

Art Factory

Media distribution and monetization network for Artists, Curators and Customers

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Art Factory: A ConsenSys Formation

Abstract

Solving the walled-garden problem of current content distribution channels, a decentralized mechanism for publishing, distribution and sale of digital content is presented. The ArtFactory network has been built, allowing content creators to publish, distribute and sell their work independently and permissionlessly. ArtFactory produces incentives [via a token economy] for the active participation of Curators (content distribution and discovery), Creators (creation and release of original works of art), and Consumers (of the created art via curators). ArtFactory presents a consumer-friendly platform where artist self-sovereignty is protected by payment and file distribution that is handled by code and not third parties.

Keywords: Ethereum, Blockchain, Tokens, Content Publication

¹ 1. Introduction

² This paper describes Art Factory. Art Factory is an anti-fragile framework
³ for distribution and monetization of original creative art.

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4 2. The ArtFactory

5 2.1. Mission Statement

6 The Mission Statement of the Art Factory is to persist an anti-fragile art
7 store with incentives for creation, discovery and consumption.

8 2.2. Components

9 The implementation of Art Factory builds on the foundation provided
10 by decentralized system components including Ethereum, Infura, MetaMask
11 and IPFS.

12 2.3. Requirements

13 The requirements for the Art Factory are:

- 14 • persist a durable product framework for creation, distribution and mon-
15 etization of original creative works
- 16 • incentivize the participation of Creators, Curators and Consumers

17 2.4. Design

18 The design of ArtFactory is presented in its entirety in **Appendix A**.

19 3. ArtFactory Token Launch

20 3.1. Requirements

21 The requirements for the ArtFactory token launch are:

- 22 • provide opportunities for individuals to purchase tokens representing
23 publish, curation and purchase rights within ArtFactory
- 24 • provide utility for community members to foster a rewarding landscape
25 for the creation and publication of original art

26 3.2. Design

27 The ArtFactory token launch generates and issues tokens representing
28 rights to publish, curate and purchase content within ArtFactory.

29 The design of the ArtFactory token launch is detailed in **Appendix B**.

30 3.3. Implementation

31 The Art Factory token launch implementation builds upon best practices
32 of token sales from the Ethereum ecosystem.

33 The Art Factory and Art Factory Token Launch contracts have been
34 implemented and deployed and are live on the Ethereum testnet. Public de-
35 ployment to the mainnet and kickoff of the Art Factory token sale are pending
36 resolution of smart contract finalization, security review and a successful bug
37 bounty program.

38 Preliminary tokens can be purchased with test Ether for demonstration
39 purposes. For every 0.001 tETH sent to the Art Factory token launch con-
40 tract address on the testnet, 1.00 testnet ArtFactoryToken will be given in
41 return. For clarity, the testnet tokens have no value. The testnet tokens
42 have no association with the tokens that will be issued at the time of the
43 subsequent mainnet Art Factory token sale.

44 Appendix A. Art Factory

45 Here we provide a brief overview of Art Factory requirements, actors,
46 protocol, implementation and usage.

47 A brief proof of concept demonstration video of Art Factory in action
48 behind a decentralized application user interface is currently available at
49 <https://www.useloom.com/share/0220339fb5b741ba9ca416259b000e45>.

50 Appendix A.1. Background

51 ArtFactory is currently implemented as a single-blockchain platform oper-
52 ating on the Ethereum blockchain, employing the Interplanetary File System
53 (IPFS) for file storage. Publishers and purchasers of content hold Ethereum
54 and ArtFactoryToken (AFT) tokens in Ethereum wallets.

55 Appendix A.2. Requirements

56 The explicit requirements for Art Factory consist of

- 57 • publish content
- 58 • purchase content
- 59 • consume content

60 Additionally, Art Factory includes the following **implicit** requirements

- 61 • discover content
- 62 • promote content
- 63 • allow consumers to explicitly pay content publishers
- 64 • allow consumers to implicitly pay content promoters and curators
- 65 • allow blacklisting of content

66 *Appendix A.3. Actors*

67 The actors in the system are:

- 68 • Content Creator
- 69 • Content Publisher
- 70 • Content Consumer
- 71 • Content Curator

72 For the discussion we operate on the assumption that the Content Creator
73 is the same actor as the Content Publisher. Violations of this assumption lead
74 to questions of copyright infringement. The mechanism to address copyright
75 infringement on the platform is a blacklist for disputed content. Blacklists
76 are generally enforced by the Curator actor.

