



Revolution Audit



Audit Report

Name	: Gama
Symbol	: GAMA
Decimals	: 18
Address	: 0x0a93d993324A6360101fd132DeD121066149C2cf
Owner	: 0x314D0D9e1908C078B9a7Acd5AfAD4186C67d1714
Network	: Binance Smart Chain (Mainnet)
Type	: BEP20
Audited on	: 6 October 2022
Updated on	: 28 October 2022



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Project Overview

Name	Gama
Symbol	GAMA
Decimals	18
Total Supply	1,000,000,000
Tax	Buy 4% Sell 4% — (Fixed Tax)
Compiler Version	v0.8.0+commit.c7dfd78e
Optimization	Yes with 200 runs
License Type	MIT
Explorer Link	https://bscscan.com/address/0x0a93d993324A6360101fd132DeD121066149C2cf
Create Tx	0x02d6aab1b9f14ab964eed1ec2c3be57ca608cbb5101784988432609a07b0286b
Creator	0x314d0d9e1908c078b9a7acd5afad4186c67d1714
Featured Wallet	Marketing Wallet — 0x0a554e5a7d22720fd6052a54aa53e0d2d1d681b2
GitHub Link	https://github.com/PrestonMetaverse/GamaMeta
Website	https://gamapad.com



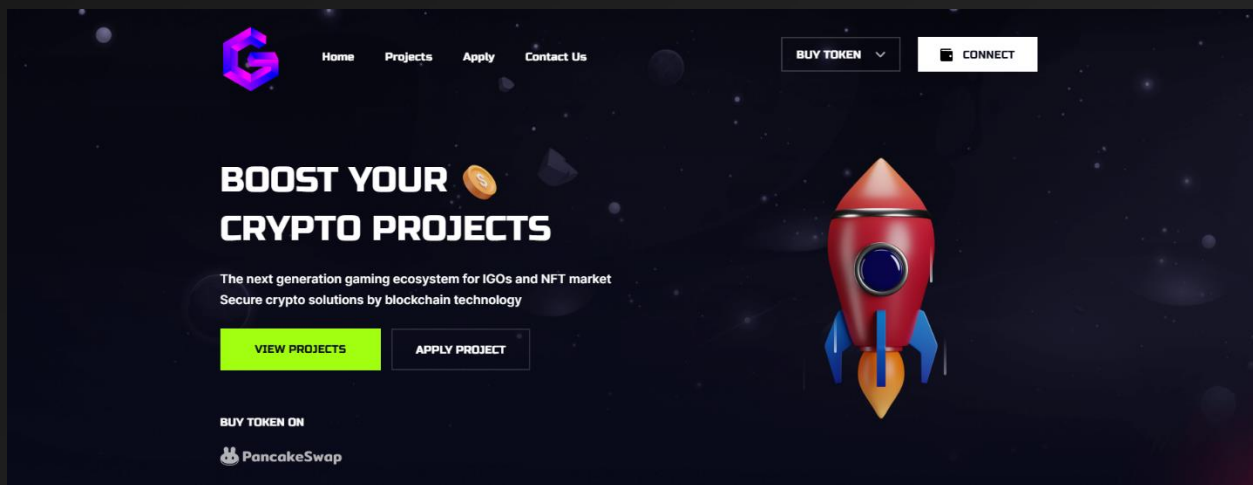
Project Description

According to their website

Gama Launchpad is a platform for NFT and token distribution, as well as a space for all the Metaverse developers. It will allow projects to launch on the metaverse easier through their fundraising system. Gama Launchpad is expected to support multiple blockchain networks.

Release Date : 30 October 2022

Category : Launchpad — IGO





Online Presence

About Website

Registrar : <https://www.ionos.com>

Domain Expiration : 27 September 2023

SSL Certificate : Issued by DigiCert Inc

Official Links

Website	https://gamapad.com
Twitter	https://twitter.com/Gama_Launchpad
GitHub	https://github.com/PrestonMetaverse/GamaMeta
Telegram	https://t.me/Gama_Metaverse



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The Team

About	<p>Based on their website, we found that there are 4 members in the team.</p> <p>However, there are no KYC procedure being conducted by Revolution on any of Gama Launchpad's team members.</p>
KYC Issuer	N/A
Member's KYC'd	N/A
KYC Date	N/A
Certificate Link	N/A
Task Completed	N/A



Audit Overview

Threat Level

When conducting audit on smart contract(s), we first look for known vulnerabilities and issues within the code because any exploitation on such vulnerabilities and issues by malicious actors could potentially result in serious financial damage to the projects. All the issues and vulnerabilities will be categorized into the categories as provided below.

