Gateway Server Communication Troubleshooting with the Gatway Server Inspector

It's possible to log or view the communication between CoDeSys and other clients like the OPC Server and a PLC. That particularly allows you to analyze sporadic errors during operation or problems while establishing the connection.

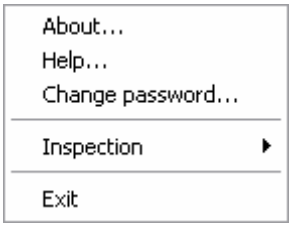
In simple cases, it should be possible that you solve the problem yourself with the examples listed at the end of this document. If not, you can send the log file, a description of your environment and an archive of the project to us, the Support of 3S (support@3s-software.com). Then we can try to find the error.

Before doing this deep examination it's important to check the following:

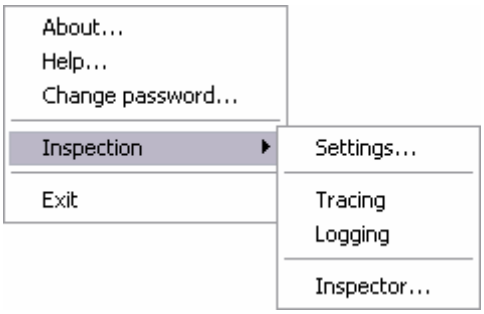
- the physical connection is ok (wiring, cable plugged, power-on, …)
- the configuration is correct (selected Gateway, IP address, COM port, byteorder, …)
- increasing timeouts didn't help (CoDeSys.ini: DefaultWaitTime= and DownloadWaitTime=)

Preparing the Gateway Server Inspector to log with maximum detail level

1. Open the Gateway Server tray menu (click the system tray icon with the right mouse button)



and select the 'Inspection' submenu whereby the following submenu opens:



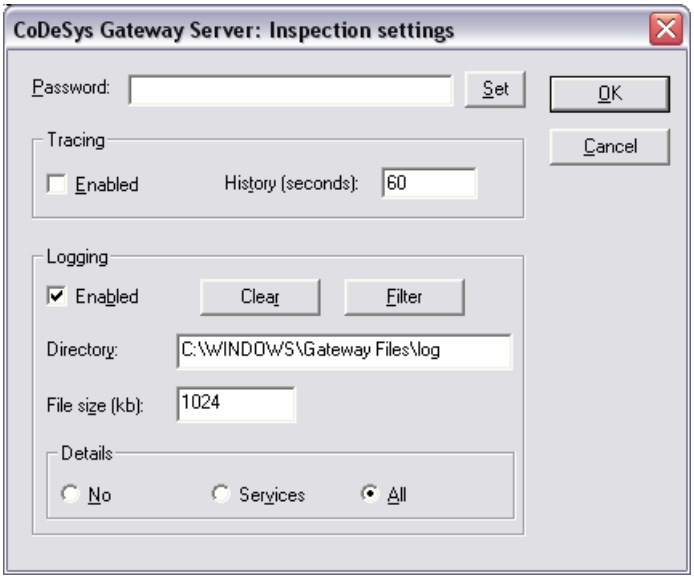
Relevant menu entries in detail:

'Settings'
Selecting this command opens the 'Inspection settings' dialog for configuring the gateways tracing and logging features.

'Logging'

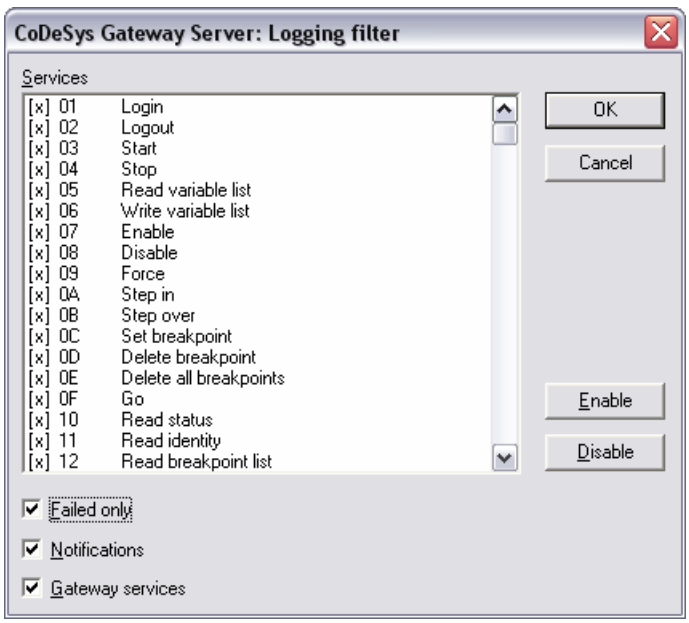
Selecting this command enables or disabled the gateways logging feature. If logging is enabled, a log file is written for each channel. The log files follow the following naming convention:
<Instance name>#<Channel id>(<Driver name> YYYY-MM-DD hh.mm.ss).log
Each creation of a channel creates a new log file. The logging is done independently from the tracing feature. Therefore it is possible to log channels with the tracing feature disabled.

