

## IEC 61850 Boot Camp!

The Boot Camp is a unique two day training session for people interested in learning more about IEC 61850. It is open to all interested individuals. This is the first time that the set of world class instructors have been assembled for such a low price. The primary purpose of the Boot Camp is to prepare individuals to participate as witness for the 2017 IEC 61850 Interoperability tests that immediately follow the Boot Camp and to provide a unique IEC 61850 training experience in the United States. You are not required to be a witness to attend the Boot Camp just having a thirst for learning IEC 61850 is enough. The course will cover the necessary components of IEC 61850 to allow you to be an effective witness.

There is no doubt that to properly utilize and design IEC 61850, adequate education and hands-on experience are needed prior to the initial project. It's not easy for utilities and consultants to justify investment into an IEC 61850 testing and learning laboratory in order to gain experience. It is also true that, simply reading the standard does not constitute expertise. The Boot Camp offers an opportunity to receive quality education and the Interop provides the opportunity for hands on experience

The Boot Camp is being held at:

New Orleans Downtown Marriot at the Convention Center  
859 Convention Center Blvd  
New Orleans, LA 70130  
Phone: 504-613-2888

The registration fee for the boot camp is \$250.00 USD. The fee also includes lunch during the days of the Boot Camp.

For more information and to register please visit the website:

<http://iec61850.ucaiug.org/2017IOP-NOrleans>

The agenda for the Boot camp follows.

## Day 1 Agenda (October 13)

Time	Presenter(s)	Description
8:15 – 8:30 AM	Kay Clinard	<b>Introductions</b>
8:30-10:00 AM	Christoph Brunner	<b>IEC 61850 Standard Overview:</b> Presentation and discussion of the IEC 61850 standards including an introduction to Objects, GOOSE, and Sampled Values.
10:00 -10:15 AM	<b>Break</b>	
8:30-11:30 AM	Christoph Brunner	<b>IEC 61850 Standard Overview:</b> continues
11:30 AM-12:30 PM	<b>Lunch</b>	
12:30 – 1:30 PM	Tobias Whitney	<b>NERC CIP:</b> An overview of NERC CIP and its impact on IEC 61850 deployments
1:30 – 2:30 PM	Paul Myrda Frances Cleveland	<b>IEC 61850 Outside the Substation:</b> Presentations and discussions about the use of IEC 61850 in non-substation deployments. In particular utilization in the Control Center (e.g. SCADA) and Distributed Energy Resources (DERs) will be discussed.
2:30 – 3:00 PM	<b>Break</b>	
3:00 – 4:00 PM	Herbert Falk Chan Wong	<b>IEC 61850 Project Management:</b> An interactive experience pertaining to IEC 61850 Project Management and use of external resources as well as a discussion of a real deployment.
4:00 – 5:00 PM	Dave Dolezilek	<b>Ethernet Redundancy and Fault Detection:</b> Presentations and discussions regarding the use of HSR/PRP as well as how to diagnose problems with the Ethernet system.
		<b>RoundTable:</b> An open Question and Answer session with the participants and presenters.

