Metaverse Standards Forum
NFT Royalties: NFT Wrapping and Sale

Last Update: May 05, 2025

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: Wrapping and Sale

Use Case Identifier

MSF2024-NFTWR-001

- Version 1.0
- Year of Release: 2025

Summary of Use Case

Description: This use case outlines the scenario where royalties are paid when an existing Non-Fungible Token (NFT) owner transfer one or more NFTs to a secondary NFT, effectively "wrapping" or “bundling” the original NFT(s). This process allows for the consolidation of ownership and provenance into the secondary NFT, which is then sold, transferring the bundled rights and assets to the new owner.

Benefits of Wrapping: This use case demonstrates the potential for NFT wrapping to streamline the transfer and sale of complex digital assets, enhancing interoperability between different NFT standards and blockchain platforms. It also offers a method for consolidating ownership and provenance, potentially increasing the value and utility of the NFTs involved. By allowing owners to group various NFTs, this method facilitates efficient asset management, reduces transaction costs, and enhances the potential for creative and financial opportunities within the digital assets market.

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Contributors and Supporters

- Digital Asset Management Working Group
- MSF Domains (Peer Review)
- Use Case Taskforce

Keywords

NFT Wrapping, Ownership Transfer, NFT Sale, Blockchain Interoperability, Digital Asset Consolidation, Provenance Tracking, Secondary NFT, Smart Contracts

Actors/Entities

- **Creator:** entity that originates the Primary NFT, responsible for its initial creation and minting.
- **Holder:** includes both Sellers (current NFT owners) and Buyers (collectors, liquidity providers).
- **Wallets:** digital wallets facilitating NFT transactions.
- **NFT:** a digital asset governed by an NFT Contract.
- **NFT Contract:** various types of governing smart contracts for NFTs, including the Primary NFT and Wrapper NFT.
- **Blockchain Network:** the foundational technology enabling NFT minting, trading, and royalty distribution.
- **Marketplace:** digital platforms for listing and trading of NFTs, inclusive of curators and online galleries.

Detailed Description of Use Case/Scenario

Preconditions:

- Creator has minted Primary NFT using System.
- The Seller possesses Primary NFT.
- Secondary NFT Contract is designated to encapsulate the Primary NFT.

Main Flow:

1. Seller takes ownership of a Secondary NFT using the Secondary NFT Contract and possibly the System.
2. The Seller initiates the transfer of the Primary NFT to the Secondary NFT using the Primary NFT Contract.
3. The Secondary NFT, now encapsulating the Primary NFT(s), is listed for sale on a Marketplace.
4. Buyer purchases the Secondary NFT, acquiring the bundled rights and assets.

5. Ownership of the Secondary NFT, along with the encapsulated Primary NFT, is transferred to the Buyer.
6. Marketplace and System distribute royalties from the Primary NFT to Creator.

Alternative Flow

- If the transfer or verification fails, the transaction is cancelled, and the NFTs remain with Seller.

Postconditions

- The Buyer becomes the new owner of both the Primary and Secondary NFTs, with all associated rights and assets.
- Creator gets royalties as defined in the Primary NFT smart contract.

Implementations and Demonstrations or Technical Feasibility

- Smart contracts on platforms like Ethereum, Solana, and Binance Smart Chain offer the programmable flexibility required for NFT wrapping.

Challenges:

- **Different Blockchain Protocols:** various blockchain platforms operate on different protocols, which can make direct interaction between them challenging. Ensuring that NFTs can be transferred or wrapped across these platforms requires standardized protocols or bridging solutions that can seamlessly connect disparate blockchains.
- **Smart Contract Compatibility:** Smart Contracts, which govern the behavior of NFTs, are written in platform-specific languages (e.g., Solidity for Ethereum). Ensuring compatibility across blockchains involves creating or adapting Smart Contracts that can operate or be recognized across different environments.
- **Metadata and Standards Divergence:** NFT metadata standards vary across platforms, affecting how attributes and properties of NFTs are defined and stored. Interoperability challenges arise from needing to maintain the integrity and accessibility of this metadata when an NFT is transferred or wrapped between platforms.
- **Security and Trust:** ensuring secure and trustless transactions between different blockchains is a significant challenge. This includes preventing double-spending, ensuring the authenticity of wrapped NFTs, and protecting against potential exploits in cross-chain operations.
- **User Experience (UX):** providing a seamless UX for users engaging in cross-platform NFT transactions, including wrapping and unwrapping, requires sophisticated interface solutions that abstract the underlying complexity of interacting with multiple blockchains.
- **Network Performance and Costs:** different blockchains have varying transaction speeds and costs. Ensuring efficient and cost-effective interoperability solutions is crucial to prevent bottlenecks and high fees when wrapping or transferring NFTs across platforms.

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Requirements:

Technical and Functional Requirements

- **Standardized Interoperability Protocols:** development and adoption of standardized protocols or APIs that enable seamless interaction between different blockchain networks, facilitating the transfer and recognition of wrapped NFTs across platforms.
- **Secure Smart Contract Frameworks:** implementing and utilizing secure, audited smart contract frameworks designed to handle the wrapping and unwrapping of NFTs, minimizing vulnerabilities and ensuring the safe transfer of assets.
- **Unified Metadata Standards:** establishing unified or compatible metadata standards that ensure the integrity and continuity of NFT data when transferred or wrapped across different blockchains.

Interoperability Requirements

- **Cross-Chain Bridge Solutions:** developing and deploying reliable cross-chain bridge solutions that support the transfer of NFTs between blockchains, addressing technical challenges such as transaction finality and asset locking/unlocking mechanisms.
- **Compatibility Layers:** creating compatibility layers or wrappers that allow smart contracts and NFTs from one platform to be recognized and interacted with on another, facilitating broader interoperability.

Security, Privacy, and Compliance Requirements

- **Comprehensive Security Audits:** regular and thorough security audits of smart contracts and cross-chain infrastructure involved in NFT wrapping to identify and mitigate potential security risks.
- **Privacy-Preserving Mechanisms:** incorporating privacy-preserving mechanisms that protect user data and transaction details during the NFT wrapping and transferring processes.
- **Regulatory Compliance Frameworks:** developing compliance frameworks that ensure NFT wrapping practices adhere to relevant legal and regulatory requirements across jurisdictions, particularly concerning digital asset transfers and ownership rights.

Other Key Considerations

- **Privacy:** implement encryption and anonymization techniques to protect user identities and transaction details during the wrapping and unwrapping processes.
- **Cybersecurity:** employ multi-layered security protocols, including two-factor authentication and cold storage options, for NFT assets during transfer and storage.
- **Identity:** utilize decentralized identity verification systems to ensure the authenticity of parties involved in NFT transactions while preserving their privacy.
- **Networking and Latency:** optimize blockchain network configurations and select efficient consensus mechanisms to minimize transaction latency and enhance the user experience in NFT transfers.
- **Ownership:** develop clear and immutable records of ownership and transfer history within the smart contracts governing NFTs to prevent disputes and ensure transparency.
- **Digital Ethics:** establish guidelines for ethical practices in NFT creation, sale, and wrapping, including considerations for copyright and intellectual property rights.

- **Provenance:** implement mechanisms to accurately track and verify the provenance of NFTs, including the history of ownership and modifications, through blockchain technology.
- **Accessibility:** design interfaces and tools that are accessible to users with disabilities, ensuring that the NFT wrapping process is inclusive and compliant with global accessibility standards.

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.