

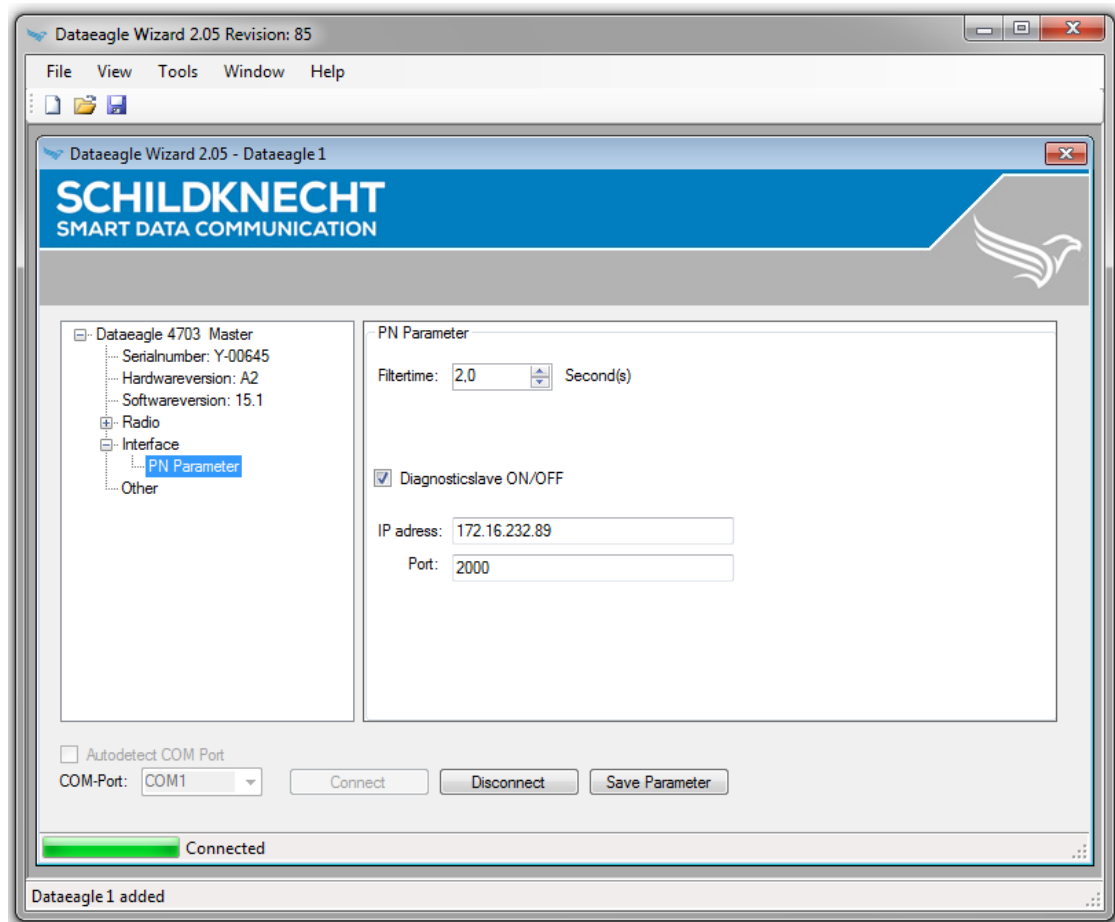
Dataeagle's diagnostic function is supported with devices containing BS-version higher than 15.1 and Interface version higher than DE4x11.

Diagnostic information can be accessed via a UDP connection.

This short manual shows how diagnostic information can be accessed by a Simatic S7 PLC and how diagnostic function is activated in the Dataeagle.

Step 1: *Preparing Dateagle master for accessing diagnostic data via UDP*

- Install Configuration software "Dataeagle wizard Vers. 2.05"
- Install USB- driver "CDM v2.12.00 WHQL Certified"
- Connect Dataeagle master to your PC via USB (slave is not fully supported up to now)
- Start Dataeagle wizard
- Press "Connect" with "Autodetect COM Port" switched on
- Once Dataeagle is detected and configuration is uploaded select "Interface", "PN parameter"
- Switch on "Diagnostic Slave", enter IP-address and a Port- number for the UDP communication.



