

# Crashr Marketplace Contract

The Crashr Marketplace Contract is a modified version of the original **JPG Store** v3 contract, which was developed in Aiken. This adaptation allows for the handling of multiple asset trades in a single transaction.

## Core Features

The foundational capabilities of the **JPG Store** v3 contract facilitate the locking of NFTs in return for ADA. Building upon this, our contract broadens the scope to encompass trading across a diverse array of assets within the Cardano ecosystem. This enhancement enables the exchange of any asset for another, extending to fungible tokens as well.

Here’s a list of core features:

- 1. **Trade ADA for NFT:** Enables direct exchange of ADA for NFT assets.
- 2. **Trade NFT for ADA:** Allows NFT assets to be traded in return for ADA.
- 3. **Trade Multiple Assets for NFT:** Facilitates the exchange of various assets for a single NFT.
- 4. **Trade NFT for Multiple Assets:** Permits the trading of a single NFT for multiple different assets.
- 5. **Trade Multiple Assets for Multiple Assets:** Supports transactions involving the exchange of multiple assets for multiple other assets.
- 6. **Versatile Trading Combinations:** Empowers users to trade in any combination of the above, including fungible tokens, ensuring flexibility and broad trading possibilities.

## Listing Requirements

The process for listing assets under the modified contract remains largely aligned with the practices established by **JPG Store** . The notable enhancement is the contract’s expanded capability to accommodate multiple assets, broadening the scope of transactions beyond the original single-asset framework.

The listing requirements are as follows:

- 1. **User must send the assets they wish to trade** to the **marketplace contract**.
- 2. **User must specify the assets he wish to receive in return** in the **output datum** and optional royalty payouts.
- 3. For transactions exclusively involving **native assets**, users are required to **lock the minimum ADA** required by the protocol along with the assets.
- 4. Optionally, **users can designate a royalty fee** for the **original NFT creator**. This fee, calculated offchain and payable solely in ADA, is based on the NFT’s **estimated value at listing**. In cases of trades involving **multiple NFTs from distinct projects**, each project’s **royalty address** may be included in the payout, provided the ADA value meets the **minimum requirement of 1 ADA**.

