

How To Start Talking to an Outstation over a Network

Introduction

For new users not familiar with DNP3 or DNP3 test tools, this document describes how to make a basic connection to a TCP/IP capable outstation and to see active communication and point data. There are three things you must know before you start:

- 1. **The IP address of the outstation**. This must be on the same subnet as the processor running the CDOAN-DNP3 application
- 2. **The DNP3 address of the outstation**. This is a 2-octet value in the range of 0 to 65519. You should be able to find this address in the outstation documentation. It may be configurable. In messages sent from the master (CDOAN-DNP3) to the outstation, this is called the destination address. If you cannot find the address, try '1'. While this may not be correct, it is the most common value.
- 3. The DNP3 address that the outstation associated with the master. Again, this is a 2-octet address that should be in the outstation documentation and may be configurable. Some outstations require a specific address. Other outstations do not care. In messages sent from the master (CDOAN-DNP3) to the outstation, this is called the source address If you cannot find the address, try '0'. While this may not be correct, it is the most common value.

Setup

Once you have this information, start CDOAN-DNP3. In the initial view, enter the IP address of the outstation as described in point 1.

🖳 Config				
Communication Media Serial TCP (UDP broadcast) TCP Only Dual Endpoint UDP Only TCP and UDP	Master Outstation	IP Address	Network Port 20000	Font Point Size



Then select "Configure Sample Master"

Config				
Communication Media Serial TCP (UDP broadcast) TCP Only Dual Endpoint UDP Only Or CP and UDP	Master Outstation	IP Address 192.168.0.100	Network Port	Font Point Size
Most Recently Loaded Configuration File Most Recently Loaded Comm Messages File	C:\Temp\cyg	just listen.cdn		Configure Sample Master Configure Sample Outstation
		r		

This generates the following menu:

Configure Master Station Commands							
Outstation Address	1						
Poll Using: Class Data Object Groups 	Add Frozen Accumulators Add Binary and Analog Commands						
OK Cancel							

Enter the outstation address described in point 2 in the Introduction section. Then select **OK**.



Next, request the DNP3 Parameters view.

🔡 CD	OAN			
File	Edit	Views	Communication Config DNP3 Parameters Master Config Dutstation Config Communication	Window
		-	Change Events Point Data Trend	

Enter the master address as described in point 3 in the Introduction section.



DA		D -			have
 $D\Gamma$	VP5	r d	IDI	ne	lers

General	Outstation Settings							
Time Base		Static	Ir	nput Object	S	Events		
Unsolicited		Always Flags	Send In Class 0	Format	With Time	Enabled	With Time	Class
Keep Alive Timer (0 to disable)	Binary						\checkmark	1
Master Settings	Counter			16-bit				3
Request Variation/General	Frozen) 32-bit				3
Any O Flags O No Flags Time O Relative Time	Analog			 16-bit 32-bit Float 				2
Request Variation/Numeric Objects	Output Objects							
Any () 16-bit () 32-bit () Hoat	Allow SBO Allow Direct Select/Operate Timeout							
Source/Destination Addresses	Binary	\checkmark		\checkmark	5			
Of Master 0	Analog							
		S	end Reset Lin	ık At Startup		Analog	Deadbar	nd 1
Delay between Select and Operate 0 Broadcast Address Image: Comparison of the second	elect and Operate Subset Level Compliance SFFE O FFFD No Restrictions O Level 1 O Level 2 O Level 3 O Single Frame							

Ready to Go

You are now ready to start communicating. Select Communication and Master.



If all goes OK, you should see communication like that below:



00 00 00 00 00 00 00 00 00 00 00 00{FF F	0 00 00 00 00 00 00{FF FF}1E 04 F}	00 00 07 00 00 00 00	00 00 00 00 00 00 00 00{3F A0}		· · · · · · · · · · · · · · · · · · ·
Function	Length Control	Source	Destination		
Unconfirmed User Da	ta 58 DIR:0 PRM:1 FC	V:0 1	0		
FIN:1 FIR:1 SEQ:0					
APPLICATION Layer					
Function	Control Interna	l Indications			
Response	FIR:1 FIN:1 CON:0 None se	t			
Object	Variation	Qualifier			
1:Binary input	1:Packed	0x00:Start	0, Stop 7		
Index Value	Flags	Index Value	Flags	Index Value	Flags
7-0 0000 0000	No flag (Online implied)		2		
Object	Variation	Qualifier			
20:Counter (running	6:16 bit, no flag	0x00:Start	0, Stop 7		
Index Value	Flags	Index Value	Flags	Index Value	Flags
0 0	No flag (Online implied)	1 0	No flag (Online implied)	2 0	No flag (Online implied)
3 0	No flag (Online implied)	4 0	No flag (Online implied)	5 0	No flag (Online implied)
6 0	No flag (Online implied)	7 0	No flag (Online implied)		
Object	Variation	Qualifier			
30:Analog input	4:16 bit, No flag	0x00:Start	0, Stop 7		
Index Value	Flags	Index Value	Flags	Index Value	Flags
0 0	No flag: (Online implied) 1 0	No flag: (Online implied)	2 0	No flag: (Online implied)
3 0	No flag: (Online implied) 4 0	No flag: (Online implied)	5 0	No flag: (Online implied)
6 0	No flag: (Online implied) 7 0	No flag: (Online implied)		
MASTER [03-Sep-202]	22:43:05.0551 [TCP]: Read:	Class data			
DATA LINK Frame Byt	es (24)				
05 64 11 C4 01 00 0	0 00{26 41}C0 C1 01 3C 02 06	3C 03 06 3C 04 06{10 3	26}		
Function	Length Control	Source	Destination		
Unconfirmed User Da	ta 17 DIR:1 PRM:1 FC	V:0 0	1		
FIN:1 FIR:1 SEQ:0					
APPLICATION Layer					× * * * * * * * * * * * * * * * * * * *



How To Start Talking to an Outstation over a Network

You can also see individual point values on the Point Data view.



📑 Poin	t Data					
Adrs	Туре	Index	Name	Value	Time	Flags ^
1	Binary Input	0		0		No flag (Online implied)
1	Binary Input	1		1	03-Sep-2021 22:47:30.156	Online
1	Binary Input	2		0		No flag (Online implied)
1	Binary Input	3		0		No flag (Online implied)
1	Binary Input	4		0		No flag (Online implied)
1	Binary Input	5		0		No flag (Online implied)
1	Binary Input	6		0		No flag (Online implied)
1	Binary Input	7		0		No flag (Online implied)
1	Counter (Running)	0		0		No flag (Online implied)
1	Counter (Running)	1		0		No flag (Online implied)
1	Counter (Running)	2		0		No flag (Online implied)
1	Counter (Running)	3		0		No flag (Online implied)
1	Counter (Running)	4		0		No flag (Online implied)
1	Counter (Running)	5		0		No flag (Online implied)
1	Counter (Running)	6		0		No flag (Online implied)
1	Counter (Running)	7		0		No flag (Online implied)
1	Analog	0		0		No flag: (Online implied)
1	Analog	1		0		No flag: (Online implied)
1	Analog	2		0		No flag: (Online implied)
1	Analog	3		0		No flag: (Online implied)
1	Analog	4		0		No flaa: (Online implied) *