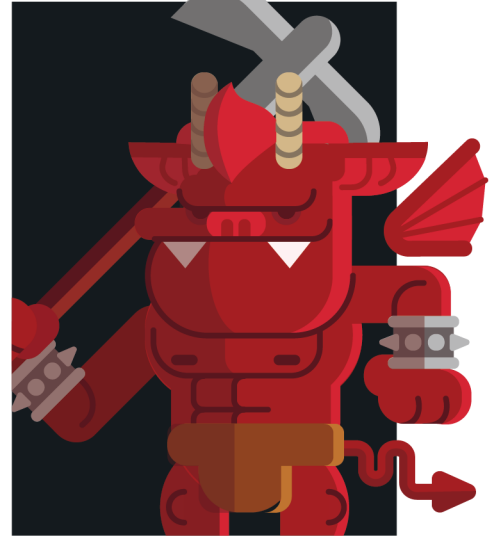# ETHER KINGDOMS

a blockchain driven PVP strategy game

# WHITE PAPER

v2.0 / August 20, 2018

# Introduction

We see great potential in crypto-technologies as they pertain to mobile and computer gaming, as well as various other entertainment industries. We are proud to say that we are one of the first to break ground and form the crypto-gaming market because we're certain that in just a few years, there will be an explosion of various types of gaming projects incorporating this promising technology.

Meet Ether Kingdoms – a blockchain game that implements our vision of an exciting and engrossing game that can make real money for the player. A game for the wide audience, Ether Kingdoms is built around its own token – IMP[1].

Did you think ICO as soon as you read "token"? No, not this time. We are not holding an Initial Coin Offering, of which everyone familiar with the crypto-world is tired by now. We wanted to release Ether Kingdoms as soon as possible, so a few months ago we came out with the beta-version, making it possible for every player (even those that aren't hardcore gamers or blockchain enthusiasts) to enjoy our game right away.

With that said, we had a detailed development plan from the get go, with updates on mechanics and feature content coming out once-twice per month. In the second-third quarter of 2019 we will be unveiling our global plans that will go far beyond Ether Kingdoms itself... But it's too soon to talk about that.

[1] IMP token is an Ethereum based ERC20 token. The name comes from the word "Imp", meaning "little devil". When you see our characters, you'll understand why we named them that. But don't worry, they are quite awesome.

# Overall Game Mechanics

**THE BASIC ETHER KINGDOMS GAME MECHANICS CONSISTS OF THE FOLLOWING COMPONENTS:**

1. Mining
2. PvP battles
3. Artifact equipment
4. Leaderboard participation

The game field is a hexagonal grid that contains key game elements – the Castle and mines. The IMP token, or imps, can be mined in the mine. The imps are the Kingdom's main workers and warriors. One IMP token equals one imp under your command. Further, when we talk about tokens, imps, or IMP, please remember that all of these are synonyms and mean the same thing.

Your imps are very useful! Send them to the mine and they'll get you more IMP tokens. As long as your imps are hard at work, you have constant token profit. Isn't it great?

The Castle is the heart of your Kingdom. After reaching 100th level, you can exchange your imps for lootboxes, which are chests that hide cool and very useful artifacts.

In addition to mining, your imps can battle the imps of other players. Click on the icon with two crossed swords, specify the number of imps you'd like to send, and sit tight, waiting for an opponent to accept your challenge. If you don't want to wait, you can call upon our highly trained bots, and enjoy watching the automated battle. Don't forget to turn on the sound!

The battle can either be a draw, or victory of one of the players, or the bot. In the latter case, the loser gives up a part of his imps and the winner takes them home. If you are fighting the bot, it becomes the mirror copy of your own imp, so your chances of victory are equal. Keep in mind that the game keeps a commission of 10% for each battle.

Your imps have a list of characteristics, which you can see in the equipment window. You can also use this window to equip the imps with artifacts, making them stronger before each battle.

You may ask where do you get the artifacts? Well, there are several ways of obtaining them, but the simplest one is to participate in weekly leaderboards. Leaderboards are competitions among players, with the best player receiving a lootbox containing artifacts.

