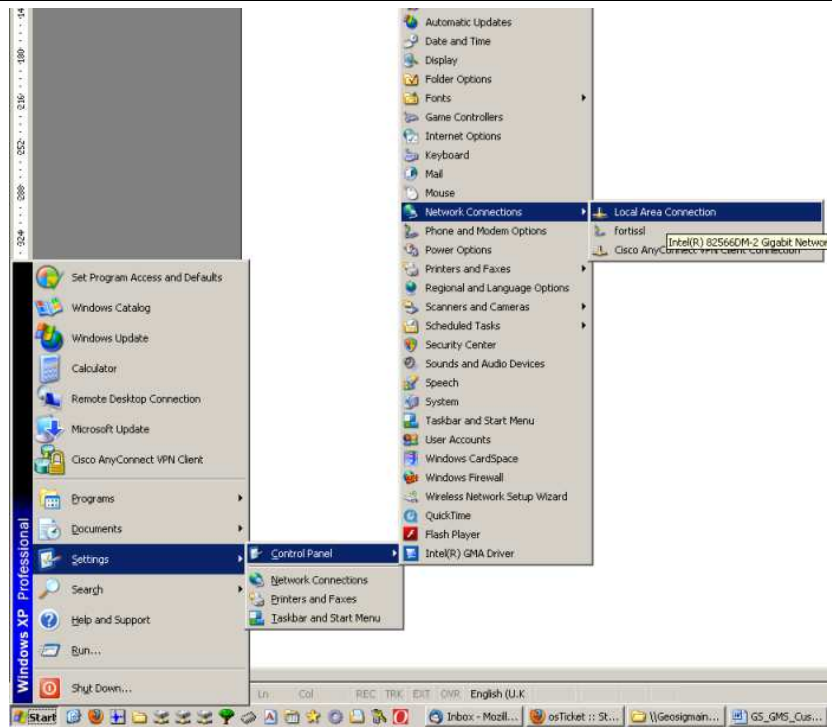


Fig 5. Choose the network connection

Choose Properties

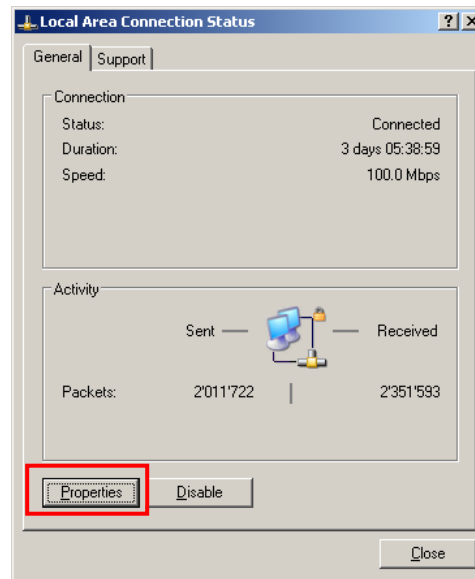


Fig 6. Local Area Connection Status

Choose the Properties of "Internet protocol (TCP/IP)

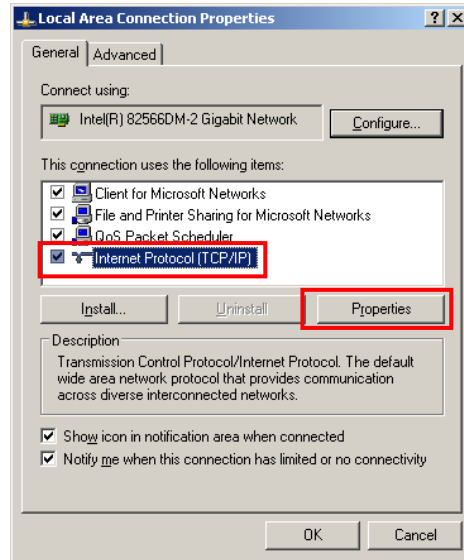


Fig 7. Local Area Connection properties

Set the correct IP addresses:

