# Free TON Solidity support for Visual Studio Code

## Author

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Free TON address:

0:424c3fdf6ea1bff797767c3989e275e3f0ffdaf3a95c67cc3006b08c22923ac0

## Description

Free TON Solidity is the language used in Free TON to create smart contracts.

This extension provides:

- Syntax highlighting (keywords, variables, literals, comments and other things from the language specification and Free TON additions).
- Code completion (keywords, variable names, classes names, method names, interfaces)
- Intellisense (commands, contracts, methods, interfaces)
- Extension is fully customizable by VS Code native settings. For example, for colors of syntax highlighting.

## Solution

Visual Code marketplace (compiled and published extension)

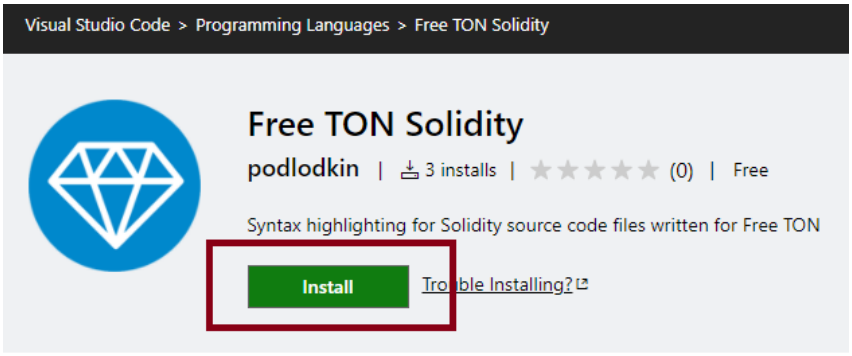
https://marketplace.visualstudio.com/items?itemName=podlodkin.podlodkin-freeton-vscode-solidity

GitHub (source code)

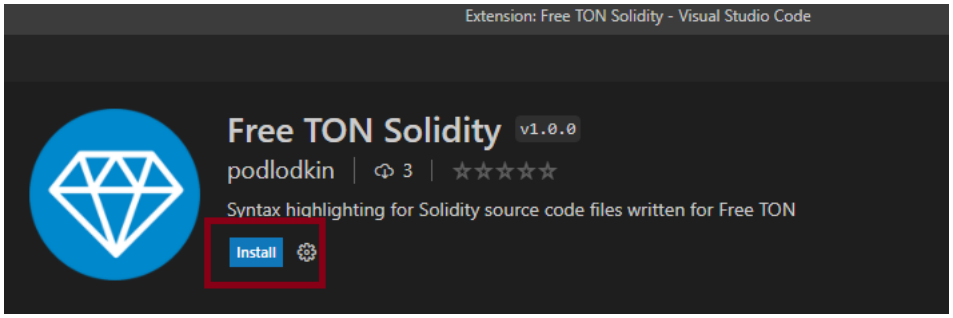
https://github.com/podlodkin/podlodkin-freeton-vscode-solidity

## How to install

1) Open VS Code marketplace URL - https://marketplace.visualstudio.com/items?itemName=podlodkin.podlodkin-freeton-vscode-solidity
2) Press the button “Install”:

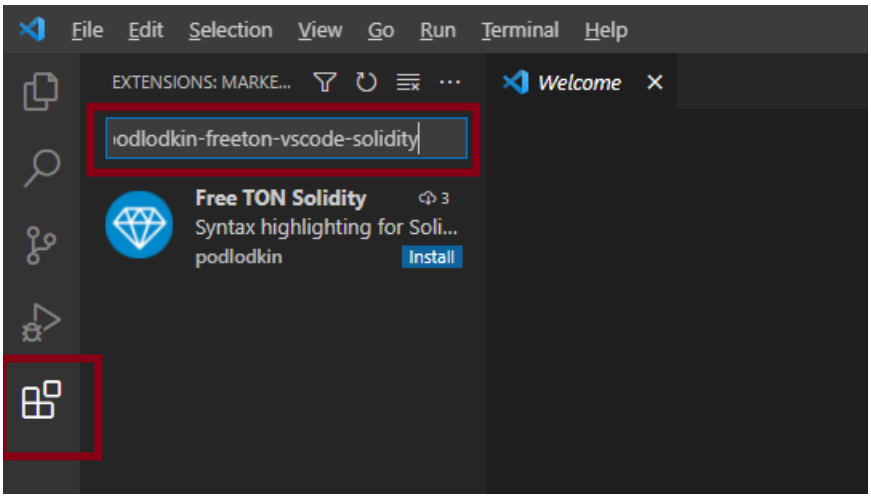



3) This extension must will be opening in VS Code application. After then press the button "Install" in VS Code application:




4) Enjoy – open any .ton file.

