Bitpaid

Smart Contract Audit Report

SYSFIXED

21 Jan 2022

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AUDITED DETAILS

Audited Project

Project name	Token ticker	Blockchain
Bitpaid	BTP	Binance Smart Chain

Addresses

Contract address	0x40f75ed09c7bc89bf596ce0ff6fb2ff8d02ac019
Contract deployer address	0x40F75eD09c7Bc89Bf596cE0fF6FB2ff8D02aC019

Project Website

https://bitpaid.io/

Codebase

https://bscscan.com/address/0x40f75ed09c7bc89bf596ce0ff6fb2ff8d02ac019#code

SUMMARY

It launched in early 2017. Bitpaid is the native token of the Ethereum chain, a decentralized, open-source, energy-efficient public blockchain with smart contract functionality, high speed, and low transaction fees. Bitpaid is designed to support the creator economy with Web3 applications such as DeFi and GameFi, ultimately serving as the foundational infrastructure for an open metaverse. Bitpaid is intended to do the next billion Web3 users and to help them experience the full promise of self-custody of their digital assets.

Contract Summary

Documentation Quality

Bitpaid 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 Bitpaid with the discovery of several low issues.

Test Coverage

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

Audit Findings Summary

- SWC-101 | It is recommended to use vetted safe math libraries for arithmetic operations consistently on lines 342, 379, 400, 427, 428, 447, 448, 470, 471, 558 and 666.
- SWC-103 | Pragma statements can be allowed to float when a contract is intended on lines 11, 38, 108, 209, 529, 567, 634, 675 and 696.

CONCLUSION

We have audited the Bitpaid project released on January 2022 to discover issues and identify potential security vulnerabilities in Bitpaid 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 Bitpaid 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 are some arithmetic operation issues, and a floating pragma is set. The current pragma Solidity directive is ""^0.8.0"". 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.

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.	PASS
Integer Overflow and Underflow	SWC-101	If unchecked math is used, all math operations should be safe from overflows and underflows.	ISSUE FOUND
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.	PASS
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	Thursday Jan 20 2022 04:29:37 GMT+0000 (Coordinated Universal Time)
Finished	Friday Jan 21 2022 20:35:57 GMT+0000 (Coordinated Universal Time)
Mode	Standard
Main Source File	CommonBEP20.sol

Detected Issues

ID	Title	Severity	Status
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-=" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "+" DISCOVERED	low	acknowledged
SWC-101	ARITHMETIC OPERATION "-" DISCOVERED	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-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 342

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- CommonBEP20.sol

Locations

```
341   require(currentAllowance >= amount, "BEP20: transfer amount exceeds allowance");
342   _approve(sender, _msgSender(), currentAllowance - amount);
343
344   return true;
345   }
346
```

SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 379

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- CommonBEP20.sol

Locations

```
378   function increaseAllowance(address spender, uint256 addedValue) public virtual
returns (bool) {
379   _approve(_msgSender(), spender, _allowances[_msgSender()][spender] + addedValue);
380   return true;
381   }
382
383
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 400

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- CommonBEP20.sol

Locations

```
399   require(currentAllowance >= subtractedValue, "BEP20: decreased allowance below
zero");
400   _approve(_msgSender(), spender, currentAllowance - subtractedValue);
401
402   return true;
403   }
404
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 427

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- CommonBEP20.sol

Locations

```
426   require(senderBalance >= amount, "BEP20: transfer amount exceeds balance");
427   _balances[sender] = senderBalance - amount;
428   _balances[recipient] += amount;
429
430   emit Transfer(sender, recipient, amount);
431
```

SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 428

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- CommonBEP20.sol

Locations

```
427   _balances[sender] = senderBalance - amount;
428   _balances[recipient] += amount;
429
430   emit Transfer(sender, recipient, amount);
431   }
432
```

SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 447

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- CommonBEP20.sol

Locations

```
446
447   _totalSupply += amount;
448   _balances[account] += amount;
449   emit Transfer(address(0), account, amount);
450   }
451
```

SWC-101 | ARITHMETIC OPERATION "+=" DISCOVERED

LINE 448

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- CommonBEP20.sol

Locations

```
447   _totalSupply += amount;
448   _balances[account] += amount;
449   emit Transfer(address(0), account, amount);
450   }
451
452
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 470

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- CommonBEP20.sol

Locations

```
469   require(accountBalance >= amount, "BEP20: burn amount exceeds balance");
470   _balances[account] = accountBalance - amount;
471   _totalSupply -= amount;
472
473   emit Transfer(account, address(0), amount);
474
```

SWC-101 | ARITHMETIC OPERATION "-=" DISCOVERED

LINE 471

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- CommonBEP20.sol

Locations

```
470   _balances[account] = accountBalance - amount;
471   _totalSupply -= amount;
472
473   emit Transfer(account, address(0), amount);
474   }
475
```

SWC-101 | ARITHMETIC OPERATION "+" DISCOVERED

LINE 558

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- CommonBEP20.sol

Locations

```
557   function _mint(address account, uint256 amount) internal virtual override {
558   require(totalSupply() + amount <= cap(), "BEP20Capped: cap exceeded");
559   super._mint(account, amount);
560   }
561   }
562
```

SWC-101 | ARITHMETIC OPERATION "-" DISCOVERED

LINE 666

low SEVERITY

This plugin produces issues to support false positive discovery within mythril.

Source File

- CommonBEP20.sol

Locations

```
665   require(currentAllowance >= amount, "BEP20: burn amount exceeds allowance");
666   _approve(account, _msgSender(), currentAllowance - amount);
667   _burn(account, amount);
668   }
669   }
670
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 11

low SEVERITY

The current pragma Solidity directive is ""^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

- CommonBEP20.sol

Locations

```
10
11   pragma solidity ^0.8.0;
12
13   /*
14   * @dev Provides information about the current execution context, including the
15
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 38

low SEVERITY

The current pragma Solidity directive is ""^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

- CommonBEP20.sol

Locations

```
37
38   pragma solidity ^0.8.0;
39
40   /**
41   * @dev Contract module which provides a basic access control mechanism, where
42
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 108

low SEVERITY

The current pragma Solidity directive is ""^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

- CommonBEP20.sol

Locations

```
107
108   pragma solidity ^0.8.0;
109
110   /**
111   * @dev Interface of the BEP standard.
112
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 209

low SEVERITY

The current pragma Solidity directive is ""^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

- CommonBEP20.sol

Locations

```
208
209   pragma solidity ^0.8.0;
210
211
212
213
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 529

low SEVERITY

The current pragma Solidity directive is ""^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

- CommonBEP20.sol

Locations

```
528
529   pragma solidity ^0.8.0;
530
531
532   /**
533
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 567

low SEVERITY

The current pragma Solidity directive is ""^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

- CommonBEP20.sol

Locations

```
566
567   pragma solidity ^0.8.0;
568
569
570   /**
571
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 634

low SEVERITY

The current pragma Solidity directive is ""^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

- CommonBEP20.sol

Locations

```
633
634   pragma solidity ^0.8.0;
635
636
637   /**
638
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 675

low SEVERITY

The current pragma Solidity directive is ""^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

- CommonBEP20.sol

Locations

```
674
675   pragma solidity ^0.8.0;
676
677   interface IPayable {
678   function pay(string memory serviceName) external payable;
679
```

SWC-103 | A FLOATING PRAGMA IS SET.

LINE 696

low SEVERITY

The current pragma Solidity directive is ""^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

- CommonBEP20.sol

Locations

```
695
696   pragma solidity ^0.8.0;
697
698
699
700
```

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This is a limited report on our findings based on our analysis, in accordance with good industry practice as of 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 below disclaimer below – please make sure to read it in full.

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