

DNP3 Conformance Testing

Who is SUBNET Solutions?

SUBNET Solutions Inc. created by the merger of Demand Side Solutions and Protocol Technologies is an engineering company focused on providing DNP 3.0 consulting services and products. We have provided consulting services to over 70 utilities throughout the world and 20+ DNP 3.0 Product Manufacturers.

Our services include:

- DNP 3.0 Training Courses
- DNP 3.0 System Integration Services
- DNP 3.0 Protocol Implementation Services
- ASE2000 a Windows based DNP 3.0 Test Set
- DNP 3.0 driver for Factory Link
- DNP 3.0 Human Machine Interface software called Substation Explorer
- **And now DNP 3.0 Subset Level Testing**

What is DNP3 Subset Level Testing?

Some history about DNP 3.0 is helpful in understanding the purpose and objective of DNP 3.0 Subset Level testing. Some key DNP 3.0 milestones include:

- DNP 3.0 Basic 4 published and placed into public domain in October 1993
- DNP User's Group formed October 25, 1993
- January, 1995 DNP Technical Committee formed
- November, 1995, publication of DNP Subset definitions
- January, 1998 DNP Conformance Test Documents Review
- November, 2001 DNP Conformance Test Documents Reviewed

DNP 3.0 was originally defined in what is known as the DNP 3.0 Basic 4 Documentation Set. These documents, published in 1993, defined the entire DNP 3.0 protocol. As DNP 3.0 is a large and flexible protocol it was not realistic to expect the entire protocol be implemented in all DNP 3.0 devices, especially small IED's, like simple digital meters. To ensure interoperability it became important that if only portions of the protocol were going to be implemented that some guidance be provided to ensure all DNP 3.0 products implement the same portions of the protocol (DNP Subset Definitions). As a result the DNP 3.0 Technical Committee was formed (January, 1995) and the DNP 3.0 Subset Definitions document was created and published (November, 1995). The DNP 3.0 Subset Definitions defined 3 Subset Levels and listed several requirements and recommendations designed to promote interoperability of DNP 3.0 devices.

The next logical step after the publication of the DNP 3.0 Subset Definitions document was to develop a standardized test procedure that could be used to confirm whether a device's DNP implementation meets these Subset Level requirements. In January 1998 the DNP 3.0 Conformance Test procedure documents for DNP 3.0 Subset Level I and DNP 3.0 Subset Level II Slave devices (Outstations) was submitted to the DNP Technical Committee for review and approval.

These test procedures are available for download to members of the DNP 3.0 Users Group. Vendors may test devices internally and/or utilize the expertise of an independent third party such as SUBNET Solutions Inc. to perform these tests. A list of all devices passing the DNP 3.0 Subset Level Tests will also be published on the DNP 3.0 web page (www.dnp.org). Companies purchasing DNP 3.0 products will also be able to download a generic Addendum document that could be included in their RFQs. Which would detail the requirements that the DNP 3.0 device passed during Subset Level testing. If customers see value in having products Subset Level Tested they will likely include this addendum in future RFQs. Therefore the growing need for DNP Subset Level testing is completely market driven.

Why is SUBNET Solutions Inc. offering DNP3 Subset Level Testing Service?

At SUBNET Solutions Inc. we see providing DNP 3.0 Subset Level Testing Services as a high value service that will provide numerous benefits to our customers and us. As a DNP 3.0 Solutions Provider it is in SUBNET Solutions Inc.'s best interest to be knowledgeable with all DNP 3.0 devices in the market place. The better we understand the available DNP products, the better we can properly select and implement these products in the System Integration projects we complete for our utility customers.

As the premier DNP 3.0 Systems Integrator, SUBNET Solutions Inc. is able to provide insightful field experience to utilities and product manufacturers regarding what features constitute an elegant and effective DNP 3.0 implementation. Not all DNP 3.0 implementations are created equal. Helping utilities select the products that will best meet their needs and helping vendors improve their DNP implementations to meet market demands is a key focus of our business.



How can vendors have their DNP3 devices in SUBNET Solutions Inc. DNP3 Training Seminars?

