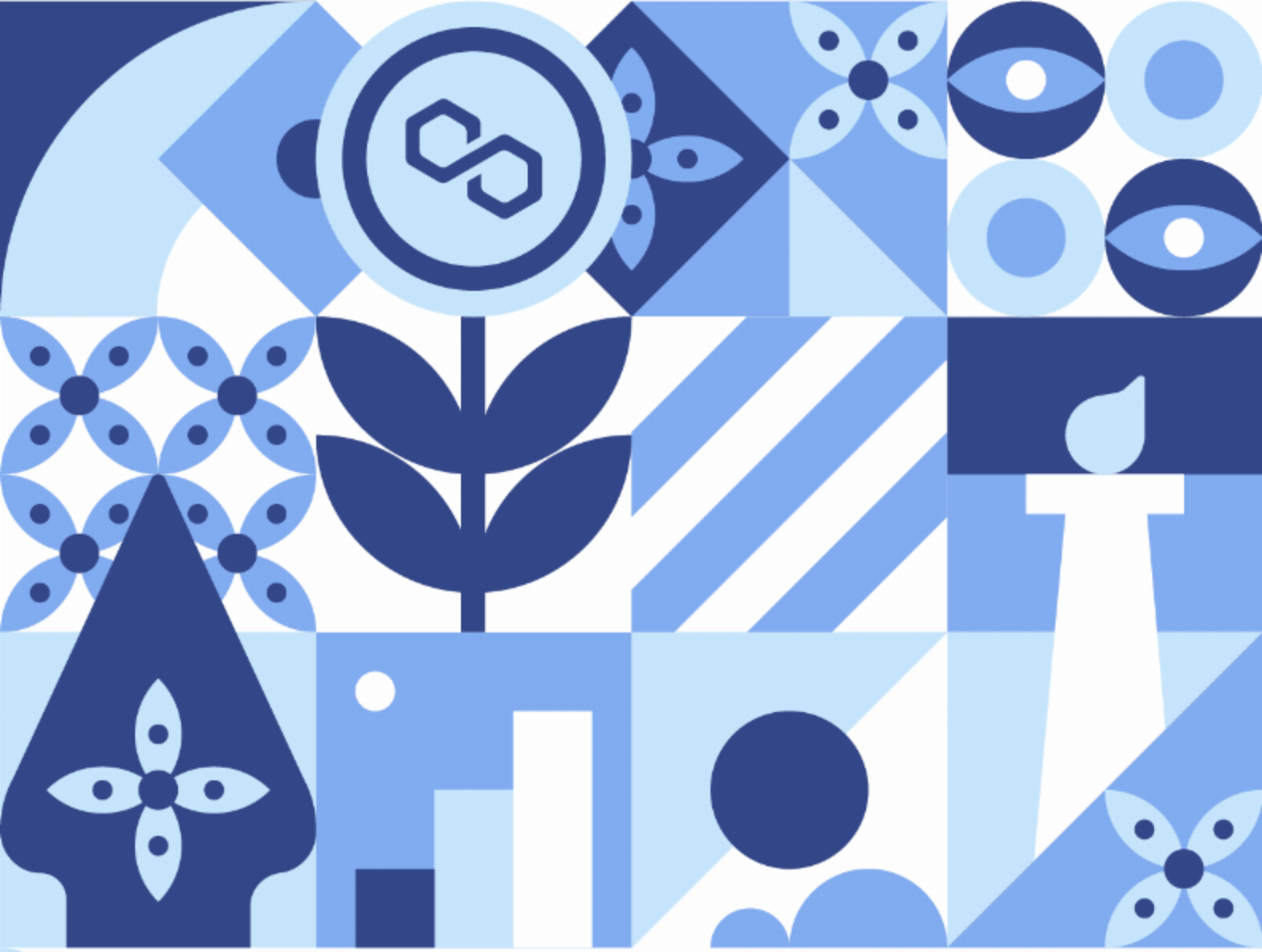

Gains Network

Smart Contract Audit Report

SYSFIXED

28 Oct 2021

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AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
Gains Network	GNS	Polygon Matic

Addresses

Contract address	0xE5417Af564e4bFDA1c483642db72007871397896
Contract deployer address	0xC66FbE50Dd33c9AAdd65707F7088D597C86fE00F

Project Website

https://gains.trade/

Codebase

https://polygonscan.com/address/0xE5417Af564e4bFDA1c483642db72007871397896#code

SUMMARY

Gains Network is developing gTrade, a liquidity-efficient, powerful, and user-friendly decentralized leveraged trading platform.