- Press "Save Parameter" and "Disconnect"

Step 2: Preparing your Simatic S7 for UDP communication with Dataeagle “Diagnostic slave”

- Extract example STEP7 project PN_DIAG_DE4xxx
- The project shows what to do to establish a UDP communication between a S7 plc and Dataeagle .
- In hardware config you should select the plc type which you are using.
- Open OB1 and set the appropriate IP-address and Port number (IP and Port of Dataeagle) in DB30.DBB0 ff.
- Download all OBs,FBs,DBs into your plc.
- Open VAT “UDP Comm Status” and observe M2.0 and M2.1 toggling. If so there is a data exchange between plc and Dataeagle via UDP.
- Open VAT “Diagnostic Info”
- Type a value in DB3.DBB0 to select a certain “diagnostic info page”.
- You’ll get a feedback of the selected page in DB4.DBB1 whether or not the page contains information. This is just to prevent you from misinterpreting incoming information when switching over between pages.
So, if you select a new page via DB3.DBB0, wait until DB4.DBB1 matches DB3.DBB0 before you interpret the incoming information.

Step 3: Selecting Diagnostic information

- In the example project data is exchanged via DB3 (Send) and DB4 (Receive)
- DB3 sends commands (select diagnostic page, reset counters, parameters..) to the Diagnostic slave.
- DB4 holds the answers which are sent back from the Diagnostic slave.



DB3.DBB0	Select diagnostic page number 0: general diagnostic data 1: IP-addresses of connected PN devices 2: state of the internal state machines 3: PN requests 4: PN answers 5: Inits 7: DX-time 8: radio control 9: radio retries 10: name of selected PN device 11: diagnostic info of selected PN device .. 255: Reset all counters	value: 0-255
DB3.DBB1	Control 0: normal operation 1: reset counters of selected page	value: 0,1
DB3.DBB2- DB3.DBB34	Parameter depending on selected page (e.g. IP-address)	

Step 4: *Interpreting incoming diagnostic data*



DB4.DBB0	dummy	DB3.DBBO = 0
DB4.DBB1	feedback page number ("0")	DB3.DBB1 = 0/1
DB4.DBB2	Protocol "0": Profinet	"1" : Reset counters
DB4.DBB3	Filtertime [100ms]	
DB4.DBB4	Powerup counter (projected)	
DB4.DBB5	Ethernet errors	
DB4.DBW6	sum of radio timeouts (all radio slaves)	
DB4.DBW8	sum of PN inits (all devices)	
DB4.DBW10	sum of PN answers (all devices connected via radio)	
DB4.DBB12	internal ringbuffer level (percent)	
DB4.DBB13-	Dataeagle Type ("4702")	[ascii]
DB4.DBB16		
DB4.DBB17-	Dataeagle SW version ("15.1")	[ascii]
DB4.DBB20		
DB4.DBB21-	PN Interface version ("4x11")	[ascii]
DB4.DBB24		
DB4.DBB25	radio channel (depending on radio technology)	
DB4.DBB26	max. number of radio retries	
DB4.DBB27	radio power	
DB4.DBB28	radio station address	
DB4.DBB29	radio partner address	
DB4.DBB30	"0": radio master/ "1:" radio slave	
DB4.DBB31	relais timeout [50ms]	
DB4.DBB32	internal parameter "P1"	
DB4.DBB33	internal parameter "P2"	



DB4.DBBO	dummy	DB3.DBBO = 1
DB4.DBB1	feedback page number ("1")	
DB4.DBD2	IP-address PN device 1	
DB4.DBD6	IP-address PN device 2	
DB4.DBD10	IP-address PN device 3	
DB4.DBD14	IP-address PN device 4	
DB4.DBD18	IP-address PN device 5	
DB4.DBD22	IP-address PN device 6	



DB4.DBB0
DB4.DBB1

DB4.DBB2
DB4.DBB3
DB4.DBB4
DB4.DBB5
DB4.DBB6
DB4.DBB7

dummy
feedback page number ("2")

state of internal state machine device 1
state of internal state machine device 2
state of internal state machine device 3
state of internal state machine device 4
state of internal state machine device 5
state of internal state machine device 6

DB3.DBB0 = 2

"11" DataExchange



DB4.DBB0
DB4.DBB1

DB4.DBB2
DB4.DBB3
DB4.DBB4
DB4.DBB5
DB4.DBB6
DB4.DBB7

dummy
feedback page number ("3")