Press "Okay" to leave the window

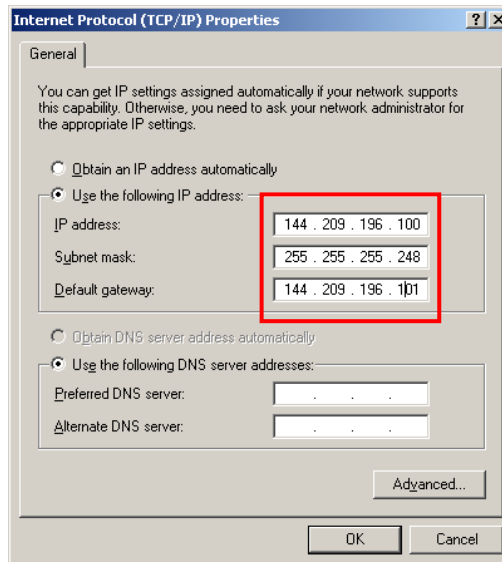


Fig 8. Internet Protocol Properties

## 4.2. Checking the GMSplus address

In case of using dynamic IP addresses (DHCP), you might want to know the IP address of your GMSplus.

Connect the serial port (CONSOLE) on the GMSplus top Press "Enter" with your PC.

Open a terminal software (e.g. Ucon).

Press "Enter"

The Main Menu appears:

```
GMSplus SN xxxxxx version 21.06.09
Main Menu:
C - Configuration
M - Messages ->
S - Shell Command
L - List firmware images
X - Display errors (0) and warnings (0)
W - Clear errors and warnings
F - View/reset RTC trim values
```



```
T - File statistics
G - View RTC status
P - View GPS information
H - Set RTC time
U - User request
R - Restart
Q - Quit
```

Press "S"

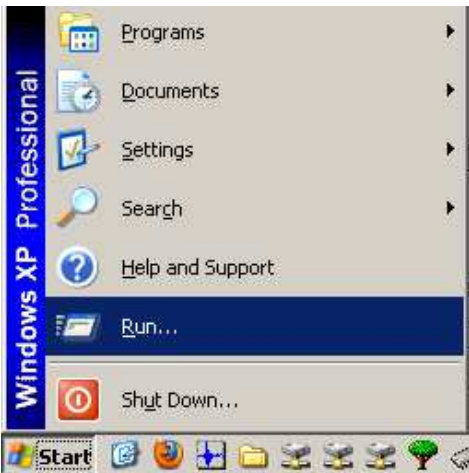
Linux Command :

Type ifconfig and press "Enter"

```
eth0      Link encap:Ethernet  HWaddr 00:50:C2:77:41:AD
  →      inet addr:192.168.10.113  Bcast:192.168.10.255  Mask:255.255.255.0
        UP BROADCAST NOTRAILERS RUNNING MTU:1500 Metric:1
        RX packets:1149 errors:0 dropped:0 overruns:0 frame:0
        TX packets:26 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:100
        Interrupt:165 Base address:0x300

lo        Link encap:Local Loopback
        inet addr:127.0.0.1  Mask:255.0.0.0
        UP LOOPBACK RUNNING MTU:16436 Metric:1
        RX packets:0 errors:0 dropped:0 overruns:0 frame:0
        TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
        collisions:0 txqueuelen:0
```

### 4.3. Ping the GMSplus IP address

<p>Open the command prompt:</p>	<p>Go to "Start"</p>  <p>Fig 9. Start menu</p>
	<p>Click "Run"</p> <p>A new window appears</p>