# Architecture and Technology

Ether Kingdoms is based on the blockchain technology, but not all of its operations use the smart contract. You may ask why. This is due to the fact that the current Ethereum infrastructure has a number of limitations, such as low productivity and certain costs associated with each operation. This is logical, as the main concern of blockchain is the safety of information, and not speedy transactions for free. We came up with a solution to ensure that the game is fast and secure at the same time. First, let us describe the possible approaches to a blockchain-based game.

## 1. COMPLETE IMPLEMENTATION BASED ON THE ETHEREUM BLOCKCHAIN.
The world-famous CryptoKitties overloaded the Ethereum blockchain numerous times during its peak popularity times, which raised the price of transactions and slowed down their speed dramatically. It's unlikely that any player likes when this happens. Additionally, ERC20 token operations — and IPM is an ERC20 token — require much more gas than Ether operations. If we were to use Ethereum for mining and battles, each transaction would cost the player up to 210 thousand gas. A possible solution is Plasma.io, but at the time Ether Kingdoms was released, Plasma. io was not yet finished. This is why we stepped away from this solution — it's too expensive for the player, would not allow players to enjoy quick PvP battles, and would overload the Ethereum blockchain.

## 2. IMPLEMENTATION BASED ON ALTERNATIVE BLOCKCHAINS.
We also looked into NEM/XEM and Stellar blockchain platforms. However, these don't function with MetaMask and don't support ERC721 standard analogs, which is necessary for the artifacts. Additionally, these blockchains don't have a decentralized exchange and a way of giving liquidity to the tokens in a timely manner, as well as present several issues with finding specialists to work based on them. Thus, we scratched out this option.

## 3. IMPLEMENTATION BASED ON OUR OWN BLOCKCHAIN.
We looked into this solution only hypothetically, as it would be too expensive for our players and very time-consuming for us to develop. Additionally, in order to create a game based on our own blockchain, we would need to attract additional investors either through an ICO or by ways of venture funds.

## 4. A HYBRID SOLUTION.
This worked for us and we believe is the best approach for the type of project we are creating! With a hybrid solution, tokens are added to the balance within the game's wallet, much like on any exchange. MetaMask is used to log into the game and to deposit/withdraw the tokens from the game. MetaMask is also used to verify all key actions in the game, such as sending imps to battle. All other in-game operations are stored on the server, which makes everything quick and free. As such, a balance is reached between productivity, reliability and transparency. This is why we chose this option for Ether Kingdoms.

# Mines and Mining

There are 25 mines on the game field. At the beginning of the game, only one mine is available to the player, but with each successfully passed level, new mines open for business. We'll talk about player level and how to raise it a bit later. When the player reaches level 25, all of the Kingdom's mines become available.

Each mine has its own level – from 1 to 4 – which should not be confused with the player's level. All mines have level 1 when they open, which means that you can only send 100 imps to work in it. The greater the mine level, the more imps you can send there. The more imps you have working in the mine, the greater is the number of IMP they can mine daily! So it's in the player's best interest to upgrade the mine to its greatest level, so they can send as many imps as possible to work in it. For example, if you send 400 imps to a level 4 mine, they will render 4 IMP per day. The table below has detailed information on how this system works.

| Mine Level | Max Number of Imps in the MIne | Necessary Player Level | Cost of Mine Upgrade | Max Daily % at Full Capacity[2] |
|---|---|---|---|---|
| 1 | 100 | 1 | - | 0.25% |
| 2 | 200 | 25+ | 2 IMP | 0.5% |
| 3 | 300 | 50+ | 5 IMP | 0.75% |
| 4 | 400 | 100 | 10 IMP | 1% |

Before a player reaches level 25 (player level, not mine level), they will gradually open one mine after another on the map of their Kingdom. After the player reaches level 25, they will be able to start upgrading the mines themselves. The upgrade happens with each mine separately and costs a small number of IMP. Between player levels 25 and 50, the mines can be upgraded to level 2. Between player level 50 and 100, the mines are upgraded to level 3. After player reaches level 100, the mines are upgraded to level 4.

On the main screen you will always see real-time information about how much your miner-imps are mining. It's obvious that the more mines you have, the more imps mine in them, and the greater the level of the mine, the greater is your profit!

