

**Analyzing CCS Charging  
Session Interoperability  
Issues:  
Introducing QualityLogic's  
CCS Analyzer V1.0**

**February 2024**

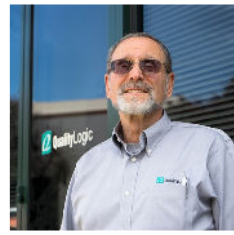


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# Today's Presenters

- **James Mater, Director of Strategy, Smart Energy, QualityLogic**

James is a co-founder of QualityLogic and one of the industry-leading experts on smart grid standards and the driving force behind QualityLogic's VXG strategies.



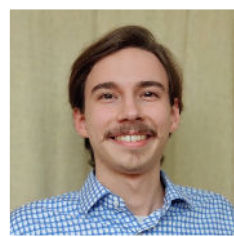
- **Jim Zuber, CTO, QualityLogic**

Jim is a co-founder of QualityLogic and has led the development efforts of the company's smart grid test tools, including CCS Analyzer.



- **Christian Burns, Software Engineer, QualityLogic**

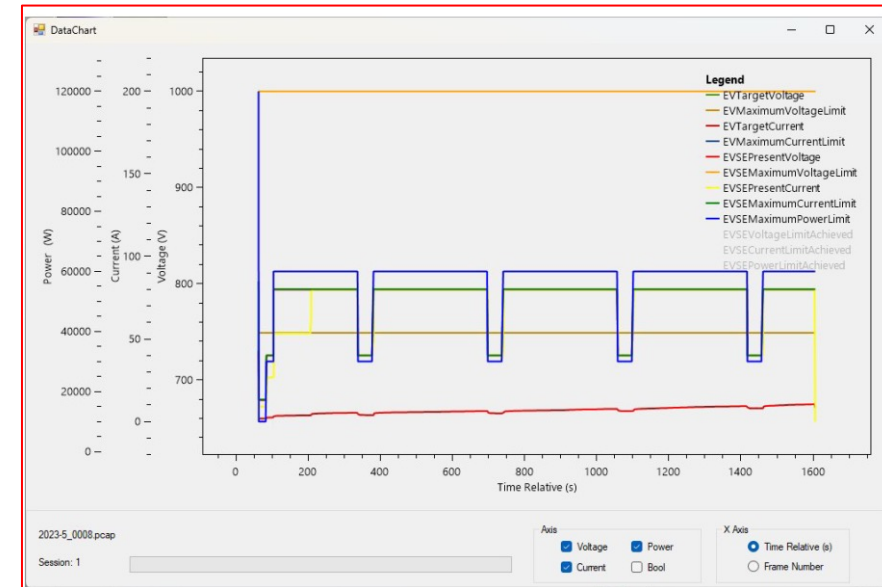
Christian is a talented Java, Kotlin, and Python developer who has been one of the key developers of the CCS Analyzer.



# QualityLogic and Interoperability

- Working on Interoperability testing since 1986
- Leading vendor of test tools for Vehicle to Grid standards
- Working on CCS Interoperability in order to have an interoperable system for V2G
- More information at [CCS Interoperability Tools & Services - QualityLogic](#)

## Introducing The QualityLogic CCS Analyzer V1.0



Anomaly Type: EVCC ID

Anomaly Description: The EVCC shall transmit an EVCCID with six byte in length in the SessionSetupReq message, and it shall fill it with its MAC address (12 hex digits)

Packets:

Frame Number: 1506  
Frame Time Relative: 10.636723999999994  
Selected AppProtocol: ISO 15118-2  
Message Type: SessionSetupReq  
Payload:

Header:  
SessionID: 00  
Body:  
SessionSetupReq:  
EVCCID: 00168108B22C (expected MAC address 000001000001)