Contract Summary

Documentation Quality

Gains Network provides a very good documentation with standard of solidity base code.

- The technical description is provided clearly and structured and also dont have any high risk issue.

Code Quality

The Overall quality of the basecode is standard.

- Standard solidity basecode and rules are already followed by Gains Network with the discovery of several low issues.

Test Coverage

Test coverage of the project is 100% (Through Codebase)

Audit Findings Summary

- SWC-100 SWC-108 | Explicitly define visibility for all state variables on lines 1414, 1518 and 1658.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 9, 34, 112, 327, 633, 678, 976 and 1166.
- SWC-120 | It is recommended to use external sources of randomness via oracles on lines 1715, 1716, 1723 and 1731.

CONCLUSION

We have audited the Gains Network project released in October 2021 to discover issues and identify potential security vulnerabilities in Gains Network Project. This process is used to find technical issues and security loopholes which might be found in the smart contract.

The security audit report provides satisfactory results with low-risk issues.

The issues found in the NamaFile smart contract code do not pose a considerable risk. The writing of the contract is close to the standard of writing contracts in general. The low-risk issues found are that a floating pragma is set, a state variable visibility is not set, and weak sources of randomness. Specifying a fixed compiler version is recommended to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code. The environment variable "block.number" looks like it might be used as a source of randomness. Note that the values of variables like coinbase, gaslimit, block number, and timestamp are predictable and can be manipulated by a malicious miner. Also, keep in mind that attackers know hashes of earlier blocks. Don't use any of those environment variables as sources of randomness, and be aware that using these variables introduces a certain level of trust in miners.

AUDIT RESULT

Article	Category	Description	Result
Default Visibility	SWC-100 SWC-108	Functions and state variables visibility should be set explicitly. Visibility levels should be specified consciously.	ISSUE FOUND
Integer Overflow and Underflow	SWC-101	If unchecked math is used, all math operations should be safe from overflows and underflows.	PASS
Outdated Compiler Version	SWC-102	It is recommended to use a recent version of the Solidity compiler.	PASS
Floating Pragma	SWC-103	Contracts should be deployed with the same compiler version and flags that they have been tested thoroughly.	ISSUE FOUND
Unchecked Call Return Value	SWC-104	The return value of a message call should be checked.	PASS
Unprotected Ether Withdrawal	SWC-105	Due to missing or insufficient access controls, malicious parties can withdraw from the contract.	PASS
SELFDESTRUCT Instruction	SWC-106	The contract should not be self-destructible while it has funds belonging to users.	PASS
Reentrancy	SWC-107	Check effect interaction pattern should be followed if the code performs recursive call.	PASS
Uninitialized Storage Pointer	SWC-109	Uninitialized local storage variables can point to unexpected storage locations in the contract.	PASS
Assert Violation	SWC-110 SWC-123	Properly functioning code should never reach a failing assert statement.	PASS
Deprecated Solidity Functions	SWC-111	Deprecated built-in functions should never be used.	PASS
Delegate call to Untrusted Callee	SWC-112	Delegatecalls should only be allowed to trusted addresses.	PASS

DoS (Denial of Service)	SWC-113 SWC-128	Execution of the code should never be blocked by a specific contract state unless required.	PASS
Race Conditions	SWC-114	Race Conditions and Transactions Order Dependency should not be possible.	PASS
Authorization through tx.origin	SWC-115	tx.origin should not be used for authorization.	PASS
Block values as a proxy for time	SWC-116	Block numbers should not be used for time calculations.	PASS
Signature Unique ID	SWC-117 SWC-121 SWC-122	Signed messages should always have a unique id. A transaction hash should not be used as a unique id.	PASS
Incorrect Constructor Name	SWC-118	Constructors are special functions that are called only once during the contract creation.	PASS
Shadowing State Variable	SWC-119	State variables should not be shadowed.	PASS
Weak Sources of Randomness	SWC-120	Random values should never be generated from Chain Attributes or be predictable.	ISSUE FOUND
Write to Arbitrary Storage Location	SWC-124	The contract is responsible for ensuring that only authorized user or contract accounts may write to sensitive storage locations.	PASS
Incorrect Inheritance Order	SWC-125	When inheriting multiple contracts, especially if they have identical functions, a developer should carefully specify inheritance in the correct order. The rule of thumb is to inherit contracts from more /general/ to more /specific/.	PASS
Insufficient Gas Griefing	SWC-126	Insufficient gas griefing attacks can be performed on contracts which accept data and use it in a sub-call on another contract.	PASS
Arbitrary Jump Function	SWC-127	As Solidity doesnt support pointer arithmetics, it is impossible to change such variable to an arbitrary value.	PASS

