

Deploy with libraries

It is very often require that a contract need to interact with one or more libraries. This walkthrough tutorial covers this use case.

Deploy with libraries

We will use a very basic example:

Run in the terminal

```
remix.loadgist('c230a699a7ed7ea55254bad7a01ac97a')
```

► browser

► config

▼ gist

sample.sol

```
1 library lib1 {  
2     function doGenericStuff() {  
3     }  
4 }  
5  
6 contract sample {  
7     function get () {  
8         lib1.doGenericStuff();  
9     }  
10 }
```

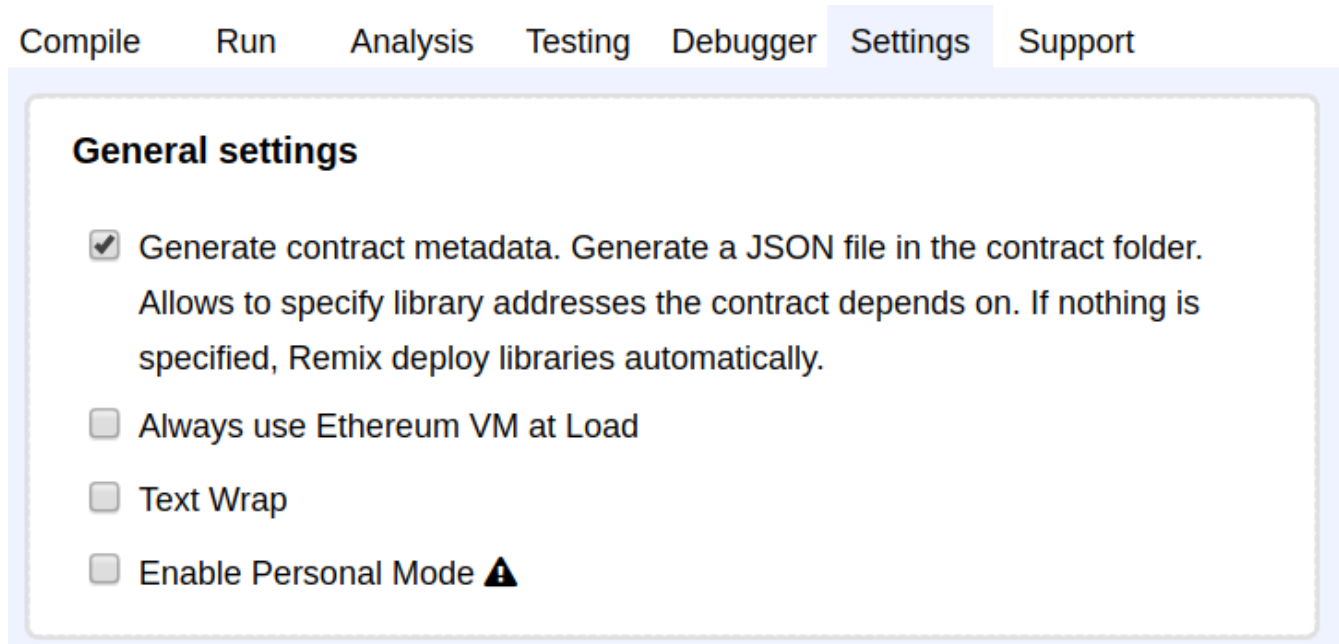
Deploy with libraries

We are going to:

- Deploy the library
- Use the metadata file to reference the library address. That reference will be used at deployment time to link the contract to the library.
- Deploy the contract

Deploy with libraries

First we need to activate the metadata file generation



Deploy with libraries

Start compiling

[Compile](#) [Run](#) [Analysis](#) [Testing](#) [Debugger](#) [Settings](#) [Support](#)


Current version:0.4.25+commit.59dbf8f1.Emscripten.clang

Select new compiler version ▼


☐ Auto compile ☐ Enable Optimization ☐ Hide warnings


↻ Start to compile (Ctrl-S)

lib1 ▼

 Swarm

Details

 ABI

 Bytecode

Deploy with libraries

“sample.json” should be available.



▼ browser

sample.sol

► config

▼ gist

sample.sol

lib1.json

sample.json



browser/sample.sol

gist/sample.sol

gist/lib1.j

```
1  [
2    "deploy": {
3      "VM:-": {
4        "linkReferences": {
5          "gist/sample.sol": {
6            "lib1": "<address>"
7          }
8        },
9        "autoDeployLib": true
10     },
11     "main:1": {
12       "linkReferences": {
13         "gist/sample.sol": {
14           "lib1": "<address>"
15         }
16     }
```

Deploy with libraries

The metadata file contains:

- compilation result data (bytecode, sourcemap),
- the contract abi
- the libraries linkage (that the interesting part for us now ;))

Deploy with libraries

Note that the config is duplicated for each network (Ropsten, Mainnet, Rinkeby, etc..)

and that it is still possible to

automatically deploy the libraries.

```
1 {
2   "deploy": {
3     "VM:-": {
4       "linkReferences": {
5         "gist/sample.sol": {
6           "lib1": "<address>"
7         }
8       },
9       "autoDeployLib": true
10    },
11    "main:1": {
12      "linkReferences": {
13        "gist/sample.sol": {
14          "lib1": "<address>"
15        }
16      },
17      "autoDeployLib": true
18    },
19    "ropsten:3": {
20      "linkReferences": {
21        "gist/sample.sol": {
22          "lib1": "<address>"
23        }
24      },
25      "autoDeployLib": true
26    },
27    "rinkeby:4": {
28      "linkReferences": {
29        "gist/sample.sol": {
30          "lib1": "<address>"
31        }
32      },
33      "autoDeployLib": true
34    },
35  },
36}
```


Deploy with libraries

Start compiling and in the “Run” tab, deploy the library.

Environment

JavaScript VM  VM (-) 

Account 

0xca3...a733c (99.9999999999990576)  

Gas limit

3000000

Value

0

wei 

lib1  

Deploy


or


At Address



Load contract from Address

Transactions recorded: 



Deployed Contracts 




lib1 at 0x692...77b3a (memory)  

Deploy with libraries

Start compiling and in the “Run” tab, deploy the library.

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Load contract from Address

Transactions recorded: 



Deployed Contracts 



lib1 at 0x692...77b3a (memory)  

Deploy with libraries

Copy the library address and use it for specifying the address in the metadata file.



```
1 {
2   "deploy": {
3     "VM:-": {
4       "linkReferences": {
5         "gist/sample.sol": {
6           "lib1": "0x692a70d2e424a56d2c6c27aa97d1a86395877b3a"
7         }
8       },
9       "autoDeployLib": true
10    },
11    "main:1": {
12      "linkReferences": {
13        "gist/sample.sol": {
14          "lib1": "<address>"
15        }
16      }
17    }
18  }
```

Note that the network should match the one you are actually connected to. In the above example, we use the “JavaScript VM”.

Deploy with libraries

Compile Sample.json and deploy it. You can check that Remix is correctly linking the library

```
linking {  
  "gist/sample.sol": {  
    "lib1": [  
      {  
        "length": 20,  
        "start": 120  
      }  
    ]  
  }  
} using {  
  "gist/sample.sol": {  
    "lib1": "0x692a70d2e424a56d2c6c27aa97d1a86395877b3a"  
  }  
}
```

creation of sample pending...



[vm] from:0xca3...a733c to:sample.(constructor) value:0 wei data:0x608...f0029 logs:0 hash:0x45d...dd78a

Debug

