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Coinfirm Atomic Oracle Integration Guide

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Introduction

The document is created to help users integrate Solidity based Smart Contract with AtomicOracle.

Integration

Initial assumptions

Addresses

All addresses are stored in **AtomicOracle** as a string in upper case and without leading **0x**.

Eg: valid *Ethereum/RSK* account address can be used in a lowercase format, like:

`0xca0e7269600d353f70b14ad118a49575455c0f2f`

or in case sensitive one (with checksum)

`0xCA0e7269600d353F70b14Ad118A49575455C0f2f`

In request to **AtomicOracle** method `getStatusForETH` caller will need to use address uppercase form without leading **0x**

`CA0E7269600D353F70B14AD118A49575455C0F2F`

Status Flags and C-Score

Status Flags and C-Score are returned as a single bytes32 value, where:

- flags binary mask `0xff00`
- c-score binary mask `0x00ff`

ETHAtomicOracle smart contract quick usage guide

Etherscan

One can use *Etherscan* to communicate with **ETHAtomicOracle** smart contract.

<https://etherscan.io/address/0x1e3f5122c7ff88471baa4ea5e08d6370d324d26c#readContract>

<https://etherscan.io/address/0x1e3f5122c7ff88471baa4ea5e08d6370d324d26c#writeContract>

To make a `writeContract` call one must connect the wallet (e.g. *Metamask*) using `Connect to Web3` button on the smart contract etherscan page (section *Contract* → *Write Contract*).

RemixIDE

One can use <http://remix.ethereum.org/> to compile **IETHAtomicOracle** (code in the paragraph below) and interact it with a smart contract instance on *Ethereum Mainnet* or *Ethereum Ropsten Testnet*.

IETHAtomicOracle interface

Interface of **ETHAtomicOracle**.

Whole deployed code needed to compile and build can be found on **ETHAtomicOracle Etherscan** page, section *Code*

<https://etherscan.io/address/0x1e3f5122c7ff88471baa4ea5e08d6370d324d26c#code>

```
interface IETHAtomicOracle is IBaseAtomicOracle {
    /**
     * @dev Setting a fee for a specific Client Smart Contract.
     *
     * @param addr Address of the Client Smart Contract
     * @param fee Fee for this specific smart contract, use 0 to use the
     * default fee
     */
    function setFee(address addr, uint256 fee) external;

    /**
     * @dev Setting the default fee for queries.
     */
}
```

```

    * @param defaultFee_ New default fee for Client Smart Contracts without
    * their own personal fee in wei
    */
function setDefaultFee(uint256 defaultFee_) external;

/**
 * @dev Withdraw fees from this contract to the calling account
 *
 * Withdraw all the paid fees.
 */
function withdrawFees() external;

/**
 * @dev Status getter, see {BaseAtomicOracle-_getStatus}. Accepts ether.
 */
function getStatusForETH(string calldata target) external payable returns (bytes32 status);

/**
 * @dev Get the current fee for a specific Client Smart Contract.
 *
 * Use this to determine what your contract would pay.
 *
 * @param addr The Client Smart Contract whose fee would like to have
 * @return fee Current fee at the moment for `addr` in wei
 */
function getFee(address addr) external view returns (uint256 fee);

/**
 * @dev Emitted when a new fee for an address is set.
 *
 * @param addr Ethereum account address whose fee was set
 * @param fee The current fee in wei
 */
event FeeSet(address addr, uint256 fee);

/**
 * @dev Emitted when an authorized user withdraws paid fees from this
 * contract.
 *
 * @param destination Ethereum account address where the fees were
 * withdrawn to
 * @param amount Amount of fees withdrawn in wei
 */
event FeesWithdrawn(address destination, uint256 amount);

/**
 * @dev Emitted when default fee for account without a personal fee is set
 *
 * @param fee Current fee in wei for accounts without a personal fee
 */
event DefaultFeeSet(uint256 fee);
}
    
```

Usage scenarios

Client's Smart Contract using this Oracle should always query the current fee via `ETHAtomicOracle.getFee`, so the Client Smart Contract would be ready for sudden price changes by the admin of this contract.

Getting the default fee is not needed, `ETHAtomicOracle.getFee` should be used instead.

Sample integration

The smart contract below is an example to demonstrate communication between Oracle and the Client.

