

A.1.8 Transaction Class

Basic Ethereum Data Store

Transactions are cryptographically signed instructions from accounts. An account will initiate a transaction to update the state of the [Ethereum](#) network. The simplest transaction is transferring ETH from one account to another.

An Ethereum transaction refers to an action initiated by an externally-owned account, in other words an account managed by a human, not a contract. For example, if Bob sends Alice 1 ETH, Bob's account must be debited and Alice's must be credited. This state-changing action takes place within a transaction.

Transactions, which change the state of the EVM, need to be broadcast to the whole network. Any [node](#) can broadcast a request for a transaction to be executed on the EVM; after this happens, a miner will execute the transaction and propagate the resulting state change to the rest of the network.

Transactions require a fee and must be mined to become valid. To make this overview simpler we'll cover [gas](#) fees and [mining](#) elsewhere.

See:

<https://docs.google.com/spreadsheets/d/1ehCIQxjSZcVLnddDWHBzhPb8h83mHWZxvyX9eckghbU/edit#gid=1171362027>

TX	
PK	id: text (tx-hash)
	block_number: numeric
	block_hash: text
	hash: text
	from: text
	to: text
	input: text
	nonce: text
	gas: numeric
	gas_price: numeric
	transaction_index: numeric
	value: numeric
	v: numeric
	r: text
	s: numeric
	timestamp: timestamp with time zone
	creates: text
	public_key: text
	contract_address: text
	cummulative_gas_used: numeric
	gas_used: numeric
	logs_bloom: text
	root: text
	status: boolean

Figure 1: The Ethereum Transaction Class

Id

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Description	ID
Data Type	text (tx-hash)
Example	

“ |

Block Number

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Description	Block height
Data Type	numeric
Example	4743012

Block Hash

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Description	Hash of block header
Data Type	text
Example	0x06601603a88365782cdfc9b351625b81b44f009d71ecda705319d8eb52253b38

Hash

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Description	Hash of transaction
Data Type	text
Example	0x000000005b6f5d20b1523bb8a153871fee2ded71a743998d38bdc5095d9d1d43

From

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Description	The address for the sending account. Uses the web3.eth.defaultAccount property, if not specified.
Data Type	text
Example	0x804d39F546c5164Af7612C3Dca3683150E55bB78

To

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Description	The destination address of the message, left undefined for a contract-creation transaction.
Data Type	text
Example	0xF32d328AF90D5ac22b1BbEDa4114Fd15b2fA09EE

Input

Description	Integer of the transaction index position
Data Type	Numeric
Example	60

Value

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Description	The value transferred for the transaction in Wei, also the endowment if it's a contract-creation transaction.
Data Type	numeric
Example	1.538E+19

V

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Description	Values corresponding to the signature of the transaction and used to determine the sender of the transaction
Data Type	Numeric
Example	0x1b

R

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Description	Values corresponding to the signature of the transaction and used to determine the sender of the transaction
Data Type	text
Example	0xc78a9cabd379d83ef2eebe2bd1ffd11755432244e9547b0fe608b6f99bc50cf

S

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Description	Values corresponding to the signature of the transaction and used to determine the sender of the transaction
Data Type	Numeric
Example	0x2ae507ce22499f7bb165b576ac3539516b2917f5affa1e8e3822aa9302614848

Timestamp

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Description	Timestamp of the transaction
Data Type	TimestampType
Example	2017-12-16 13:59:51+00

Creates

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TBD

Description	TBD
Data Type	
Example	

Public Key

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Description	Public hash key
Data Type	text
Example	0xe3dcf27ef4b9c0a4b773f289272c23e62c95827c5e5fec54c05d8af2b7d3ab0373070bbff30f99f4edf845b7ab6fe1af40ac3e7a4431dd21ef282a4713ddca89

Contract Address

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Description	Address of contract reference
Data Type	text
Example	0x83C07b66DfB48FbF2fE8C2FF46c431fFC21F3Ac1

Cumulative Gas Used

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Description	Real amount of gas used in the block up unit this tx-index
Data Type	text
Example	1569579

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