2. Configure the grade of details for logging by opening the ‘Settings’ dialog:



In the ‘Logging’ area:

- activate the checkbox ‘Enabled’ to enable the logging
- select ‘Details’ ‘All’ to log all
- open the dialog for selecting the service filters for data logging by pressing ‘Filter’



- enable all Services
- activate all checkboxes

The Inspector is now prepared for logging the whole communication (general information, failed services and notifications).

Examplary log files

CoDeSys as client

1. Successful communication

```
##INSPECTOR-LOG-FILE##

##SECTION:HEADER##

Instance=PLCWinNT - TCP/IP
Driver=Tcp/Ip
      Address=localhost;IP address or hostname
      Port=1200
      Motorola byteorder=No
Project=(Unbenannt)
Channel=1
      Created=2006-05-11 11:30:23.058
      Client=127.0.0.1

##SECTION:TRACE##

##NEW DATE: 2006-05-11##

System DWord
      11:30:23.075  Get              Idx=4 (BUFFERSIZE), Result=0

##NEW PROJECT 'test.pro': 11:30:24.168##
##NEW SYMBOLS 'C:\WINDOWS\Gateway Files\test.sdb' (Version = 1, Identity = 84597, Symbols = 0): 11:30:24.168##

System DWord
      11:31:17.418  Get              Idx=5 (TARGETCHANNEL), Result=4294967295

##SECTION:SUMMARY##

Terminated=2006-05-11 11:31:17.418
Quality=100%
      Total=9882
      Failed=0
      µs per read=Unknown
```

2. Wrong target selected

```
##INSPECTOR-LOG-FILE##

##SECTION:HEADER##

Instance=PLCWinNT - TCP/IP
Driver=Tcp/Ip
      Address=localhost;IP address or hostname
      Port=1200
      Motorola byteorder=No
Project=test.pro
Channel=1
      Created=2006-05-11 11:33:12.390
      Client=127.0.0.1

##SECTION:TRACE##

##NEW DATE: 2006-05-11##

System DWord
      11:33:12.390  Get              Idx=4 (BUFFERSIZE), Result=0
System DWord
      11:33:13.660  Get              Idx=5 (TARGETCHANNEL), Result=4294967295
```

```
##SECTION:SUMMARY##

Terminated=2006-05-11 11:33:13.660
Quality=100%
	Total=3
	Failed=0
	µs per read=Unknown
```

3. Incorrect configuration (wrong IP address)

```
##INSPECTOR-LOG-FILE##

##SECTION:HEADER##

Instance=PLCWinNT - TCP/IP
Driver=Tcp/Ip
	Address=192.168.0.206;IP address or hostname
	Port=1200
	Motorola byteorder=No
Project=(Unbenannt)
Channel=1
	Created=2006-05-11 11:36:34.196

##SECTION:SUMMARY##

Terminated=2006-05-11 11:36:40.110
Quality=Unknown
	Total=0
	Failed=0
	µs per read=Unknown
```

4. DownloadWaitTime too small (DownloadWaitTime=2 => 2ms)

```
##INSPECTOR-LOG-FILE##

##SECTION:HEADER##

Instance=PLCWinNT - TCP/IP
Driver=Tcp/Ip
	Address=localhost;IP address or hostname
	Port=1200
	Motorola byteorder=No
Project=test.pro
Channel=1
	Created=2006-05-11 13:02:36.834
	Client=127.0.0.1

##SECTION:TRACE##

##NEW DATE: 2006-05-11##

System DWord
	13:02:36.834  Get		Idx=4 (BUFFERSIZE), Result=0
Check target id = Failed
	13:02:36.834  Tx (5)		42 DA A8 E9 1C
	13:02:36.834  Error  Value=1, Param=0
System DWord
	13:02:36.849  Get		Idx=5 (TARGETCHANNEL), Result=4294967295

##SECTION:SUMMARY##

Terminated=2006-05-11 13:02:36.849
Quality=25%
	Total=4
	Failed=3
	µs per read=Unknown
```

