Introduction

- Alchemy API Reference Overview
 - Chain APIs Overview
 - Enhanced APIs Overview
- Alchemy Quickstart Guide

Resources

- <u>FAQ</u>
 - Feature Support By Chain
 - Throughput
 - Batch Requests
 - Gas Limits
 - Error Reference
- Compute Units
 - Pricing Plans
 - Compute Unit Costs

NFT API

- NFT API Quickstart
- NFT API Endpoints Overview
- NFT API FAQ
- Ownership & Token Gating
 - getNFTsForOwner get
 - getOwnersForNFT get
 - getOwnersForContract get
 - isHolderOfContract get
 - getContractsForOwner get
- getCollectionsForOwner get
 NFT Metadata Access
 - - getNFTMetadata get
 - getNFTMetadataBatch post
 - getContractMetadata get
 - getCollectionMetadata get
 - invalidateContract get
 - getContractMetadataBatch post
 - getNFTsForContract get
 - getNFTsForCollection get
 - searchContractMetadata get
 - refreshNftMetadata post
- Spam Detection
 - getSpamContracts get
 - isSpamContract get
 - isAirdropNFT get
 - reportSpam get
- Rarity Data
 - summarizeNFTAttributes get
- computeRarity get
- Sales & Marketplace Data
 - getFloorPrice get
 - getNFTSales get
- NFT API V2 to V3 Migration Guide
 - NFT API V2 vs. V3 Endpoint Differences
- NFT API V2 Methods (Older Version)
 - getNFTs get
 - getNFTMetadata get

- getNFTMetadataBatch post • getContractMetadata get • getContractMetadataBatch post getNFTsForCollection get • getOwnersForToken get • getOwnersForCollection get • getSpamContracts get • isSpamContract get isAirdrop get invalidateContract get • getFloorPrice get computeRarity get • searchContractMetadata get
 - summarizeNFTAttributes get
 - isHolderOfCollection get
 - getNFTSales get
 - getContractsForOwner get
 - reportSpam get

Transfers API (Tx History)

- Transfers API Quickstart
- Transfers API Endpoints
 - alchemy getAssetTransfers post

Transaction Receipts API

- Transaction Receipts Endpoints
 - alchemy_getTransactionReceipts post

Token API

- Token API Quickstart
- Token API Endpoints
 - alchemy_getTokenBalances post
 - alchemy getTokenMetadata post
 - alchemy_getTokenAllowance post

Subgraphs

- Subgraphs QuickstartSupported Subgraph ChainsDeveloping a Subgraph
- - Graph CLI
 - · Creating a Subgraph
 - Project Structure
 - Data Sources
- Writing Mappings
 Moving your Subgraph to Production
 - Deploying a Subgraph
 - Subgraph Versioning
 - Querying a Subgraph
 - Deleting a Subgraph
 - Direct Database Access
- Community subgraphs

Webhooks

• Notify API Quickstart

 Notify Tutorials and Applications Notify API FAQ Custom Webhooks Quickstart Custom Webhooks FAQ Custom Webhooks GraphQL Examples Custom Webhook Filters Custom Webhook Variables
 Custom Webhook API Methods · Read Variable Elements get Create a Variable post • Delete a Variable delete Update a Variable patch Notify API Methods Get all webhooks get · Get all addresses for an Address Activity webhook get · Create webhook post · Add and remove webhook addresses patch · Replace webhook addresses put Update webhook status put Update webhook NFT filters patch • Update NFT metadata webhook filters patch Get all webhook NFT filters get Delete webhook delete Webhook Types Custom Webhook Address Activity Webhook Mined Transaction Webhook • Dropped Transaction Webhook NFT Activity Webhook NFT Metadata Updates Webhook

Websockets

- Subscription API Quickstart
- Best Practices for Using WebSockets in Web3
- Subscription API Endpoints
 - alchemy_minedTransactions
 - alchemy pendingTransactions
 - newPendingTransactions
 - newHeads
 - logs

Trace API

- Trace API Quickstart
 Trace API Endpoints
- trace_block post
 - · trace_call post
 - trace_get post
 - trace_rawTransaction post
 - trace_replayBlockTransactions post
 - trace replayTransaction post
 - trace_transaction post
- trace_filter post
- Trace API Resources

- What are EVM Traces?
- Trace API vs. Debug API
- What is trace_transaction?
- What is trace_block?
- · What is trace_filter?
- trace_call vs debug_traceCall

Debug API

- Debug API Quickstart
- **Debug API Endpoints**
 - · debug_traceCall post
 - debug_traceTransaction post
 - debug traceBlockByNumber post
 - debug_traceBlockByHash post