77 *Appendix A.4. Protocol*

78 The ArtFactoryContent protocol provides the ability for each user type
79 to interface to the ArtFactory platform to perform their respective roles.
80 Provided here is a simplified form of the protocol specification.

81 *Appendix A.4.1. Structures*

- 82 • ArtFactoryContent

83 *Appendix A.4.2. Operations*

- 84 • publish
- 85 • pay
- 86 • view
- 87 • withdraw

88 *Appendix A.5. Implementation*

89 The ArtFactory protocol is exposed through smart contract interfaces
90 implemented in Solidity for the Ethereum Virtual Machine (EVM). The im-
91 plementation of the smart contract interfaces is available on github at con-
92 tracts/ArtFactoryContent.sol in the ConsenSys ArtFactory repository.

93 *Appendix A.5.1. Publication*

```
function ArtFactoryContent(string _name, uint _price, string _handle);
```

94 *Appendix A.5.2. Payment*

```
function pay() payable returns (string);
```

95 *Appendix A.5.3. Consume*

```
function getHandle() constant returns(string);
```

96 *Appendix A.6. Usage*

97 ArtFactory includes a lightweight HTML/JS front-end that facilitates
98 Publication, Discovery and Consumption of content. The lightweight HTML/JS
99 front-end is provided as a reference implementation for Curators.

100 Example usage of the smart contract interface to the ArtFactory protocol
101 is provided in the remainder of the section.

102 *Appendix A.6.1. Publication*

```
ArtFactoryContentContract.new(  
    "content_0xAA",  
    10000000,  
    "QmPpeiynkfVpTajH3CMb8682vnNrhnBdsQjMToyeTswmSb",  
    {  
        from: web3.eth.accounts[0],  
        gas: 1000000,  
        data: ArtFactoryContentHex},  
    function(error, result) {  
        if (!error) contentCreationTransaction = result;  
        else console.error(error);  
    }  
}  
);
```

```

newContent_0xAA =
  ArtFactoryContentContract.
    at("0x7a6550b6fd5edd33d2cca48f4f7fd4540754b289");

```

103 *Appendix A.6.2. Payment*

```

newContent_0xAA.pay(
  {
    from: web3.eth.accounts[0],
    value: 100000000, gas: 10000000},
  function(error, result) {
    if (!error) aa = result;
    else console.error(error);
  }
);

```

104 *Appendix A.6.3. Consume*

```

newContent_0xAA.getHandle(
  {},
  function(error, result) {
    if (!error) contentHandle = result;
    else console.error(error);
  }
);

```

105 *Appendix A.6.4. Get Name*

```

newContent_0xAA.name(
  {},
  function(error, result) {
    if (!error) contentName = result;
    else console.error(error);
  }
);

```

106 *Appendix A.6.5. Get Price*

```

newContent_0xAA.price(
  {},
  function(error, result) {

```

```

        if (!error) contentPrice = result;
        else console.error(error);
    }
};

```

107 *Appendix A.6.6. Retrieve Purchased Status*

```

newContent_0xAA.purchased(
    {},
    function(error, result) {
        if (!error) contentPurchased = result;
        else console.error(error);
    }
);

```

108 *Appendix A.6.7. View Balance*

```

newContent_0xAA.viewBalance(
    {},
    function(error, result) {
        if (!error) availableBalance = result;
        else console.error(error);
    }
);

