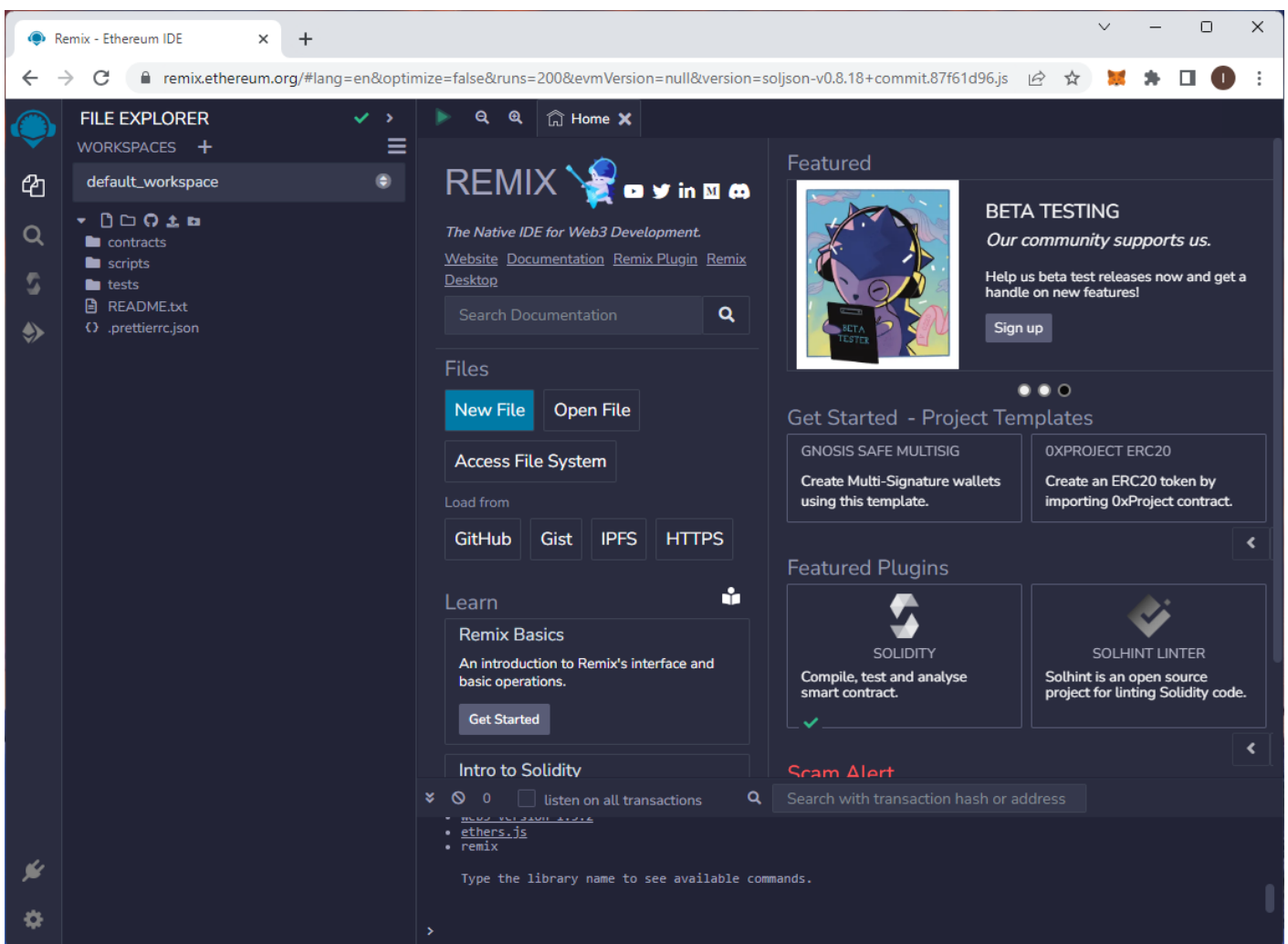


Development

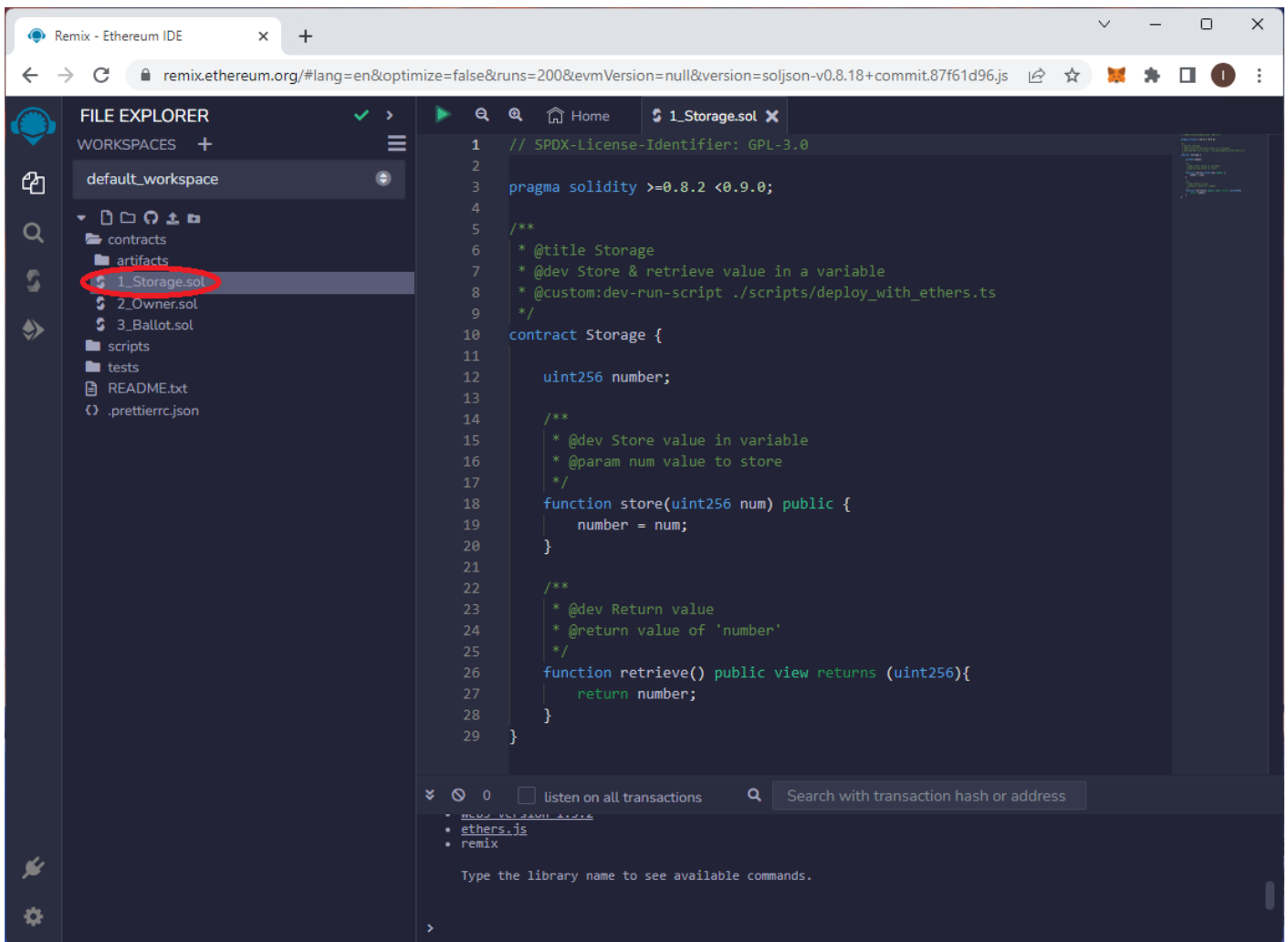
- [Deploying a smart contract on BPX mainnet using Remix IDE](#)

