

# EIP 55: Mixed-case checksum address encoding

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: **Note:** The following is an excerpt from the official Ethereum site. It is provided here as a convenience and is not authoritative. Refer to the original document as the authoritative reference.

Table 1: Data sheet for Mixed-case checksum address encoding

|               |                                                                                                                     |
|---------------|---------------------------------------------------------------------------------------------------------------------|
| Title         | Mixed-case checksum address encoding                                                                                |
| Author        | Vitalik Buterin, Alex Van de Sande                                                                                  |
| Status        | Final                                                                                                               |
| Created       | 2016-01-14                                                                                                          |
| Description   | <a href="http://eips.ethereum.org/EIPS/eip-55">http://eips.ethereum.org/EIPS/eip-55</a>                             |
| Specification | <a href="http://eips.ethereum.org/EIPS/eip-55#Specification">http://eips.ethereum.org/EIPS/eip-55#Specification</a> |
| Category      | ERC                                                                                                                 |

## Abstract

In English, convert the address to hex, but if the  $i$ th digit is a letter (ie. it's one of `abcdef`) print it in uppercase if the  $4*i$ th bit of the hash of the lowercase hexadecimal address is 1 otherwise print it in lowercase.

## Rationale

### Benefit

- Backwards compatible with many hex parsers that accept mixed case, allowing it to be easily introduced over time
- Keeps the length at 40 characters
- On average there will be 15 check bits per address, and the net probability that a randomly generated address if mistyped will accidentally pass a check is 0.0247%. This is a ~50x improvement over ICAP, but not as good as a 4-byte check code.

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