```

109 **Appendix B. Art Factory Token Launch**

110 Here we provide a brief overview of Art Factory token launch.

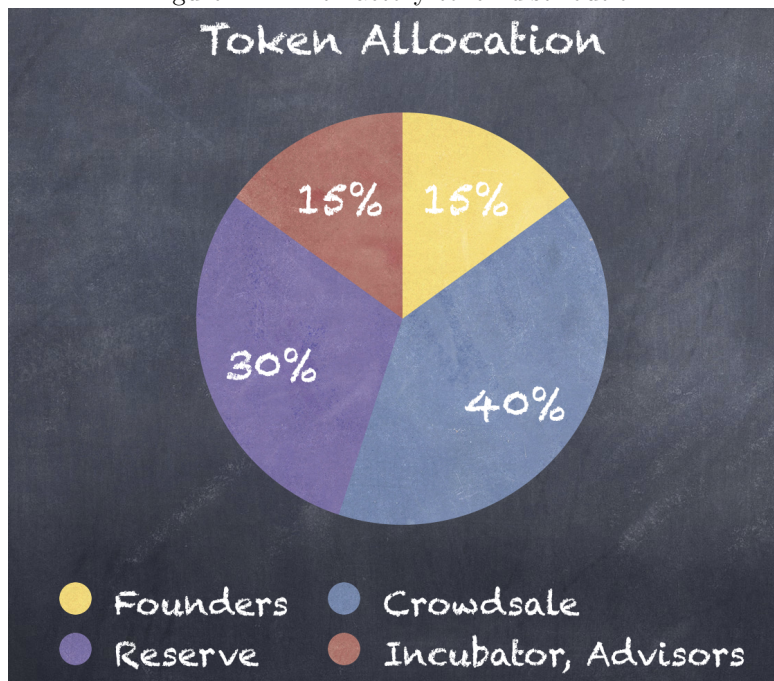
111 *Appendix B.1. Token Sale*

112 The Art Factory token launch will provide 1 Art Factory Token (AFTs)
 113 per 0.001 ETH. Tokens will be provided during the initial token sale period
 114 at this fixed exchange rate.

115 *Appendix B.2. Token Distribution*

116 Art Factory Tokens will be offered during the token launch period up to
 117 40% of the 500M Art Factory Tokens that will be created. 30% of created
 118 tokens will be held in reserve and the remaining 30% of created tokens will
 119 be provided to the founding team and to the team's incubator, Consensus
 120 Systems.

Figure B.1: Art Factory token distribution

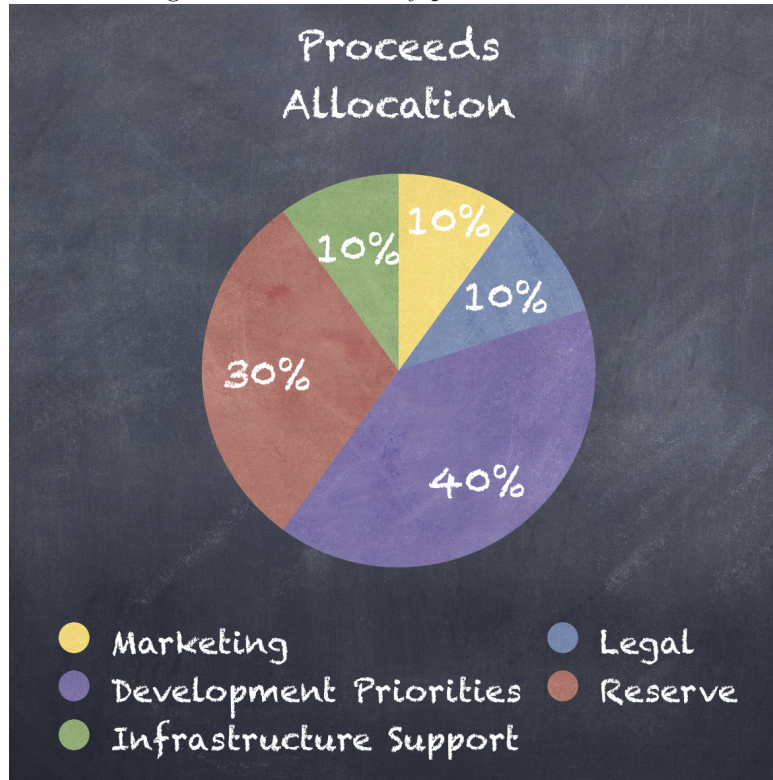


121 Distribution of Art Factory Tokens at token launch can be seen in Figure
122 B.1.

123 *Appendix B.3. Proceed Allocation*

124 The Art Factory token launch proceeds will be allocated to ensuring
125 growth and anti-fragility of the Art Factory network. 10% of proceeds will
126 be focused on community tool infrastructure support and 40% will be allo-
127 cated toward Art Factory founding team development priorities. 30% of the
128 proceeds raised will be held in reserve, and the remainder of the proceeds
129 will be split between legal and marketing.

Figure B.2: Art Factory proceeds allocation



130 Distribution of Art Factory token launch proceeds can be viewed in Figure
131 B.2.