Deploying a smart contract on BPX mainnet using Remix IDE

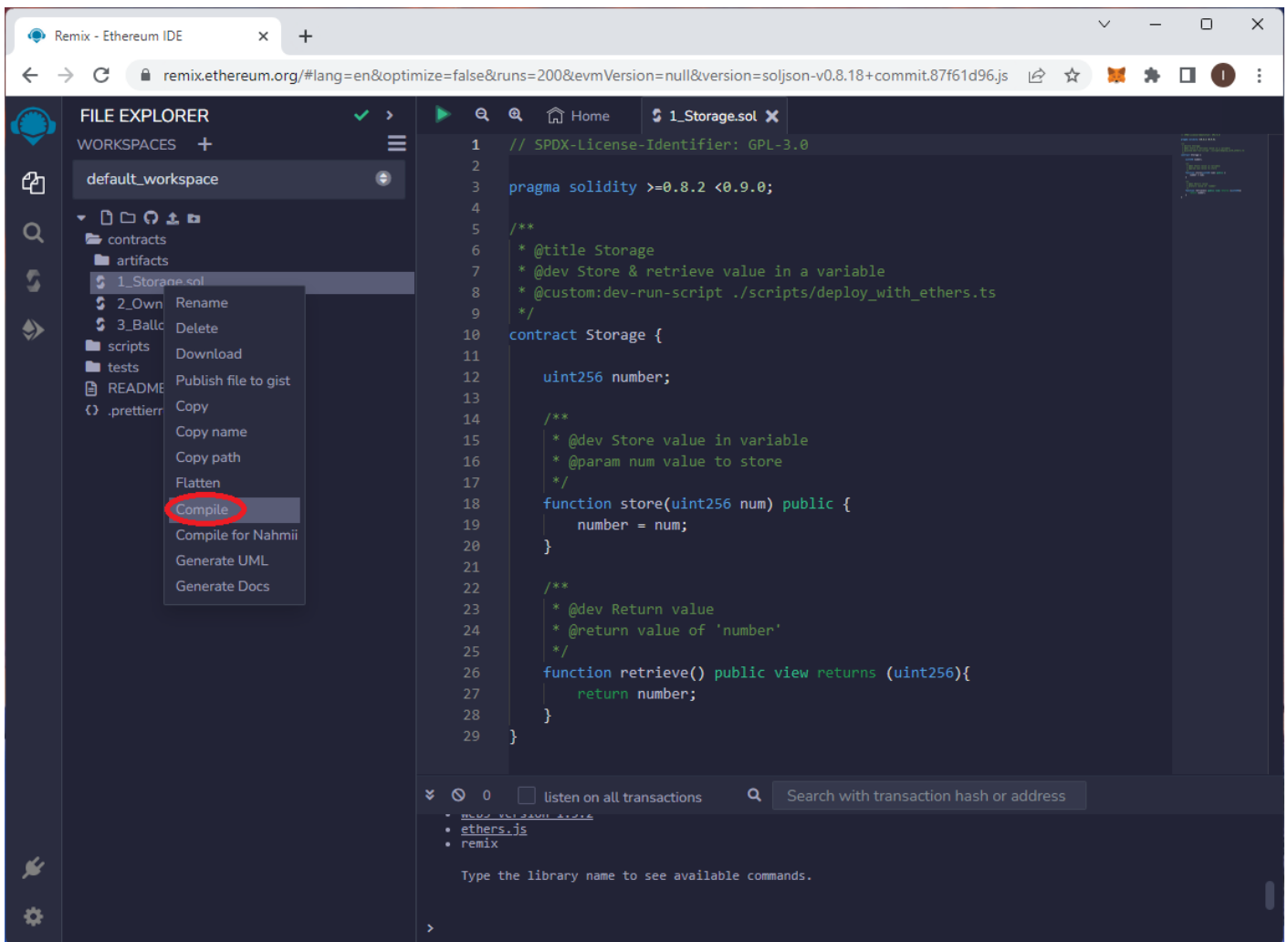
1. Open [Remix IDE](#).