In this sample, the client relies only on validating a single flag - `StatusLibrary.SANCTIONED_FLAG`

```
// SPDX-License-Identifier: UNLICENSED
pragma solidity ^0.7.4; // See "Solidity version" of README.md

import "https://github.com/OpenZeppelin/openzeppelin-contracts/blob/v3.4.0/contracts/utils/Address.sol";
import "https://github.com/OpenZeppelin/openzeppelin-contracts/blob/v3.4.0/contracts/math/SafeMath.sol";
import "./IETHAtomicOracle.sol";
import "./AddressLibrary.sol";
import "./StatusLibrary.sol";

/**
 * @title An Example Client Smart Contract: a simple vault
 * @author Ville Sundell <development@solarius.fi>
 * @dev This is an example implementation of a client smart contract.
 *
 * This is just to demonstrate Oracle <-> Client communication.
 * The business logic presented here is not viable.
 *
 * THIS IS SIMPLIFIED INTENTIONALLY, AND NOT USABLE IN PRODUCTION AS-IS!
 */

contract ExampleVault {
    using Address for address payable;
    using SafeMath for uint256; // Applicable only for uint256
    // These are Atomic Oracle specific, copy these to your implementation:
    using AddressLibrary for address;
    using StatusLibrary for bytes32;

    IETHAtomicOracle private _oracle;

    mapping(address => uint256) private _balances;
```

```
constructor(IETHAtomicOracle oracle_) {
    _oracle = oracle_;
}

receive() external payable {
    _balances[msg.sender] = _balances[msg.sender].add(msg.value);
    _verifyUser(msg.sender);
}

function withdraw() external {
    uint256 balance = _balances[msg.sender];
    _balances[msg.sender] = 0;
    _verifyUser(msg.sender);
    msg.sender.sendValue(balance);
}

function _verifyUser(address user) internal {
    string memory target = user.toString();
    uint256 fee = _oracle.getFee(address(this));
    bytes32 result = _oracle.getStatusForETH(value: fee)(target);

    require(!result.isFlag(StatusLibrary.sanctioned_country), "ExampleVault: User is flagged
as sanctioned");
}
}
```

Deployed AtomicOracle

ETHAtomicOracle deployed smart contracts can be found at the following addresses.

Variant	Address
Ethereum Mainnet	0x1E3F5122C7ff88471baa4Ea5E08D6370D324D26c https://etherscan.io/address/0x1e3f5122c7ff88471baa4ea5e08d6370d324d26c
Ethereum Ropsten Testnet	0xA5DE002b2F635c3D757E8FdBb5c39cBA21f2d236 https://ropsten.etherscan.io/address/0xa5de002b2f635c3d757e8fdbb5c39cba21f2d236
RSK Mainnet	0x2431a94e685d1f214e8ccfd6909d52ec618f7b1e https://explorer.rsk.co/address/0x2431a94e685d1f214e8ccfd6909d52ec618f7b1e
RSK Testnet	0xC2eBb4e0F43096e8681f8bFEAf03916bF7CA79A8 https://explorer.testnet.rsk.co/address/0xc2ebb4e0f43096e8681f8bfeaf03916bf7ca79a8

Appendix

RSK Mainnet sample addresses

Clean addresses:

- call AtomicOracle for
2431A94E685D1F214E8CCFD6909D52EC618F7B1E
(uppercase variant)
- <https://explorer.rsk.co/address/0x2431a94e685d1f214e8ccfd6909d52ec618f7b1e>

Sanctioned addresses:

- call AtomicOracle for
CFAEC8361541EDE1AC3847566B0B13A96CB9E39C
(uppercase variant)
- <https://explorer.rsk.co/address/0xcfaec8361541ede1ac3847566b0b13a96cb9e39c>

Flags

List of flags stored in AtomicOracle for each address.

The number represents bit number related to the given flag. Bit set to 1 means that the flag is active.

Code below can be used to check flag value

```
/**
 * @dev Check if a certain flag of the returned status is set.
 *
 * @param status The returned status from an Oracle Smart Contract
 * @param flag Flag number to check, 0-255
 * @return isSet Returns `true` if the flag in question is set, `false`
 * otherwise
 */
function isFlag(bytes32 status, uint8 flag) internal pure returns (bool isSet) {
    return (status & bytes32(2**flag)) > 0;
}
```

The full list of the risk indicators – flags

The flags can be defined in smart contract code as samples below and used with function `isFlag(bytes32 status, uint8 flag)` defined above.

uint8 internal constant sanctioned_country =16 Address contains the name of sanctioned country

uint8 internal constant name_illicit_activity =17 Address contains the name of an illicit activity

Bit; flag; description

16; sanctioned_country; Address contains the name of sanctioned country

17; name_illicit_activity; Address contains the name of an illicit activity

18; hacked_funds_layering; Address being a part of funds layering/mixing scheme related to hacked or misappropriated address

19; ico_owner; Address belongs to an Initial Coin Offerings issuer

20; quickly_released_incomes; Address with at least one transaction of quickly released incomes

21; deep_market; Address directly related to darknet market

22; drug_rlttd; Address directly related to drugs trade

23; exchange; Address belongs to cryptocurrencies exchange

24; gambling; Address belongs to gambling service

25; local_exchange; Address belongs to over-the-counter exchange

26; marketplace;

27; mining_pool;

28; mixer; Address belongs to mixer or tumbler

29; no_kyc; Address belongs to obliged service with no KYC process

30; online_wallet;

