**BitShares Technology**

Graphene

Graphene Technology

Graphene Cryptos

DPOS Projects

BitShares

What is BitShares

Background

Consensus Technology

Distributed Autonomous Companies

Community

The History of BitShares

The History of BitShares as laid out by Stan Larimer

The History of BitShares Part One

The History of BitShares Part Two

The History of BitShares Part Three

December’s Innovation – TAPOS and the End of Mining

History of Funding

The Great Consolidation

Delegated Proof of Stake (DPOS)

Background

Rationale Behind DPOS

Shareholders are in Control

Pooled Mining as Delegated Proof of Work

Reasons to not randomly select representatives from all users

Scalability

Role of Delegates

How to become a delegate

Voting Algorithm

How do I get “votes?”

Why use only upvotes?

How are ‘votes’ counted?

Is there an anti-vote?

Disincentives for Attacks

How many witnesses are securing the network

DPOS Infographic

Sources and Discussions

What is Different in BitShares

Several Tokens

Registered Identities

No More Addresses

Memos

Securing Funds

Full Nodes and Clients

Object IDs

Whitepapers

Under Construction

How to Contribute

Contribute to BitShares

Backend Development

Frontend Development

Contribute to Graphene

Backend Development

Frontend Development

Contributing to the Documentation

Requirements

Building

Output

Deployment

Updating doxygen (optional)

**Stakeholder Guide**

Things you should know

The Starters

The Investors

Assets/Tokens/Currencies

User Issued Assets (UIAs)

Use Cases

Market Pegged Assets (MPAs)

SmartCoins

Collateralized Tokens

Market Mechanics

Exchange Backed Assets (EBA)

Use Case

Privatized BitAssets

Changing the Feed producers

Producing a Feed

Fee Backed Asset

Prediction Markets

Creation

Betting

Resolving

Blockchain Governance

Vesting Balances

Strategies

CCD / Coin Days Destroyed

Linear Vesting with Cliff

Guide

Voting

Proxy

Setting a proxy

Voting For…

Voting for Witness

Voting for Committee Members

Voting for Workers

Referral Program

BitShares Accounts

Basic Account

Lifetime Members

What to do?

Examples

Terms & Conditions

Claiming Referral Bonus and Cashback

Community Members

Shareholder

Consensus Mechanism

Committee

Witnesses

Workers / Budget Items

Worker Lifecycle

Worker budget mechanics

Payouts

Working for BitShares

Pseudo Workers

Polling Workers

Refund Worker

Burn Worker

Decentralized Exchange (DEX)

Trading

Pairs

Market Overview

Market

Order Books

Trading

Order Matching

Playing Orders

Fees

Short Selling BitAssets

Borrowing

Margin Call

Settlement

Selling

Updating Collateral Ratio

Covering

Discussion

Margin call mechanics

What is a margin call?

How is the call price calculated?

How is the collateral ratio (CR) calculated?

Execution Conditions

Discussion

At what price will the margin call execute?

Margin calls only execute in the range [Call Price - SQPP]

Investor Guide

Claim your Investment

Claiming your Stake

Migrating from BitShares 1.0 to BitShares 2.0

What is New in BitShares 2.0

What has Changed since BitShares 0.9?

Blockchain Upgrade

**User Guide**

BitShares Client

Choose Your Client

Light Client

Web Client

Wallet & Login Mode

Wallet

Cloud Wallet Login

Local Wallet Login

Terminology

Create Your Wallet & Login

Welcome to BitShares

Create Account - New user

Identicon - QR Code

Cloud Wallet Login

Restore Backup

Fund your Account

Create a Local Wallet Account (ADVANCED)

Restore/Import (Advanced)

a. Restore Local Wallet From Backup

b. Restore Using a Local Wallet Brainkey

Wallet Settings

Wallet Icons

Cloud Wallet - Settings

General

Accounts

Restore/Import

Access

Faucet

Local Wallet - Settings

General

Local Wallet

Accounts

Password

Backup

Restore/Import

Faucet

Backups (Security) & Restore

Create Local Wallet Backup

Restore/Import

a. Restore from Backup file (when Login)

b. Restore/Import from a Backup file

Advanced Users Only

The Brain Key

Backing Up the Brain Key

Restoring from Brain Key

Recover account with brain key

Securing “Cold” Wallets (?)