## Day 2 Agenda (October 14)

Time	Presenter(s)	Description
8:00 – 8:45 AM	Amin Abdul	<b>Overview of IEEE1588 PTP profiles in Electric Power:</b> This session will provide an overview of the relevant IEEE 1588 Precision Time Protocols including: IEEE 1588; the default Peer-to-Peer profile; the specialization of this profile as in IEC 61850-9-3; and the extension of IEC 61850-9-3 as part of IEEE C37.238.
8:45 – 9:15 AM	Thomas Schossig	<b>Time Sync Resiliency:</b> Design of mission critical substations typically provides redundancy of the automation and control system but many times ignores the issues regarding time synchronization. This session will discuss the issues and approaches that can be utilized to provide a resilient time synchronization environment.
9:15 – 9:30 AM	<b>Break</b>	
9:30 – 11:30 AM	Thomas Schossig Jun Verzosa Dave Dolezilek	<b>Testing IEC 61850:</b> Testing of IEC 61850 automation systems is critical to the maintenance and adoption of IEC 61850. This four (4) hour session will provide information and guidance for bench testing, detection of lost or delayed packets, and how to achieve test isolation for active systems. The session will be a mixture of presentations, discussions, and live demonstrations.
11:30 AM-12:30 PM	<b>Lunch</b>	
12:30 – 2:30 PM		<b>Testing IEC 61850</b> (continues)
2:30 – 3:00 PM	<b>Break</b>	
3:00 – 4:00 PM	Dennis Gammel	<b>Implementing IEC 61850 and NERC CIP:</b> This session will present defense in depth strategies, relevant guiding documents, and methodologies to detect and isolate threats.
4:00 – 4:30 PM		<b>Round Table:</b> An open Question and Answer session with the participants and presenters.
4:30 – 5:00 PM	Bruce Muschlitz	<b>Overview of the IOP:</b> Relevant for those boot camp participants that are also IOP witnesses. This session provides an overview of the IOP and discussions pertaining to expectations.

## Presenter Information

### Presenter



**Mr. Amin Abdul:** Sr. Software Developer and Team Lead at Siemens Ruggedcom Canada



**Christoph Brunner** has graduated as electrical engineer at the Swiss Federal Institute of Technology in 1983. He is Utility Industry professional with over 30 years of industry experience with both knowledge across several areas within the Utility Industry and of technologies from the Automation Industry. He is a well-known expert on IEC 61850. He is president of it4power in Switzerland, a consulting company to the power industry. As such, he has been consultant in many projects for substation automation and projects involving IEC 61850. He has worked as a project manager at ABB Switzerland Ltd in the business area Power Technology Products in Zurich / Switzerland where he was responsible for the process close communication architecture of the substation automation system. He is convener of the working group (WG) 10 of the IEC TC57 and member of WG 17, 18 and 19 of IEC TC57.



**Ms. Frances Cleveland** is President of Xanthus Consulting International, consulting on Smart Grid projects. Her expertise has focused primarily on Smart Grid information interoperability standards, cyber security, resilience, and integration of systems, including distributed energy resources (DER), energy storage (ESS), electric vehicles, distribution automation, SCADA systems, and energy market operations.

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**Kay Clinard:** President UCA International Users Group



**David Dolezilek** is the international technical director at Schweitzer Engineering Laboratories, Inc. and has three decades of experience in electric power protection, automation, communication, and control. He leads a team that develops and implements innovative solutions to intricate power system challenges and also teaches numerous topics as adjunct faculty. David is a patented inventor, has authored dozens of technical papers, and continues to research first principles of mission critical technologies. Through his work, Dolezilek has created methods to specify, design, and measure service level specifications (SLS) for digital communications of signals including class, source, destination, bandwidth,

David Dolezilek continued.

speed, latency, jitter, and acceptable loss. As a result, he helped coin the term operational technology (OT) to explain the difference in performance and security requirements of Ethernet for mission critical applications versus IT applications. Dolezilek is a founding member of the DNP3 Technical Committee (IEEE 1815), a founding member of UCA2, and a founding member of both IEC 61850 Technical Committee 57 and IEC 62351 for security. He is a member of the IEEE, the IEEE Reliability Society, and several CIGRE working groups.



**Herbert Falk** leads the development of integrated solutions and standards that support real-time control and automation to meet electrical utility client requirements. Since joining SISCO in 1985, he has led numerous projects involving the application of information systems and IEC 61850. These solutions involved integration and automation of distributed energy resources, synchrophasors, Wide Area Protection and Control (WAMPAC), geomagnetic disturbance detection, and other electrical transmission and distribution applications. Herb is an active member of IEC TC 57.