ACCOUNT ABSTRACTION

- Bundler API Quickstart
- Bundler API Endpoints
 - eth_getUserOperationReceipt post
 - · eth supportedEntryPoints post
 - eth_getUserOperationByHash post
 - eth_sendUserOperation post
 - rundler maxPriorityFeePerGas post
 - eth_estimateUserOperationGas post
- Bundler API Fee Logic
- Factory Addresses
- Gas Manager Coverage API Quickstart
- Gas Manager Coverage API Endpoints
 - <u>alchemy_requestPaymasterAndData_post</u>
- alchemy_requestGasAndPaymasterAndData post
 Gas Manager Coverage API Fee Logic
- Gas Manager Deployment AddressesUserOperation Simulation Endpoints
- alchemy_simulateUserOperationAssetChanges post
- AA-SDK
- Account Abstraction FAQ

Embedded Accounts

- Accounts API Endpoints
 - Create Account post
 - Send Auth Email post
 - Authenticate User post
 - · Get User post
 - Sign Message post
 - · Register New Authenticator post

Gas Manager Admin API

- Gas Manager Admin API QuickstartGas Manager Admin API Endpoints
- - Create Policy post
 - Get Policy get
 - Delete Policy delete
 - Replace Policy put
 - Get All Policies get
 - Update Policy Status put
- · Get Policy Stats get
- Get Sponsorships get

Alchemy Transact

- Transact Quickstart
- Reinforced Transactions
 Transaction Simulation
- - Asset Changes
 - Execution Simulation
 - Bundle Simulation
 - Transaction Simulation Examples
 - Transaction Simulation FAQs
- Transaction Simulation Endpoints
 - <u>alchemy_simulateAssetChanges post</u>
 - alchemy_simulateAssetChangesBundle post
 - alchemy simulateExecution post
 - alchemy_simulateExecutionBundle post
- Gas Optimized Transactions
 - alchemy_getGasOptimizedTransactionStatus post
 - alchemy_sendGasOptimizedTransaction post
- Private Transactions
 - eth_cancelPrivateTransaction post
 - eth_sendPrivateTransaction post

Alchemy SDK

- Alchemy SDK Quickstart
 - · How to use Alchemy SDK with Typescript
 - Examples Using the Alchemy SDK
 - · How to Manage a Multichain Project Using Alchemy SDK
- Alchemy SDK Surface Overview
 - Alchemy SDK vs. Raw API Methods
- **SDK Core Methods**
 - call SDK
 - send SDK
 - estimateGas SDK
 - findContractDeployer SDK
 - getBalance SDK
 - getBlock SDK
 - getBlockNumber SDK
 - getBlockWithTransactions SDK
 - getCode SDK
 - getFeeData SDK
 - getGasPrice SDK
 - getLogs SDK
 - getStorageAt SDK
 - getTokenBalances SDK
 - getTokenMetadata SDK
 - getTokensForOwner SDK
 - getTransactionCount SDK
 - getTransactionReceipt SDK
 - getTransactionReceipts SDK
 - isContractAddress SDK
 - getAssetTransfers SDK
- SDK NFT Methods
- getNftsForOwner SDK

• getNftMetadata -SDK • getNftMetadataBatch - SDK • refreshNftMetadata - SDK • getNftSales - SDK searchContractMetadata - SDK • summarizeNftAttributes - SDK • getNftsForOwnerIterator - SDK • getNftsForContractIterator - SDK • getContractMetadata - SDK • getNftsForContract -SDK getTransfersForOwner - SDK getTransfersForContract - SDK • getMintedNfts - SDK • getOwnersForNft - SDK • getOwnersForContract - SDK • getSpamContracts -SDK • isSpamContract - SDK refreshContract - SDK • getContractsForOwner - SDK • getFloorPrice - SDK computeRarity - SDK verifyNftOwnership - SDK **SDK Transact Methods** getTransaction - SDK • sendTransaction - SDK • sendPrivateTransaction - SDK • cancelPrivateTransaction - SDK • waitForTransaction - SDK • estimateGas - SDK • getMaxPriorityFeePerGas - SDK • simulateAssetChanges - SDK • simulateAssetChangesBundle - SDK • simulateExecution - SDK • simulateExecutionBundle - SDK • SDK Debug Methods • traceCall - SDK traceTransaction - SDK traceBlock - SDK SDK Notify Methods • getAllWebhooks - SDK • getAddresses - SDK • getNftFilters - SDK • createWebhook - SDK updateWebhook - SDK • deleteWebhook - SDK SDK WebSockets Endpoints SDK Ethers Utils arrayify

