

Workshop: Building a Blockchain Game Blocklet with Forge SDK

BROUGHT TO YOU BY

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Agenda

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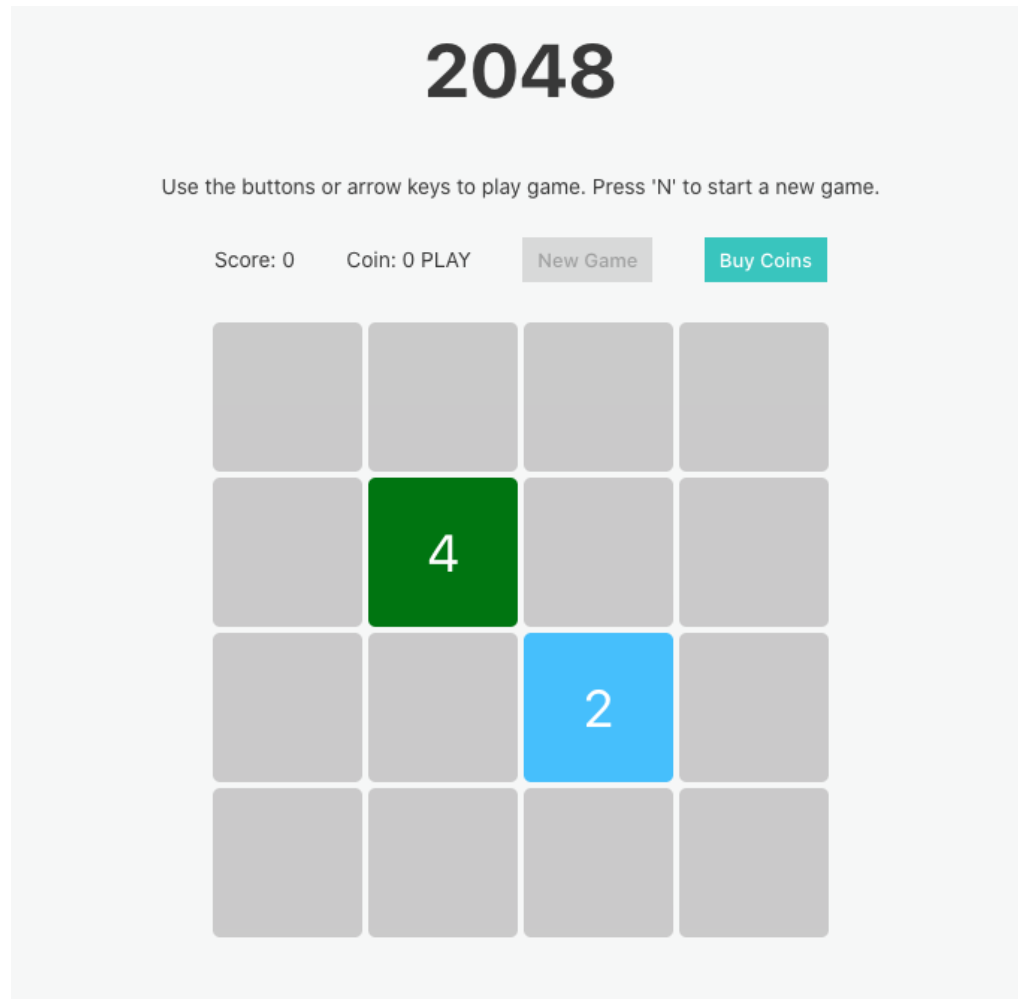
- Basic Requirements
- Game design and background knowledge
- Game features preview in wallet playground
- Dapp bootstrapping with sample project
- Game feature implementation
- Game publish as a blocklet

Basic Requirements

- Local [ABT Node](#) instance up and running
- [ABT Wallet](#) installed and setup on your phone
- Basic programming knowledge, and command line operations
- Can write code with [Javascript](#), better know some [React](#)
- [Mongodb](#) up and running, `brew install mongodb`

Game design: UI

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Game design: Rules

- Simple game that user combines tiles to achieve higher score
- User need to login with ABT Wallet
- User need to pay game coins to start a new game
- Game coins are bought with native ABT token
- User can get badges when he achieved a high score on record

Background knowledge: Atomic Swap

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- Why: atomic swap is used to move data across different chains in a secure way
- What: both token and assets can be swapped
- How: [@arcblock/did-auth](#)

Background knowledge: NFT

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- Why: Everything will be digitalized on blockchain or somewhere else
- What: Non-Fungible-Token, anything that's not token, such as certificate/badge/ticket
- How: [@arcblock/nft](#)

Wallet playground setup and demo



- Setup local chain
- Setup foreign chain
- Setup blockchain explorer
- Setup wallet-playground

Project bootstrapping

- Get the [sample starter project](#)
- Install dependencies
- Create .env file
- Declare your dapp with `node tools/declare.js`
- Found the dapp with game coins from ABT Wallet
- Get some native token from `boarding-gate` in ABT Wallet
- Start the dapp

Game implementation: buy coins

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- 1 Native Token (TBA) = 100 Game Coin (PLAY)
- Add `@arcblock/did-auth` and `@arcblock/did-react`
- Add atomic-swap backend handler
- Add atomic-swap frontend

Game implementation: authorization

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- Just like adding a credit card
 - User authorize game to charge on starting new game
 - The authorization is signed by user and saved on blockchain
- Add `@arcblock/did-util` and `@arcblock/tx-util`
- Add authorization backend handler
- Add authorization frontend

Game implementation: payment

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- Add backend api for start game: which charge user for 2 coins
- Improve `onGameStart` on frontend:
 - Call backend api when start game
 - Show loading indicator when call api
 - Refresh session when payment is done

Game implementation: badge

- Prepare badge template
- Add `@arcblock/nft` and `@arcblock/nft-template`
- Add `trophy` handler on backend
 - Create badge for user when request
 - Transfer badge for user when claim the trophy
- Add `onGameOver` on frontend
 - Enable trophy claim when game score is larger than 1024

Game publish as a blocklet: init

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- `abtnode blocklet:init: update meta data`
 - Add `main`
 - Add `provider`
 - Add `requiredEnvironments`
 - Add `public_url`

Game publish as a blocklet: bundle

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- `abtnode bundle` : bundle the blocklet
 - Add bundle scripts
 - Test bundle scripts

Game publish as a blocklet: deploy

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- Add `pre-start` hook which does following work
 - Declare game account on chain
 - Get some game coin into the game account
- `abtnode deploy` : deploy to local ABT Node
 - Add pre-deploy hook

Game publish as a blocklet: publish

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- Update publish config
- Publish to npm registry
- Publish to blocklet registry

Credits

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- 2048 game prototype on [codepen](#)
- Trophy svg downloaded from [here](#)

Thank You



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