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1  // SPDX-License-Identifier: MIT
2  // OpenZeppelin Contracts (last updated v4.7.0) (security/Pausable.sol)
3
4  pragma solidity ^0.8.0;
5
6  import "../utils/Context.sol";
7
8  /**
9   * @dev Contract module which allows children to implement an emergency stop
10  * mechanism that can be triggered by an authorized account.
11  *
12  * This module is used through inheritance. It will make available the
13  * modifiers `whenNotPaused` and `whenPaused`, which can be applied to
14  * the functions of your contract. Note that they will not be pausable by
15  * simply including this module, only once the modifiers are put in place.
16  */
17  abstract contract Pausable is Context {
18      /**
19       * @dev Emitted when the pause is triggered by `account`.
20       */
21      event Paused(address account);
22
23      /**
24       * @dev Emitted when the pause is lifted by `account`.
25       */
26      event Unpaused(address account);
27
28      bool private _paused;
29
30      /**
31       * @dev Initializes the contract in unpaused state.
32       */
33      constructor() {
34          _paused = false;
35      }
36
37      /**
38       * @dev Modifier to make a function callable only when the contract is not paused.
39       *
40       * Requirements:
41       *
42       * - The contract must not be paused.
43       */
44      modifier whenNotPaused() {
45          _requireNotPaused();
46          _;
47      }
48
49      /**
50       * @dev Modifier to make a function callable only when the contract is paused.
51       *
52       * Requirements:
53       *
54       * - The contract must be paused.
55       */
56      modifier whenPaused() {
57          _requirePaused();
58          _;
59      }
60
61      /**
62       * @dev Returns true if the contract is paused, and false otherwise.
63       */
64      function paused() public view virtual returns (bool) {
65          return _paused;
66      }
67
68      /**
69       * @dev Throws if the contract is paused.
70       */
71      function _requireNotPaused() internal view virtual {
72          require(!_paused(), "Pausable: paused");
73      }

```

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74
75     /**
76     * @dev Throws if the contract is not paused.
77     */
78     function _requirePaused() internal view virtual {
79         require(paused(), "Pausable: not paused");
80     }
81
82     /**
83     * @dev Triggers stopped state.
84     *
85     * Requirements:
86     *
87     * - The contract must not be paused.
88     */
89     function _pause() internal virtual whenNotPaused {
90         _paused = true;
91         emit Paused(_msgSender());
92     }
93
94     /**
95     * @dev Returns to normal state.
96     *
97     * Requirements:
98     *
99     * - The contract must be paused.
100    */
101    function _unpause() internal virtual whenPaused {
102        _paused = false;
103        emit Unpaused(_msgSender());
104    }
105 }
106

```