formatUnitsconcat

• hexConcat • dnsEncode hexDataLength • formatEther • hexDataSlice • hexStripZeros • <u>hashMessage</u> • isHexString • isValidName • joinSignature • splitSignature • toUtf8Bytes • <u>hexValue</u> • toUtf8String • hexZeroPad zeroPad hexlify 。 <u>id</u> • isBytes • isBytesLike • Interface • namehash parseEther parseUnits stripZeros
 Alchemy SDK V2 to V3 Migration Guide • Alchemy SDK V2 vs. V3 Method Differences SDK V2 Methods • call - SDK • getAssetTransfers - SDK getMintedNfts - SDK verifyNftOwnership - SDK • getOwnersForNft - SDK computeRarity - SDK • getTransfersForContract - SDK • getNftsForOwner - SDK refreshContract - SDK • getOwnersForContract - SDK getFloorPrice - SDK • isSpamContract - SDK findContractDeployer -SDK • getSpamContracts - SDK getGasPrice - SDK • getBalance - SDK • getBlock -SDK • getBlockWithTransactions - SDK • estimateGas - SDK getBlockNumber - SDK getCode - SDK

- getFeeData SDK
- getLogs SDK
- getNftMetadataBatch SDK
- getTokensForOwner SDK
- getStorageAt SDK
- getTokenBalances SDK
- getTransactionCount SDK
- getTokenMetadata SDK
- getTransactionReceipt SDK
- send SDK
- getTransactionReceipts SDK
- getTransaction SDK
- isContractAddress SDK
- getNftMetadata SDK
- getNftSales SDK
- cancelPrivateTransaction SDK
- sendPrivateTransaction SDK
- traceTransaction SDK
- simulateExecutionBundle SDK
- simulateExecution SDK
- getMaxPriorityFeePerGas SDK
- simulateAssetChangesBundle SDK
- estimateGas SDK
- simulateAssetChanges SDK
- traceBlock SDK
- waitForTransaction SDK
- traceCall SDK
- sendTransaction SDK
- updateWebhook SDK
- refreshNftMetadata -SDK
- createWebhook SDK
- getNftFilters SDK
- getAddresses SDK
- summarizeNftAttributes SDK
- deleteWebhook SDK
- searchContractMetadata SDK
- getAllWebhooks SDK
- getNftsForOwnerIterator SDK
- getNftsForContractIterator -SDK
- getContractMetadata SDK
- getTransfersForOwner SDK
- getNftsForContract SDK

Ethereum

- Ethereum API Quickstart
- Ethereum API FAQ
 - Ethereum Developer Guide to the Merge
 - How to decode an eth_call response
 - How do I distinguish between a contract address and a wallet address?

• Ethereum API Endpoints • eth_blockNumber - Ethereum post • eth_getBalance - Ethereum post • eth_getLogs - Ethereum post • eth_chainId - Ethereum post • eth_getBlockByNumber - Ethereum post · eth accounts - Ethereum post · eth_feeHistory - Ethereum post · eth_estimateGas - Ethereum post • eth_gasPrice - Ethereum post • eth_getBlockTransactionCountByHash - Ethereum post • eth_getBlockReceipts - Ethereum post $\bullet \ \underline{eth_getBlockTransactionCountByNumber - Ethereum\ post} \\$ • eth_getCode - Ethereum post • eth_getProof - Ethereum post • eth_getStorageAt - Ethereum post • eth_getTransactionByBlockHashAndIndex - Ethereum post • eth_getTransactionByHash - Ethereum post • eth_getTransactionCount - Ethereum post • eth getTransactionReceipt - Ethereum post • eth_getUncleByBlockHashAndIndex - Ethereum post • eth_getUncleByBlockNumberAndIndex - Ethereum post • eth_getUncleCountByBlockHash - Ethereum post • eth_getUncleCountByBlockNumber - Ethereum post • eth_maxPriorityFeePerGas - Ethereum post • eth_protocolVersion - Ethereum post • eth sendRawTransaction - Ethereum post • net_listening - Ethereum post • net_version - Ethereum post • web3_clientVersion - Ethereum post • web3_sha3 - Ethereum post • eth_getTransactionByBlockNumberAndIndex - Ethereum post · eth call - Ethereum post • eth_getBlockByHash - Ethereum post • eth_createAccessList - Ethereum post • eth_newFilter - Ethereum post • eth_getFilterChanges - Ethereum post • eth_getFilterLogs - Ethereum post • eth_newBlockFilter - Ethereum post • eth_newPendingTransactionFilter - Ethereum post · eth uninstallFilter - Ethereum post • eth_subscribe • eth_unsubscribe

Polygon PoS

- Polygon PoS API Quickstart
- Polygon SDK Examples
- Polygon PoS API FAQPolygon PoS API Endpoints
 - · bor getAuthor Polygon PoS post