Typographical Error	SWC-129	A typographical error can occur for example when the intent of a defined operation is to sum a number to a variable.	PASS
Override control character	SWC-130	Malicious actors can use the Right-To-Left-Override unicode character to force RTL text rendering and confuse users as to the real intent of a contract.	PASS
Unused variables	SWC-131 SWC-135	Unused variables are allowed in Solidity and they do not pose a direct security issue.	PASS
Unexpected Ether balance	SWC-132	Contracts can behave erroneously when they strictly assume a specific Ether balance.	PASS
Hash Collisions Variable	SWC-133	Using abi.encodePacked() with multiple variable length arguments can, in certain situations, lead to a hash collision.	PASS
Hardcoded gas amount	SWC-134	The transfer() and send() functions forward a fixed amount of 2300 gas.	PASS
Unencrypted Private Data	SWC-136	It is a common misconception that private type variables cannot be read.	PASS

SMART CONTRACT ANALYSIS

Started	Wednesday Oct 27 2021 04:42:48 GMT+0000 (Coordinated Universal Time)
Finished	Thursday Oct 28 2021 06:45:43 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	GainsNetworkToken.sol

Detected Issues

ID	Title	Severity	Status
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
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SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-103	A FLOATING PRAGMA IS SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-108	STATE VARIABLE VISIBILITY IS NOT SET.	low	acknowledged
SWC-120	POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.	low	acknowledged

SWC-120	POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.	low	acknowledged
SWC-120	POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.	low	acknowledged
SWC-120	POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.	low	acknowledged

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 9

low SEVERITY

The current pragma Solidity directive is ""=0.6.0<0.8.0"". It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

Source File

- GainsNetworkToken.sol

Locations

```
8
9   pragma solidity >=0.6.0 <0.8.0;
10
11   /*
12   * @dev Provides information about the current execution context, including the
13
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 34

low SEVERITY

The current pragma Solidity directive is ""=0.6.0<0.8.0"". It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

Source File

- GainsNetworkToken.sol

Locations

```
33
34   pragma solidity >=0.6.0 <0.8.0;
35
36   /**
37   * @dev Interface of the ERC20 standard as defined in the EIP.
38
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 112

low SEVERITY

The current pragma Solidity directive is ""=0.6.0<0.8.0"". It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

Source File

- GainsNetworkToken.sol

Locations

```
111
112   pragma solidity >=0.6.0 <0.8.0;
113
114   /**
115   * @dev Wrappers over Solidity's arithmetic operations with added overflow
116
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 327

low SEVERITY

The current pragma Solidity directive is ""=0.6.0<0.8.0"". It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

Source File

- GainsNetworkToken.sol

Locations

```
326
327   pragma solidity >=0.6.0 <0.8.0;
328
329
330
331
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 633

low SEVERITY

The current pragma Solidity directive is ""=0.6.0<0.8.0"". It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

Source File

- GainsNetworkToken.sol

Locations

```
632
633   pragma solidity >=0.6.0 <0.8.0;
634
635
636   /**
637
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 678

low SEVERITY

The current pragma Solidity directive is ""=0.6.0<0.8.0"". It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

Source File

- GainsNetworkToken.sol

Locations

```
677
678   pragma solidity >=0.6.0 <0.8.0;
679
680   /**
681   * @dev Library for managing
682
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 976

low SEVERITY

The current pragma Solidity directive is ""=0.6.2<0.8.0"". It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

Source File

- GainsNetworkToken.sol

Locations

```
975
976   pragma solidity >=0.6.2 <0.8.0;
977
978   /**
979   * @dev Collection of functions related to the address type
980
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 1166

low SEVERITY

The current pragma Solidity directive is ""=0.6.0<0.8.0"". It is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. This is especially important if you rely on bytecode-level verification of the code.

Source File

- GainsNetworkToken.sol

Locations