Obtaining A Private Key

Updating Account Permissions

Importing Keys

Send & Transactions

Sending Funds (Simple Transfers)

Proposed Transactions

Confidential Transactions

Exchange / Explore

Exchange

Direct Exchange Service

Buy BTS with BlockTrades

Explore

Deposit & Withdraw

Transfer Services

Openledger (OPEN.X)

RuDEX (RUDEX.X)

BlockTrades

Bridge and gateway services

Bridges: trust-free model

Gateways: trust-based model

**Wallet - Sidebar Menus**

Dashboard

My Account

Open Orders

Margin Positions

Activity

Memberships

Membership Groups

Non-Members

Lifetime Members

Annual Members

Fees

Pending Fees

Vesting Fees

Referral Program

BitShares Accounts

Basic Account

Lifetime Members

What to do?

Examples

Terms & Conditions

Claiming Referral Bonus and Cashback

Voting

Proxy

Setting a proxy

Voting For…

Voting for Witness

Voting for Committee Members

Voting for Workers

Permissions

Permission Model-

Active Permissions

Owner Permissions

Memo Key

Cloud wallet

Authorities-

Examples

(Flat) Multi-Signature

(Flat) Flexible Multi-Signature

Multi-Hierarchical Flexible Multi-Signature

Vesting Balances

Strategies

CCD / Coin Days Destroyed

Linear Vesting with Cliff

Guide

Signed Messages

BitShares Wallet Top Menus

BitShares Wallet Side Menus

**Resources**

BitShares

Home

BitShares Blockchain Foundation

BitShares Communities

Beyond Bitcoin - Bitshares

Bitshares Block Exploer

BitShares Exchanges

BitShares Decentralized Exchange (DEX)

BitShares Light Wallet

BitShares mobile Wallet

External Information Links

From steemit

Articles

**References**

BitShares GitHub

Releases

GitHub Code | Issues

BitShares wiki Links

BitShares-ui: wiki Home

BitShares-core: wiki Home

BitShares-core: wiki- all contents

Other GitHub Repositories

External Information Links

Technical Articles

Online Tools

**Technical Documentation**

**Development Guide**

Getting Started - Install

Bitshares Core

Bitshares UI

Bitshares Lite Wallet

Integration Guide

How to Run and Use a Full Node

Download and Install the Witness Node

Running the Full Node

Connecting to your own Full Node

Network and Wallet Configuration

Components

Network Setups

General - Network and Wallet Configuration

Trusted Full Node

Wallet

High Security - Network and Wallet Configuration

Trusted Full Node

Delayed Full Node

Wallet

Monitoring Account Deposits with Python

Installation

Configuration

Running

NodeJS Example

Installation

Configuration

Running

Python Module for the DEX / General Python Library

Blockchain Interaction

Full Node

Full Nodes

Configuration

Enabling Remote Procedure Calls (RPC)

Restarting the witness node

Enabling Block Production

Delayed Full Node

CLI Wallet

Launching

Enabling Remote Procedure Calls (RPC)

Web Wallet

Download

Installing Dependencies

Bundling

Testing Bundle

Live Development

Proposal & Ideas

BitShares Improvement Proposal

Funding Your Ideas

**API Guide**

**API Guide**

Interfacing with Graphene

Remote Procedure Calls

Prerequisits

Call Format

Example Call with curl

Successful Calls

Errors

Remarks

Websocket Calls & Notifications

Prerequisits

Call Format

Successful Calls

Errors

Requesting API access

1. Login

2. Requesting Access to an API

3. Obtain the API identifier

4. Call methods of a specific API by providing the identifier

API Access Restrictions

Authorization Scheme

Login In

Blockchain API(s)

Database API

Objects

Subscriptions

Blocks and transactions

Globals

Keys

Accounts

Balances

Assets

Markets / feeds

Witnesses

Committee members

Workers

Votes

Authority / Validation

Proposed Transactions

Blinded balances

Account History API

Account History

Market History

Crypto API

Blinding and Un-Blinding

Rage Proofs

Verification

Network Broadcast API

Transactions

Block

Network Nodes API

Obtain Network Information

Change Network Settings

Wallet API - Calls

General Calls

Wallet Calls

Account Calls

Trading Calls

Asset Calls

Governance

Privacy Mode

Blockchain Inspection

Transaction Builder

Blockchain Objects and their Identifiers (IDs)