- bor_getCurrentProposer Polygon PoS post
- bor_getCurrentValidators Polygon PoS post
- bor_getRootHash Polygon PoS post
- eth_accounts Polygon PoS post
- eth_call Polygon PoS post
- eth_chainId Polygon PoS post
- eth_estimateGas Polygon PoS post
- eth_gasPrice Polygon PoS post
- · eth_getBalance Polygon PoS post
- eth_getBlockByHash Polygon PoS post
- eth_getBlockByNumber Polygon PoS post
- eth_getBlockTransactionCountByHash Polygon PoS post
- eth_getBlockTransactionCountByNumber Polygon PoS post
- eth_getCode Polygon PoS post
- eth_getFilterChanges Polygon PoS post
- eth_getFilterLogs Polygon PoS post
- eth_getLogs Polygon PoS post
- eth_getRootHash Polygon PoS post
- eth_getSignersAtHash Polygon PoS post
- eth_getStorageAt Polygon PoS post
- eth_getTransactionByBlockHashAndIndex Polygon PoS post
- eth_getTransactionByBlockNumberAndIndex Polygon PoS post
- eth_getTransactionByHash Polygon PoS post
- eth_getTransactionCount Polygon PoS post
- eth_getTransactionReceipt Polygon PoS post
- eth_getTransactionReceiptsByBlock Polygon PoS post
- eth_sendRawTransaction Polygon PoS post
- eth_uninstallFilter Polygon PoS post
- net_listening Polygon PoS post
- eth_getUncleCountByBlockHash Polygon PoS post
- eth_getUncleCountByBlockNumber Polygon PoS post
- eth_newBlockFilter Polygon PoS post
- eth_newFilter Polygon PoS post
- eth_newPendingTransactionFilter Polygon PoS post
- web3_clientVersion Polygon PoS post
- eth_createAccessList Polygon PoS post
- eth_blockNumber Polygon PoS post
- bor getSignersAtHash Polygon PoS post
- net_version Polygon PoS post
- eth_getProof Polygon PoS post
- eth_getUncleByBlockNumberAndIndex Polygon PoS post
- eth_subscribe Polygon PoS
 - eth_unsubscribe Polygon PoS

Polygon zkEVM

- Polygon zkEVM API Quickstart
- Polygon zkEVM API FAQ
 - What is the difference between Polygon zkEVM and Ethereum?
 - What is the difference between Polygon zkEVM and Polygon PoS?

• Polygon zkEVM Endpoints

- eth_getTransactionCount Polygon zkEVM post
- eth_call Polygon zkEVM post
- eth_chainId Polygon zkEVM post
- eth_newBlockFilter Polygon zkEVM post
- eth_estimateGas Polygon zkEVM post
- eth_newFilter Polygon zkEVM post
- eth_gasPrice Polygon zkEVM post
- eth_sendRawTransaction Polygon zkEVM post
- eth_getBalance Polygon zkEVM post
- eth_uninstallFilter Polygon zkEVM post
- eth_getBlockByHash Polygon zkEVM post
- net_version Polygon zkEVM post
- eth_getBlockByNumber Polygon zkEVM post
- web3_clientVersion Polygon zkEVM post
- eth_getBlockTransactionCountByHash Polygon zkEVM post
- eth_getBlockTransactionCountByNumber Polygon zkEVM post
- zkevm_batchNumber Polygon zkEVM post
- eth_getCode Polygon zkEVM post
- eth getFilterChanges Polygon zkEVM post
- eth_getFilterLogs Polygon zkEVM post
- zkevm_getBatchByNumber Polygon zkEVM post
- eth_getLogs Polygon zkEVM post
- zkevm_getBroadcastURI Polygon zkEVM post
- eth_getStorageAt Polygon zkEVM post
- zkevm_isBlockConsolidated Polygon zkEVM post
- eth_getTransactionByBlockHashAndIndex Polygon zkEVM post
- zkevm_isBlockVirtualized Polygon zkEVM post
- eth_getTransactionByBlockNumberAndIndex Polygon zkEVM post
- zkevm_verifiedBatchNumber Polygon zkEVM post
- eth_getTransactionByHash Polygon zkEVM post
- zkevm_virtualBatchNumber Polygon zkEVM post
- eth_getCompilers Polygon zkEVM post
- eth_getUncleByBlockHashAndIndex Polygon zkEVM post
- eth_getUncleByBlockNumberAndIndex Polygon zkEVM post
- eth_getUncleCountByBlockHash Polygon zkEVM post
- eth_getUncleCountByBlockNumber Polygon zkEVM post
- eth_protocolVersion Polygon zkEVM post
- eth_blockNumber Polygon zkEVM post
- eth_getTransactionReceipt Polygon zkEVM post
- zkevm_batchNumberByBlockNumber Polygon zkEVM post
- zkevm_consolidatedBlockNumber Polygon zkEVM post
 - zkevm_estimateFee API Polygon zkEVM post
 - zkevm_estimateGasPrice API Polygon zkEVM post