Alternative – you can use embedded Visual Code Marketplace – find extension by name “podlodkin-freeton-vscode-solidity”:



# Examples

## 10_Wallet

https://raw.githubusercontent.com/podlodkin/podlodkin-freeton-vscode-solidity/main/examples/10_Wallet.sol or

https://raw.githubusercontent.com/tonlabs/samples/master/solidity/10_Wallet.sol

```
pragma ton-solidity >= 0.35.0;
pragma AbiHeader expire;

/// @title Simple wallet
/// @author Tonlabs
contract Wallet {
    /*
     Exception codes:
      100 - message sender is not a wallet owner.
      101 - invalid transfer value.
     */

    /// @dev Contract constructor.
    constructor() public {
        // check that contract's public key is set
        require(tvm.pubkey() != 0, 101);
        // Check that message has signature (msg.pubkey() is not zero) and message is signed with the owner's private key
        require(msg.pubkey() == tvm.pubkey(), 102);
        tvm.accept();
    }


    // Modifier that allows function to accept external call only if it was signed
    // with contract owner's public key.
    modifier checkOwnerAndAccept {
        // Check that inbound message was signed with owner's public key.
        // Runtime function that obtains sender's public key.
        require(msg.pubkey() == tvm.pubkey(), 100);

                                // Runtime function that allows contract to process inbound messages spending
                                // its own resources (it's necessary if contract should process all inbound messages,
                                // not only those that carry value with them).
                                tvm.accept();
                                _;
                }

    /// @dev Allows to transfer tons to the destination account.
    /// @param dest Transfer target address.
    /// @param value Nanotons value to transfer.
    /// @param bounce Flag that enables bounce message in case of target contract error.
    function sendTransaction(address dest, uint128 value, bool bounce) public pure checkOwnerAndAccept {
         // Runtime function that allows to make a transfer with arbitrary settings.
        dest.transfer(value, bounce, 0);
    }
}
```

Results:

```sol
pragma ton-solidity >= 0.35.0;
pragma AbiHeader expire;

/// @title Simple wallet
/// @author Tonlabs
contract Wallet {
    /*
     Exception codes:
      100 - message sender is not a wallet owner.
      101 - invalid transfer value.
     */

    /// @dev Contract constructor.
    constructor() public {
        // check that contract's public key is set
        require(tvm.pubkey() != 0, 101);
        // Check that message has signature (msg.pubkey() is not zero) and message is signed with the owner's private key
        require(msg.pubkey() == tvm.pubkey(), 102);
        tvm.accept();
    }


    // Modifier that allows function to accept external call only if it was signed
    // with contract owner's public key.
    modifier checkOwnerAndAccept {
        // Check that inbound message was signed with owner's public key.
        // Runtime function that obtains sender's public key.
        require(msg.pubkey() == tvm.pubkey(), 100);

        // Runtime function that allows contract to process inbound messages spending
        // its own resources (it's necessary if contract should process all inbound messages,
        // not only those that carry value with them).
        tvm.accept();
        _;
    }

    /// @dev Allows to transfer tons to the destination account.
    /// @param dest Transfer target address.
    /// @param value Nanotons value to transfer.
    /// @param bounce Flag that enables bounce message in case of target contract error.
    function sendTransaction(address dest, uint128 value, bool bounce) public pure checkOwnerAndAccept {
        // Runtime function that allows to make a transfer with arbitrary settings.
        dest.transfer(value, bounce, 0);
    }
}
```