Objects and IDs

Objects

List of commonly used objects

Definitions

Protocol Space (1.x.x)

Implementattion Space (2.x.x)

Often used API Calls

Overview

list\_account\_balances <account>

transfer <from> <to> <amount> <asset> "<memo>" <broadcast>

transfer2 <from> <to> <amount> <asset> "<memo>"

get\_account\_history <account> <limit>

get\_object "1.11.<id>"

get\_asset <USD>

Correspondences with BitShares 1.0 Calls

**Developer Tutorial**

**Developer Guide (Tutorials)**

General

Address structure, Format, block, time, and other

What is the standard Bitshares address structure and format?

What is the format of the block header?

What is the maximum bitshares block size?

Are there any sharding mechanics currently deployed?

How are SPV clients handled?

How is time addressed in the blockchain? Is NTP used or some other protocol?

How do new clients bootstrap into the network?

What is the average block time?

How is accounting addressed in Bitshares? Is it a Nxt style accounting model or like Bitcoin’s UTXO

Protocol

Are there any special affordances made for privacy?

Does the protocol provide mechanisms for overlay protocols to interact such as OR\_RETURN?

Is this done via a gossip protocol or through a federate relay?

Data Structures

What data structures are used in the blockchain?

Public key system

What public key system is used? If elliptic curve, then what is the curve?

Scripting Language ?

Is there a specification for Bitshares scripting language? (assuming there is one)

Is the scripting language turing complete?

BitShares Decentralised Exchange (DEX)

Distributed Access to the BitShares Decentralised Exchange (DEX)

BitShares node setup

Create a New User

Install Nginx

Configure Nginx

Create your web folder

Configure Nginx

Update Virtual Host File

Activate sim link and disable default web server

Link local folder to www root and add a simple index.html

Install letsencrypt

Obtain your SSL certificate

Check your certificate

Setup a renew cronjob for your new SSL certificate

Generate Strong Diffie-Hellman Group cert

Add SSL to Nginx settings

Edit altcap.io

Restart Nginx

Install BitShares web gui

Install NVM (Node Version Manager)

Download BitShares gui

Setup light wallet

Link web root to gui build folder

Build light wallet

SSL test

Account

Account Registration (developer)

Brain, Private and Public Key Derivation

Creating and Registering an account

Registering an Account

Vesting Balance

List Vesting Balances

Claiming A Vesting Balance

Web Wallet

Console Wallet

Assets

Creating a new UIA

Primary Settings

Permissions (optional)

Flags and Market Fees (optional)

Issuing Shares

The asset creation fee

Creating a UIA manually

Creating an Asset

Issuing Shares

Python Example

Creating a MPA manually

MPA-specific settings

Update/Change an existing UIA

What can and cannot be changed

Publishing a Feed

Python Script

Fee Pool

What is Fee Pool Draining?

What is the fee pool all about?

What to do if the fee pool is empty?

Market Fees

How to claim accumulated fees?

What are Asset Flags and Permissions?

What are the Flags?

What are the Permissions?

What happens if I enable Market fees?

What if two different market fees are involved in a trade?

Market Pegged Assets

Can I use the same flags/permissions as for UIAs?

What are market-pegged-asset-specific parameters?

Questions - Assets

Can I change x after creation of the asset

Changing the issuer

What about Parent and Child assets?

What happens to the asset creation fee?

Prediction Markets

Creating a Prediction Market

Settings

Settlement Authorities

Python Example

Closing/Settling a Prediction Market

Python Script

Transfer / Transactions

Questions - Transactions

How are transactions validated?

What is the average size in Bytes of a Bitshares transaction?

What transaction types are natively supported?

Confidential Transfers

Step 1: Create a Blind Account

Step 2: Transferring a Balance From a Standard Public Account to a Blind Account

Step 3: Receiving an Asset Balance Transmitted From Another Account

Step 4: Transferring Assets Between Confidential Accounts

Step 5: Transferring Assets From a Confidential Account Back to a Public Account

Manually Construct Any Transaction

General Procedure

Proposing a Transaction

Crafting a Transaction

Proposing a Transaction

Approving a Proposal

Example: Setting Smartcoin parameter

CLI Wallet - FAQ

How to prepare a CLI wallet for Trading

Download and Installation

Executing the cli-wallet

BitShares Public Full Nodes:

How to Run and Use the CLI-Wallet

Download and Install the Witness Node

Executing the cli-wallet

Opening RPC port

Transferring Funds using the CLI-Wallet

Questions - CLI Wallet

How can I close the CLI client in a clean way?

