#HashEx
BLOCKCHAIN SECURITY

Adealz

smart contracts final audit report

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Contents

1. Disclaimer

This is a limited report on our findings based on our analysis, in accordance with good industry practice at the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, the details of which are set out in this report. In order to get a full view of our analysis, it is crucial for you to read the full report. While we have done our best in conducting our analysis and producing this report, it is important to note that you should not rely on this report and cannot claim against us on the basis of what it says or doesn't say, or how we produced it, and it is important for you to conduct your own independent investigations before making any decisions. We go into more detail on this in the disclaimer below – please make sure to read it in full.

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2. Overview

HashEx was commissioned by the Adealz team to perform an audit of their smart contract. The audit was conducted between 22/05/2024 and 23/05/2024.

The purpose of this audit was to achieve the following:

- Identify potential security issues with smart contracts
- Formally check the logic behind given smart contracts.

Information in this report should be used for understanding the risk exposure of smart contracts, and as a guide to improving the security posture of smart contracts by remediating the issues that were identified.

The code is available at 0x80970e6630661070752232800 2fa4f3B9436598b in the Polygon network.

2.1 Summary

Project name	Adealz
URL	https://nft.adealz.io
Platform	Polygon Network
Language	Solidity
Centralization level	High
Centralization risk	High

2.2 Contracts

Name	Address
Adealz	0x80970e6630661070752232800 2fa4f3B9436598b

3. Project centralization risks

The project owner or any of admins can pause all token transfers.

The owner or admin can update token's URI.

4. Found issues

Info	1 (100%)

C06. Adealz

ID	Severity	Title	Status
C06Id3	Info	Dual Metadata Functions	Acknowledged

5. Contracts

C06. Adealz

Overview

An ERC-1155 standard token with fixed ID number and fixed IDs supply. Token transfers can be paused by project's admin. The contract supports ERC-2981 royalty standard with fixed 2.5%.

Issues

C06Id3 Dual Metadata Functions

● Info ✓ Acknowledged

The contract implements both `uri()` and `tokenURI()` functions for metadata retrieval. According to the ERC1155 standard, the `uri()` function should be used to return the metadata URI. However, this contract also includes a `tokenURI()` function, which is not part of the ERC1155 standard but is used for ERC721 tokens. Both functions are using the same base URI, leading to a situation where setting the URI for one function makes it incorrect for the other.

```
    function setURI(string memory newuri) public onlyRole(ADMIN_ROLE) {
        _setURI(newuri);
        emit URIUpdated(newuri);
    }

    function tokenURI(uint256 tokenId) public view virtual returns (string memory) {
        string memory baseURI = uri(tokenId);
        return bytes(baseURI).length != 0 ? string(abi.encodePacked(baseURI,
tokenId.toString())) : "";
    }
```

Recommendation

Set correct base URI for the `uri()` function and don't use the `tokenURI()` function.

6. Conclusion

No severity issues were found. The reviewed contracts are highly dependent on the owner's account. See the centralization risks chapter.

Appendix A. Issues' severity classification

- **Critical.** Issues that may cause an unlimited loss of funds or entirely break the contract workflow. Malicious code (including malicious modification of libraries) is also treated as a critical severity issue. These issues must be fixed before deployments or fixed in already running projects as soon as possible.
- **High.** Issues that may lead to a limited loss of funds, break interaction with users, or other contracts under specific conditions. Also, issues in a smart contract, that allow a privileged account the ability to steal or block other users' funds.
- **Medium.** Issues that do not lead to a loss of funds directly, but break the contract logic. May lead to failures in contracts operation.
- **Low.** Issues that are of a non-optimal code character, for instance, gas optimization tips, unused variables, errors in messages.
- **Informational.** Issues that do not impact the contract operation. Usually, informational severity issues are related to code best practices, e.g. style guide.

Appendix B. Issue status description

Resolved. The issue has been completely fixed.

Partially fixed. Parts of the issue have been fixed but the issue is not completely resolved.

Acknowledged. The team has been notified of the issue, no action has been taken.

Open. The issue remains unresolved.

Appendix C. List of examined issue types

- Business logic overview
- Functionality checks
- Following best practices
- Access control and authorization
- Reentrancy attacks
- Front-run attacks
- DoS with (unexpected) revert
- DoS with block gas limit
- Transaction-ordering dependence
- ERC/BEP and other standards violation
- Unchecked math
- Implicit visibility levels
- Excessive gas usage
- Timestamp dependence
- Forcibly sending ether to a contract
- Weak sources of randomness
- Shadowing state variables
- Usage of deprecated code

Appendix D. Centralization risks classification

Centralization level

- **High.** The project owners can manipulate user's funds, lock user's funds on their will (reversible or irreversible), or maliciously update contracts parameters or bytecode.
- **Medium.** The project owners can modify contract's parameters to break some functions of the project contract or contracts, but user's funds remain withdrawable.
- **Low.** The contract is trustless or its governance functions are safe against a malicious owner.

Centralization risk

- **High.** Lost ownership over the project contract or contracts may result in user's losses. Contract's ownership belongs to EOA or EOAs, and their security model is unknown or out of scope.
- **Medium.** Contract's ownership is transferred to a contract with not industry-accepted parameters, or to a contract without an audit. Also includes EOA with a documented security model, which is out of scope.
- **Low.** Contract's ownership is transferred to a well-known or audited contract with industry-accepted parameters.

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