Arbitrum

- Arbitrum API Quickstart
 - Arbitrum SDK Examples
 Arbitrum ABLEAG
- Arbitrum API FAQ

Arbitrum vs. Ethereum API Differences • Arbitrum API Endpoints • eth_call - Arbitrum post • eth_estimateGas - Arbitrum post eth_accounts - Arbitrum post • eth_blockNumber - Arbitrum post o eth chainId - Arbitrum post • eth_gasPrice - Arbitrum post • eth_getBalance - Arbitrum post • eth_getBlockTransactionCountByHash - Arbitrum post • eth_getBlockTransactionCountByNumber - Arbitrum post • eth_getCode - Arbitrum post • eth_getFilterChanges - Arbitrum post · eth getFilterLogs - Arbitrum post · eth_getLogs - Arbitrum post • eth_getStorageAt - Arbitrum post • eth_getTransactionByBlockHashAndIndex - Arbitrum post • eth_getTransactionCount - Arbitrum post • eth_getUncleByBlockNumberAndIndex - Arbitrum post • eth_getUncleCountByBlockHash - Arbitrum post • eth_getUncleCountByBlockNumber - Arbitrum post · eth_newBlockFilter - Arbitrum post • eth_newFilter - Arbitrum post • eth_newPendingTransactionFilter - Arbitrum post eth_uninstallFilter - Arbitrum post • net_listening - Arbitrum post · net version - Arbitrum post • web3_clientVersion - Arbitrum post web3_sha3 - Arbitrum post • eth_sendRawTransaction - Arbitrum post eth_createAccessList - Arbitrum post • eth_maxPriorityFeePerGas - Arbitrum post • eth_feeHistory - Arbitrum post • eth_getBlockByHash - Arbitrum post • eth_getBlockByNumber - Arbitrum post • eth_getTransactionByBlockNumberAndIndex - Arbitrum post • eth_getTransactionByHash - Arbitrum post · eth_getProof - Arbitrum post • eth_getTransactionReceipt - Arbitrum post • eth_getUncleByBlockHashAndIndex - Arbitrum post • eth_subscribe • eth_unsubscribe **Optimism** • Optimism API Quickstart Optimism SDK Examples Optimism API FAQ

Optimism Error Codes
 Optimism API Endpoints

· eth_call - Optimism post

- · eth_estimateGas Optimism post
- eth_accounts Optimism post
- eth_blockNumber Optimism post
- eth_chainId Optimism post
- · eth_gasPrice Optimism post
- eth_getBalance Optimism post
- eth_getBlockTransactionCountByHash Optimism post
- eth_getBlockTransactionCountByNumber Optimism post
- eth_getCode Optimism post
- eth_getFilterChanges Optimism post
- · eth_getFilterLogs Optimism post
- eth_getLogs Optimism post
- eth_getStorageAt Optimism post
- eth_getTransactionByBlockHashAndIndex Optimism post
- eth_getTransactionByBlockNumberAndIndex Optimism post
- eth_getTransactionByHash Optimism post
- eth_getTransactionCount Optimism post
- eth_getTransactionReceipt Optimism post
- eth_getUncleByBlockHashAndIndex Optimism post
- eth_getUncleByBlockNumberAndIndex Optimism post
- eth_getUncleCountByBlockHash Optimism post
- eth_getUncleCountByBlockNumber Optimism post
- eth_newBlockFilter Optimism post
- eth_newFilter Optimism post
- eth_newPendingTransactionFilter Optimism post
- · eth_protocolVersion Optimism post
- eth sendRawTransaction Optimism post
- eth_syncing Optimism post
- · eth_uninstallFilter Optimism post
- net_listening Optimism post
- net_version Optimism post
- web3_clientVersion Optimism post
- web3 sha3 Optimism post
- eth_getBlockByHash Optimism post
- eth_getBlockByNumber Optimism post
- eth_getProof Optimism post
 - eth_subscribe
 - eth_unsubscribe

Base

- Base API Quickstart
- Base API FAQ
 Base API Endpoints
 - · eth_accounts Base post
 - eth_blockNumber Base post
 - eth_call Base post
 - · eth_chainId Base post
 - eth_estimateGas Base post
 - eth_feeHistory Base post
 - eth gasPrice Base post

