Dive into ICON - SCORE

ICON foundation

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Step 1. Smart Contract - SCORE

Step 2. SCORE Guide

Step 3. SCORE Samples

Step 4. SCORE Development

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Step 1. Smart Contract - SCORE

1. What is SCORE
2. Feature of SCORE

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1. ICON Dice Roll
2. SampleGame (blackjack)

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1. Development & QnA

1. Smart Contract - SCORE

Smart Contract - SCORE

- What is Smart Contract

1.1 What is SCORE

Definition of SCORE

- SCORE in Dictionary : the number of points, goals, etc. achieved in a game or competition (from Cambridge Dictionary)

- ICON SCORE : Abbreviation of Smart Contract on Reliable Environment
- Definition of SCORE : Smart contract running on ICON network

1.2 Feature of SCORE

Feature

- SCORE is written in python
- Uploaded as compressed binary data on the blockchain
- SCORE can be updated. SCORE address remains the same after update.
- SCORE code size is limited to about 64 KB (actually bounded by the maximum stepLimit value during its deploy transaction) after compression.
- SCORE must follow sandbox policy : file system access or network API calls are prohibited.

2. SCORE Guide

SCORE Guide

- ICON Developers Portal
  - https://www.icondev.io/docs/overview

- iconservice API references
  - https://icon-project.github.io/score-guide/api-references.html

2.1 Token & Crowdsale

Token & Crowdsale

- SCORE by example

  https://icon-project.github.io/score-guide/score-by-example.html#token-crowdsale

2.2 IconScoreBase abstract methods

IconScoreBase abstract methods

- IconScoreBase (The highest parent class)

  https://icon-project.github.io/score-guide/writing-score.html#iconscorebase-the-highest-parent-class

2.3 DB abstraction

DB abstraction

- VarDB, DictDB, ArrayDB

  https://icon-project.github.io/score-guide/writing-score.html#vardb-dictdb-arraydb

2.4 Decorator, fallback

Decorator, fallback

- Decorator (external, eventlog, payable)

  https://icon-project.github.io/score-guide/writing-score.html#external-decorator-external

- fallback

  https://icon-project.github.io/score-guide/writing-score.html#fallback

2.5 Type hints, exception handling

Type hints, exception handling

- Type hints

  https://icon-project.github.io/score-guide/writing-score.html#type-hints

- Exception handling

  https://icon-project.github.io/score-guide/writing-score.html#exception-handling

2.6 Global functions

Global functions

- Global functions (json_dumps, json_loads, sha3_256, revert)

  https://icon-project.github.io/score-guide/global-functions.html#global-functions

2.7 InterfaceScore

InterfaceScore

- InterfaceScore

  https://icon-project.github.io/score-guide/writing-score.html#interfacescore

2.8 Limitations

Limitations

- Limitations

  https://icon-project.github.io/score-guide/limitation.html

3. SCORE Samples

SCORE Samples

- ICON Dice Roll
  - DApp (SCORE + GUI)

- SampleGame
  - Simple blackjack (Only SCORE)

3.1 ICON Dice Roll

ICON Dice Roll

- Overview : Sample DApp using random generation. Supports single play
- SCORE source : GitHubGist

  https://gist.github.com/hx57/cc8a027a596e1e3676d59a6193d62c58#file-diceroll-py

- DApp source : Medium Post

  https://medium.com/@2infiniti/icon-dapp-from-a-z-part-3-icon-dice-roll-dapp-7f0ca72057f5

- Demo : https://dapps.icon.support/icon-dice-roll/

3.2 SampleGame

SampleGame

- Overview : Sample SCORE implemented custom blackjack game. Supports Player vs Player game.
- SCORE source : GitHub repo

