



## Workshop Information

**Topic:** Two-Day Workshop on *Blockchain, Blockchain Security, and Basics of Blockchain Auditing for ISACA NA CACS 2019*

**Presenter:** William Favre Slater, III

**Presentation Date:** May 11 – 12, 2019

**Location:** 2019 North America C

**Learning Level:** Intermediate

**Objectives:**

**Understand fundamental principles of**

- History of Money and Conventional Ledger Functions
- Bitcoin Basics
- Tokenized Economy and Crypto Currency Concepts
- Blockchain Technology
- Ethereum Blockchain Technology
- Blockchain Beyond Bitcoin
- Blockchain Law
- Blockchain Limits and Challenges
- Blockchain Security
- Real-world Blockchain Applications
- How to Design and Implement a Blockchain Solution Project – an Organized High-Level Step-by-Step Approach
- How to help your Organization rapidly ramp up skills and readiness for Blockchain Application Development
- Securing Blockchain infrastructure and applications
- Securing Blockchain applications by design, coding practices, testing and verification
- The importance of Blockchain and Auditing
- Basic Blockchain Auditing Techniques and Tools



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**Learn:**

How to get started with Blockchain Application Development – Setting up the Workbench  
High-level Introduction to the Truffle Framework  
About DApp development using Truffle, HTML, CSS, Solidity, the EVM and Ethereum Blockchain  
About Solidity and Ethereum Blockchain Fundamentals  
About Javascript and Ethereum Blockchain Fundamentals  
About DApp development using HTML, CSS, Solidity, the EVM and the Ethereum Blockchain  
How to Secure Blockchain infrastructure and applications  
How to perform Secure Software Development for Blockchain applications by design, coding practices, testing and verification  
About Blockchain and Auditing  
Concepts of Auditing the Data and Transactions in Blockchain Data Structures  
Automating the Auditing of Blockchains and Blockchain Applications

**Participant Requirements:**

Participants will need:

- To bring their own laptop and power supply with an operating system loaded (Windows, Linux, or MacOS)
- Operable WiFi connectivity
- Internet access (Provided by Hotel)
- To have some familiarity with application development, testing, and production deployment
- To attend both days

**Abstract:**

This two-day workshop will introduce the participants to concepts needed for understanding Blockchain technologies and the extraordinary value and advantages of decentralized, trusted computing. This workshop will provide the technological and managerial knowledge base for Blockchain solution approaches. Topics such as distributed ledger, cryptography, peer-to-peer decentralized computing, public and private permissioned and permissionless blockchains will also be discussed in detail. Actual Real-World Case Studies will also be discussed. Blockchain DApp development will be explained (Analysis, Design, and Implementation) and three real-world examples will be provided complete with code examples. Coding techniques with Solidity will be also explained. The Truffle Framework will be used with Ethereum Blockchain in at least one example, and one additional example Blockchain Application done from scratch using HTML, CSS, and a high-level language. Additional concepts that will be covered will include: 1) Blockchain and Auditing; 2) How to Secure Blockchain infrastructure and applications; 3) How to perform Secure Software Development for Blockchain applications by design, coding practices, testing and verification; 4) Concepts of Auditing the Data and Transactions in Blockchain Data Structures; and 5) Automating the Auditing of Blockchains and Blockchain Applications.



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## High-level Outline:

### Day 1

- Topic 1: History of Money and Conventional Ledger Functions
- Topic 2: Bitcoin Basics
- Topic 3: Tokenized Economy and Crypto Currency Concepts
- Topic 4: Blockchain Technology
- Topic 5: Ethereum Blockchain Technology
- Topic 6: Blockchain Beyond Bitcoin
- Topic 7: Blockchain Limits and Challenges
- Topic 8: Blockchain Security
- Topic 9: Examples of Real-world Blockchain Applications
- Topic 10: The Ethereum EVM, Smart Contracts, and Solidity
- Topic 11: How to Design and Implement a Blockchain Solution Project – an Organized High-Level Step-by-Step Approach
- Topic 12: How to Help your Organization Rapidly Ramp Up Skills and Readiness for Blockchain Application Development

### Day 2

- Topic 1: Getting started with Blockchain Application Development – Setting up the Workbench
- Topic 2: Truffle Framework Introduction
- Topic 3: Example DApp using Truffle, HTML, CSS, Solidity, the EVM and Ethereum Blockchain
- Topic 4: Solidity and Ethereum Blockchain Fundamentals
- Topic 5: Javascript and Ethereum Blockchain Fundamentals
- Topic 6: Example DApp using HTML, CSS, Solidity the EVM and the Ethereum Blockchain
- Topic 7: How to Secure Blockchain infrastructure and applications
- Topic 8: How to perform Secure Software Development for Blockchain applications by design, coding
- Topic 9: Blockchain and Auditing practices, testing and verification
- Topic 10: Concepts of Auditing the Data and Transactions in Blockchain Data Structures
- Topic 11: Automating the Auditing of Blockchains and Blockchain Applications

**Presenter Bio:**



William Slater, who lived and works in Chicago, IL, is an experienced, seasoned Information Technology professional with more than three decades of experience. Though he has worked in all areas of IT, his primary focus since 2001 has been Data Centers, Cybersecurity, Networking, Application Development, Service Management, Blockchain and Cryptocurrency. He has studied and worked with Blockchain since 2012. In 2018, he prepared presentations and presented at five different local technical conferences, and he has been teaching Blockchain Technology to more than 30 Interns at his company since June 1, 2018. Mr. Slater has been an Adjunct Industry Professor for over 10 years, and holds three master's degrees, and 80 professional certifications, including CISA, CISSP, and PMP. His professional IT experience includes each of these organizations: United States Air Force, Texas Eastern Transmission Corporation, Northrop Defense Systems Division, Marshall Field's, Digital Equipment Corporation, Systematics Alltel, Corporate Computing International, British Petroleum North America, SAIC, Getronics, U.S. Department of Veterans Affairs, Microsoft, Technisource, Chicago State University, Blue Cross Blue Shield of Illinois, CACI, Technatomy, IBM, JLL, Abacus Technical Services, McDonald's, and his own company, Slater Technologies, Inc. He has been an ISACA Member since 2007.