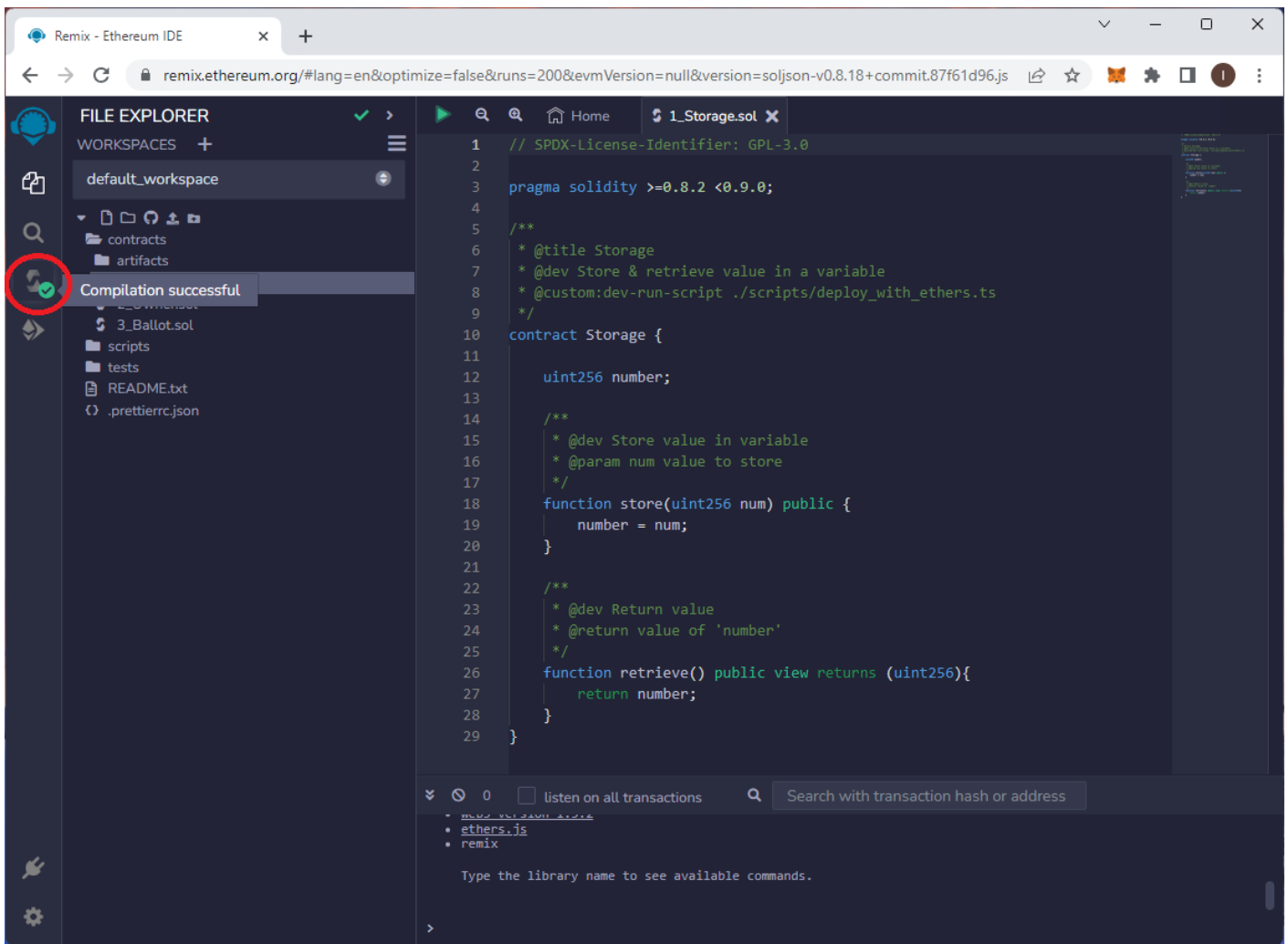
2. In our example, we will use one of the sample contracts from the IDE. This contract provides two functions: the first, `store`, allows you to save any number in the contract, while the second, `retrieve`, enables you to read the stored number. Open the `contracts/1_Storage.sol` file.