## 5_Bank

https://raw.githubusercontent.com/podlodkin/podlodkin-freeton-vscode-solidity/main/examples/5_Bank.sol or

https://raw.githubusercontent.com/tonlabs/samples/master/solidity/5_Bank.sol

```sol
pragma ton-solidity >= 0.35.0;
pragma AbiHeader expire;

// Import the interface file
import "5_BankClientInterfaces.sol";

// This contract implements 'IBank' interface.
// The contract allows to store credit limits in mapping and give to the caller it's credit limits.
contract Bank is IBank {

                // Struct for storing the credit information.
                struct CreditInfo {
                                uint allowed;
                                uint used;
                }

                // State variable storing a credit information for addresses.
                mapping(address => CreditInfo) clientDB;


                constructor() public {
                                // check that contract's public key is set
                                require(tvm.pubkey() != 0, 101);
                                // Check that message has signature (msg.pubkey() is not zero) and message is signed with the owner's private key
                                require(msg.pubkey() == tvm.pubkey(), 102);
                                tvm.accept();
                }

                modifier checkOwnerAndAccept {
                                // Check that message was signed with contracts key.
                                require(msg.pubkey() == tvm.pubkey(), 102);
                                tvm.accept();
                                _;
                }

                // Set credit limit for the address.
                function setAllowance(address bankClientAddress, uint amount) public checkOwnerAndAccept {
        // Store allowed credit limit for the address in state variable mapping.
                                clientDB[bankClientAddress].allowed = amount;
                }

                // Get allowed credit limit for the caller.
                function getCreditLimit() public override {
                                // Cast caller to IMyContractCallback and invoke callback function
                                // with value obtained from state variable mapping.
```

```
        CreditInfo borrowerInfo = clientDB[msg.sender];
                                IBankClient(msg.sender).setCreditLimit(borrowerInfo.allowed - borrowerInfo.used);
                }

                // This function checks whether message sender's available limit could be loaned
                // and sends currency.
                function loan(uint amount) public override {
                                CreditInfo borrowerInfo = clientDB[msg.sender];
                                if (borrowerInfo.used + amount > borrowerInfo.allowed) {
                                    IBankClient(msg.sender).refusalCallback(borrowerInfo.allowed - borrowerInfo.used);
                                } else {
                                    // '{value: amount}' allows to attach arbitrary amount of currency to the message
                                    // if it is not set amount would be set to 10 000 000 nanoton
                                    IBankClient(msg.sender).receiveLoan{value: uint128(amount)}(borrowerInfo.used + amount);
                                    clientDB[msg.sender].used += amount;
                                }
                }
}
```

Results:

```
pragma ton-solidity >= 0.35.0;
pragma AbiHeader expire;

// Import the interface file
import "5_BankClientInterfaces.sol";

// This contract implements 'IBank' interface.
// The contract allows to store credit limits in mapping and give to the caller it's credit limits.
contract Bank is IBank {

    // Struct for storing the credit information.
    struct CreditInfo {
        uint allowed;
        uint used;
    }

    // State variable storing a credit information for addresses.
    mapping(address => CreditInfo) clientDB;


    constructor() public {
        // check that contract's public key is set
        require(tvm.pubkey() != 0, 101);
        // Check that message has signature (msg.pubkey() is not zero) and message is signed with the owner's private key
        require(msg.pubkey() == tvm.pubkey(), 102);
        tvm.accept();
    }

    modifier checkOwnerAndAccept {
        // Check that message was signed with contracts key.
        require(msg.pubkey() == tvm.pubkey(), 102);
        tvm.accept();
        _;
    }

    // Set credit limit for the address.
    function setAllowance(address bankClientAddress, uint amount) public checkOwnerAndAccept {
        // Store allowed credit limit for the address in state variable mapping.
        clientDB[bankClientAddress].allowed = amount;
    }

    // Get allowed credit limit for the caller.
    function getCreditLimit() public override {
        // Cast caller to IMyContractCallback and invoke callback function
        // with value obtained from state variable mapping.
        CreditInfo borrowerInfo = clientDB[msg.sender];
        IBankClient(msg.sender).setCreditLimit(borrowerInfo.allowed - borrowerInfo.used);
    }

    // This function checks whether message sender's available limit could be loaned
    // and sends currency.
    function loan(uint amount) public override {
        CreditInfo borrowerInfo = clientDB[msg.sender];
        if (borrowerInfo.used + amount > borrowerInfo.allowed) {
            IBankClient(msg.sender).refusalCallback(borrowerInfo.allowed - borrowerInfo.used);
        } else {
            // '{value: amount}' allows to attach arbitrary amount of currency to the message
            // if it is not set amount would be set to 10 000 000 nanoton
            IBankClient(msg.sender).receiveLoan{value: uint128(amount)}(borrowerInfo.used + amount);
            clientDB[msg.sender].used += amount;
        }
    }

}
```