

```

1  // SPDX-License-Identifier: MIT
2  // OpenZeppelin Contracts v4.4.1 (proxy/beacon/UpgradeableBeacon.sol)
3
4  pragma solidity ^0.8.0;
5
6  import "./IBeacon.sol";
7  import "../access/Ownable.sol";
8  import "../utils/Address.sol";
9
10 /**
11  * @dev This contract is used in conjunction with one or more instances of
12  * {BeaconProxy} to determine their
13  * implementation contract, which is where they will delegate all function calls.
14  * An owner is able to change the implementation the beacon points to, thus upgrading
15  * the proxies that use this beacon.
16  */
17 contract UpgradeableBeacon is IBeacon, Ownable {
18     address private _implementation;
19
20     /**
21     * @dev Emitted when the implementation returned by the beacon is changed.
22     */
23     event Upgraded(address indexed implementation);
24
25     /**
26     * @dev Sets the address of the initial implementation, and the deployer account
27     * as the owner who can upgrade the
28     * beacon.
29     */
30     constructor(address implementation_) {
31         _setImplementation(implementation_);
32     }
33
34     /**
35     * @dev Returns the current implementation address.
36     */
37     function implementation() public view virtual override returns (address) {
38         return _implementation;
39     }
40
41     /**
42     * @dev Upgrades the beacon to a new implementation.
43     *
44     * Emits an {Upgraded} event.
45     *
46     * Requirements:
47     * - msg.sender must be the owner of the contract.
48     * - `newImplementation` must be a contract.
49     */
50     function upgradeTo(address newImplementation) public virtual onlyOwner {
51         _setImplementation(newImplementation);
52         emit Upgraded(newImplementation);
53     }
54
55     /**
56     * @dev Sets the implementation contract address for this beacon
57     *
58     * Requirements:
59     * - `newImplementation` must be a contract.
60     */
61     function _setImplementation(address newImplementation) private {
62         require(Address.isContract(newImplementation), "UpgradeableBeacon:
63             implementation is not a contract");
64         _implementation = newImplementation;
65     }
66 }

```