Critical

This category provides issues and vulnerabilities that are critical to the performance/functionality of the smart contract and should be fixed by project creator before moving to a live environment.

Medium

This category provides issues and vulnerabilities that are not that critical to the performance/functionality of the smart contract but is recommended to be fixed by project creator before moving to a live environment.

Minor

This category provides issues and vulnerabilities that are minor to the performance/functionality of the smart contract and can remain unfixed by project creator before moving to a live environment.

Informational

This category provides issues and vulnerability that have insignificant effect on the performance/functionality of the smart contract and can remain unfixed by project creator before moving to a live environment. However, fixing them can further improve the efficacy or security for features with a risk-free factor.



Notable Information

- Contract Owner cannot stop or pause transactions.
- Contract Owner cannot transfer tokens from specific address.
- Contract Owner cannot mint new tokens after deploying smart contract.
- Contract Owner cannot burn tokens from specific wallet.
- Both buy and sell fees are hardcoded to be a total of 4%.
- Contract Owner cannot blacklist wallets from selling.
- There are no compiler warnings when compiling the smart contracts.
- Contract is using interface from safe Zeppelin modules.
- Every transaction has a hardcoded maximum amount of 250,000,000 token per transaction.



Contract Diagnostic

Link for initial smart contract commit being audited on GitHub:

<https://github.com/PrestonMetaverse/GamaMeta/commit/14b4c062e9c3c353f40ab7f6b5c8045c0993ee17>

CODE	SEVERITY	DESCRIPTION
SWC-103	Minor	A floating pragma is set.
SWC-108	Minor	State variable visibility is not set.
SWC-110	Unknown	Out of bounds array access.
EM	Informational	Function recommended to emit events.
CL	Informational	Costly loop.
DC	Informational	Dead code.
FIS	Informational	Function init states
NC	Informational	Naming convention.
UR	Informational	Unused return value(s).
SN	Informational	Similar name.
CS	Informational	State variable that can be declared as constant.
RR	Informational	Require restriction on function.
EF	Informational	Public function can be declared as external.



SWC-103 — A floating pragma is set

SEVERITY	Minor
LOCATION(S)	gama.sol#L3
DESCRIPTION	The current pragma Solidity directive is set as <code>""^0.8.0""</code> .
RECOMMENDATIONS	Project creator is recommended to specify a fixed compiler version to ensure that the bytecode produced does not vary between builds. It is important if the project rely on bytecode-level verification of the code.
STATUS	N/A



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SWC-108 — State variable visibility is not set

SEVERITY	Minor
LOCATION(S)	gama.sol#L627
DESCRIPTION	<p>It is best practice to set the visibility of state variables explicitly.</p> <p>The default visibility for "marketingWallet", "buymarketingFee" and "sellMarketingFee" are internal.</p> <p>Other possible visibility settings are public and private.</p>
RECOMMENDATIONS	Project creator is recommended to set the visibility for "marketingWallet", "buymarketingFee" and "sellMarketingFee" parameters under gama.sol even if they are supposed to be internal.
STATUS	FIXED by Revoluzion for project creator



SWC-110 — Out of bounds array access

SEVERITY	Unknown
LOCATION(S)	gama.sol#L811
DESCRIPTION	The index access expression can cause an exception in case of use of invalid array index value.
RECOMMENDATIONS	<p>This produces line of code could produce -1 index for the array.</p> <p>As long as project creator didn't include the pair address, this should not produce any issue as the exclude array will not be an empty array at the start and in the case if there's no other address being excluded.</p> <p>No specific actions needed to be taken by project creator as long as the issue with the exclude/include fee logic mentioned in the later part of this document has been solved.</p>
STATUS	N/A