3. Compile the contract by right-clicking on the file name and selecting **Compile**.



4. When the source code is error-free and the compilation is successful, you will see a green success icon.



5. Go to the **Deploy** tab.

Remix - Ethereum IDE

remix.ethereum.org/#lang=en&optimize=false&runs=200&evmVersion=null&version=soljson-v0.8.18+commit.87f61d96.js

DEPLOY & RUN TRANSACTIONS

ENVIRONMENT

Remix VM (Shanghai)

ACCOUNT

0x5B3...eddC4 (100 ether)

GAS LIMIT

3000000

VALUE

0 Wei

CONTRACT (Compiled by Remix)

Storage - contracts/1_Storage.sol

Deploy

☐ Publish to IPFS

OR

At Address Load contract from Address

Transactions recorded 0

Deployed Contracts

Currently you have no contract instances to interact with.

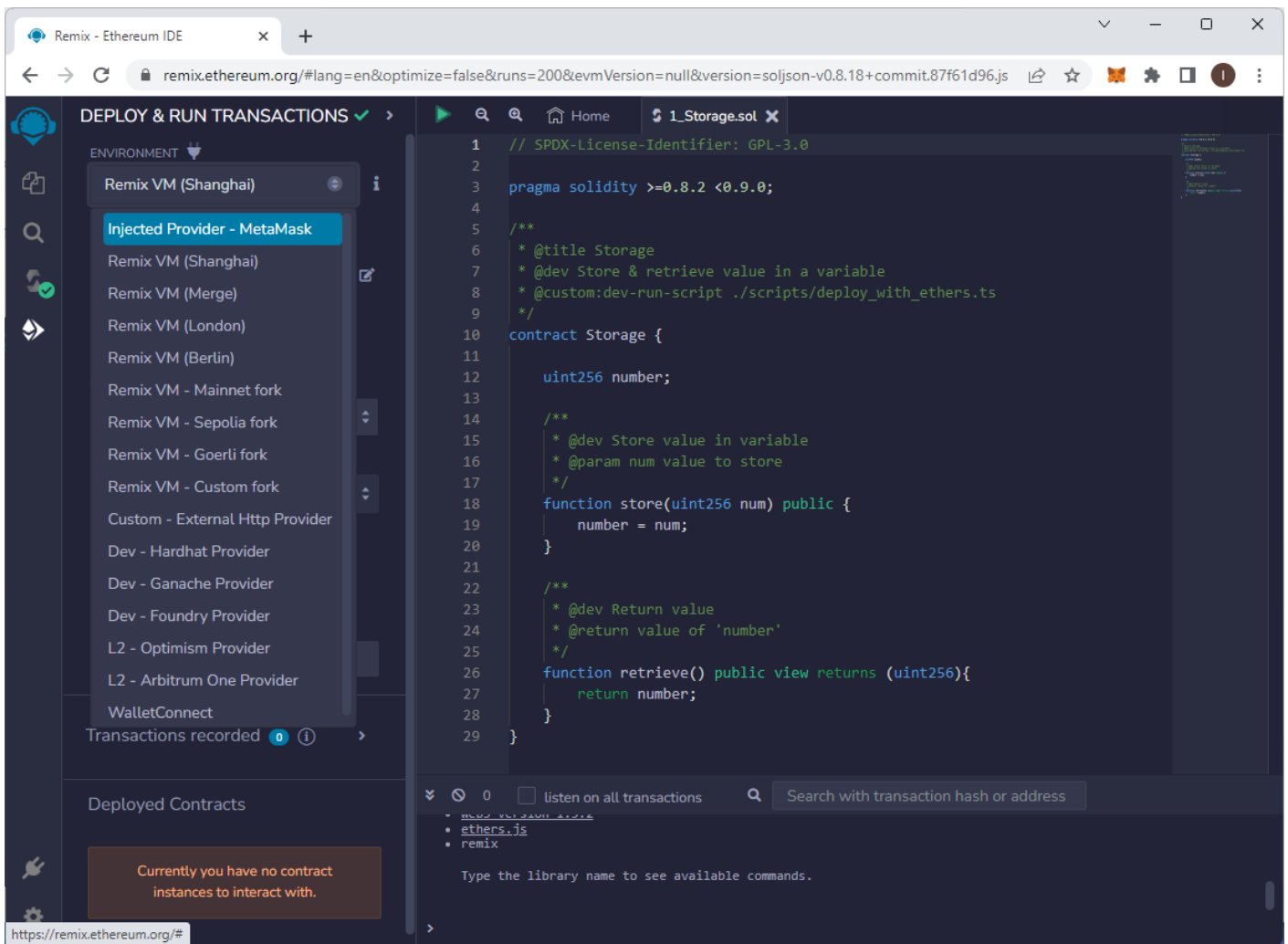
```
1 // SPDX-License-Identifier: GPL-3.0
2
3 pragma solidity >=0.8.2 <0.9.0;
4
5 /**
6  * @title Storage
7  * @dev Store & retrieve value in a variable
8  * @custom:dev-run-script ./scripts/deploy_with_ethers.ts
9  */
10 contract Storage {
11
12     uint256 number;
13
14     /**
15      * @dev Store value in variable
16      * @param num value to store
17      */
18     function store(uint256 num) public {
19         number = num;
20     }
21
22     /**
23      * @dev Return value
24      * @return value of 'number'
25      */
26     function retrieve() public view returns (uint256){
27         return number;
28     }
29 }
```

0 ☐ listen on all transactions Search with transaction hash or address

ethers.js
remix

Type the library name to see available commands.

