

Metaverse Standards Forum

NFT Royalties: Fractionalization

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Status: Approved for Public Distribution

Version: 1.0

Reviewer	Due Date	Status	Contact
Digital Asset Management Working Group	June 18, 2024	Complete	digital_asset_management@lists.metaverse-standards.org
MSF Domains (Peer Review)	March 05, 2025	Complete	oversight@lists.metaverse-standards.org
Use Case Taskforce	May 05, 2025	Complete	use_case_task_force@lists.metaverse-standards.org

The purpose of this template is to provide a structured framework for collecting and documenting use cases within the Metaverse Standards Forum (MSF). Use cases are essential for understanding real-world scenarios where metaverse technologies are applied and where interoperability challenges may arise. This template guides MSF members in providing a concise yet comprehensive description of a use case, including its title, identifier, and summary. It also encourages contributors to list the benefits of the use case, identify actors or entities involved, and describe the use case scenario in detail, emphasizing interactions, challenges, and requirements. Additionally, it prompts the inclusion of relevant technical information, such as implementations, success metrics, and challenges faced. This template aims to facilitate the gathering of valuable use-case data to inform standards development and foster collaboration within the MSF community.

MSF members and MSF Domain Groups are invited to submit use cases.

NOTE: Organizations such SDOs who want to submit and add a use case would need a sponsor that is an MSF member. This process is established in order to have a contact person in MSF that can handle discussions and resolve open issues within regular meetings.

Eligible submitters:

- MSF Domain Groups
- MSF Members (Principal and Participant)
- External Organizations with Liaison Agreements (with the support of a MSF member that acts as sponsor)
- Standard Development Organizations (with the support of a MSF member that acts as sponsor)



Minimum Requirements for MSF Member Submissions not part of a Domain Group:

- Minimum required number of proposers: 3
- Minimum required number of supporters: 5

NOTE: Use cases submitted by SDOs and Liaison Organizations would also need to fulfill the same requirements (and would need a sponsor) unless they are submitted by a Domain Group.

MSF: Metaverse Standards Forum

POG: Pre-qualified Organizations and Groups

SPP: Standards Related Publications and Projects

DWG: Domain Working Groups

WG: Working Group

SDO: Standards Development Organization

Use Case Title
NFT Royalties: Fractionalization
Use Case Identifier
MSF2024-NFTF-001 <ul style="list-style-type: none">• Version 1.0• Year of Release: 2025
Summary of Use Case
<p>Description: This use case explores the payment of royalties with fractionalization of Non-Fungible Tokens (NFTs), where the current owner sells portions of their NFT, allowing multiple parties to own shares. This process diversifies ownership, providing a means to distribute the value and benefits of a single NFT among various stakeholders.</p> <p>Benefits of Fractionalization: The primary benefits include increased liquidity in the NFT market, making high-value digital assets more accessible to a wider audience. Additionally, it promotes interoperability by enabling shared ownership across different metaverse platforms and ecosystems.</p>
Contributors and Supporters
<ul style="list-style-type: none">• Digital Asset Management Working Group• MSF Domains (Peer Review)• Use Case Taskforce



Keywords

NFT Fractionalization, Digital Assets, Blockchain, Interoperability, Shared Ownership

Actors/Entities

- **Creator:** entity that originates the NFT, responsible for its initial creation and minting.
- **Holder:** the current owner who initiates the fractionalization of the NFT to sell parts of it.
- **Buyer:** parties interested in purchasing fractional stakes in the NFT, which may include collectors and liquidity providers.
- **NFT:** a digital asset governed by a Smart Contract.
- **NFT Contract:** various types of governing Smart Contracts for NFTs, including those that are immutable, upgradeable, and those representing real-world assets, that facilitates the rental agreement.
- **Fractionalization contract:** Smart Contract that creates NFT shares.
- **Marketplace:** the platform where fractional stakes are listed and transacted.
- **Blockchain/Network:** the underlying technology that records fractional ownership and transactions.

Detailed Description of Use Case/Scenario

Preconditions:

- Creator created NFT using System
- A Holder possesses the NFT eligible for fractionalization.
- A Blockchain capable of supporting fractional ownership exists.
- Regulatory compliance for fractional sales and ownership is established.