**Dennis Gammel** is a graduate of the University of Idaho with a B.S. in Applied Mathematics and has been actively working in the computing and communications industries since 1996. His career experience includes network security design, ICS network architecture, embedded product development, ASIC simulation, and firmware design with RTOS application development. Dennis is presently a research and development director at Schweitzer Engineering Laboratories, Inc. (SEL), responsible for the security technology designed for and implemented in SEL product lines. He has been with SEL since March 2005 and carries with him 20 years of secure firmware and network engineering experience.



**Bruce Muschlitz** is a Research Engineer at NovaTech. His interests include advanced data communication protocols, time synchronization, and the creation /maintenance of protocol standards. He has more than 20 years experience in project leadership and utility communications protocols. Bruce is heavily involved with industry/national/international standards groups. Previously to joining Novatech in April 2014, he was a data communication consultant with EnerNex for 9 years. He is a senior member of IEEE, as well as, a member of the DNP3 Technical Committee, UCA International Users Group Technical and Testing Committees and Chair of the UCA IUG Testing Committee. Bruce is a member if CIGRÉ and also serves as a U.S. delegate of IEC TC 57 working groups 10 and 15 and 17.



**Paul Myrda** is a Technical Executive with the Electric Power Research Institute working in the Power Delivery and Utilization Sector. Currently he is program manager for the Information and Communications Technology for Transmission. In this role Paul facilitates activities across the EPRI organization related to transmission Smart Grid. Paul is an active member of Technical Committee 57 - Working Group 10 that supports the development of the IEC 61850 standard.



**Thomas Schossig** was born in Gotha (Germany) in 1970. He studied electrical engineering and power systems at the Technical University of Ilmenau, and received his master degree (Dipl.-Ing.) in 1998. After this he worked as SCADA engineer at VA TECH SAT GmbH in Waltershausen (Germany) and took the team protection. In 2006 he changed to OMICRON electronics GmbH in Klaus (Austria). As a product manager in power utility communication (PUC) he is a member of the standardization group and author of many papers covering IEC 61850 and protection testing.



**Quintin Verzosa, Jr. (Jun)** received his BS Electrical Engineering degree from Mapua Institute of Technology in Manila, Philippines. At National Power Corporation (Philippines) he was a protection engineer involved in application, testing and commissioning; manager of Power System Analysis and Protection; and manager of Protection and Control Engineering. In 1993 he joined GEC Alstom in Hawthorne, NY, USA as a senior protection engineer and later, manager of Protection Systems Engineering Design. Jun joined Doble Engineering in 1998 and was involved in development of protection analysis and testing algorithms. He managed the protection application group doing training and marketing of protection testing products. He is currently senior principal consultant at Doble Engineering and is active in IEEE-PES-PSRC working groups and Cigre B5 working groups.

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**Tobias Whitney:** Senior Manager of Critical Infrastructure Protection



**Chan Wong** is the Relay settings supervisor of Entergy Transmission Engineering based in New Orleans, Louisiana. He is very passionate about grid interoperability and cybersecurity and also enthuses in encouraging young professional participation in the power industry. Since 2014, he has been leading the Entergy Multi-vendors IEC 61850 evaluation/integration effort and developed an integration lab to explore about the state of the art of vendors' IED and IEC 61850 standards. In 2015, his team deployed one of the first multi vendors' process bus pilot systems in a local distribution substation. Currently, he is leading his team to plan and develop a Greenfield substation in New Orleans that will be utilizing IEC 61850 station and process bus to improve natural disaster resilience.

Chan currently serve on the Entergy Technology Council and Tulane University Board of Advisor for the Physic and Engineering Physics Department. Further, he is an active volunteer in multiple organizations such as North American Transmission Forum (NATF), IEEE Protective System Relay Committee (PSRC), IEEE 1588 Conformity Assessment Steering Committee, IEEE USA Energy Policy Committee, CIGRE, IEC Workgroup, and IEEE Young Professional .