5. DefaultwaitTime too small (DefaultwaitTime=2 => 2ms)

```
##INSPECTOR-LOG-FILE##

##SECTION:HEADER##

Instance=PLCWinNT - TCP/IP
Driver=Tcp/Ip
      Address=localhost;IP address or hostname
      Port=1200
      Motorola byteorder=No
Project=test.pro
Channel=1
      Created=2006-05-11 13:03:40.854
      Client=127.0.0.1

##SECTION:TRACE##

##NEW DATE: 2006-05-11##

System DWord
      13:03:40.870  Get               Idx=4 (BUFFERSIZE), Result=0
Extended debug service, Read breakpoint list = Failed
      13:03:41.821  Tx (2)            51 12
      13:03:41.821  Error  Value=1, Param=0
System DWord
      13:03:41.837  Get               Idx=5 (TARGETCHANNEL), Result=4294967295

##SECTION:SUMMARY##

Terminated=2006-05-11 13:03:41.837
Quality=76%
      Total=13
      Failed=3
      µs per read=Unknown
```

OPC Server as client

(exemplary for clients with symbolic access)

6. Successful communication

```
##INSPECTOR-LOG-FILE##

##SECTION:HEADER##

Instance=PLCWinNT - TCP/IP
Driver=Tcp/Ip
      Address=localhost;IP address or hostname
      Port=1200
      Motorola byteorder=No
Project=test.pro
Channel=1
      Created=2006-05-11 13:49:06.357
      Client=Local #0

##SECTION:TRACE##

##NEW DATE: 2006-05-11##

System DWord
      13:49:06.357  Get               Idx=4 (BUFFERSIZE), Result=0
System DWord
      13:49:06.357  Get               Idx=2 (TIMEOUT), Result=1000

##NEW PROJECT 'test': 13:49:06.357##
##NEW SYMBOLS 'C:\WINDOWS\Gateway Files\test.sdb' (Version = 1, Identity = 254562, Symbols = 1): 13:49:06.357##

System DWord
      13:49:06.373  Get               Idx=2 (TIMEOUT), Result=10000
System DWord
      13:49:19.329  Get               Idx=5 (TARGETCHANNEL), Result=4294967295

##SECTION:SUMMARY##
```

```
Terminated=2006-05-11 13:49:19.329
Quality=100%
    Total=114
    Failed=0
    µs per read=Unknown
```

7. No symbol file available

```
##INSPECTOR-LOG-FILE##

##SECTION:HEADER##

Instance=PLCWinNT - TCP/IP
Driver=Tcp/Ip
    Address=localhost;IP address or hostname
    Port=1200
    Motorola byteorder=No
Project=test
Channel=1
    Created=2006-05-11 13:52:04.433
    Client=Local #0

##SECTION:TRACE##

##NEW DATE: 2006-05-11##

System DWord
    13:52:04.449  Get          Idx=4 (BUFFERSIZE), Result=0
System DWord
    13:52:04.449  Get          Idx=2 (TIMEOUT), Result=1000

##NEW SYMBOLS '' (Version = 0, Identity = 0, Symbols = 0): 13:52:04.449##

System DWord
    13:52:04.511  Get          Idx=5 (TARGETCHANNEL), Result=4294967295

##SECTION:SUMMARY##

Terminated=2006-05-11 13:52:04.511
Quality=100%
    Total=6
    Failed=0
    µs per read=Unknown
```

8. Symbol file doesn’t fit to project

```
##INSPECTOR-LOG-FILE##

##SECTION:HEADER##

Instance=PLCWinNT - TCP/IP
Driver=Tcp/Ip
    Address=localhost;IP address or hostname
    Port=1200
    Motorola byteorder=No
Project=test
Channel=1
    Created=2006-05-11 14:02:32.982
    Client=Local #0

##SECTION:TRACE##

##NEW DATE: 2006-05-11##

System DWord
    14:02:32.998  Get          Idx=4 (BUFFERSIZE), Result=0
System DWord
    14:02:32.998  Get          Idx=2 (TIMEOUT), Result=1000

##NEW SYMBOLS '' (Version = 0, Identity = 0, Symbols = 0): 14:02:32.998##
```

System DWord
    14:02:32.998 Get Idx=2 (TIMEOUT), Result=10000
System DWord
    14:02:37.071 Get Idx=5 (TARGETCHANNEL), Result=4294967295

##SECTION:SUMMARY##

Terminated=2006-05-11 14:02:37.071
Quality=100%
    Total=24
    Failed=0
    µs per read=Unknown