```
1165
1166   pragma solidity >=0.6.0 <0.8.0;
1167
1168
1169
1170
```

SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.

LINE 1414

low SEVERITY

It is best practice to set the visibility of state variables explicitly. The default visibility for "inited" is internal. Other possible visibility settings are public and private.

Source File

- GainsNetworkToken.sol

Locations

```
1413   contract Initializable {
1414   bool inited = false;
1415
1416   modifier initializer() {
1417   require(!inited, "already inited");
1418
```

SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.

LINE 1518

low SEVERITY

It is best practice to set the visibility of state variables explicitly. The default visibility for "nonces" is internal. Other possible visibility settings are public and private.

Source File

- GainsNetworkToken.sol

Locations

```
1517   );
1518   mapping(address => uint256) nonces;
1519
1520   /*
1521   * Meta transaction structure.
1522
```

SWC-108 | STATE VARIABLE VISIBILITY IS NOT SET.

LINE 1658

low SEVERITY

It is best practice to set the visibility of state variables explicitly. The default visibility for "grantRequests" is internal. Other possible visibility settings are public and private.

Source File

- GainsNetworkToken.sol

Locations

```
1657   }
1658   mapping(address => GrantRequest) grantRequests;
1659   uint constant public MIN_GRANT_REQUEST_DELAY = 45000; // 1 day
1660
1661   event GrantRequestInitiated(bytes32[] indexed roles, address indexed account, uint
indexed block);
1662
```

SWC-120 | POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.

LINE 1715

low SEVERITY

The environment variable "block.number" looks like it might be used as a source of randomness. Note that the values of variables like coinbase, gaslimit, block number and timestamp are predictable and can be manipulated by a malicious miner. Also keep in mind that attackers know hashes of earlier blocks. Don't use any of those environment variables as sources of randomness and be aware that use of these variables introduces a certain level of trust into miners.

Source File

- GainsNetworkToken.sol

Locations

```
1714   require(!grantRequestInitiated(account), "Grant request already initiated for this
account.");
1715   grantRequests[account] = GrantRequest(roles, block.number);
1716   emit GrantRequestInitiated(roles, account, block.number);
1717   }
1718
1719
```

SWC-120 | POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.

LINE 1716

low SEVERITY

The environment variable "block.number" looks like it might be used as a source of randomness. Note that the values of variables like coinbase, gaslimit, block number and timestamp are predictable and can be manipulated by a malicious miner. Also keep in mind that attackers know hashes of earlier blocks. Don't use any of those environment variables as sources of randomness and be aware that use of these variables introduces a certain level of trust into miners.

Source File

- GainsNetworkToken.sol

Locations

```
1715   grantRequests[account] = GrantRequest(roles, block.number);
1716   emit GrantRequestInitiated(roles, account, block.number);
1717   }
1718
1719   // Cancels a request to grant `role` to `account`
1720
```

SWC-120 | POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.

LINE 1723

low SEVERITY

The environment variable "block.number" looks like it might be used as a source of randomness. Note that the values of variables like coinbase, gaslimit, block number and timestamp are predictable and can be manipulated by a malicious miner. Also keep in mind that attackers know hashes of earlier blocks. Don't use any of those environment variables as sources of randomness and be aware that use of these variables introduces a certain level of trust into miners.

Source File

- GainsNetworkToken.sol

Locations

```
1722   delete grantRequests[account];
1723   emit GrantRequestCanceled(account, block.number);
1724   }
1725
1726   // Grant the roles precised in the request to account (must wait for the timelock)
1727
```

SWC-120 | POTENTIAL USE OF "BLOCK.NUMBER" AS SOURCE OF RANDOMNESS.

LINE 1731

low SEVERITY

The environment variable "block.number" looks like it might be used as a source of randomness. Note that the values of variables like coinbase, gaslimit, block number and timestamp are predictable and can be manipulated by a malicious miner. Also keep in mind that attackers know hashes of earlier blocks. Don't use any of those environment variables as sources of randomness and be aware that use of these variables introduces a certain level of trust into miners.

Source File

- GainsNetworkToken.sol

Locations

```
1730   GrantRequest memory r = grantRequests[account];
1731   require(block.number >= r.initiated + MIN_GRANT_REQUEST_DELAY, "You must wait for
the minimum delay after initiating a request.");
1732
1733   for(uint i = 0; i < r.roles.length; i++){
1734   _setupRole(r.roles[i], account);
1735
```

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