- eth_getBalance Base post
- eth_getBlockByHash Base post
- eth_getBlockByNumber Base post
- eth_getBlockTransactionCountByHash Base post
- eth_getBlockTransactionCountByNumber Base post
- eth_getCode Base post
- eth_getFilterChanges Base post
- eth_getFilterLogs Base post
- eth_getLogs Base post
- eth_getProof Base post
- eth_getStorageAt Base post
- eth_getTransactionByBlockHashAndIndex Base post
- eth_getTransactionByBlockNumberAndIndex Base post
- eth_getTransactionByHash Base post
- eth_getTransactionCount Base post
- eth_getTransactionReceipt Base post
- eth_getUncleByBlockHashAndIndex Base post
- eth_getUncleByBlockNumberAndIndex Base post
- eth_getUncleCountByBlockHash Base post
- eth_getUncleCountByBlockNumber Base post
- eth_maxPriorityFeePerGas Base post
- eth_newBlockFilter Base post
- eth_newFilter Base post
- eth_newPendingTransactionFilter Base post
- eth_protocolVersion Base post
- eth_sendRawTransaction Base post
- eth_syncing Base post
- eth_uninstallFilter Base post
- net_listening Base post
- web3_sha3 Base post

* Solana

- Solana API Quickstart
- Solana API FAQ
- Solana API Endpoints
 - getAccountInfo post
 - simulateTransaction post
 - getBalance post
 - getBlock post
 - getBlockCommitment post
 - getBlockProduction post
 - getBlocks post
 - getBlocksWithLimit post
 - getBlockTime post
 - getClusterNodes post
 - getEpochInfo post
 - getEpochSchedule post
 - getFeeForMessage post
 - getFirstAvailableBlock post

- getGenesisHash post
- getHealth post
- getHighestSnapshotSlot post
- getIdentity post
- getInflationGovernor post
- getInflationRate post
- getInflationReward post
- getLargestAccounts post
- getMaxRetransmitSlot post
- getMaxShredInsertSlot post
- getMinimumBalanceForRentExemption post
- getMultipleAccounts post
- getProgramAccounts post
- getRecentPerformanceSamples post
- getSignaturesForAddress post
- getSignatureStatuses post
- getSlot post
- getSlotLeader post
- getSlotLeaders post
- getSupply post
- getTokenAccountBalance post
- getTokenAccountsByOwner post
- getTokenSupply post
- getTransaction post
- getVersion post
- getVoteAccounts post
- isBlockhashValid post
- minimumLedgerSlot post
- sendTransaction post
- requestAirdrop post
- getBlockHeight post
- getRecentBlockhash post

Astar

- Astar API QuickstartAstar API FAQAstar API Endpoints
- - eth_accounts Astar post
 - eth_getTransactionReceipt Astar post
 - eth_maxPriorityFeePerGas Astar post
 - eth_blockNumber Astar post
 - eth_call Astar post
 - · eth_chainId Astar post
 - eth_gasPrice Astar post
 - eth_getBalance Astar post
 - eth_getBlockByHash Astar post
 - eth_getBlockByNumber Astar post
 - eth_getBlockTransactionCountByHash Astar post
 - eth_getBlockTransactionCountByNumber Astar post
 - eth_getCode Astar post

• eth_getStorageAt - Astar post • eth_getTransactionByBlockHashAndIndex - Astar post • eth_getTransactionByBlockNumberAndIndex - Astar post • eth_getTransactionByHash - Astar post • eth_getTransactionCount - Astar post • eth_getUncleByBlockNumberAndIndex - Astar post • eth_sendRawTransaction - Astar post o net_version - Astar post · web3_clientVersion - Astar post web3_sha3 - Astar post • eth_getLogs - Astar post • eth_getFilterChanges - Astar post • eth_getFilterLogs - Astar post • eth_newFilter - Astar post • eth_newPendingTransactionFilter - Astar post • eth_uninstallFilter - Astar post • eth_newBlockFilter - Astar post eth_estimateGas - Astar post • eth_subscribe • eth_unsubscribe **STARKNET** • Starknet API Quickstart Starknet API FAQ Starknet API Endpoints • starknet_addDeclareTransaction post starknet getClassAt post • starknet_addDeployAccountTransaction post starknet_getClassHashAt post starknet_addInvokeTransaction post • starknet_getEvents post • starknet_blockHashAndNumber post starknet_getNonce post starknet_blockNumber post • starknet_getStateUpdate post starknet_call post starknet_getStorageAt post starknet_chainId post • starknet_getTransactionByBlockIdAndIndex post starknet_estimateFee post starknet_getTransactionByHash post • starknet_getBlockTransactionCount post • starknet_getTransactionReceipt post • starknet_getBlockWithTxHashes post • starknet_pendingTransactions post starknet_getBlockWithTxs post starknet_syncing post starknet_getClass post

• starknet_estimateMessageFee post

trace_call vs debug_traceCall

The differences between the trace_call method by OpenEthereum and the debug_traceCall method by Geth

Introduction

Geth and OpenEthereum are two popular Ethereum clients. In this article, we'll compare and contrast the <u>race_call</u> method offered by OpenEthereum with the <u>debug_traceCall</u> method offered by Geth. Both of these methods are used for transaction tracing.