6. Expand the **Environment** list and select **Injected Provider - MetaMask**.



7. Now MetaMask will prompt you for permission to connect to Remix IDE. Agree to the connection.

Connect with MetaMask

Select the account(s) to use on this site

[New account](#)



Account 1 (0xfdb...cd...
1240279.9999685 BPX



Only connect with sites you trust. [Learn more](#)

Cancel

Next

Connect to Account 1 (0xfdb...cda3)

Allow this site to:



See address, account balance, activity
and suggest transactions to approve

Only connect with sites you trust. [Learn more](#)

Cancel

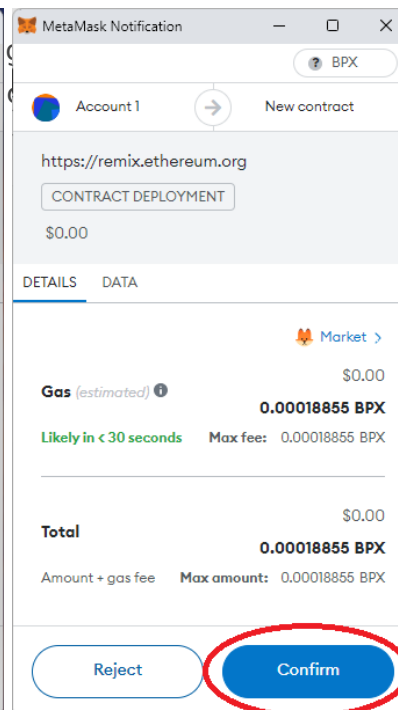
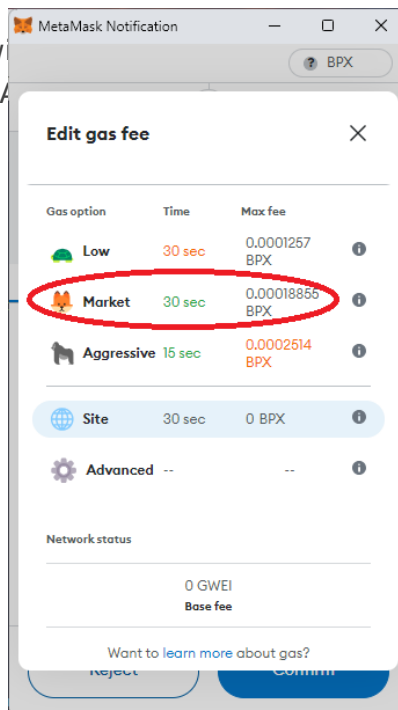
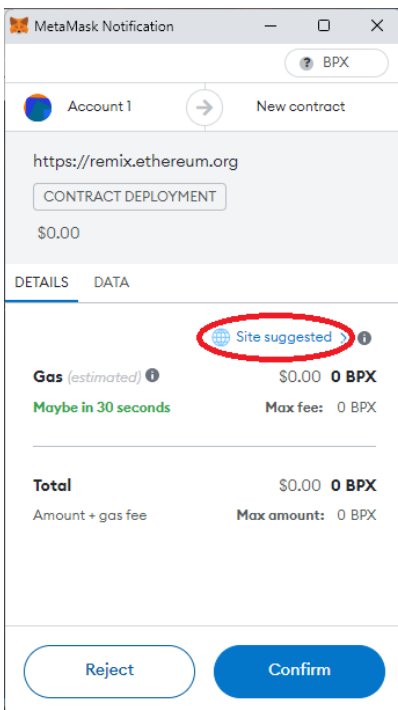
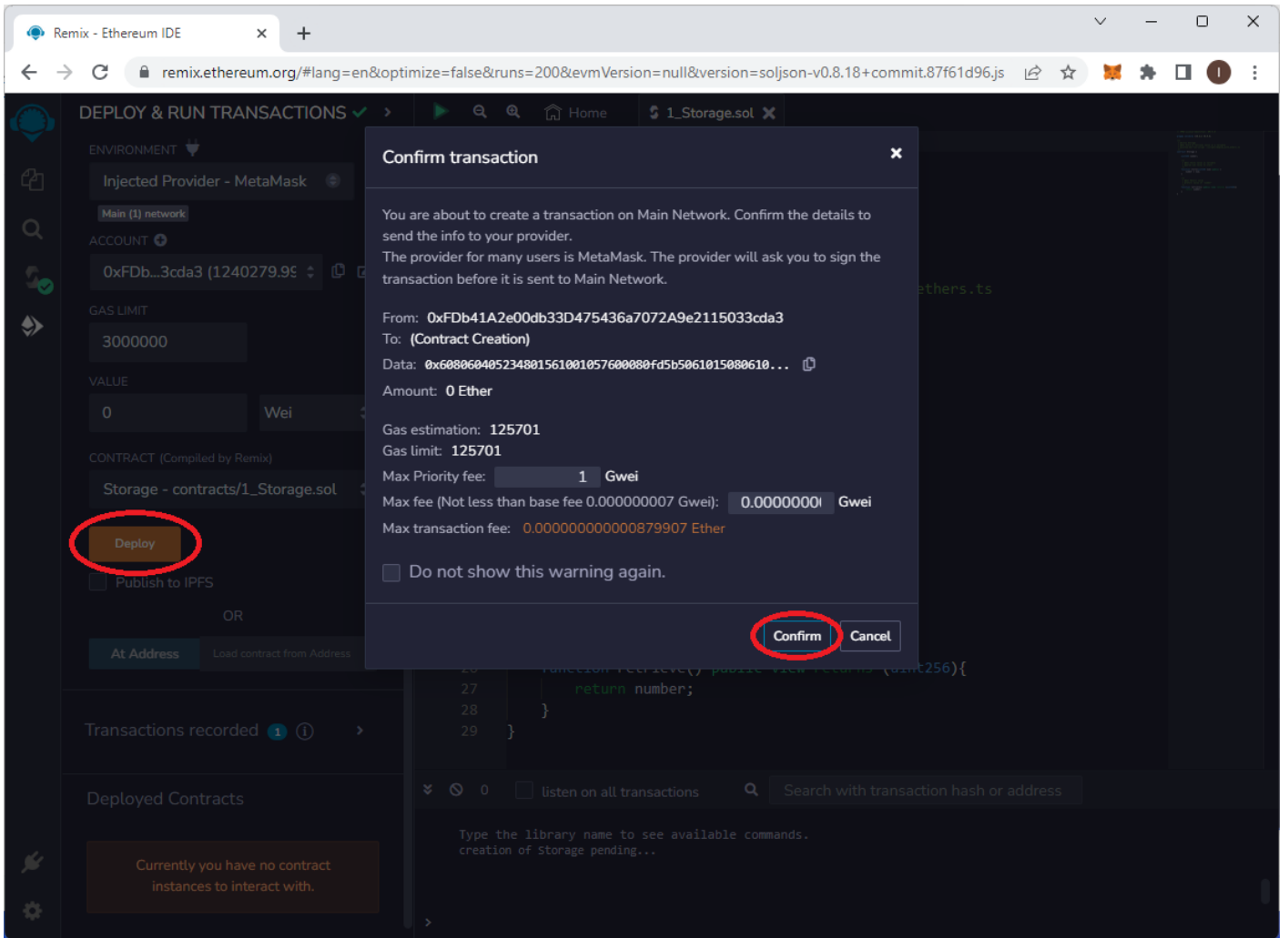
Connect