EM — Function recommended to emit events

SEVERITY	Informational — Low
LOCATION(S)	gama.sol#L1057-1059, 1061-1063, 1065-1067, 1069-1071, 1073-1075, 1077-1079
DESCRIPTION	<p>[GAMA.setBuyLiquidityFee] (#L1057-1059) should emits an event for L#1058 — Refer update #2</p> <p>[GAMA.setSellLiquidityFee] (#L1061-1063) should emits an event for L#1062 — Refer update #2</p> <p>[GAMA.setBuyMarketingFee] (#L1065-1067) should emits an event for L#1066 — Refer update #2</p> <p>[GAMA.setSellMarketingFee] (#L1069-1071) should emits an event for L#1070 — Refer update #2</p> <p>[GAMA.setMaxTxAmount] (#L1073-1075) should emits an event for L#1074 — Refer update #1</p> <p>[GAMA.setMinTokensBeforeSwap] (#L1077-1079) should emits an event for L#1078</p>
RECOMMENDATIONS	Project creator is recommended to emit events for these functions to facilitate better communication between smart contract and its user interfaces.
STATUS	FIXED by Revolution for project creator
UPDATES	<p>#1 — Removed setMaxTxAmount function</p> <p>https://github.com/PrestonMetaverse/GamaMeta/commit/20c363661724125e82f3b067deeacbf14f4f54e8</p> <p>#2 — Removed setBuyLiquidityFee, setSellLiquidityFee, setBuyMarketingFee, setSellMarketingFee functions</p> <p>https://github.com/PrestonMetaverse/GamaMeta/commit/8ecbba9758d0a5514b1ec744d88fa034399ed583</p>



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CL — Costly loop

SEVERITY	Informational — Medium
LOCATION(S)	gama.sol#L807-818
DESCRIPTION	[GAMA.includeAccount] (#L807-818) has costly operations inside a loop.
RECOMMENDATIONS	Project creator could further optimize this function by creating a better logic to search and remove the address from the array instead of doing it in a loop. We recommend using mapping to keep track of the index for the address within the array and use the value to update the array.
STATUS	FIXED by Revoluzion for project creator



DC — Dead code

SEVERITY	Informational — Medium
LOCATION(S)	gama.sol#L20-23, 255-257, 271-278, 280-284, 308-322, 340-352, 372-377, 385-391, 404-416, 424-435, 437-465, 891-909
DESCRIPTION	<p>[Context._msgData] (#L20-23) is never used and should be removed.</p> <p>[SafeMath.mod] (#L255-257) is never used and should be removed.</p> <p>[SafeMath.mod] (#L271-278) is never used and should be removed.</p> <p>[SafeMath.ceil] (#L280-284) is never used and should be removed.</p> <p>[Address.isContract] (#L308-322) is never used and should be removed.</p> <p>[Address.sendValue] (#L340-352) is never used and should be removed.</p> <p>[Address.functionCall] (#L372-377) is never used and should be removed.</p> <p>[Address.functionCall] (#L385-391) is never used and should be removed.</p> <p>[Address.functionCallWithValue] (#L404-416) is never used and should be removed.</p> <p>[Address.functionCallWithValue] (#L424-435) is never used and should be removed.</p> <p>[Address._functionCallWithValue] (#L437-465) is never used and should be removed.</p> <p>[GAMA.collectFee] (#L891-909) is never used and should be removed.</p>



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RECOMMENDATIONS	<p>Based on our analysis, the Address, Context and SafeMath smart contracts is the standard that is a direct fork from Open Zeppelin and were used within the contract itself. Although those functions were never used elsewhere, especially in GAMA, it's still okay to leave them be.</p> <p>However, it is recommended for project creator to remove those functions to further optimize the smart contract since they are not used anywhere at all. Doing so will reduce the amount gas required when deploying the smart contract.</p> <p>In addition to this, the collectFee function in GAMA should be remove completely since the transfer function within the contract is only using collectBuyFee and collectSellFee functions.</p>
STATUS	FIXED by Revoluzion for project creator



