

# Alonzo era

The Alonzo era introduced smart contract capabilities to the Cardano blockchain through Plutus, Cardano's native smart contract language. With this upgrade, several protocol parameters were updated or introduced to accommodate the new functionalities and ensure the network could handle the additional computational load and complexity. It has been described in [CIP-28](#)

## Key parameters in `Alonzo-genesis.json`

```
{
  "lovelacePerUTxOWord": 34482,
  "executionPrices": {
    "prSteps": {
      "numerator" : 721,
      "denominator" : 10000000
    },
    "prMem": {
      "numerator" : 577,
      "denominator" : 10000
    }
  },
  "maxTxExUnits": {
    "exUnitsMem": 10000000,
    "exUnitsSteps": 10000000000
  },
  "maxBlockExUnits": {
    "exUnitsMem": 50000000,
    "exUnitsSteps": 40000000000
  },
  "maxValueSize": 5000,
  "collateralPercentage": 150,
  "maxCollateralInputs": 3,
  "costModels": {
    "PlutusV1": {
      ...
    }
  }
}
```

Field	Initial Value	Description
lovelacePerUTxOWord	34482	Deposit charged per word of UTxO storage.
executionPrices	{ "prSteps": { "numerator" : 721, "denominator" : 10000000 }, "prMem": { "numerator" : 577, "denominator" : 10000 } }	Fee per Plutus execution step and per memory unit
maxTxExUnits	{ "exUnitsMem": 10000000, "exUnitsSteps": 10000000000 }	Maximum number of memory units and steps in a single transaction.
maxBlockExUnits	{ "exUnitsMem": 50000000, "exUnitsSteps": 40000000000 }	Maximum number of memory units and steps in a single block.
maxValueSize	5000	The limit on the serialized size of the Value in each output.
collateralPercentage	150	Percentage of fee that is used as collateral for a failed transaction.
maxCollateralInputs	3	Maximum number of collateral inputs in a transaction.
costModels	{ "PlutusV1": { ... } }	Detailed cost models for each Plutus version.