

Precompiles

A precompile refers to a pre-existing piece of code or a smart contract that is already deployed on the Filecoin network for use by developers.

The Filecoin virtual machine (FVM) has several pre-compiled contracts called precompiles. Each precompile address starts with `0xfe000...`. Specifically:

- [Resolve address0xfe00..01](#)
- [Lookup delegated address0xfe00..02](#)
- [Call actor by address0xfe00..03](#)
- [Call actor by ID0xfe00..05](#)
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Resolve Address

[illegible]

Resolves a Filecoin address (e.g., "f01", "f2abcde") into a Filecoin actor ID (uint64). Every actor in Filecoin has an actor ID.

- Input: The Filecoin address in its bytes representation.
- Output:
 - If the target actor exists, succeed and return an ABI-encoded actor ID (u64).
 - If the target actor doesn't exist, succeed with no return value.
 - If the supplied address is invalid (cannot be parsed as a Filecoin address), revert.
- *
-

Example:

...

```
Copy (boolsuccess,bytesmemoryactor_id_bytes)=address(0xfe00000000000000000000000000000001).staticcall(fil_address_bytes); require(success,"invalid address"); require(actor_id_bytes.length==32,"actor not found"); uint64actor_id=abi.decode(actor_id_bytes);
```

...

Lookup Delegated Address

Address:0xfe00000000000000000000000000000000

Looks up the “delegated address” (f4 address) of an actor by ID. This precompile is usually used to lookup the Ethereum-style address of an actor by:

1. Looking up the delegated address.
2. Checking that the delegated address is 22 bytes long and starts with 0x040a
3. .
4. Returning the last 20 bytes (which will be the Ethereum-style address of the target actor).
- 5.
6. Input: An ABI-encoded actor ID (u64 encoded as a u256).
7. Output:
8.
 - If the supplied actor ID is larger than max u64, revert.
9.
 - If the target actor exists and has a delegated address, succeed and return the delegated address as raw bytes.
10.
 - Otherwise, succeed with no return value.
11. *
- 12.

Example:

...

```
Copy (boolsuccess,bytesmemorydelegated_address_bytes)=address(0xfe00000000000000000000000000000002).staticcall(abi.encode(uint256(actor_id)));
```

...

Call Actor By Address

Address:0xfe00000000000000000000000000000000

Calls the specified actor using the native FVM calling convention by its Filecoin address. This precompile must be called with `DELEGATECALL` as the precompile will call the target actor on behalf of the currently executing contract.

Input: ABI Encoded

...

Copy (uint64method, uint256value, uint64flags, uint64codec, bytes params, bytes filAddress)

...

- method
- is the Filecoin method number. The precompile will revert if the method number is not either 0 (bare value transfer) or at least 1024. Methods between 1 and 1023 inclusive are currently restricted (but may be allowed in the future).
- value
- is the value to transfer in attoFIL.
- codec
- is the IPLD codec of the parameters. This must either be 0x51 or 0x00 (for now) and will revert if passed an illegal codec:
-

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