NOTE

The trace_call method was initially supported by the OpenEthereum client but now OpenEthereum has been deprecated and a new client Erigon is supporting the trace methods.

Going forward, we will only use the name of the Erigon Ethereum client when associating with the trace methods.

Prerequisites

Before reading this article you should know abouEthereum Clients and EVM Traces .

The trace_call method

The trace_call method executes the given call (transaction) and returns a number of possible traces for it. It's helpful for debugging transactions and analyzing state changes due to a transaction. Under the hood, trace_call is only supported by OpenEthereum or Erigon clients, but if you're using an Alchemy API key we'll automatically route the request for you so you don't have to worry about the node client.

Here are the parameters and response payloads for trace_call

Parameters

```
1. Object
        · Call options
 3.
        from
 4.
 5.

    Address

 6.
             • (optional) - The address the transaction is sent from.
 7.
        • to
 8.
 9.

    Address

10.
             • (optional when creating a new contract) - The address the transaction is directed to.
11.
        • gas
12.
        o :
13.

    Quantity

14.
             • (optional) Integer formatted as a hex string that represents the gas provided for the transaction execution.
15.
        gasPrice
16
        o :
17

    Quantity

18.
             • (optional) Integer formatted as a hex string that represents the gas price used for each paid gas.
19.
        value
20.
21.

    Quantity

22
             • (optional) Integer formatted as a hex string that represents the value sent with the given transaction.
23
        data
24.
       ۰ :
25.
        Data
26.
```

• (optional) 4-byte hash of the method signature followed by encoded parameters. This basically represents which function to call in the smart contract along with the function parameters, if it's just a value transfer then this field can be empty.

```
27. Array
28
        • Type of trace, one or more of:
29.
    "vmTrace
30.
    "trace"
31.
32
33.
    "stateDiff"
34
35.
       1. trace
36
       1. : Returns the basic trace for the given transaction.
37.
38.
       1. : Provides information detailing all altered portions of the Ethereum state made due to the execution of the transaction.
39.
       1. vmTrace
40
       1. : Provides a full trace of the Ethereum state throughout the execution of the transaction, including for any subcalls.
```

vmTrace is no longer supported by Alchemy. 1. Quantity 2. or 3. Tag 4. - (optional) Integer formatted as a hex string that represents a block number, or the string 5. 'earliest' 6. or 7. 'latest' 8. . If this parameter is supplied, the transaction is replayed in the context of the given parameter.1. latest 9. 2. : The latest block that the client has observed. 10. 3. earliest 11. 4. : The lowest number block that the client has available. Intuitively, you can think of this as the first block created.

Example Request and Response

The trace_call method returns an array of traces. The structure of these traces is explained intypes of Trace Actions and their Structure. Below you can find an example.

Request

Response

The debug_traceCall method

The debug_traceCall method executes the given call (transaction) and returns a number of possible traces for it. It's helpful for debugging transactions and analyzing state changes due to a transaction. Under the hood, debug_traceCall is only supported by OpenEthereum or Erigon clients, but if you're using an Alchemy API key we'll automatically route the request for you so you don't have to worry about the node client.

Here are the parameters and response payloads for debug_traceCall

Parameters

The parameters for the debug_traceCall method are:

```
1. Object
 2.

    Transaction object with the following fields:* from

 3.
              • string - The address the transaction is sent from.
 4.
        • to
 5.
              string,[required]
 6.

    The address the transaction is directed to

 7.

    gasPrice

 8.
              · string - Integer of the
 9.
        gasPrice
10.
        · used for each paid gas.
11.
        value
12.
              • string - Integer of the value sent with the given transaction.
```

```
13.
        data
14.
              • string - Hash of the method signature and encoded parameters.
15. String
16.
        · One of the following options:1. block hash
17
       1. block number
18.
       1. (in hex)
19.
       1. block tag
20.
       1. (one of the following):* pending
21.
       1.
                   A sample next block built by the client on top of the latest and containing the set of transactions usually taken from the local mempool. Intuitively, you
                     can think of these as blocks that have not been mined yet.
22
       1.
             latest
23
       1.
                   • The most recent block observed by the client, this block may be re-orged out of the canonical chain even under healthy/normal conditions.
24.
       1.
              safe
25.
       1.
                   • The most recent crypto-economically secure block, cannot be re-orged outside of manual intervention driven by community coordination. Intuitively, this
                     block is "unlikely" to be re-orged. Only available on Ethereum Goerli
26
       1.
27.
       1.
              finalized
28.
       1.
                   ■ The most recent crypto-economically secure block, that has been accepted by >2/3 of validators. Cannot be re-orged outside of manual intervention
                     driven by community coordination. Intuitively, this block is very unlikely to be re-orged. Only available on Ethereum Goerli
29
       1
30.
       1.
             earliest
31.
       1.
                   • The lowest numbered block the client has available. Intuitively, you can think of this as the first block created.
32. Object - tracer
33. tracer
34. - String to specify the type of tracer. Currently supports
35. callTracer
36. and
37. prestateTracer
38.
    (see below for definitions).
39.
    tracerConfig
40

    Object to specify configurations for the tracer* onlyTopCall

41.
        · - boolean - setting this to
42.
43.
          will only trace the main (top-level) call and none of the sub-calls. This avoids extra processing for each call frame if only the top-level call info is required (useful for
44.

    revertReason

45.
        o )
```

