

# AIM<sup>1</sup>-004: Explicit Write Permissions of Native Functions

*platfowner 2021-01-29*

## Goals

- Control write permissions of native function with explicit rules

## Problem Definition

For the blockchain state changes of native functions:

- No write permissions are set explicitly, i.e., their write permissions are not visible to users
- No permission checks are done, i.e., `writeDatabase()` is called directly

## Proposed Changes

### AS-IS

- Native functions alter blockchain states by calling `writeDatabase()` directly without any explicit permission check
- For example, `_transfer()` triggered by a `SET_VALUE` operation on `/transfer/<from address>/<to address>/<key>/value` alters state values at `/accounts/<from address>/balance` and `/accounts/<to address>/balance`
- Eval rules get 'auth' param of only user address

### TO-BE

- Eval rules get 'auth' param of either user address or function id, i.e., `auth = { addr, fid }` so that function id can be used in evaluating rules, e.g.:

```
".write": "auth.fid === '_transfer'"
```

- Native functions call **`setValue()`** instead of `writeDatabase()` and go through the regular permission check

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<sup>1</sup> AI Network Improvement Memo. Visit <https://docs.ainetwork.ai> for the full list.

# Rationales

With the proposed approach, we can:

- Keep allowing flexibility of native functions' business logic
- Make native functions' write permissions more transparent and consistent

## Document History

| Date       | Who  | Change          | Notes |
|------------|--|-----------------|-------|
| 2021-01-29 | platfowner   | Initial draft   |       |
| 2021-02-02 | platfowner, liayoo, minsulee2, cshcomcom, shyun-comcom | Internal review |       |
| 2021-05-13 | platfowner   | Published       |       |
|            |  |                 |       |