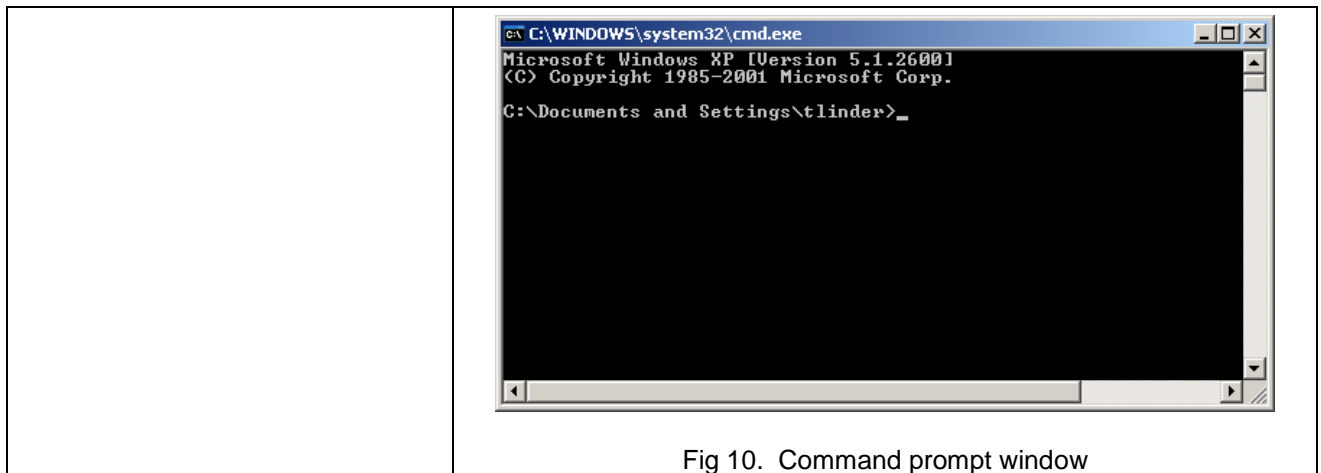


Fig 10. Command prompt window

Ping the IP address of the GMSplus

Type "ping and the address from [chapter 4.2.](#)"

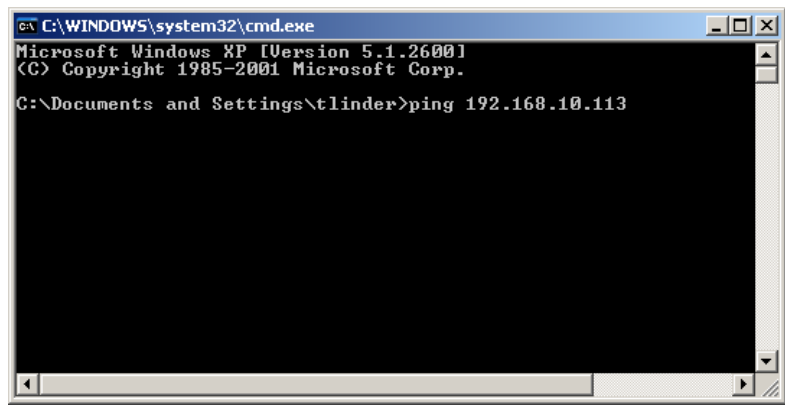


Fig 11. Command prompt window

If the GMSplus can be reached the following messages appears

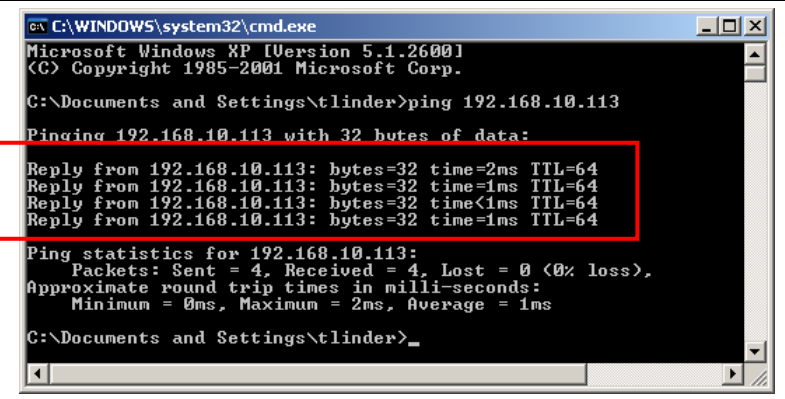


Fig 12. successful connection

If this message is shown, you have to check your Ethernet cable or if your PC is in the same subnet.

