

Remix

The Filecoin EVM runtime allows developers to use Ethereum tooling, like Remix, with the Filecoin network.

Launch an ERC-20 token

As a simple introduction, we're going to use Remix to create an ERC-20 token on the Filecoin network. In this guide, we're using the Calibration testnet, but this process is the same for mainnet.

This guide assumes you've already connected your [MetaMask extension to a Filecoin network](#).

Create a workspace

In Remix, workspaces are where you can create a contract, or group of contracts, for each project. Let's create a new workspace to create our new ERC-20 token.

1. Open remix.ethereum.org
2. .
3. Click the+
4. icon next to Workspaces
5. to create a new workspace.
6. In the Choose a template
7. dropdown, select ERC20
8. .
9. Select the Mintable
10. checkbox.
11. Enter a fun name for your token in the Workspace name
12. field. Something like CorgiCoin
13. works fine.
14. Click OK
15. to create your new workspace.
- 16.

Customize the contract

The contract template we're using is pretty simple. We just need to modify a couple of variables.

1. Under the contract
2. directory, click MyToken.sol
3. .
4. In the editor panel, replace MyToken
5. with whatever you'd like to name your token. In this example, we'll use CorgiCoin
6. .
7. On the same line, replace the second string with whatever you want the symbol of your token to be. In this example, we'll use CRG
- 8.

That's all we need to change within this contract. You can see on line 4 that this contract is importing another contract from @openzeppelin for us, meaning that we can keep our custom token contract simple.

Compile

1. Click the green play symbol at the top of the workspace to compile your contract. You can also press CMD
2. +s
3. on MacOS or CTRL
4. +s
5. on Linux and Windows.
6. Remix automatically fetches the two import
7. contracts from the top of our.sol
8. contract. You can see these imported contracts under the.deps
9. directory. You can browse the contracts there, but Remix will not save any changes you make.
- 10.

Deploy

Now that we've successfully compiled our contract, we need to deploy it somewhere! This is where our previous MetaMask setup comes into play.

1. Click the Deploy

2. tab from the left.
3. Under theEnvironment
4. dropdown, selectInjected Provider - MetaMask
5. .
6. MetaMask will open a new window confirming that you want to connect your account to Remix.
7. ClickNext
8. :
9. ClickConnect
10. to connect yourFIL
11. account to Remix.
12. Back in Remix, under theAccount
13. field, you'll see that it says something like0x11F... (5 ether)
14. . This value is 5tFIL
15. , but Remix doesn't support the Filecoin network, so it doesn't understand whattFIL
16. is. This isn't a problem; it's just a little quirk of using Remix.
17. Under theContract
18. dropdown, ensure the contract you created is selected.
19. ClickDeploy
20. .
21. MetaMask will open a window and ask you to confirm the transaction. Scroll down and clickConfirm
22. to have MetaMask deploy the contract. If you're deploying to mainnet, we advise you [adjust your gas fees](#)
23. for a cheaper deployment.
24. Back in Remix, a message at the bottom of the screen shows that the creation of your token is pending.
25. Wait around 90 seconds for the deployment to complete.
- 26.

On the Filecoin network, a new set of blocks, also called a tipset, is created every thirty seconds. When deploying a contract, the transaction needs to be received by the network, and then the network needs to confirm the contract. This process takes around one to two tipsets to process – or around 60 to 90 seconds.

Use your contract

Now that we've compiled and deployed the contract, it's time to actually interact with it!

Mint your tokens

Let's call a method within the deployed contract to mint some tokens.

1. Back in Remix, open theDeployed Contracts
2. dropdown, within theDeploy
3. sidebar tab.
4. Expand themint
5. method. You must fill in two fields here:to
6. andamount
7. .
8. Theto
9. field specifies where address you want these initial tokens sent. Open MetaMask, copy your address, and paste it into this field.
10. This field expects anattoFil
11. value. 1FIL
12. is equal to 1,000,000,000,000,000attoFil
13. . So if you wanted to mint 100FIL
14. , you would enter100
15. followed by 18 zeros:100000000000000000000
16. .
17. ClickTransact
18. .
19. MetaMask will open a window and ask you to confirm the transaction:
- 20.

Again, you must wait for the network to process the transaction, which should take about 90 seconds. You can move on to the next section while you're waiting.

Add to MetaMask

Currently, MetaMask has no idea what our token is or what it even does. We can fix this by explicitly telling MetaMask the address of our contract.

1. Go back to Remix and open theDeploy
2. sidebar tab.

3. Under Deployed Contracts
4. , you should see your contract address at the top. Click the copy icon to copy the address to your clipboard.
5. Open MetaMask, select Assets
6. , and click Import your tokens.
7. In the Token contract address
8. field, paste the contract address you just copied from Remix and then click Add custom token
9. . MetaMask should autofill the rest of the information based on what it can find from the Filecoin network.
10. Click Import token
11. :
12. You should now be able to see that you have 100 of your tokens within your MetaMask wallet!
- 13.

And that's it! Deploying an ERC-20 token on Filecoin is simple!

Adjusting your gas fees

Remix uses a default of 2.5 nanoFIL per gas as a priority fee, which is usually too high for the Filecoin network. If you don't adjust this, you may end up overpaying when deploying to mainnet. We recommend that you switch from the site-suggested gas fees to oracle-supplied gas fees when deploying your contract.

1. When the deployment transaction confirmation pop-up window shows up, click on Site suggested
2. .
3. Switch to Market
4. , Aggressive
5. , or Low
6. . The Market
7. option is generally suitable for most situations.
- 8.

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