8. After successfully connecting, you should see your account address and its balance in the highlighted field.

The screenshot displays the Remix Ethereum IDE interface. On the left sidebar, the 'DEPLOY & RUN TRANSACTIONS' panel is active. It shows the 'ENVIRONMENT' set to 'Injected Provider - MetaMask', the 'ACCOUNT' as '0xFDb...3cda3 (1240279.9%)', and the 'GAS LIMIT' set to '3000000'. The 'VALUE' is '0' and the unit is 'Wei'. The 'CONTRACT' is 'Storage - contracts/1_Storage.sol'. A red circle highlights the account address '0xFDb...3cda3 (1240279.9%)'. Below these settings are buttons for 'Deploy', 'Publish to IPFS', and 'At Address'. The main editor area shows the Solidity code for the 'Storage' contract, which includes a 'store' function and a 'retrieve' function. The bottom panel shows the 'Deployed Contracts' section with a message: 'Currently you have no contract instances to interact with.'

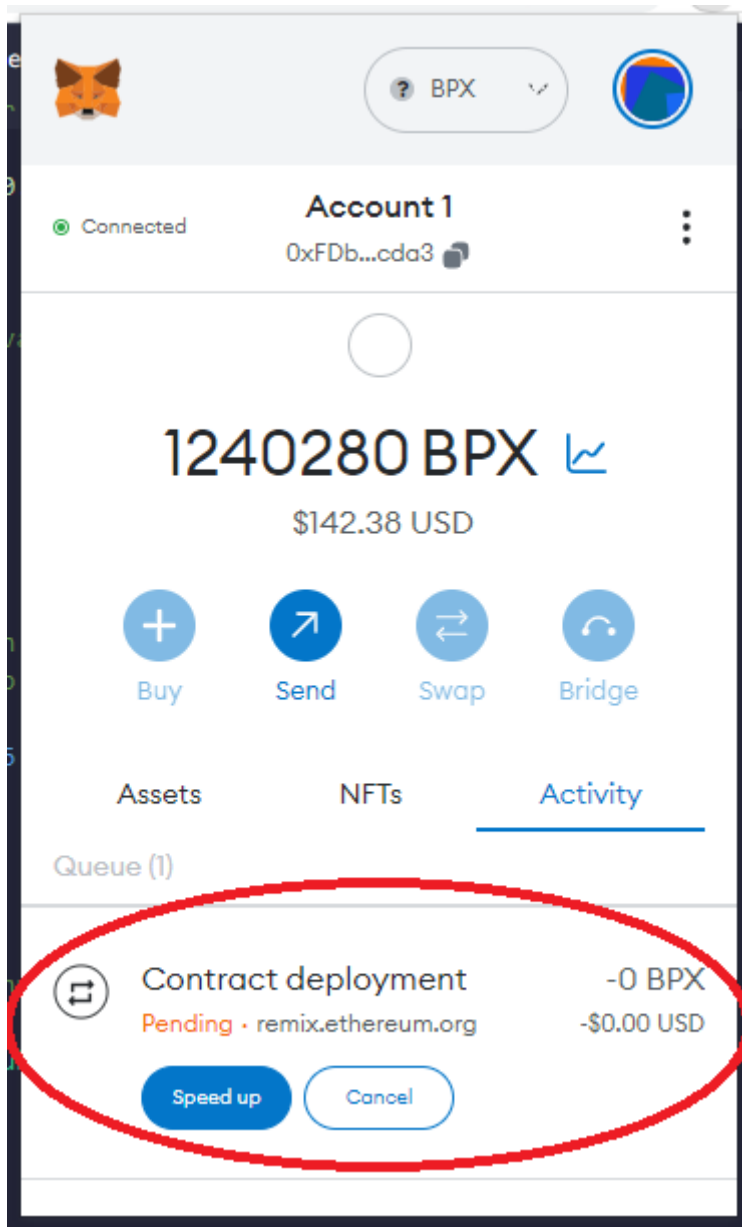
```
1 // SPDX-License-Identifier: GPL-3.0
2
3 pragma solidity >=0.8.2 <0.9.0;
4
5 /**
6  * @title Storage
7  * @dev Store & retrieve value in a variable
8  * @custom:dev-run-script ./scripts/deploy_with_ethers.ts
9  */
10 contract Storage {
11
12     uint256 number;
13
14     /**
15      * @dev Store value in variable
16      * @param num value to store
17      */
18     function store(uint256 num) public {
19         number = num;
20     }
21
22     /**
23      * @dev Return value
24      * @return value of 'number'
25      */
26     function retrieve() public view returns (uint256){
27         return number;
28     }
29 }
```

