



## **Artemine: The First Self Mining Smart Contract 2.0**

**Symbol: ARTE**

**Type: Ethereum Token**

**[www.artemine.org](http://www.artemine.org)**

### **1. Introduction**

Artemine is intended to be the version 2.0 of Minereum - The First Self Mining Smart Contract.

The goal is to continue the evolution of Smart Contract technology with the focus on new blockchain mining approaches, in particular the Smart Contract Self-Mining principle.

The Self-Mining principle relies on the basis that the Token will mine the coins itself for a specific amount of time without the direct need of Mining Equipment or Miners. The token supply is automatically generated on the fly by a mathematical formula.

Artemine brings the following new features:

- Genesis Addresses with different supply
- Possibility to Transfer Genesis Addresses
- Automatic Sale of Genesis Addresses
- Public Mining

## 2. Genesis Addresses

For the Self-Mining principle to work the concept of “Genesis Addresses” is introduced.

Genesis Addresses are addresses part of the creation of the initial supply of Artemine, these addresses are attributed with a certain amount of coins that will be self-mined for a specific amount of time.

### 2.1 Self-Mining Principle

The availability of coins on each Genesis Address is calculated purely by a mathematical formula on the fly.

This formula is incorporated in the Transfer function of the Smart Contract and its only function is to prevent that a user is able to transfer more funds than what he is allowed to.

An example of the formula used to calculate the available amount of coins for transfer can be visualized below:

```
minedBlocks = block.number - initialBlockCount;

if (minedBlocks >= maxBlocks) return balances[_address];

availableAmount = genesisRewardPerBlock[_address]*minedBlocks;

totalMaxAvailableAmount = genesisInitialSupplyPerAddress[_address] - availableAmount;

availableBalance = balances[_address] - totalMaxAvailableAmount;

return availableBalance;
```

## **2.2 Genesis Addresses with Different Supply**

While in Minereum each Genesis Address was attributed 32,000 coins, Artemine will allow the initial contributors to decide how much they want to hold depending on the amount they contribute in the creation phase.

To keep the integrity of the Self-Mining concept, few restrictions apply to Genesis Addresses:

- Users cannot transfer more than the Available Amount
- Genesis Addresses cannot receive coins

## **2.3 Genesis Addresses Self-Mining Rate**

The mining rate of Artemine's Genesis Addresses is 0.000001% of the total amount of ARTE attributed to it (in the contribution phase) per ethereum block.

The coins will be mined for 100,000,000 Ethereum blocks.

If we take into account the current average block time of ethereum of approximately 20 seconds we can conclude that the mining duration will be approximately 60 years ( $20 \times 100,000,000 = 2000000000$  seconds = ~63 years), however the block time of ethereum cannot be predicted with certainty, the whole Artemine's self-mining duration will depend on the ethereum block creation time over time.

As an example if a user gets a Genesis Address with 1000 ARTE the number of coins generated per ethereum block will be 0.00001 ARTE, taking into account that there are approximately 4320 blocks per day as per the current average block time of 20 seconds, the total amount of coins generated per day would be  $0.00001 \times 4320 = 0.0432$  ARTE.

## **2.4 Possibility to Transfer Genesis Addresses**

Artemine Genesis Address Holders will have the possibility to transfer their Genesis Addresses holdings to another address by calling the function TransferGenesis, the only requirement is that the target address must have 0 ARTE.

## **2.5 Automatic Sale of Genesis Addresses**

Artemine Smart Contract function SetGenesisBuyPrice allows Genesis Holders to set an ETH price to their Address, Genesis Holders will be able to set their Addresses for sale by defining the buy price with any value  $> 0$  ETH (The price has to be set in wei, the lowest unit of ETH).

Any user will then be able to call the function BuyGenesisAddress by sending the exact ETH amount the Genesis Address Holder has set as the buy price. The sale will be done automatically: the buyer will instantly get the Genesis Address Holdings transferred to his address and the seller will get the defined ETH in return.

This process removes any middleman in the process of selling Genesis Addresses.

### 3. Public Mining

Artemine Smart Contract function PublicMine will allow anyone to mine coins (excluding Genesis Addresses).

The initial Public Mining reward is 0.000032 ARTE, this amount will be reduced by 0.000000000000001 ARTE on each subsequent call.

As an example, the first call to the PublicMine function will receive 0.000032 ARTE in return, the second will receive 0.00003199999999, the third will receive 0.00003199999998 and so on.

An illustration can be seen below on the mining reward per the number of calls:

Call Number	Reward (ARTE)
1	0.000032
2	0.00003199999999
3	0.00003199999998
4	0.00003199999997
5	0.00003199999996
6	0.00003199999995
7	0.00003199999994
8	0.00003199999993
9	0.00003199999992
10	0.00003199999991
n	...

All calls are public and can be called as many time as intended, however the user will have to pay the ethereum network transaction fees in order to successfully use the PublicMine function, the estimated ether gas cost per transaction is approximately 50,000.

#### 4. Circulating Supply

The circulating supply of Artemine is defined by the formula:  
[GenesisAddressMining] + [PublicMining]

[GenesisAddressMining]

The initial circulating supply of Artemine will be defined by the amount of participants on the contribution phase and by the total amount of ARTE they will hold on each Genesis Address, the circulating supply will then increase on each ethereum block by the rate defined previously in the section 2.3.

As an example if we have a total of 5,000 Genesis Addresses created in the contribution phase and each of them with 10,000 ARTE the circulating supply generated on each ethereum block will be:  $(5000 * 10000) * 0.00000001 = 0.5$  ARTE.

Taking into account the current average block of ethereum of 20 seconds that would produce the following amount of ARTE per day:  $0.5 * 4320 = 2160$  ARTE.

[PublicMining]

The Public Mining Supply is defined by the number of times the PublicMine function is called, the number of coins generated is defined in the previous section 3.

#### 5. Transaction fees

As Artemine is an ethereum Smart Contract, ethereum network transaction fees apply for Artemine transactions.