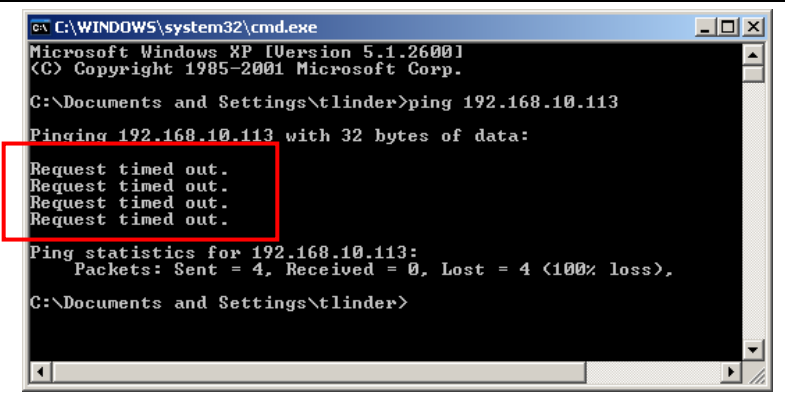


Fig 13. no connection to the GMS

### 4.4. Checking the IP address of my PC

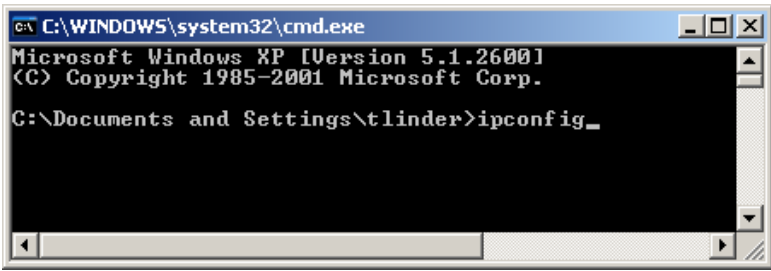
<p>Open the command prompt</p>	<p>Type in "ipconfig" and press "Enter"</p> 
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Fig 14. Command prompt window

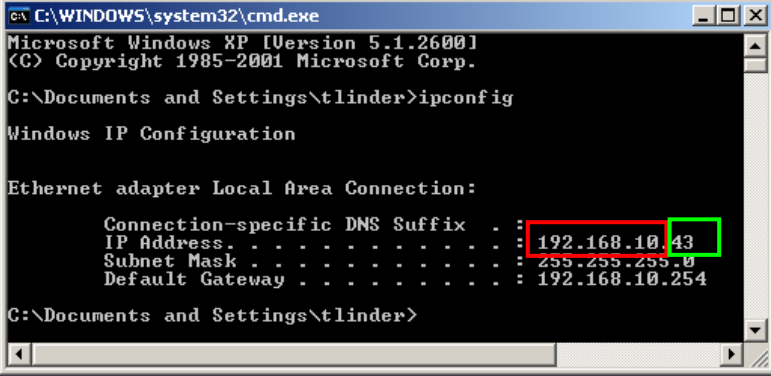
<p>The own IP address is listed</p> <p>Check if the IP address of the GMS and the PC are in the same subnet.</p> <p>The first three blocks (red) should be the same, only the last two digits (green) MUST be different.</p>	
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Fig 15. Command prompt window

## 5. GeoDAS settings

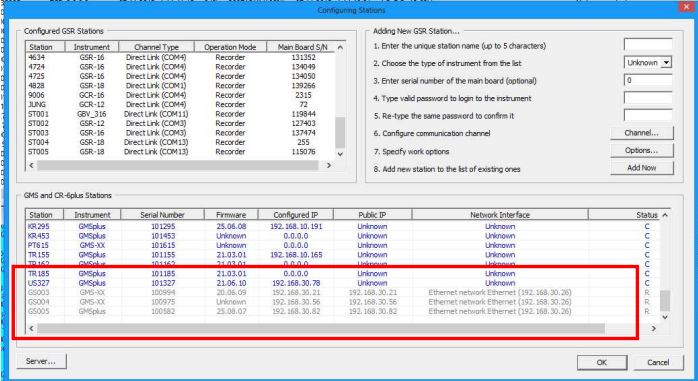
<p>Open GeoDAS</p> <p>Open "Settings" &gt; "Configure Stations"</p> <p>New instruments, which are not configured, appears in grey colour</p> <p>Right click to add them</p>	
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Fig 16. Configuring Stations window

Open "Station Server Parameters" by clicking the button "Server" on the left bottom

Make sure the port is the same as used in the GMSplus

If the PC/Laptop has also WiFi enabled, may set also the used IP address for the connection to the GMSplus, so GeoDAS knows on which path it has to look for stations.