9. Click "**Deploy**" to begin deploying your contract. Confirm the suggested gas settings.



ested," then

11. Your contract is now deploying. If you open the MetaMask window, you should see a new pending transaction.



12. Once the transaction is confirmed by the blockchain, you will see its confirmation and a new entry in the Deployed Contracts section. Your contract has been successfully deployed.

Remix - Ethereum IDE

remix.ethereum.org/#lang=en&optimize=false&runs=200&evmVersion=null&version=soljson-v0.8.18+commit.87f61d96.js

DEPLOY & RUN TRANSACTIONS

ENVIRONMENT
Injected Provider - MetaMask

Main (1) network

ACCOUNT
0xFDb...3cda3 (1240279.99%)

GAS LIMIT
3000000

VALUE
0 Wei

CONTRACT (Compiled by Remix)
Storage - contracts/1_Storage.sol

Deploy

☐ Publish to IPFS

OR

At Address Load contract from Address

Transactions recorded 1

Deployed Contracts

STORAGE AT 0X5CD...0E9B3 (BLOC)

```
1 // SPDX-License-Identifier: GPL-3.0
2
3 pragma solidity >=0.8.2 <0.9.0;
4
5 /**
6  * @title Storage
7  * @dev Store & retrieve value in a variable
8  * @custom:dev-run-script ./scripts/deploy_with_ethers.ts
9  */
10 contract Storage {
11
12     uint256 number;
13
14     /**
15      * @dev Store value in variable
16      * @param num value to store
17      */
18     function store(uint256 num) public {
19         number = num;
20     }
21
22     /**
23      * @dev Return value
24      * @return value of 'number'
25      */
26     function retrieve() public view returns (uint256){
27         return number;
28     }
29 }
```

view on etherscan

[block:27514 txIndex:0] from: 0xFDb...3cda3 to: Storage.(constructor) value: 0 wei
data: 0x608...20033 logs: 0 hash: 0x570...4e2d4

Debug

13. You can use the highlighted button to copy the address of your new contract.

The screenshot displays the Remix Ethereum IDE interface. On the left, the 'DEPLOY & RUN TRANSACTIONS' sidebar is active, showing the 'ENVIRONMENT' set to 'Injected Provider - MetaMask', the 'ACCOUNT' as '0xFDb...3cda3 (1240279.99\$)', and the 'GAS LIMIT' set to '3000000'. The 'VALUE' is '0' in 'Wei'. The 'CONTRACT' is 'Storage - contracts/1_Storage.sol'. A 'Deploy' button is visible, along with options to 'Publish to IPFS' or 'At Address'. Below this, it shows 'Transactions recorded' and 'Deployed Contracts'. In the 'Deployed Contracts' section, a contract is listed with a red circle around the 'Interact' icon (a document with a cursor). The main editor shows the Solidity code for '1_Storage.sol', which includes a pragma statement, comments, and two functions: 'store' and 'retrieve'. The bottom panel shows transaction details for '[block:27514 txIndex:0] from: 0xFDb...3cda3 to: Storage.(constructor) value: 0 wei data: 0x608...20033 logs: 0 hash: 0x570...4e2d4', with a 'Debug' button.

```
1 // SPDX-License-Identifier: GPL-3.0
2
3 pragma solidity >=0.8.2 <0.9.0;
4
5 /**
6  * @title Storage
7  * @dev Store & retrieve value in a variable
8  * @custom:dev-run-script ./scripts/deploy_with_ethers.ts
9  */
10 contract Storage {
11
12     uint256 number;
13
14     /**
15      * @dev Store value in variable
16      * @param num value to store
17      */
18     function store(uint256 num) public {
19         number = num;
20     }
21
22     /**
23      * @dev Return value
24      * @return value of 'number'
25      */
26     function retrieve() public view returns (uint256){
27         return number;
28     }
29 }
```

14. You can interact with your contract directly from the IDE. Expand the list of contract methods to access them.

The screenshot displays the Remix Ethereum IDE interface. On the left, the 'DEPLOY & RUN TRANSACTIONS' sidebar is active, showing a 'VALUE' of 0 Wei and a 'CONTRACT' of 'Storage - contracts/1_Storage.sol'. The 'Deploy' button is highlighted. Below it, the 'Transactions recorded' section shows one transaction. The 'Deployed Contracts' section lists 'STORAGE AT 0x5CD...0E9B3 (BLK)' with a balance of 0 ETH. The 'store' button is highlighted, and the 'retrieve' button is also visible. The 'Low level interactions' section shows a 'CALLDATA' field and a 'Transact' button.