callTracer

The callTracer tracks all the call frames executed during a transaction. The result will be a nested list of call frames. They form a tree with the top-level call at the root and sub-calls as children of the higher levels.

It's similar to the trace option of the race call method. Each call frame has the following fields:

field type description type string CALL, CREATE or SUICIDE from string address to string address value string hex-encoded amount of value transfer gas string hex-encoded gas provided for call gasUsed string hex-encoded gas used during call input string call data output string return data error string error, if any revertReason string Solidity revert reason, if any calls array of call frames list of sub-calls

prestateTracer

The prestateTracer replays the transaction and tracks every part of state that is touched during that transaction

This is similar to the stateDiff option of the result is an object. The keys are addresses of accounts. The value is an object with the following fields:

field type description balance string balance in wei nonce uint64 nonce code string hex-encoded bytecode storage map[string]string storage slots of the contract As you've seen that the callTracer and prestateTracer options of debug traceCall are similar to trace and stateDiff options of debug traceCall, here's a table depicting this:

Options of trace call Similar options of debug traceCall trace call Trace stateDiff prestateTracer

Example Request and Response

Request

mainnet.g.alchemy.com/v2/demo");const response = await provider .send ("debug_traceCall", [{from :"0xe5cb067e90d5cd1f8052b83562ae670ba4a211a8",to

Response

:"0xf418588522d5dd018b425e472991e52ebbeeeeee","gas":"0x7dfffffffff5b32","gasJsed":"0xa4e","input":"0x70a08231000000000000000000000000dc66567a990b7fa10730459537620857c9e03287","output"

Difference between

trace_call and debug_traceCall

Sincetrace call is OpenEthereum's (Now Erigon's) equivalent to Geth'sdebug traceCall there are not many differences between them but there are some minor differences which are mentioned below:

- · You can choose to trace only the main call (the top-level call) in
- debug_traceCall
- · by setting the
- onlyTopCall
- · option to
- . This avoids extra processing if only the top-level info is required (like getting the revert reason). However, this is not possible using
- · trace call
- · as you always get back the complete trace
- You can replay a transaction in a particular block by providing the block hash in
- debug traceCall
- · but not in
- trace call
- . (However, both methods accept the block number in hex format and the tags like
- latest
- earliest
- trace_call
- is accessible through Erigon while
- debug_traceCall
- · is accessible through Geth.
- · By using
- trace call
- you can get the simple trace for a transaction (trace) and the state difference (stateDiff) in just one request by putting an array containing
- trace
- and
- options in trace_call's second parameter (
- · ["trace", "stateDiff"]
-) as mentioned below:

ethers // Request using ethers.js in node.js const ethers = require ("ethers");

(async ()=> {const provider = new ethers .provider .JsonRpcProvider ("https://eth-mainnet.g.alchemy.com/v2/demo");const response = await provider .send ("trace_call" , [

"latest",]);console .log (response); })(); In response for this request you will get both trace and stateDiff:

response {"output" :"0x" ,"stateDiff" : {// ---> stateDiff" 0xe5cb067e90d5cd1f8052b83562ae670ba4a211a8" : {"balance" : {" : {"from" :"0x43d1b8fda906d05" ,"to"

},"result": {"gasUsed":"0x0", "output":"0x"},"subtraces":0, "traceAddress": [],"type":"call"}, ",vmTrace": {"code":"0x", "ops": []}} But by usingdebug_traceCall you can either get the traces using callTracer or the state difference using prestateTracer in one request.

Conclusion

In conclusion, trace call and debug trace Call are two important methods for transaction tracing. They are accessible through different Ethereum clients and are slightly different from each other.

Updated 5 months ago