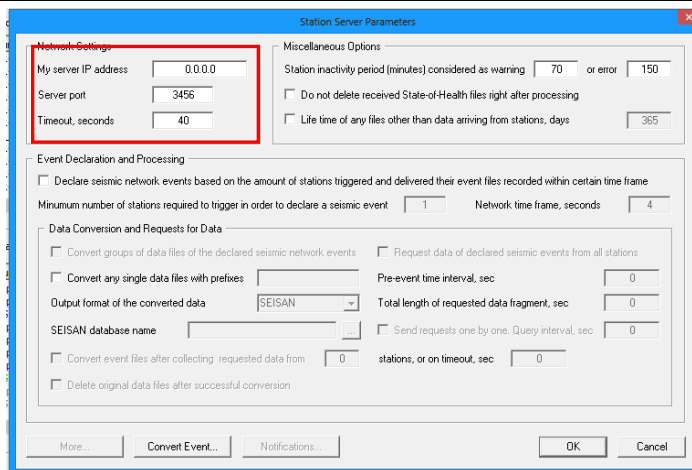


Fig 17. Command prompt window

## 6. Troubleshooting

### 6.1. Authentication failed or permission denied

In the GeoDAS Logger window is written "permission denied"

```
27.08.2012 11:33:00 Station <ST001> has been added to the recorder list
27.08.2012 11:33:00 Static data analysis is not performed.
27.08.2012 11:33:02 ERR> bind() error: Permission denied
27.08.2012 11:33:02 DBG> Connection closed
27.08.2012 11:33:02 ERR> Failed to initialise the server socket
27.08.2012 11:33:04 ERR> bind() error: Permission denied
27.08.2012 11:33:04 DBG> Connection closed
27.08.2012 11:33:04 ERR> Failed to initialise the server socket
27.08.2012 11:33:06 ERR> bind() error: Permission denied
27.08.2012 11:33:06 DBG> Connection closed
27.08.2012 11:33:06 ERR> Failed to initialise the server socket
27.08.2012 11:33:08 ERR> bind() error: Permission denied
```

Fig 18. GeoDAS logger window

In GMSplus serial port console appears messages: Authentication failed

```
1 09:35:32.638 ERR> Network error (a message will follow)09:35
2 09:35:32.637 ERR> Receiving data from unknown: Connection reset by peer09:35
3 09:35:32.643 ERR> Authentication failed09:35
4 09:35:32.645 Error is cleared: Network error09:35
5
```

Fig 19. GMSplus serial port console terminal

Check if the port is used /reserved for other applications.