The main editor displays the Solidity code for the 'Storage' contract:

```
1 // SPDX-License-Identifier: GPL-3.0
2
3 pragma solidity >=0.8.2 <0.9.0;
4
5 /**
6  * @title Storage
7  * @dev Store & retrieve value in a variable
8  * @custom:dev-run-script ./scripts/deploy_with_ethers.ts
9  */
10 contract Storage {
11
12     uint256 number;
13
14     /**
15      * @dev Store value in variable
16      * @param num value to store
17      */
18     function store(uint256 num) public {
19         number = num;
20     }
21
22     /**
23      * @dev Return value
24      * @return value of 'number'
25      */
26     function retrieve() public view returns (uint256){
27         return number;
28     }
29 }
```

The bottom status bar shows a transaction log entry: '[block:27514 txIndex:0] from: 0xFDb...3cda3 to: Storage.(constructor) value: 0 wei data: 0x608...20033 logs: 0 hash: 0x570...4e2d4'. A 'Debug' button is visible next to the log entry.

15. Let's call the first function (`store`) to save a number in our sample contract. Enter a random number in the text field next to the "**store**" button, and then press the "**store**" button.

The screenshot displays the Remix Ethereum IDE interface. On the left, the 'DEPLOY & RUN TRANSACTIONS' sidebar is visible. It includes a 'VALUE' field set to '0' with a unit dropdown set to 'Wei'. Below this, the 'CONTRACT (Compiled by Remix)' section shows 'Storage - contracts/1_Storage.sol'. A 'Deploy' button is present, along with a checkbox for 'Publish to IPFS'. An 'OR' separator is followed by an 'At Address' button and a 'Load contract from Address' button. The 'Transactions recorded' section shows 2 transactions. The 'Deployed Contracts' section lists a contract 'STORAGE AT 0x5CD...0E9B3 (BLK)' with a balance of '0 ETH'. A red circle highlights the 'store' button next to the value '150'. Below this is a 'retrieve' button. The 'Low level interactions' section shows a 'CALLDATA' field and a 'Transact' button. The main editor displays the Solidity code for the 'Storage' contract. The code includes a pragma statement, a title, a dev comment, and two functions: 'store' and 'retrieve'. The 'store' function takes a 'uint256' parameter and assigns it to a 'number' variable. The 'retrieve' function returns the 'number' variable. The bottom status bar shows a transaction confirmation: '[block:27521 txIndex:0] from: 0xFDb...3cda3 to: Storage.store(uint256) 0x5CD...0E9B3 value: 0 wei data: 0x605...00096 logs: 0 hash: 0x8a5...01de0'. A 'Debug' button is also visible.

```
1 // SPDX-License-Identifier: GPL-3.0
2
3 pragma solidity >=0.8.2 <0.9.0;
4
5 /**
6  * @title Storage
7  * @dev Store & retrieve value in a variable
8  * @custom:dev-run-script ./scripts/deploy_with_ethers.ts
9  */
10 contract Storage {
11
12     uint256 number;
13
14     /**
15      * @dev Store value in variable
16      * @param num value to store
17      */
18     function store(uint256 num) public {
19         number = num;
20     }
21
22     /**
23      * @dev Return value
24      * @return value of 'number'
25      */
26     function retrieve() public view returns (uint256){
27         return number;
28     }
29 }
```

16. Confirm the transaction in your wallet as you did when deploying the contract. Saving data to a smart contract requires a transaction on the blockchain.

17. When the transaction is confirmed, call the second method (`retrieve`) to read the number stored in the smart contract. Click the "**retrieve**" button, and the blockchain will return the value stored in the contract.

Remix - Ethereum IDE

remix.ethereum.org/#lang=en&optimize=false&runs=200&evmVersion=null&version=soljson-v0.8.18+commit.87f61d96.js

DEPLOY & RUN TRANSACTIONS

VALUE
0 Wei

CONTRACT (Compiled by Remix)
Storage - contracts/1_Storage.sol

Deploy

☐ Publish to IPFS

OR

At Address Load contract from Address

Transactions recorded 2

Deployed Contracts

STORAGE AT 0x5CD...0E9B3 (BLK)

Balance: 0 ETH

store 150

retrieve

0: uint256: 150

Low level interactions

CALLDATA

Transact

1_Storage.sol

```
1 // SPDX-License-Identifier: GPL-3.0
2
3 pragma solidity >=0.8.2 <0.9.0;
4
5 /**
6  * @title Storage
7  * @dev Store & retrieve value in a variable
8  * @custom:dev-run-script ./scripts/deploy_with_ethers.ts
9  */
10 contract Storage {
11
12     uint256 number;
13
14     /**
15      * @dev Store value in variable
16      * @param num value to store
17      */
18     function store(uint256 num) public {
19         number = num;
20     }
21
22     /**
23      * @dev Return value
24      * @return value of 'number'
25      */
26     function retrieve() public view returns (uint256){
27         return number;
28     }
29 }
```

0 ☐ listen on all transactions Search with transaction hash or address

CALL [call] from: 0xFDb41A2e00db330475436a7072A9e2115033cda3 to: Storage.retrieve()
data: 0x2e6...4cec1

Debug