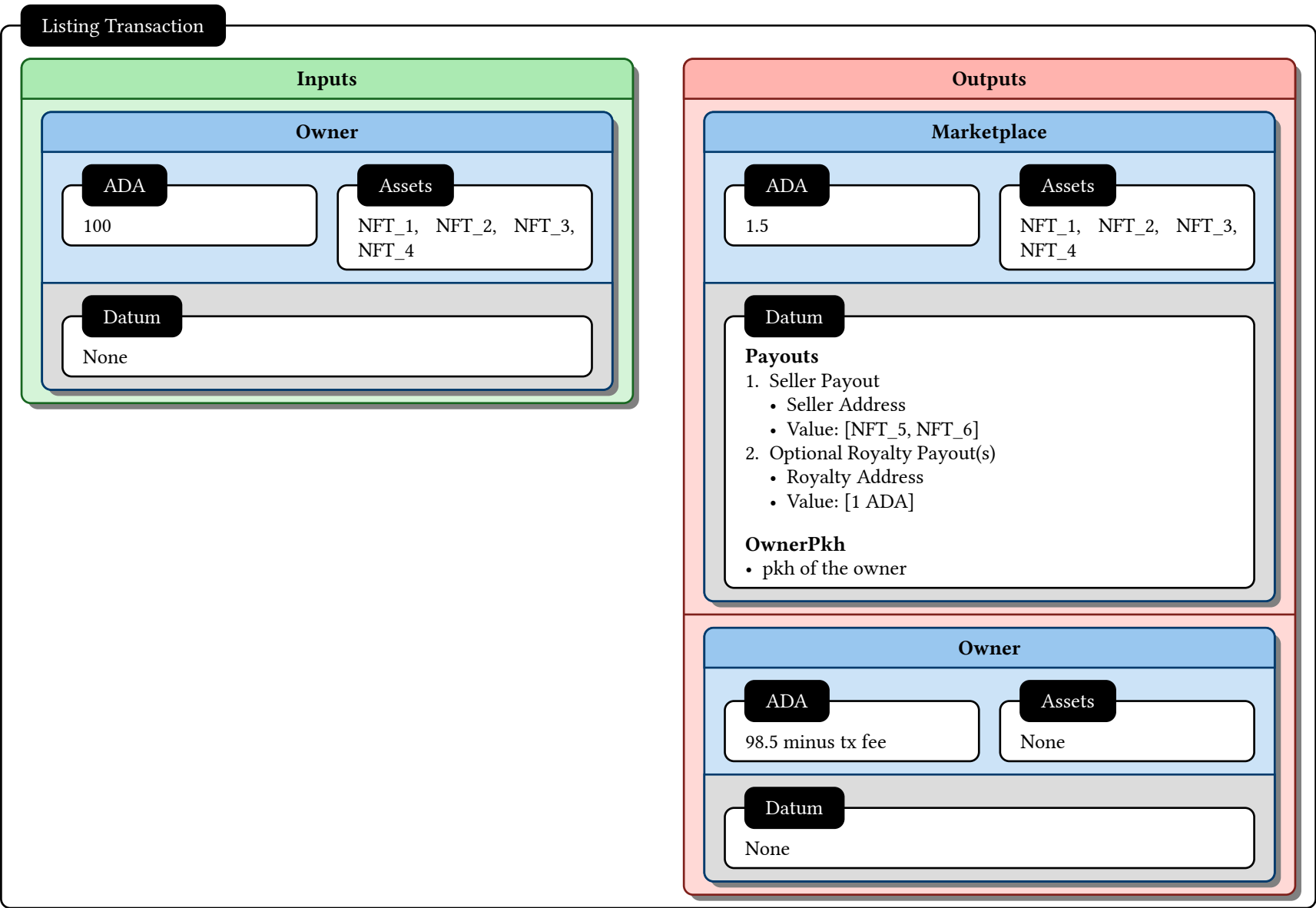


Figure 1: Sample *listing transaction* where the owner locks 4 NFTs and 1.5 ADA in the marketplace validator address with a datum specifying the seller’s address and the assets they want to receive in exchange and optional royalty payouts.

## Buying Requirements

To successfully complete a transaction, **buyers** are required to transfer the assets specified by the **seller** to the seller’s address. The contract also requires buyers to send a **2% fee** to the marketplace, based on the total of the **seller’s payout** plus any **royalty fees**. The 2% fee applies to **ADA** (2% or 1 ADA, whichever is higher) and to **fungible tokens transactions** that reach the threshold of **100 tokens**.

Given the contract’s capability for **multiple asset trades**, there are instances where only minimal ADA is required. To accommodate this, the contract has been adjusted to include a **unique token fee**. The unique token fee necessitates buyers to send **1 ADA for each unique asset** requested by the seller. This fee also applies to **fungible token transactions** that involve quantities below the **100-token threshold**.

The buying requirements are as follows:

1. **Buyer must send the marketplace fee to the marketplace fee address** hardcoded in the contract. It is enforced that the **first payout must be the marketplace fee**; subsequent payouts can be in any order. The marketplace payout also needs to be tagged with the **blake2b256 hash of the spend\_tx\_out\_ref** to prevent double satisfaction.
2. **The buy redeemer has an offset property**, an optimization from the original JPG Store contract. It indicates the **current payout index being processed on-chain**.
3. **Buyer must send the assets specified by the seller to the seller’s address**.
4. If a **royalty fee** is specified, the **buyer must send the royalty fee to the original creator of the NFT**. This fee, calculated offchain, is not enforced by the contract but is expected to be in ADA, based on the **estimated price of the assets** at the time of listing.



Figure 2: Sample *buying transaction* where the buyer satisfies the seller’s requirements by sending the requested assets to the sender’s address, the buyer must also satisfy royalty payout requirements if applicable and send the 2% fee + 1 ADA for each unique asset requested. Minimum marketplace fee is 1 ada.

## Cancel or Update a Listing Requirements

The contract enables the listing owner to cancel or update their listing, retaining the same process as established by the **JPG Store** contract. The only requirement for these operations is the owner’s signature on the transaction.