  https://github.com/Life4honor/SampleGame/blob/develop/samplegame/samplegame.py

4. SCORE Development

4.1 Development & QnA

Dive into ICON - Appendix

Appendix A. Development Resources

Development Resources

- GitHub
- Developer Portal
- ICON Improvement Proposal

GitHub https://github.com/icon-project

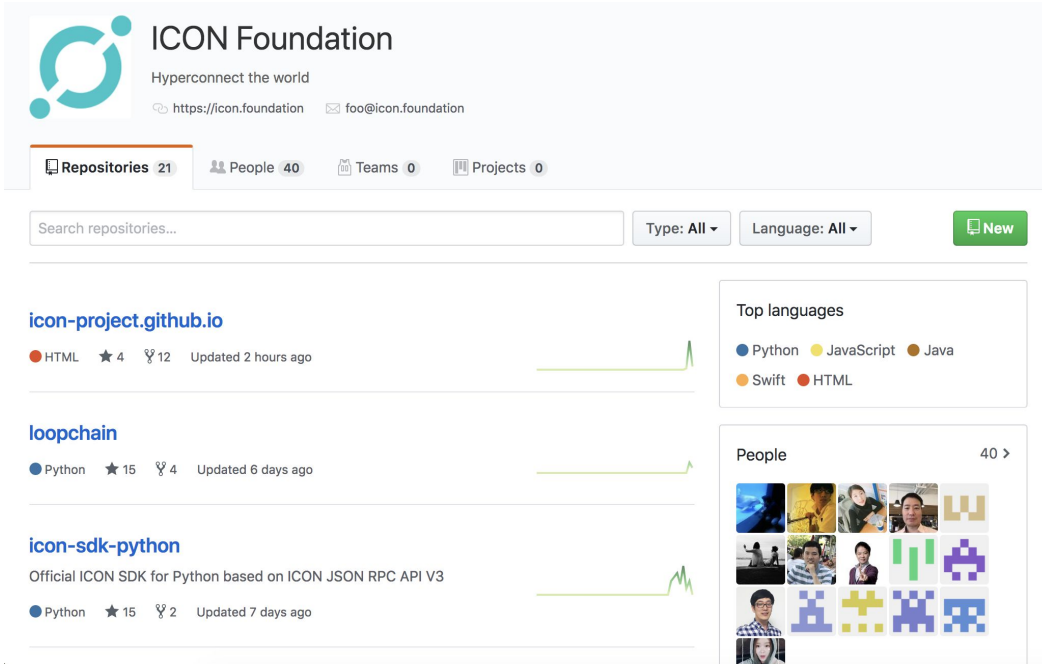
- loopchain
- icon-service
- icon-rpc-server

Node

- t-bears
- icon-sdk-python
- icon-sdk-java
- icon-sdk-js

Dev tools

- iconex_android
- iconex_ios
- iconex_chrome_extension



Developer Portal https://www.icondev.io

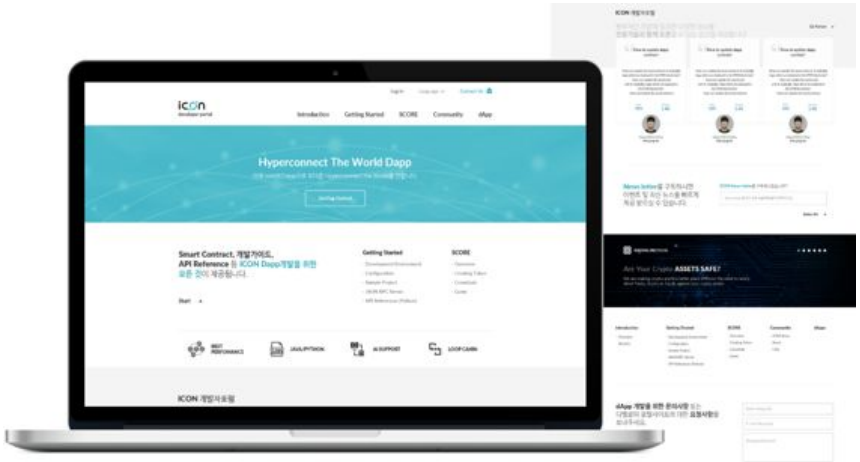
- Community portal for ICON DApp ecosystem

Getting Started
Tutorials for developers to get started

SCORE
Details on ICON's Smart Contract, SCORE

Community
Forum for Korean/English developers to discuss and communicate

DApp
Overview of ICON DApp Partners



ICON Improvement Proposal https://github.com/icon-project/IIPs

- IIP describes a standard for ICON platform.
- Anyone can prompt suggestions and discussions on new functions or improvement.
- Selected items will be implemented on ICON network.

- **For all other IIPs**, open a PR changing the state of your IIP to 'Final'. An editor will review your draft and ask if anyone objects to its being finalised. If the editor decides there is no rough consensus - for instance, because contributors point out significant issues with the IIP - they may close the PR and request that you fix the issues in the draft before trying again.

IIP Status Terms

- **Draft** - an IIP that is open for consideration.
- **Last Call** - an IIP that is calling for last review before finalizaing. IIPs that has been more than 2 weeks in Last Call without any technical changes or objections enters either Accepted or Final state.
- **Accepted** - an IIP that is planned for immediate adoption, i.e. expected to be included in the next release (for Core/Consensus layer IIPs only).
- **Final** - an IIP that has been adopted. For Core/Consensus layer IIPs, the implementation has been adopted in the mainnet.
- **Deferred** - an IIP that is not being considered for immediate adoption. May be reconsidered in the future.

IIPs

Number	Title	Author	Type	Status
1	IIP Purpose and Guidelines	Sojin Kim	Meta	Active
2	ICON Token Standard	Jaechang Namgoong	IRC	Final
3	ICON Non-Fungible Token Standard	Jaechang Namgoong	IRC	Draft
6	ICON Name Service Standard	Phyrex Tsai, Portal Network Team	IRC	Draft

Summary

- GitHub
- Developer Portal
- ICON Improvement Proposal