

DNP3 (IEEE 1815) Training at Distributech 2025

Updated: 2025-03-11

The DNP-UG wants to know... **Are your (DNP-UG) ducks in a row?** Continuing with our fun theme of DNP Ducks, this is a relevant question.

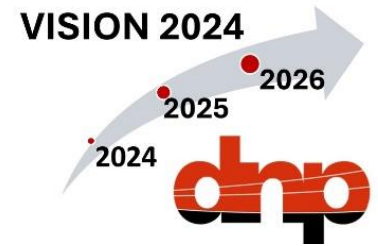
One way to keep 'em in a row is to attend the training courses taught by Andrew West, Chair, DNP-UG Technical Committee.

Course Details:

- UU203 – IEEE 1815 (DNP3) Part 1 - Fundamentals – March 24, 8:00AM
- UU303 - IEEE 1815 (DNP3) Part 2 – Advanced Topics – March 24, 1:00PM
- To register, go to the Distributech website
- Note that these courses are provided free of charge to attendees with All Access or Utility All Access badges.
- Detailed course summaries are included at the end of this document

Additional Events During the Distributech Conference:

- **Networking Reception:**
 - Complete details: [Networking Reception Invitation - March 24, 2025](#)
 - March 24, 2025, 5:30 to 8:00PM
 - Omni Dallas Hotel, Deep Ellum A
 - Level 2, same as the Skybridge. See directions in the document linked above.
 - A delicious light dinner, wine and beer will be served.
 - Our door prize is a Bose Noise-Cancelling Headset. We will draw at 7:30PM.
 - RSVP to Sara by March 19, 2025:
 - dnpusers.membership@gmail.com
 - [Questions? Call Sara at \(250\) 946-7170](#)



- **Booth:**
 - **We will be at booth 4316.**
 - Come and see us for more opportunities to meet and talk with our Membership Coordinator (Sara), leaders and technical experts.
 - Another fun reason to visit is to compete for a souvenir duck!
- **Herb Falk and Greg Godlevski will be speaking as follows:**
 - The Current State of Cybersecurity in IEC 61850 and DNP3
 - Resiliency Knowledge Hub- Booth #1001, Exhibit Floor
 - March 26, 2025, at 2:45PM
 - Protection from cybersecurity threats is now a top priority for utilities and vendors in the Power OT sector, spanning substations, generation, distribution, and DER.

Vision 2024 Information:

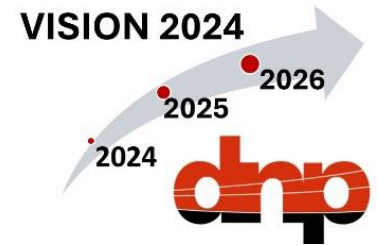
- Background and details - [VISION 2024 Summary](#)

Workshop on OT Cybersecurity:

- Recording, notes and chat record - [Workshop on OT CS – Summary, Chat and Recording - Final](#)

Distributech 2025 Discounts for DNP-UG Members:

- DNP-UG current members can obtain a free exhibit hall pass or a 20% discount off an All-Access pass!
- There are two ways to receive your discounts:
 - Enter the Promo Code 10077 on the Attendee Registration website.
 - Register using this link: [DISTRIBUTECH® 2025](#)



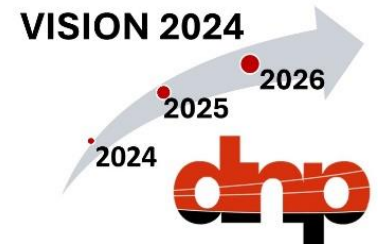
UU203 – IEEE 1815 (DNP3) Part 1 - Fundamentals – March 24, 8:00AM

Instructor: Andrew West, Chair, DNP-UG Technical Committee

The course covers modern utility SCADA concepts and how DNP3 implements them. The design paradigms and architecture of DNP3 are described. Guidelines for configuring DNP3 systems in line with the design concepts are discussed, assisting participants to achieve interoperability when using DNP3 in systems. The course intends to equip attendees with an understanding of the fundamental principles of effective application of DNP3, rather than simply describing a series of rules to follow.

The course covers the following topics:

- DNP3 philosophy & terminology
 - How DNP3 names and identifies components, including elements that newcomers may find confusing
- Fundamentals of DNP3 design and operation
 - DNP3 data models
 - DNP3 data identification
 - General structure and components of DNP3 objects
 - Principles of Polling, Report by Exception and Unsolicited Reporting
 - Data Classes
 - Event handling
 - Protocol Layers
 - Protocol Subsets (or Profiles)
- Guidelines to achieving interoperability
 - A foolproof interoperability guideline



- How to avoid the most common configuration errors

Participants are encouraged to bring questions about DNP3 and its usage and to discuss system behaviour that they have observed. These discussions can aid the understanding of how to choose appropriate configuration settings for systems.


UU303 - IEEE 1815 (DNP3) Part 2 – Advanced Topics – March 24, 1:00PM

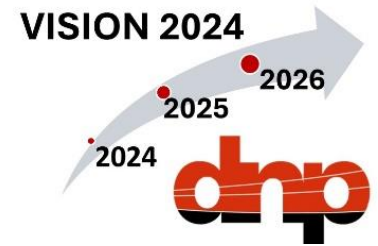
Instructor: Andrew West, Chair, DNP-UG Technical Committee

The course IEEE 1815 (DNP3) Advanced Topics is intended to expand on knowledge provided in the course Introduction to IEEE 1815 (DNP3) by drilling into additional detail of message structures, interoperability issues and cybersecurity for DNP3.

This course discusses using DNP3 to meet complex functional requirements that exceed those covered in the introductory session. The use of the DNP3 Device Profile as a means to gauge device capability and system interoperability will be discussed. Advanced DNP3 features such as unsolicited reporting, device attributes, data sets and cybersecurity (DNP3 Secure Authentication) will be described, together with guidelines for their use. Practitioners and users who are familiar with using DNP3 will gain benefit from this course without attending the introductory session, but, for others, the morning introductory course should be considered a prerequisite.

Topics covered are:

- DNP3 Message Structure
 - Fragment structure
 - Fragment and Object Headers
 - Qualifiers and Ranges and how they are used
- DNP3 Application Functions and their Use
 - Controls & Freezing
 - Dead bands and Analog Event Reporting
-  Lesser-Known Features



- Engineering DNP3 Systems
 - XML Device Profile and User Guide
- Cybersecurity: DNP3 Secure Authentication
 - How it works
 - What is needed to configure and manage it
 - New developments underway
- Integrating DNP3 and IEC 61850
 - Mapping rules defined in IEEE 1815.1
- DNP3 Conformance Testing and Certification
 - Test procedures for IEDs, Controlling Stations and DNP3-SAv5
 - Conformance Test Review and Certification
- DNP3 for DER applications (IEEE 1815.2)
- DNP3 New Developments
 - Specification revision
 - Secure Authentication Version 6
- System Debugging / Issues Observed

The course assumes attendees have either a good working knowledge of the application and features of DNP3, or else have some knowledge of DNP3 and participated in the morning's introductory course. Familiarity with SCADA systems is assumed.