How can I import to my CLI client a wallet originally created in the web GUI?

How can I transfer a single account to a cli wallet

Why does the CLI client crash immediately when I try to run it for the first time?

Lifetime Membership

Create lifetime membership

How can I create, register and upgrade an account to Lifetime Membership?

Witness - FAQ

How to Run a Block-producing Witness

Requirements

Hardware Advice

Active Witness Duties

Overview

Run the witness as a node in the network

Creating a wallet

Basic Account Management

Registering a Witness Object

Configuration of the Witness Node

Verifying Block Production

Backup Server

Price Feeds

How to Become an Active Witness

Run the witness/full node on the network

Creating a wallet

Basic Account Management

Becoming a Witness

Change the Signing Key of your Witness

Questions - Witness

How can I close the witness node in a clean way?

How do I check whether the witness node is already synceed?

If it seems to be unable to sync beyond a certain date

Is it safe to delete logs stored in witness\_node\_data\_dirlogsp2p?

What is the best way to interact with the witness node?

What is the meaning of all those different text colors in the witness node console?

Whose private key is [“BTS6MRyAjQ..”,”5KQwrPbwdL..”]? Why is it predefined ion the config.ini?

Testnet

Public & private testnet differences

What is the difference between public and private testnet?

Committee Guide

Creating a New Committee Member

How Committee Proposes a Change in Fee

Create an Proposal

Approve Proposal

How to Approve/Disapprove a Committee Proposal

Approve Proposal

Removing Approval

How to Propose Committee Actions

Setting Smartcoin Parameters

Worker Guide

How to Create a Worker

How to see proposals on the chain

How to Vote for a Worker

How Workers Get Paid

Technical Details

Claim Worker Pay

Migrating from BitShares 1.0

Exporting Your Wallet

BitShares 1.0 Full Client

wallet.bitshares.org

Importing Your Wallet

Web Wallet

CLI wallet

Migration Remarks

Remarks on Private Keys

Technical Explanation

**Graphene - Namespaces**

**Graphene - Namespaces**

Graphene::App

Graphene::Chain

Graphene::Wallet

**Use Cases**

**Use Cases**

Exchanges, Bridges, and Gateways

Step-By-Step Instructions for Exchanges

Installation

Running Daemons and Wallet

Wallet

Watching Deposits with Python

Executing Transfers for Withdrawals

Supporting Features

User Issued Assets

Whitelists and Blacklists

Hierarchical Corporate Accounts

Using White- and Black-lists

User Whitelists

Asset User Whitelists

Asset Market Whitelists

Securing Funds

Merchants

Protocols/API

Wallet Login Protocol

Wallet Merchant Protocol

Traders

Public API

BitShares Public Full Nodes:

Private API

Businesses

Supporting Libraries

**Testnet**

**Testnets**

Open Public Testnet Details

General Information

Public Testnet How to

1.Installation/Configuration of Witness

Fork CNX’s code base

Configuration

Initial Compilation

2.Genesis Configuration

Writing final genesis

Including Genesis into the binaries

3.Initializing Blockchain

Initializing the genesis block

Setting up block production

4.Connecting a CLI wallet

Creating a wallet

Gaining access to stake

Creating accounts

5.Establishing a Committee

Creating members

Upgrading members

Registering as committee member

Voting with faucet account

6.Web Wallet

Dependencies

Fetching the web wallet

Configuration

Compilation

7.Setting up the Faucet

Installation of Dependencies

Get the Source

Configuration

8.Nginx Webserver

Setup

Configuration

Running nginx as serice

9.Installation of Python Library

Requirements

Installation

Usage

10.Create MPAs/UIAs

Private Testnet How to

Prerequisites

Folder structure

The genesis file

Default genesis

Customization of the genesis file

Get the blockchain id

Witness configuration

Start block production

CLI Usage

Create a new wallet

Gain access to the genesis stake

Create another account

Transfer funds between accounts