

2 Days Hands-on Lab with Multichain

There is nothing like learning blockchain by mastering Bitcoin or its variant such as multichain. Multichain is a fork and by attending this course, it will give the attendees a strong foundation in the architecture, its layers and the flexibility. After this course, you should be able to understand how to fork a new blockchain, how you fork it to your specific use, and more importantly, the risk involved. It will demystify what blockchain is and have your own independent assessment of some of the variants of Bitcoin in the market. This is a course not to be missed if you are confused by the hype in the market.

Objective

A. Knowledge and Understanding (Theory Component)

At the end of this course, participants should be able to:

- Understand the key concepts of Bitcoin protocol:
 - Bitcoin Keys, Address and Wallet structure
 - Bitcoin Transaction and Block structure
 - Bitcoin Proof-of-Work (PoW) consensus protocol
 - Bitcoin Protocol Parameters (eg. Block Size, Block Time, Difficulty, etc.)
 - Bitcoin Programming using Script programming language
- Understand the differences between a Private Blockchain vs Public Blockchain
- Understand the key concepts of Multichain
 - permissions management
 - native asset
 - data stream
- Gain an appreciation for applying private blockchain to solving real world problems

B. Key Skills (Practical Component)

At the end of this course, participants should be able to:

- Set up and manage a private and permissioned blockchain network
- Manage and transact in native assets
- Manage and use streams
- Develop applications using Multichain API

Singapore University of Social Sciences

Topics

Day 1

Time	Agenda
Day 1	
09:00 – 09:15	2-Day Course Overview
09:15 – 10:15	Introduction to key Bitcoin concepts
10:15 – 10:45	Introduction to MultiChain and private permissioned blockchain
10:45 – 11:00	Break
11:00 – 12:00	Practical Session <ul style="list-style-type: none"> • Set up 2 virtual machines and install MultiChain • Create a private blockchain using 2 nodes • Learn to use Multichain Commandline Interface
12:00 – 12:30	Understanding Multichain configuration parameters
12:30 – 14:00	Lunch
14:00 – 15:00	Understanding Address, Transactions and Block structure
15:00 – 16:00	Practical Session <ul style="list-style-type: none"> • Create and transact native assets • Create and manage streams • Atomic Exchange Transaction
16:00 – 16:30	Understanding Proof-of-Work and Mining
16:30 – 17:00	Practical Session <ul style="list-style-type: none"> • Set up mining nodes • Analyse blockchain info
Day 2	
09:00 – 10:00	Introduction to Bitcoin Programming using Script
09:15 – 10:15	Introduction to Multichain Programming API
10:45 – 11:00	Break
11:00 – 12:00	Practical Session <ul style="list-style-type: none"> • Develop a web-app to transact in native asset • Develop a web-app to manage blockchain stream
12:00 – 13:30	Lunch
13:30 – 17:30	Class Exercise: <ul style="list-style-type: none"> • Develop a simulated interbank payment network with MultiChain

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Requirements

- Attendees should have basic understanding of Bitcoin and blockchain.
- This is a hands-on course and will involve some basic programming skills.
- The class will be conducted on Microsoft Windows platform and Mac users are encouraged to install a copy of Windows prior to attending.
- The development tool used will be Visual Studio Community Edition which is available for free download and programming language for teaching will be C#.
- To reduce logistical issues, students will be using Microsoft Azure as the cloud platform for hosting blockchain nodes.
- Code snippets will be available for download from github to help students who are not familiar with C# to get started.

Duration: 2 days

Venue: Singapore University of Social Sciences (formerly known as SIM University)

Minimum number to run: 25 participants

Certificate of participation is awarded upon 75% attendance for the course

Trainer's Profile



Roy Lai is the founder of InfoCorp Technologies. InfoCorp was founded in 2015 specializing in the use of private blockchains for decentralised inter-bank payment solutions. Roy has 20 years of technology experience and brings with him a wealth of domain expertise spanning a wide range of industries from FMCG, logistics, investment banking and inter-bank payments. For a large part of his career, Roy was involved in working for multi-national corporations such as Royal Bank of Scotland, Brunswick and Procter & Gamble.

Other Professional and Industry Experience

Roy is an expert in national interbank payment rails and was technical project director for Singapore's FAST network – a nation-wide real-time retail payment network involving all major banks in Singapore. He was also a technical consultant to Thailand's clearing house ITMX in the implementation of their national payment project called PromptPay in 2016.