



Etheratom IDE



remix

Account
management



Compiled contract
&
Contract interface



Code

Output

AwardToken.sol

```
1 pragma solidity ^0.4.24;
2 import 'https://github.com/OpenZeppelin/zeppelin-solidity/contracts/token/ERC20/ERC20Mintable.sol';
3 import 'https://github.com/OpenZeppelin/zeppelin-solidity/contracts/ownership/Ownable.sol';
4 import './Ballot.sol';
5
6 contract AwardToken is ERC20Mintable, Ownable {
7     uint quantity;
8     uint ballotPeriod = 7 hours;
9     Ballot public currBallot;
10    address[] public prevWinners;
11    event log (string _msg);
12    event winLog (address _win);
13    event newBallot (address _addr);
14
15    function AwardToken () {
16        quantity = 100;
17    }
18
19    function getPreviousWinners() constant returns (address[]) {
20        return prevWinners;
21    }
22
23    // either a name change or it works fine without it
24    // function approve(address spender, uint256 value) public returns (bool);
25    function startRound() onlyOwner onlyMinter public returns (bool) {
26        // if this is the first minting then we should let this go immediately
27        if (address(currBallot) == 0x0) {
28            currBallot = new Ballot(ballotPeriod);
29            newBallot(currBallot);
30        } else {
31            return false;
32        }
33    }
34
35    function closeRoundEarly () onlyOwner {
36        if (address(currBallot) != 0x0 && !currBallot.timeOut()) {
```

Etheratom output

Contract address: 0x82b7550775FE70BB3842AF453c4FAdd509D1079
Contract output: 100

0xE2328FF4032176EF24c38B90A3E8C3a5d1B: 99.96238072 ETH

Password Unlock

Compile

AwardToken.sol Collapse

AwardToken

"608060405261627060065534081561001657600008fd5b50610029336401

Interface Object Interface

[{"constant":false,"inputs":[{"name":"_spender","type":

Mined at:

0x82b7550775FE70BB3842AF453c4FAdd509D1079

Contract

approve _spender address

_value uint256

totalSupply

transferFrom _from address

_to address _value uint256

currBallot

increaseAllowance spender address

addedValue uint256

mint to address value uint256

getPreviousWinners

startRound

decreaseApproval _spender address

_subtractedValue uint

balanceOf 0xE2328FF4032176E

rebaseQuarshie

etheratom-workshop/AwardToken.sol 0 0 0 0 21:6

LF UTF-8 Solidity 0 files

Set Up

- Etheratom supports standard http & websocket endpoints.
- Geth, trufflesuite/ganache, trufflesuite/ganache-cli is tested and supported.



```
INFO [09-14|22:00:08] HTTP endpoint opened
INFO [09-14|22:00:08] WebSocket endpoint opened
Welcome to the Geth JavaScript console!
```

```
instance: Geth/v1.8.6-stable-12683fec/darwin-amd64/go1.10
```

```
url=http://127.0.0.1:8545
url=ws://127.0.0.1:8546
```