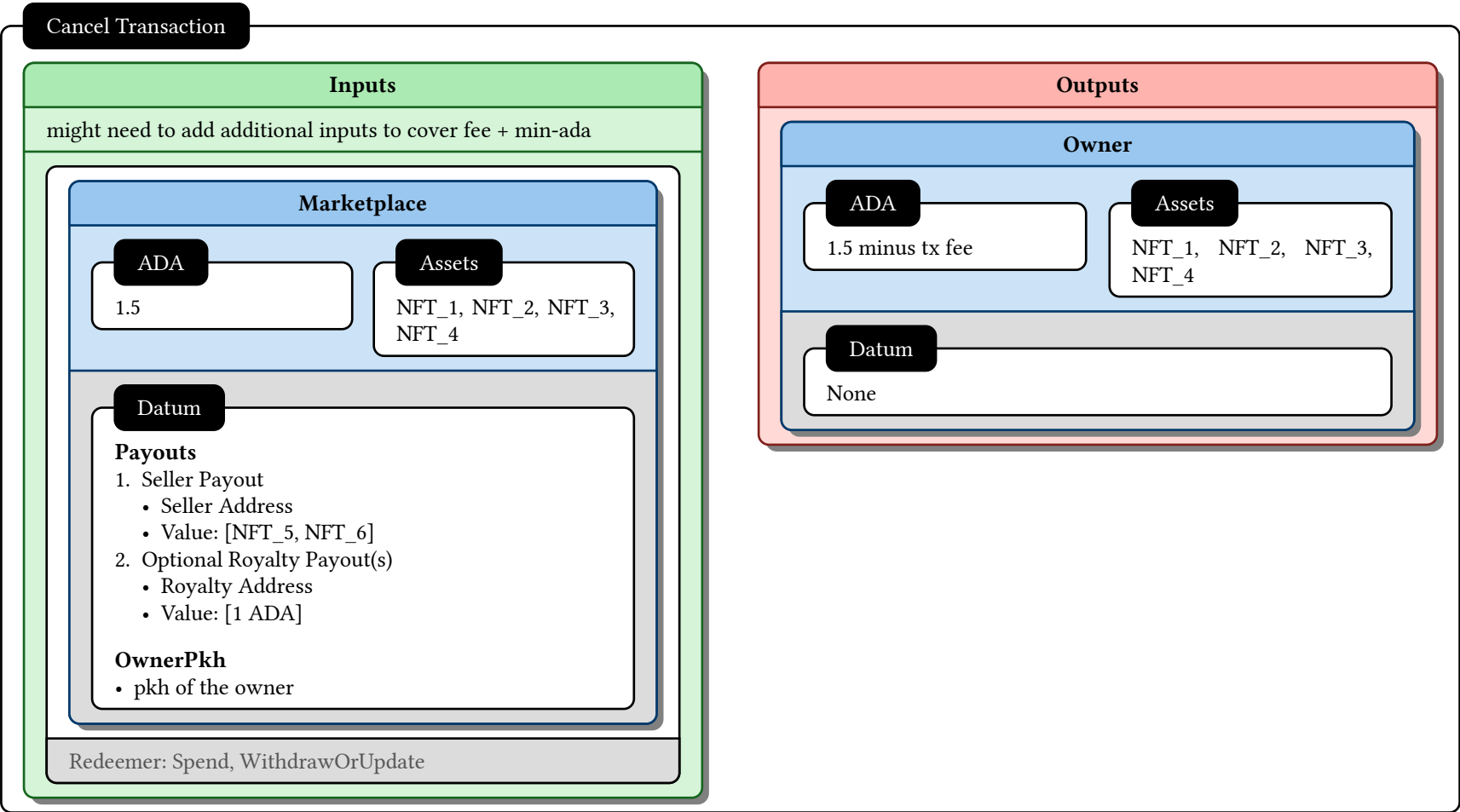


Figure 3: Sample *cancel transaction* where the owner cancels the listing and retrieves the locked assets.

## Additional Notes

The seller has the option to request a non-specific asset from a particular collection. To do this, within the value property of the payout, the seller needs only to provide the policy ID. The buyer can fulfill this request by sending any asset that falls under the given policy ID. Furthermore, the seller is able to request any quantity of assets under a policy ID without needing to name the specific assets. This functionality aligns with the collection offer feature of the **JPG Store** contract.