[2] After 3 500 000 IMP were mined, the game mining speed will be decreased twofold. All of the numbers stated in the table are relevant to mining prior to this decrease.

# Battles Against Other Players and Bots

As we've mentioned before, in addition to mining, your imps can fight other players' imps. Why would you want to send your imps to battle? Because you will receive experience points for each fight, and experience points help you grow, increasing the number of the mines in your Kingdom and the IMP tokens you can mine in them.

| LVL[3] | EXP | LVL | EXP | LVL | EXP | LVL | EXP | LVL | EXP | LVL | EXP | LVL | EXP | LVL | EXP | LVL | EXP | LVL | EXP | LVL | EXP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | - | 11 | 113 | 21 | 323 | 31 | 633 | 41 | 1043 | 51 | 1553 | 61 | 2163 | 71 | 2873 | 81 | 3683 | 91 | 4584 | 101 | 6534 | 111 | 23934 |
| 2 | 10 | 12 | 133 | 22 | 353 | 32 | 673 | 42 | 1093 | 52 | 1613 | 62 | 2233 | 72 | 2953 | 82 | 3773 | 92 | 4676 | 102 | 7734 | 112 | 27034 |
| 3 | 20 | 13 | 153 | 23 | 383 | 33 | 713 | 43 | 1143 | 53 | 1673 | 63 | 2303 | 73 | 3033 | 83 | 3863 | 93 | 4768 | 103 | 9034 | 113 | 30234 |
| 4 | 30 | 14 | 173 | 24 | 413 | 34 | 753 | 44 | 1193 | 54 | 1733 | 64 | 2373 | 74 | 3113 | 84 | 3953 | 94 | 4862 | 104 | 10434 | 114 | 33534 |
| 5 | 40 | 15 | 193 | 25 | 443 | 35 | 793 | 45 | 1243 | 55 | 1793 | 65 | 2443 | 75 | 3193 | 85 | 4043 | 95 | 4957 | 105 | 11934 | 115 | 36934 |
| 6 | 50 | 16 | 213 | 26 | 473 | 36 | 833 | 46 | 1293 | 56 | 1853 | 66 | 2513 | 76 | 3273 | 86 | 4133 | 96 | 5052 | 106 | 13534 | 116 | 40434 |
| 7 | 60 | 17 | 233 | 27 | 503 | 37 | 873 | 47 | 1343 | 57 | 1913 | 67 | 2583 | 77 | 3353 | 87 | 4223 | 97 | 5149 | 107 | 15234 | 117 | 44034 |
| 8 | 71 | 18 | 253 | 28 | 533 | 38 | 913 | 48 | 1393 | 58 | 1973 | 68 | 2653 | 78 | 3433 | 88 | 4313 | 98 | 5246 | 108 | 17034 | 118 | 47734 |
| 9 | 82 | 19 | 273 | 29 | 563 | 39 | 953 | 49 | 1443 | 59 | 2033 | 69 | 2723 | 79 | 3513 | 89 | 4403 | 99 | 5345 | 109 | 18934 | 119 | 51534 |
| 10 | 93 | 20 | 293 | 30 | 593 | 40 | 993 | 50 | 1493 | 60 | 2093 | 70 | 2793 | 80 | 3593 | 90 | 4493 | 100 | 5444 | 110 | 20934 | 120 | 55534 |

It's very easy to send your imps to battle, just click the crossed swords icon and specify how many imps you'd like to dedicate to the fight. The greater your level, the more imps you can send. At the beginning levels, you can send no more than 10. Later, this number grows to 25, then 50, etc. At the highest levels, you can send as many as 500 imps to battle.

If no opponent with similar level to yours is available[4], you can always fight our bot, which is a mirror of your own imps as far as characteristics are concerned, making your chances of victory absolutely equal.

[3] At the beginning of the fall 2018, we will be adding levels 121-130.
[4] In the fall 2018, we'll introduce battle packages against other players—you will just specify how many battles you'd like to participate in, how many imps you'd like to send to each battle, and how much time your offer is valid. This will allow each player to increase their levels and take higher places in leaderboards without wasting time waiting for an opponent.