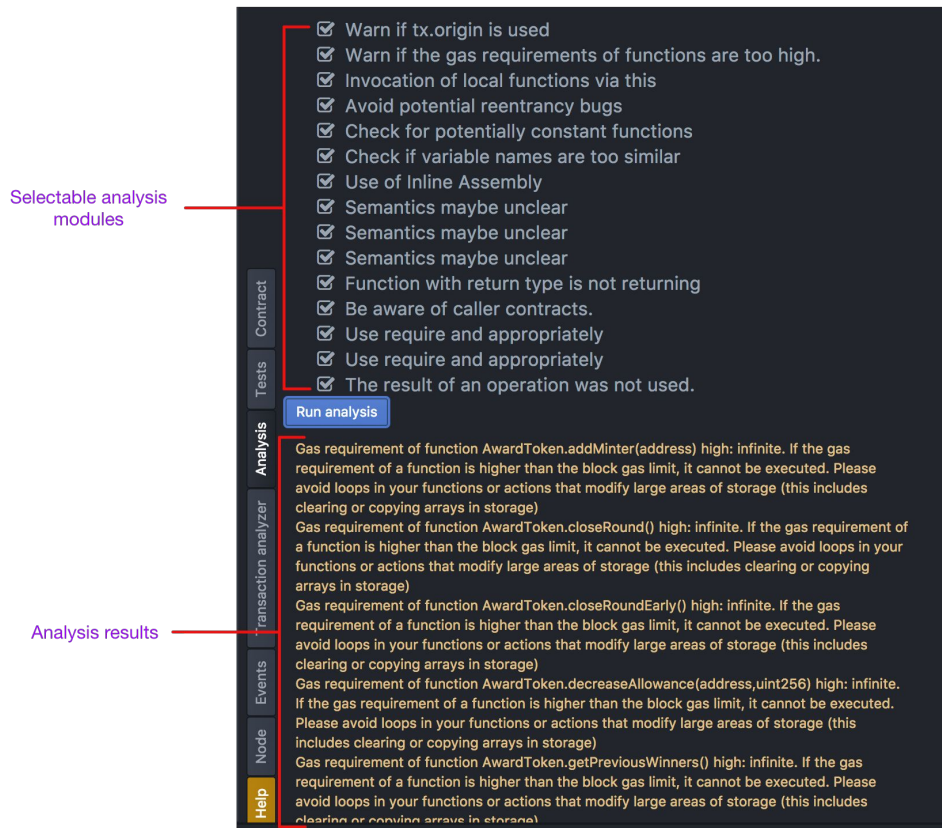
```
cors= vhosts=localhost
```

Compilation basics

The screenshot shows the Remix IDE's compilation interface. At the top, a green 'Compile' button is visible. Below it, the file 'AwardToken.sol' is selected, with a 'Collapse' button. The 'AwardToken' contract is expanded, showing its 'Byte code' (a long hexadecimal string) and its 'ABI' (a JSON array of function definitions). Below the ABI, the 'Gas supply' is set to 1814298 and the 'Gas Limit' is 6721975. A 'Deploy to blockchain' button is present, followed by an 'at:' field. On the left sidebar, the 'Contract' tab is active, showing a list of contracts: Ballot.sol, ERC20.sol, ERC20Mintable.sol, IERC20.sol, MinterRole.sol, Ownable.sol, Roles.sol, and SafeMath.sol. The 'Node' tab is also visible, showing compilation warnings. A red line points from the 'Compilation warnings / errors' label to the 'Node' tab. The warnings list two messages: 'Ballot.sol:26:5: Warning: Defining constructors as functions with the same name as the contract is deprecated. Use "constructor(...) { ... }" instead. function Ballot(uint duration) public { ^ (Relevant source part starts here and spans across multiple lines). AwardToken.sol:15:8: Warning: Defining constructors as functions with the same name as the contract is deprecated. Use "constructor(...) { ... }" instead. function AwardToken () { ^ (Relevant source part starts here and spans across multiple lines).'.

- Successful compile view
- Deploy or deploy at
- Gas limit, gas supply
- Compiler generated error & warning messages

Remix analysis plugin



- Selectable security analysis module from remix
- Analysis results

Remix unit-tests in Etheratom

Test files should have [foo]_test.sol suffix

Run tests Total failing: 0 Total passing: 5 Time: 5

Unit testing results

- ✓ AwardTokenBalanceTest
- ✓ Balance should be greater than 0
- ✓ AwardTokenTest
- ✓ Start round should return true
- ✓ Total supply should be 0
- ✓ Owner should be tester
- ✓ Address should not be 0x0

Contract

Tests

Analysis

- Unit testing solidity smart contracts using remix-tests plugin
- Usage of Assert library

```
function addressShouldNotBe_0x0() public constant returns (bool) {
    address zro = 0x0000000000000000000000000000000000000000000000000000000000000000;
    return Assert.notEqual(address(awtkn), zro, "address should not be 0");
}

function totalSupplyShouldBe_0() public constant returns (bool) {
    return Assert.equal(awtkn.totalSupply(), 0, "total supply should be 0");
}
```

```
function balanceShouldBeGreaterThan_0() public constant returns (bool) {
    return Assert.greaterThan(uint256(awtkn.balanceOf(to)), uint256(0), "balance should be greater than 0");
}
```