

```

1 // SPDX-License-Identifier: MIT
2 // OpenZeppelin Contracts (last updated v4.7.0) (access/Ownable.sol)
3
4 pragma solidity ^0.8.0;
5
6 import "../utils/Context.sol";
7
8 /**
9  * @dev Contract module which provides a basic access control mechanism, where
10  * there is an account (an owner) that can be granted exclusive access to
11  * specific functions.
12  *
13  * By default, the owner account will be the one that deploys the contract. This
14  * can later be changed with {transferOwnership}.
15  *
16  * This module is used through inheritance. It will make available the modifier
17  * `onlyOwner`, which can be applied to your functions to restrict their use to
18  * the owner.
19  */
20 abstract contract Ownable is Context {
21     address private _owner;
22
23     event OwnershipTransferred(address indexed previousOwner, address indexed
newOwner);
24
25     /**
26      * @dev Initializes the contract setting the deployer as the initial owner.
27      */
28     constructor() {
29         _transferOwnership(_msgSender());
30     }
31
32     /**
33      * @dev Throws if called by any account other than the owner.
34      */
35     modifier onlyOwner() {
36         _checkOwner();
37         _;
38     }
39
40     /**
41      * @dev Returns the address of the current owner.
42      */
43     function owner() public view virtual returns (address) {
44         return _owner;
45     }
46
47     /**
48      * @dev Throws if the sender is not the owner.
49      */
50     function _checkOwner() internal view virtual {
51         require(owner() == _msgSender(), "Ownable: caller is not the owner");
52     }
53
54     /**
55      * @dev Leaves the contract without owner. It will not be possible to call
56      * `onlyOwner` functions anymore. Can only be called by the current owner.
57      *
58      * NOTE: Renouncing ownership will leave the contract without an owner,
59      * thereby removing any functionality that is only available to the owner.
60      */
61     function renounceOwnership() public virtual onlyOwner {
62         _transferOwnership(address(0));
63     }
64
65     /**
66      * @dev Transfers ownership of the contract to a new account (`newOwner`).
67      * Can only be called by the current owner.
68      */
69     function transferOwnership(address newOwner) public virtual onlyOwner {
70         require(newOwner != address(0), "Ownable: new owner is the zero address");
71         _transferOwnership(newOwner);
72     }

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73
74  /**
75   * @dev Transfers ownership of the contract to a new account (`newOwner`).
76   * Internal function without access restriction.
77   */
78  function _transferOwnership(address newOwner) internal virtual {
79      address oldOwner = _owner;
80      _owner = newOwner;
81      emit OwnershipTransferred(oldOwner, newOwner);
82  }
83 }
84
```