The battle happens in an automatic mode – just sit tight and watch a video of how imps attack each other in a funny squabble. Fights are broken into rounds, with each round being an exchange of hits between your imps and the imps of your opponent. If the battle ends in a draw, each player leaves with what they came. If someone wins, the winner takes a portion of the loser's imps (between 20% and 80%). The game withholds a commission of 10% for each battle.

The higher the player's level, the stronger their imps become – they get more health points (HP) and the amount of damage they can cause goes up. With that, you can increase the characteristics of your fighters by equipping them with artifacts. But we'll talk more about this in an upcoming section.

## LET'S LOOK AT THE BATTLE'S ALGORITHM STEP BY STEP:

1. If two players send 50 imps each to a battle, the total prize pool is 100 IMP.
2. The game has a 10% commission of the total pool (10 IMP). The remainder is 90 IMP.
3. The winner and the loser are determined, as well as the medium of the prize pool. In our example, it's 45 IMP (90 divided by 2)
4. The winnings and losses are determined between 20% and 80% of the medium, which is 45 IMP in our case.
5. Let's say that this is 60%, or 27 IMP (45*60%). In this case, the winner will get 72 IMP (45+27) and the loser will come back with 18 IMP (45-27).

We'll admit that the battles against bots aren't designed to make money. Due to the even chances of winning, as well as the game's commission, it's unwise to think you will make easy profit. Bots are necessary to quickly raise the player's experience level, which will in turn give them more imps due to the opening of more mines and their upgrade. Since experience points are given for each battle (1 EXP point for each imp you send to battle), it's beneficial to go to battle even if you lose.
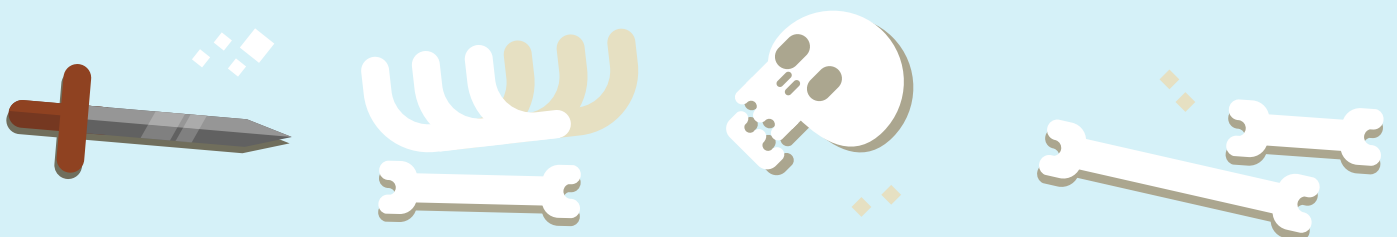
# Equipment and Artifacts

The equipment window (imp icon) is there for you to see what battle characteristics your imps have and to equip them with artifacts. The main characteristics are health, amount of damage that can be caused, protection, chances of a critical hit, dodging and additional attack. Health and damage caused grow with your level, while the rest of the characteristics can only be changed with the artifacts (health and damage can, as well). The rarest and coolest artifacts can drastically change the battle's outcome. For example, they can lower or completely diminish your opponent's chances of a critical hit.

A reminder: in battles against bots (PvE), your chances of winning or losing are equal because the bot has the same characteristics as you do.

Artifacts can be obtained in different ways – purchased in the Castle after reaching level 100, won in weekly leaderboards, received during special offers (regular, but limited in time), or bought on the special exchange Opensea.

If you received the artifact in the game (for example, opened a lootbox with one), you will see a Claim button under its image in your equipment window. When you press the button, you will be offered to turn the artifact into an ERC721 token[5]. Doing so will cost you some gas and the final price of the artifact will be reflected in your MetaMask wallet. You will need some time after the transaction to see the token in your MetaMask. It will still be available in the game, but the Claim button will disappear, with the MetaMask button (head of a fox) replacing it.

After this, you can do anything you wish with the artifact token – sell it on Opensea, give it to a fiend, transfer it to another wallet, etc.