One DNP 3.0 Service SUBNET Solutions Inc. provides is a thorough 2 day DNP 3.0 Training Course. As part of SUBNET Solutions Inc.'s DNP 3.0 Training we now utilize a DNP Demo Rack complete with various DNP products communicating with each other. The DNP Demo Rack is an invaluable training tool for presenting the capabilities of the protocol and the respective products. Various DNP product manufacturers have given and/or loaned demo units of their products to SUBNET Solutions Inc. for use in the SUBNET Solutions Inc. Training Courses. If your company would like its products to be included in this DNP Demo Rack we ask that you indicate so in your DNP 3.0 Certification Testing order. SUBNET Solutions Inc. will simply retain the DNP device after testing so that it may be included in the SUBNET Solutions Inc. Demo Rack. SUBNET Solutions Inc. will also periodically send the vendor a report indicating the training seminars your equipment was used in for any possible sales opportunity. If we retain the device it entitles the customer to conformance discount.

Thank you for your interest using our DNP 3.0 Subset Level Testing services. Please review the attached DNP Subset Level Testing quotation and contact me if you have any questions.

Required Items

To perform testing the following items are required from the vendor

- One Device to be tested to by SUBNET Solutions Inc.
- Configuration software for unit (if required)
- Complete set of product documentation
- DNP documentation complete with DNP Device Profile
- Wiring Diagrams for
- Power
- Communications using RS232, RS485, or Bell 202
- Input connections
- A Vendor representative available by phone to answer product questions during the testing of the device

Recommended Vendor Items

Ideally the unit should be delivered with a basic working DNP 3.0 configuration and a description of how the unit is configured when delivered. We recommend the configuration include all types of DNP data objects available within the unit (i.e. some Binary Inputs, Binary Outputs, Binary Counters, Analog Input, Analog Output, etc.). Also some points should be configured to generate Class Data supported in the device.

The flat rate quoted to provide unit testing assumes a setup time of 4 hours or less (time to get the unit powered up and communication to our test equipment). Additional charges may apply if setup is longer due to lack of required information or equipment problems. Please see pricing section for additional details.***

SUBNET Solutions Inc. Deliverables

SUBNET Solutions Inc. will provide the following items following completion of the testing.

- The completed set of test results for the device
- A list of compliance failures (if any) with details of the issues
- Devices that pass the conformance testing will receive a SUBNET Solutions Inc. Independent Third Party
- Certificate signifying that Product Model YY complete with DNP Firmware Version XX has been tested and passed



Conformance Testing Pricing & Order Form



Pricing & Estimated Time to Test

Testing Type	Estimated Testing Time	Total Price (USD)
DNP Subset Level I Testing*	3-4 Days	\$4000.00
DNP Subset Level I Testing w/Unsolicited Testing*	5-6 Days	\$5250.00
DNP Subset Level II Testing*	4-5 Days	\$5000.00
DNP Subset Level II Testing w/Unsolicited Testing*	6-7 Days	\$6250.00
Subnet Solutions Inc. Retain DNP 3.0 Device Discount**	n/a	(-\$1250.00)
Additional Setup Time (if required)	n/a	\$95.00/Hr

* The Subset Level Testing prices cover the cost to fully test the device once.

** If device is not to be used in SUBNET Solutions Inc. Demo Rack or retained for future testing.

Retesting

SUBNET Solutions Inc. will test all devices from the start of the test procedure to the end, if the device fails to pass all tests, SUBNET Solutions Inc. will fax vendor the specifics of any/all failures. Once the vendor has an update available correcting these items, SUBNET Solutions Inc. will re-test the device, focusing on errors first and then completing the entire test procedure from start to finish, this start to end test needs to be completed to guarantee a DNP compliant device. Retesting is billed on a per hour rate of \$80 USD per hour.

Order Form

Company:		
Technical Contact:	Phone #:	Email:
Preferred Testing Date:		
Device(s):		
Billing Address:		
Notes:		

Date Changes & Cancellation Policy

Change	Test Cancellation	Test Date Change
10 or more working-days Notice	25%	No Charge
5-9 working-days Notice	50%	\$1000.00
Less than 5 working-days Notice	75%	\$2000.00

Payment

Method of Payment	
<input type="checkbox"/> P.O. or Cheque -- Payable to SUBNET Solutions Inc. - Purchase Order Number: _____	
<input type="checkbox"/> Mastercard <input type="checkbox"/> Visa	
Card Number: _____	Expiry: _____
Cardholders Name: _____	Signature: _____

All invoices are net 30 days.

I have read and agree to SUBNET Solution Inc.'s terms and conditions.

Signed: _____

Office Use Only	
Project Number:	
Tester:	