Main Flow:

1. The Holder decides to fractionalize the NFT into multiple shares.
2. Holder uses Fractionalization Contract and System to create shares for the NFT.
3. Shares are listed on a Marketplace with defined terms for sale.
4. Buyers purchase shares, and transactions are recorded on the Blockchain.
5. Ownership rights and benefits are distributed among shareholders according to their stake.
6. System and Fractionalization Contract distributes royalties from the sale to Creator.

Postconditions

- Fractional shares of the NFT are distributed among new owners.
- Creator receives royalties on sale of shares.
- Transactions and ownership stakes are securely recorded on the blockchain.



- Optional: A governance model for fractional owners is established for future decision-making.

Implementations and Demonstrations or Technical Feasibility

Famous F-NFTs* and protocols:

- Beeple's "Everyday's The First 5000 Days"
- CryptoPunks
- NBA Top Shot
- Pplpleasr's "FIRST BURN"
- Axie infinity
- ERC-404 (Pandora)
- DN-404

* <https://ndlabs.dev/fractional-nfts>

Challenges:

- **Regulatory Uncertainty:** as fractional NFTs navigate the intersection of digital assets and securities, they face regulatory challenges. Clarifying their legal status and compliance requirements is crucial.
- **Smart Contract Security:** ensuring the security and reliability of smart contracts used for fractionalization is vital to prevent vulnerabilities and protect investors' interests.
- **Market Liquidity:** while fractionalization aims to improve liquidity, establishing a robust and active secondary market for fractional shares is essential for their value realization.
- **Ownership Rights:** clearly defining and managing the rights of fractional owners, including governance, profit sharing, and decision-making, poses a significant challenge.
- **Technical Complexity:** the process of fractionalizing NFTs and managing fractional ownership requires sophisticated technical solutions, which can be a barrier for some creators and platforms.
- **Privacy:** Fractional NFTs impact privacy by potentially exposing fractional owners' information on public blockchains.

Requirements:

Technical and Functional Requirements:

- Implementation of secure smart contracts for fractional ownership.
- User-friendly interfaces for buying, selling, and managing shares.
- Robust wallet integration for transactions and ownership verification.
- Create mechanisms and platforms that support the liquidity of fractional shares, enabling easy trading and fair valuation.



Interoperability Requirements:

- Standards for fractional NFTs across different blockchains.
- Compatibility with various NFT marketplaces and platforms.
- APIs for accessing fractional NFT data across services.

Other Key Considerations:

- **Privacy:** ensure that the information required and shared by the respective parties to the NFT fractionalization transaction is not exposed to unauthorized parties.
- **Cybersecurity:** address potential vulnerabilities resulting from buying, selling and managing shares through NFT wallets.
- **Identity:** necessitate robust mechanisms to authenticate and verify ownership stakes accurately.
- **Networking and Latency:** optimize the transaction process to minimize delays, ensuring that trading and exchange activities are executed promptly, even during periods of high network congestion.
- **Ownership:** rights become complex, requiring clear legal frameworks to define the rights and responsibilities of each fractional owner, including profit sharing, decision-making, and resale conditions.
- **Digital Ethics:** consider the ethical implications of insider trading or exposure of competitive information to potential buyers prior to initiation of trade on the designated platform.
- **Provenance:** keep an immutable record of the NFT activity log, to maintain provenance and the integrity of shares trading and exchange activities.
- **Accessibility:** ensure that the tools and platforms supporting trade activities are accessible to users with diverse needs, promoting inclusivity within the NFT ecosystem.

Relevant Domain Working Group (WGs):

- NA

Relevant Pre-qualified Organizations and Groups (POGs):

- NA

Relevant Specifications, Publications and Projects (SPPs):

- NA

Related Use Cases

- NFT Royalties use cases are related to this use case from a classification perspective; however, they vary in topics covered.



Additional Comments

- This document is a living artifact and may be subject to revisions on a periodic basis to reflect the future state of NFT Royalties, and or based on feedback received from MSF stakeholders that warrants an update in the future.