FIS — Function init states

SEVERITY	Informational — High
LOCATION(S)	gama.sol#L616,647
DESCRIPTION	[GAMA._reflectionTotal] (#L616) is set pre-construction with a non-constant function or state variable: (MAX - (MAX % _tokenTotal)) [GAMA.maxTxAmount] (#L647) is set pre-construction with a non-constant function or state variable: _tokenTotal — Refer update #1
RECOMMENDATIONS	We would recommend project owner to set (MAX - (MAX % _tokenTotal)) and _tokenTotal states as constant.
STATUS	FIXED by Revolution for project creator
UPDATES	#1 — Removed setMaxTxAmount function https://github.com/PrestonMetaverse/GamaMeta/commit/20c363661724125e82f3b067deeacbf14f4f54e8



NC — Naming convention

SEVERITY	Informational — Minor
LOCATION(S)	gama.sol#L549, 610, 611, 612, 615, 616, 619, 620, 623, 631, 635, 639, 640
DESCRIPTION	<p>[IUniswapV2Router01.WETH] (#L549) is not in mixedCase.</p> <p>[GAMA._reflectionBalance] (#L610) is not in mixedCase.</p> <p>[GAMA._tokenBalance] (#L611) is not in mixedCase.</p> <p>[GAMA._allowances] (#L612) is not in mixedCase.</p> <p>[GAMA._tokenTotal] (#L615) is not in mixedCase.</p> <p>[GAMA._reflectionTotal] (#L616) is not in mixedCase.</p> <p>[GAMA._isExcluded] (#L619) is not in mixedCase.</p> <p>[GAMA._excluded] (#L620) is not in mixedCase.</p> <p>[GAMA._feeDecimal] (#L623) is not in mixedCase.</p> <p>[GAMA._buyLiquidityFee] (#L631) is not in mixedCase.</p> <p>[GAMA._sellLiquidityFee] (#L635) is not in mixedCase.</p> <p>[GAMA._taxFeeTotal] (#L639) is not in mixedCase.</p> <p>[GAMA._burnFeeTotal] (#L640) is not in mixedCase.</p> <p>[GAMA._liquidityFeeTotal] (#L641) is not in mixedCase.</p>
RECOMMENDATIONS	Based on our analysis, the IUniswapV2Router smart contract is a direct fork from Uniswap. Although the name doesn't conform to the standard convention, it's still okay to leave it be to avoid from potentially breaking any external function. However, for GAMA smart contract, it is okay for project creator to update the name of the parameters in those functions so that they conform to the standard naming convention.
STATUS	N/A



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UR — Unused return value(s)

SEVERITY	Informational — Minor
LOCATION(S)	gama.sol#L1024-1037
DESCRIPTION	[GAMA.addLiquidity] (#1024-1037) ignores the return value at [uniswapV2Router.addLiquidityETH] (#L1029-1036)
RECOMMENDATIONS	Based on our analysis, project creator doesn't need to do anything for this issue since it will be redundant.
STATUS	N/A



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SN — Similar name

SEVERITY	Informational — Minor
LOCATION(S)	gama.sol#L553-554
DESCRIPTION	[IUniswapV2Router01.addLiquidity] (#L553-554) has two parameters names that are too similar.
RECOMMENDATIONS	Based on our analysis, the IUniswapV2Router smart contract is a direct fork from Uniswap. Although their names are too similar, it's still okay to leave them be for the purpose of following the standard parameter declaration that is widely used as reference.
STATUS	N/A



CS — State variable that can be declared as constant

SEVERITY	Informational — Minor
LOCATION(S)	gama.sol#L606-608, 615, 623, 627, 639, 640
DESCRIPTION	[GAMA._name] (#L606) should be constant. [GAMA._symbol] (#L607) should be constant. [GAMA._decimals] (#L608) should be constant. [GAMA._tokenTotal] (#L615) should be constant. [GAMA._feeDecimal] (#L623) should be constant. [GAMA.marketing\Wallet] (#627) should be constant. [GAMA._taxFeeTotal] (#L639) should be constant. [GAMA._burnFeeTotal] (#L640) should be constant.
RECOMMENDATIONS	Based on our analysis, these variables should be declared as constant since they don't change throughout smart contract.
STATUS	FIXED by Revoluzion for project creator