[5] The key feature of the token of this standard is its unique and individual characteristics. We will release a limited number of ERC721 artifact tokens, after which they will be in free circulation within the Ethereum blockchain. You can see the history of each token (when it appeared or changed ownership, etc.) on the block-chain itself. Practically, such tokens aren't just beneficial to the players, but are collectible items with unique properties within the Ethereum blockchain. They will remain on the blockchain as long as the blockchain itself exists.

You can use a limited number of artifacts on your imp, and each of them is related to a specific slot:

- 1 slot for the helmet
- 2 slots for the weapon
- 2 slots for the defense (shield)
- 1 slot for the armor
- 5 slots for additional objects
- 1 slot for the pet (can be taken to battle)

Please note that there are different artifacts in the game. For example, there are artifacts that can raise one parameter, but lower another. Or artifacts that can be reloaded – these have a limited number of uses, after which they need to be reloaded. You'll need imps to do so and charge is used only during PvP battles.

# Quests, Leaderboards and Airdrop

The Airdrop is divided into 2 rounds. The first round occurred in late May 2018, 350 000 IMP was distributed. Same amount of IMP is reserved for the second round.

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The following quests are available during the second round of the Airdrop, which will run through August 2018:

**1. JOIN THE RANKS**
Enter the code to receive 10 IMPs for joining our Telegram chat.

**2. FIRST BLOOD**
Fight in your first battle! To start, press the icon with crossed swords and choose the number of imps you want to send to battle.

**3. TO ARMS!**
Reach level 5! You still need to fight 3 battles at minimum bets. As a reward for this quest, you will receive a lootbox that contains one artifact, guaranteed.

**4. IT'S DANGEROUS TO GO ALONE! TAKE THIS**
Equip your imp with your first artifact. This can be done in the Equipment storage after reaching level 15.

**5. HEROES OF PICKS AND MINES**
Mine 0.25 IMPs! To do so, you need to send at least 100 imps to the mine. Just press any available mine and choose the number of imps you want to send.

We also reserve 600 000 IMP to be distributed in leaderboards. Beginning June 2018, for one full year, we will hold weekly leaderboards with the prize fund of 11 000 IMP.

The rules of the leaderboards will change every week. For example, it can be a competition for the greatest number of wins, the total number of imps sent to battle, and much more. Since the total token emission is 13 million IMP, 10% of the total available tokens will be dedicated to Airdrops and leaderboards (350 000 + 350 000 + 600 000 = 1 300 000 IMP).

# Token Distribution

We will release a total of 13 million IMP tokens. Of those, 2 million will be used to finance the project development, 1.3 million will be used for airdrops and leaderboards, and 9.7 million will be available for mining.

As soon as the token circulation reaches 3.5 million IMP, we will cut in half the speed of token mining. All of the players' wallets, exchanges and the game pool will be considered when determining the total circulation, not including the IMP that are dedicated to project development.

If players mine IMP actively, all 13 million tokens will be in circulation by September of 2019. By this time, we will implement a mechanism to gradually burn the tokens to minimize the supply and raise the token price.