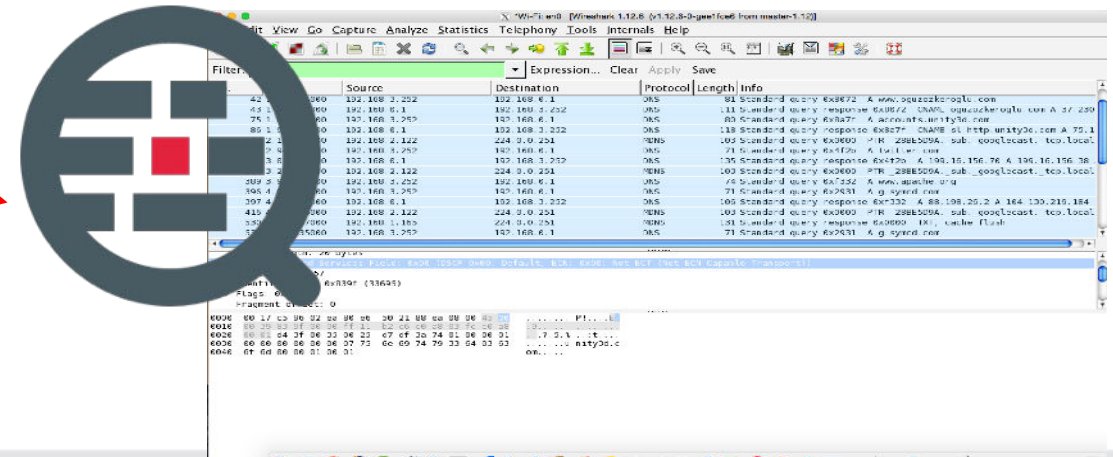
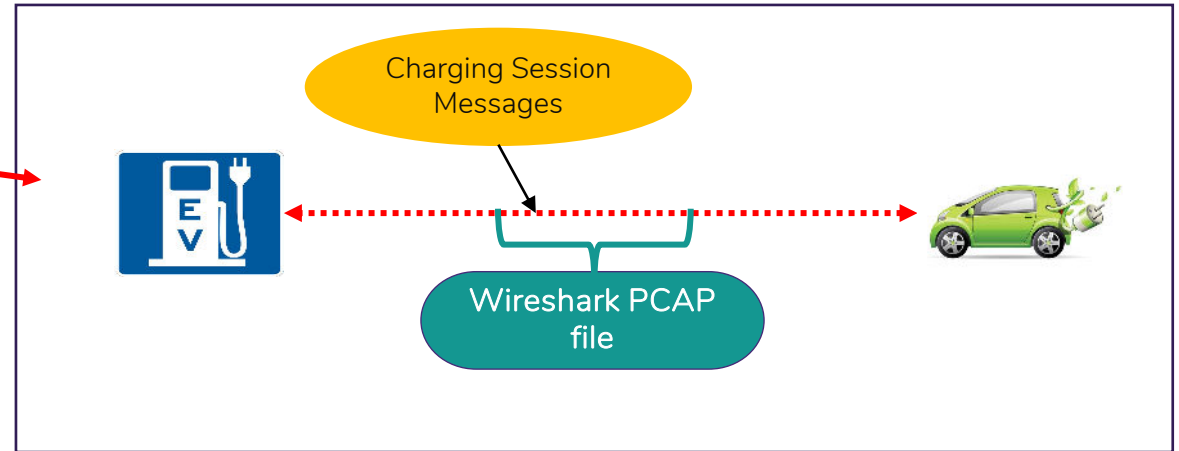
# QualityLogic's Experience with Interoperability



- **QualityLogic has been developing Conformance and Interoperability tests for over 30 years for a variety of technologies**
  - Desktop printing: conformance, advanced conformance and interop test tools
  - Fax: Interoperability test system
  - DLNA test system
  - Wi-SUN conformance and interoperability test bed
  - 3MF test suites
  - PDF Interoperability test suite
  - IEEE 2030.5 conformance and advanced conformance tests
  - OpenADR – Demand Response certification test tool
  - IEEE 1547 type and interoperability test tools

# Isolating Interoperability Problems is a Challenge

- The charging process involves a complex set of protocol interactions.
- Traffic is encrypted, compressed (EXI), and runs over PLC, making it a challenge to capture and decode.
- Conformance Test Suites may help isolate problems but are expensive to purchase, time consuming to run, and may not isolate interop problems.
- Man-in-the-middle test tools, and non-intrusive sniffers can display traffic and may flag obvious errors, but a protocol expert is usually required to isolate many problems.
- Need: Interop specific test tools to help the interop testers increase interop efficiency, reduce time for diagnosis.