PN request counter device 1
PN request counter device 2
PN request counter device 3
PN request counter device 4
PN request counter device 5
PN request counter device 6

DB3.DBB0 = 3



DB4.DBB0
DB4.DBB1

DB4.DBB2
DB4.DBB3
DB4.DBB4
DB4.DBB5
DB4.DBB6
DB4.DBB7

dummy
feedback page number ("4")

PN response counter device 1
PN response counter device 2
PN response counter device 3
PN response counter device 4
PN response counter device 5
PN response counter device 6

DB3.DBB0 = 4



DB4.DBB0
DB4.DBB1

DB4.DBB2
DB4.DBB3
DB4.DBB4
DB4.DBB5
DB4.DBB6
DB4.DBB7

dummy
feedback page number ("5")

PN Inits device 1
PN Inits device 2
PN Inits device 3
PN Inits device 4
PN Inits device 5
PN Inits device 6

DB3.DBB0 = 5

("Bus_Error")

Short Instruction „Using DATAEAGLE 4XXX Diagnostic function“



DB4.DBB0	dummy	DB3.DBB0 = 7
DB4.DBB1	feedback page number ("7")	
DB4.DBB2	Radio DataExchange time device 1	[10ms]
DB4.DBB3	Radio DataExchange time device 2	
DB4.DBB4	Radio DataExchange time device 3	
DB4.DBB5	Radio DataExchange time device 4	
DB4.DBB6	Radio DataExchange time device 5	
DB4.DBB7	Radio DataExchange time device 6	



DB4.DBB0	dummy	DB3.DBB0 = 8
DB4.DBB1	feedback page number ("8")	Control of radios
DB4.DBD2	IP address of diagnostic slave	DB3.DBD2 = IP address of diagnostic slave as a "password"
DB4.DBB6	Radio partner address 1	DB3.DBB6 ff. =
DB4.DBB7	Radio partner address 2	0 : (on)
DB4.DBB8	Radio partner address 3	1 : (dyn)
..	..	255 : (off)
..	..	for Radio addr. 1 ff.
DB4.DBB14	State Radio partner address 1	DB4.DBB14 ff. =
DB4.DBB15	State Radio partner address 2	0: (on)
..	..	1: (dyn)
		255 : (off)



DB4.DBB0	dummy	DB3.DBB0 = 9
DB4.DBB1	feedback page number ("9")	DB3.DBB1 = 0/1
DB4.DBD2	IP address of diagnostic slave	"1" : Reset counters
DB4.DBB6	retries for radio partner 1	
DB4.DBB7	retries for radio partner 2	
DB4.DBB8	retries for radio partner 3	
..	..	
..	..	

Short Instruction „Using DATAEAGLE 4XXX Diagnostic function“

Schildknecht AG - D - 71711 Murr - Haugweg 26 - Tel ++49 (0)7144 89718-0 - Fax ++49 (0) 7144 8971829 - Email: office@schildknecht.ag - Internet: www.schildknecht.ag



DB4.DBB0
DB4.DBB1

dummy
feedback page number ("10")

DB3.DBB0 = 10
Select device by its
IP-address in
DB3.DBD2
[ascii]

DB4.DBD2
DB4.DBB6-
DB4.DBB33

IP address of selected device
PN device name of selected device



DB4.DBB0
DB4.DBB1

dummy
feedback page number ("11")

DB3.DBB0 = 11
DB3.DBB1 = 0/1
"1" : Reset counters

DB4.DBD2

IP address of selected device

Select device by its
IP-address in
DB3.DBD2

DB4.DBB6
DB4.DBB7
DB4.DBB8
DB4.DBB9
DB4.DBB10
DB4.DBB11
DB4.DBB12
DB4.DBW13
DB4.DBW15

Radio partner address of selected device
protocol "0" : Profinet
state of internal state machine sel. device
Radio retries for selected device
Inits of selected device
PN request counter for selected device
PN response counter for selected device
Radio DataExchange time device 1
PN reduction ratio

"11" DataExchange
("Bus_Error")
[ms]



DB4.DBB0
DB4.DBB1

dummy
feedback page number ("255")

DB3.DBB0 = 255

Reset all counters