**AIRDROP AND LEADERBOARDS - 1 300 000**

**DEVELOPMENT - 2 000 000**

10%

15%

IMP

75%

**MINING - 9 700 000**
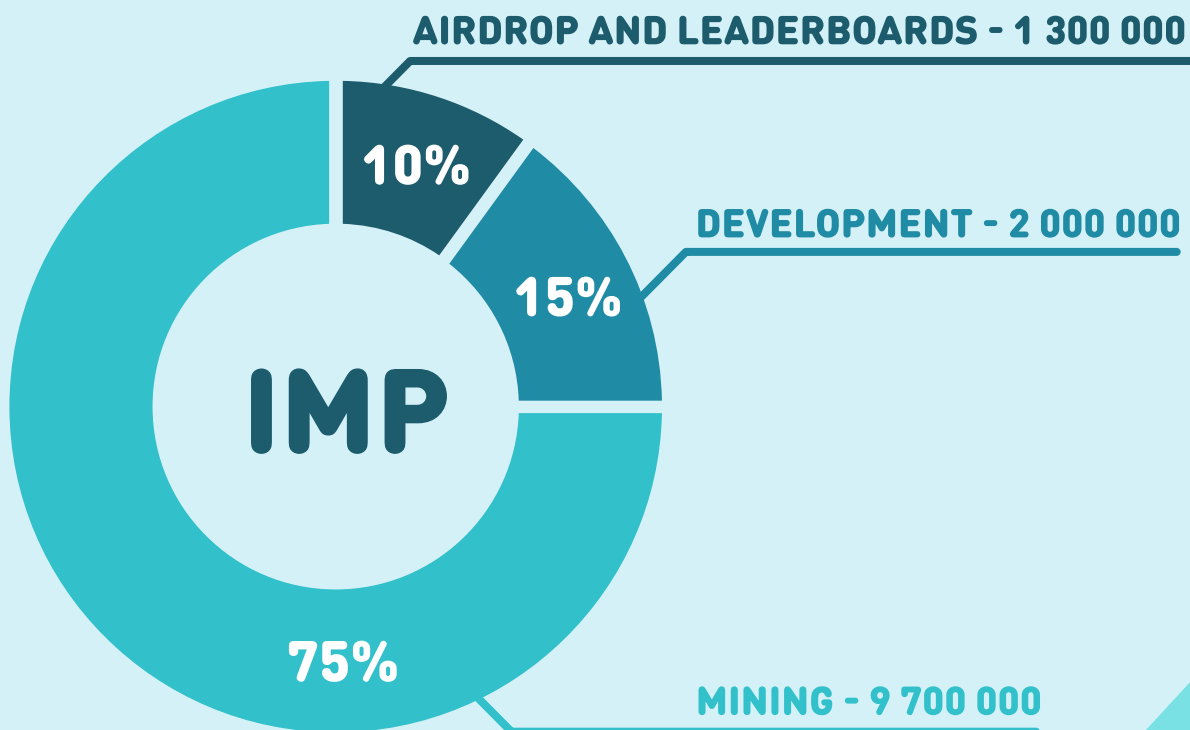
# Roadmap

## MAY 2018 – RELEASE OF THE MVP VERSION (COMPLETE)

1. Make the MVP version openly available.
2. List IMP on exchanges (the exchange list will be published on our site at imptoken.io).
3. First airdrop – 400 000 tokens.

## JUNE-AUGUST 2018 – MAIN RELEASE (COMPLETE)

1. Introduction of the ERC721 tokens as battle trophies that give game bonuses. Such bonuses can be modifiers of the chance to win, or neutralizers of such chances of your opponent.
2. Start of the mining campaigns.
3. Second round of the Airdrop – another 300 000 tokens.
4. Surprise update with pets for your imps.
5. Update of the White Paper according to the changes made in the game.
6. Release of approximately 75 types of artifacts.

## THIRD-FOURTH QUARTER OF 2018 – SET OF FUNCTIONAL AND CONTEXTUAL UPDATES

1. Packaged PvP mode – you can start several battles at a time against other players. The main victory determining factor will be your imps' artifact equipment.
2. PvP duels with the opportunity to challenge a specific player.
3. Over 150 new artifacts, a part of which will have new abilities
4. Local bosses-opponents.
5. Cutting the mining speed in half. Only 50 best players will receive a unique artifact that guarantees the maximum mining speed of 1%.

## FIRST QUARTER OF 2019 – MIMPS RELEASE!

1. Addition of new artifacts (approximately 100 pieces).
2. Global game events for groups of people.
3. Clan battles – you can unite into clans and battle against other clans for the rarest artifacts and most valuable prizes.
4. Most importantly, the release of the mobile version of the game! We called it mIMPs. Unfortunately, mobile stores forbid the release of any game that has anything to do with cryptocurrency, so mIMPs will not support the token. However, you can get artifacts playing the mobile version of the game, which can them be used in the web version. Yes, you can turn them into ERC721 tokens!

## SECOND-THIRD QUARTER OF 2019 – BIG ANNOUNCEMENT ABOUT FUTURE PLANS

1. Significant addition of new artifacts and global game events.
2. Community Driven Development: your suggestions = our implementation! Addition of several features based on the community's request.
3. Announcement of the future plans and global platform infrastructure.

## THIRD-FOURTH QUARTER OF 2019 – END OF TOKEN EMISSION

1. Implementing a gradual burn of tokens inside the game to raise demand.