RR — Require restriction on function

SEVERITY	Informational — High
LOCATION(S)	gama.sol#L1057-1059, 1061-1063, 1065-1067, 1069-1071, 1073-1075, 1077-1078
DESCRIPTION	<p>[GAMA.setBuyLiquidityFee] (#L1057-1059) require a restriction for the function to prevent value of buyLiquidityFee to be more than 100%. — Refer update #2</p> <p>[GAMA.setSellLiquidityFee] (#L1061-1063) require a restriction for the function to prevent value of sellLiquidityFee to be more than 100%. — Refer update #2</p> <p>[GAMA.setBuyMarketingFee] (#L1065-1067) require a restriction for the function to prevent value of buyMarketingFee to be more than 100%. — Refer update #2</p> <p>[GAMA.setSellMarketingFee] (#L1069-1071) require a restriction for the function to prevent value of sellMarketingFee to be more than 100%. — Refer update #2</p> <p>[GAMA.setMaxTxAmount] (#L1073-1075) require a restriction for the function to prevent it from having the logic that could allow project owner to blacklist holders from trading as well as to stop/pause trading. — Refer update #1</p> <p>[GAMA.setMinTokensBeforeSwap] (#L1077-1078) require a restriction for the function to prevent value of minTokenBeforeSwap to be 0, which could increase the gas fee for every buy/sell transactions by the user as it will runs swap function without even swapping anything.</p>
RECOMMENDATIONS	Based on our analysis, we would highly encourage project owner to put restriction(s) on each of these functions so that users will trust in the project more and reduce the risk of the project being negatively labeled. Please note that sites like Pinksale will require tax to only be a maximum total of 25%.
STATUS	FIXED by Revolution for project creator



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UPDATES

#1 — Removed setMaxTxAmount function

<https://github.com/PrestonMetaverse/GamaMeta/commit/20c363661724125e82f3b067deeachbf14f4f54e8>

#2 — Removed setBuyLiquidityFee, setSellLiquidityFee, setBuyMarketingFee, setSellMarketingFee functions

<https://github.com/PrestonMetaverse/GamaMeta/commit/8ecbba9758d0a5514b1ec744d88fa034399ed583>



EF — Public function can be declared as external

SEVERITY	Informational — Medium
LOCATION(S)	gama.sol#L519-522, 528-593, 683-685, 687-689, 691-693, 705-713, 715-722, 724-731, 733-742, 744-755, 757-771, 773-775
DESCRIPTION	<p>[Ownable.renounceOwnership] (#L519-522) should be declared as external.</p> <p>[Ownable.transferOwnership] (#L528-539) should be declared as external.</p> <p>[GAMA.name] (#L683-685) should be declared as external.</p> <p>[GAMA.symbol] (#L687-689) should be declared as external.</p> <p>[GAMA.decimals] (#L691-693) should be declared as external.</p> <p>[GAMA.transfer] (#L705-713) should be declared as external.</p> <p>[GAMA.allowance] (#L715-722) should be declared as external.</p> <p>[GAMA.approve] (#L724-731) should be declared as external.</p> <p>[GAMA.transferFrom] (#L733-742) should be declared as external.</p> <p>[GAMA.increaseAllowance] (#L744-755) should be declared as external.</p> <p>[GAMA.decreaseAllowance] (#L757-771) should be declared as external.</p> <p>[GAMA.isExcluded(address)] (#L773-775) should be declared as external.</p>



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RECOMMENDATIONS	Based on our analysis, it is best for project creator to change the visibility of these functions from public to external for the purpose of optimizing the smart contract since they are not used internally at all within any of the smart contract.
STATUS	N/A



Disclaimer

This report only shows findings based on our limited project analysis according to the good industry practice from the date of this report, in relation to cybersecurity vulnerabilities and issues in the framework and algorithms based on smart contracts, overall online presence and team transparency details of which are set out in this report. To get a full view of our analysis, **it is important for you to read the full report**. Under no circumstances did Revoluzion Audit receive a payment to manipulate those results or change the awarding badge that we will be adding in our website. **Our team provides no guarantees against the sale of team tokens or the removal of liquidity by the project** audited in this document.

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The analysis of the security is purely based on the smart contracts, website, social media, and team.