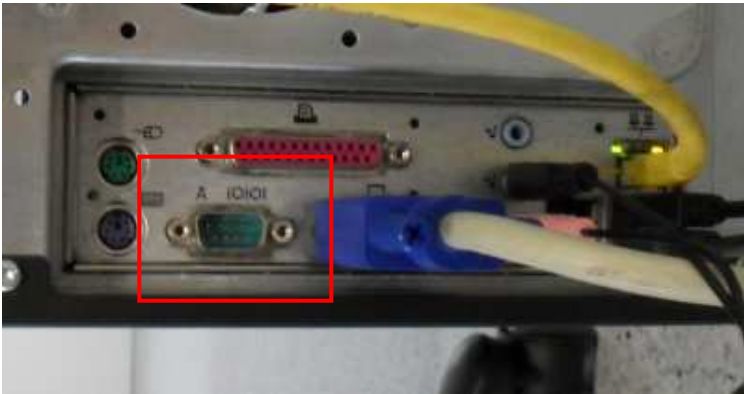

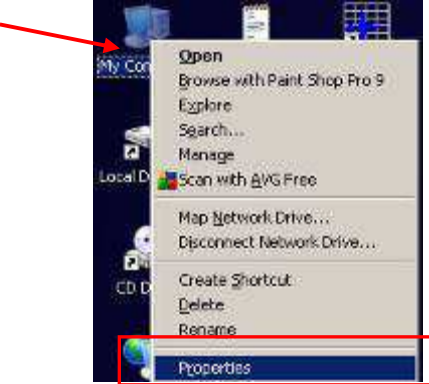
You can check also on this webpage for reserved port numbers:  
[http://en.wikipedia.org/wiki/List\\_of\\_TCP\\_and\\_UDP\\_port\\_numbers](http://en.wikipedia.org/wiki/List_of_TCP_and_UDP_port_numbers)

Check the firewall settings on the router, if the used port is open and not blocked.

May disable the firewall (especially on WIN7)

## Appendix A.

### 1. How to check the COM Port Number

<b>1.1. If I have a serial port on my computer</b>	
Usually it is COM port 1	 <p>Fig 20. Serial Port on a PC</p>
<b>1.2. If I have to use a USB to RS-232 converter</b>	
Example of a converter	 <p>Fig 21. USB to RS-232 converter</p>
Right click on "My Computer" Choose "Properties"	 <p>Fig 22. Properties of "My Computer"</p>

Choose the tab "Hardware"

Choose "Device Manager"

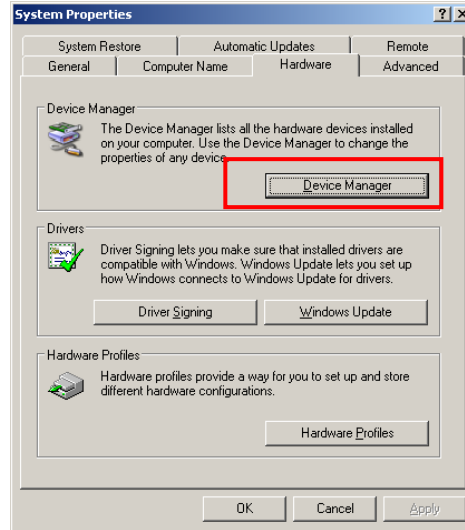


Fig 23. Hardware Properties Tab

Check which COM Port number is written for your USB COM Port converter (in this example COM6)

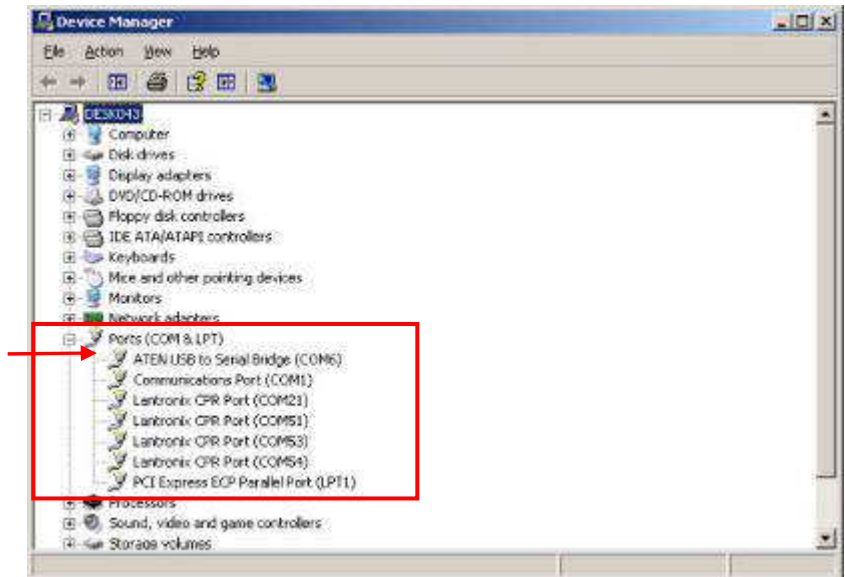


Fig 24. Device Manager Window

If you are not sure which one it is, you can leave the window open, disconnect and reconnect the device to check which one disappears and appears again.

If the same converter is connected to another USB port, then the COM-Port might be different.