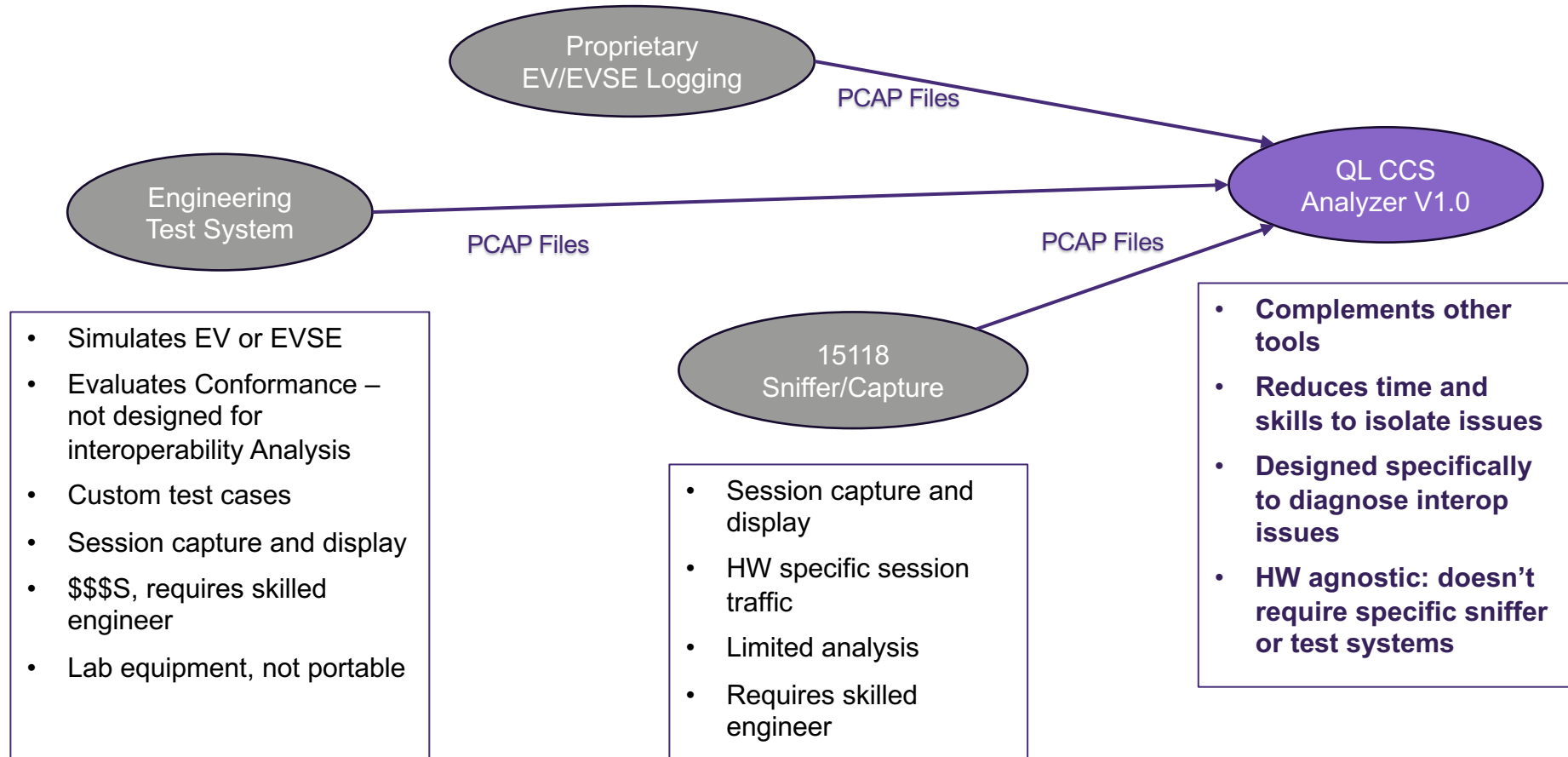


# It's Only Going to Increase in Complexity



- More OEMs implement the full -2 and PnC
- More vendors enter the domain
- -20 implementations become more common with TLS 1.3
- The industry adopts NACS
- OEMs implement inductive charging and wireless communications
- Medium and Heavy-duty vehicles implement MCS
- Vendors implement V2G support (OCPP 2.1 and ISO 15118-20 Amend 1)

# QualityLogic CCS Analyzer – Filling a Gap in Interop Test Tools



# Overview and Demo



- Overview of the Product
- Live Demo of Analyzer



# Use Cases for CCS Analyzer



- Initial screening for Interop causes in failed charging sessions – saves time
- Enhanced analysis available from PCAP file data – graphics, timings, etc
- Root cause analysis of Interop issues (improving over time)
- Other use cases
  - Quick analysis of multiple successful charging sessions to identify potential future issues
  - Fast analysis of regression test charging sessions prior to firmware release
  - Integration into failure analysis process built around existing tool chains
  - Quick look at potential EV-EVSE interop issues in end-end charging failure
  - Architecture supports real-time analysis of charging sessions (future use case and release)

# Interested?



- Available as a perpetual license with annual maintenance or on a monthly subscription basis
- 30-day free trials for serious customers
- Quote available on request from [info@qualitylogic.com](mailto:info@qualitylogic.com)

# Questions?



If you want to know more, email [info@qualitylogic.com](mailto:info@qualitylogic.com)