31; lending_service; Address belongs to lending service

- 32; remittance_company; Address belongs to remittance service
- 33; scam_service; Address directly related to scam or investment fraud
- 34; tip_service; Address belongs to tipping service
- 35; fiat_currency; Address belongs to entity that allows fiat deposits and withdrawals
- 36; usd_incoming_below_value; Address with significant part of single incoming transactions just below 10k USD
- 37; anonymous_coin; Address belongs to entity that allows anonymous coins trading
- 38; usd_outgoing_below_value; Address with significant part of single outgoing transactions just below 10k USD
- 39; new_address_incoming_value1; Address with significant part of incoming transactions executed from new addresses
- 40; new_address_outgoing_value1; Address with significant part of outgoing transactions executed to new addresses
- 41; drug_trade_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses related to drugs trade
- 42; drug_trade_incoming_value2; Address with part of incoming transactions in close proximity to addresses related to drugs trade
- 43; drug_trade_outgoing_value1; Address with significant part of outgoing transactions in close proximity to addresses related to drugs trade
- 44; drug_trade_outgoing_value2; Address with part of outgoing transactions in close proximity to addresses related to drugs trade
- 45; deep_web_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses found on deep web
- 46; deep_web_incoming_value2; Address with part of incoming transactions in close proximity to addresses found on deep web
- 47; deep_web_outgoing_value1; Address with significant part of outgoing transactions in close proximity to addresses found on deep web
- 48; deep_web_outgoing_value2; Address with part of outgoing transactions in close proximity to addresses found on deep web
- 49; deep_web; Address found on deep web
- 50; terrorist_financing; Address directly related to terrorism financing
- 51; weapon_trade; Address directly related to weapon trade or weapon trafficking
- 52; crime_against_person; Address directly related to crime against the person
- 53; ransomware; Address belongs to ransomware
- 54; ransom; Address directly related to ransom payment (other than ransomware)
- 55; hacker; Address belongs to hacker
- 56; hacked; Address which was hacked or misappropriated
- 57; tax_evasion; Address directly related to tax evasion
- 58; high_risk_connected_parties; Address posses high risk connected parties
- 59; terrorist_financing_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses related to terrorism financing
- 60; terrorist_financing_incoming_value2; Address with part of incoming transactions in close proximity to addresses related to terrorism financing
- 61; terrorist_financing_outgoing_value1; Address with significant part of outgoing transactions in close proximity to addresses related to terrorism financing
- 62; terrorist_financing_outgoing_value2; Address with part of outgoing transactions in close proximity to addresses related to terrorism financing
- 63; weapon_trade_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses related to weapon trade or weapon trafficking
- 64; weapon_trade_incoming_value2; Address with part of incoming transactions in close proximity to addresses related to weapon trade or weapon trafficking
- 65; weapon_trade_outgoing_value1; Address with significant part of outgoing transactions in close proximity to addresses related to weapon trade or weapon trafficking

- 66; weapon_trade_outgoing_value2; Address with part of outgoing transactions in close proximity to addresses related to weapon trade or weapon trafficking
- 67; crime_against_person_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses related to crime against the person
- 68; crime_against_person_incoming_value2; Address with part of incoming transactions in close proximity to addresses related to crime against the person
- 69; crime_against_person_outgoing_value1; Address with significant part of outgoing transactions in close proximity to addresses related to crime against the person
- 70; crime_against_person_outgoing_value2; Address with part of outgoing transactions in close proximity to addresses related to crime against the person
- 71; ransomware_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses related to ransomware
- 72; ransomware_incoming_value2; Address with part of incoming transactions in close proximity to addresses related to ransomware
- 73; ransom_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses related to ransom payment (other than ransomware)
- 74; ransom_incoming_value2; Address with part of incoming transactions in close proximity to addresses related to ransom payment (other than ransomware)
- 75; hacker_incoming_value1; Address with significant part of incoming transactions in close proximity to hacker's addresses
- 76; hacker_incoming_value2; Address with part of incoming transactions in close proximity to hacker's addresses
- 77; hacked_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses which were hacked or misappropriated
- 78; hacked_incoming_value2; Address with part of incoming transactions in close proximity to addresses which were hacked or misappropriated
- 79; scam_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses related to scam or investment frauds
- 80; scam_incoming_value2; Address with part of incoming transactions in close proximity to addresses related to scam or investment frauds
- 81; tax_evasion_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses related to tax evasion
- 82; tax_evasion_incoming_value2; Address with part of incoming transactions in close proximity to addresses related to tax evasion
- 83; significant_fee_miner_incoming_value; Address with significant part of incoming transactions passing significant fees to miners
- 84; significant_fee_miner_outgoing; Address with at least one outgoing transaction passing significant fees to miners
- 85; significant_fee_miner_outgoing_value; Address with significant part of outgoing transactions passing significant fees to miners
- 86; transactions_value_peak_incoming; Address with value peaks of incoming transactions
- 87; transactions_value_peak_outgoing; Address with value peaks of outgoing transactions
- 88; transactions_tx_value_incoming_value2; Address with significant part of incoming transactions the value of which is significantly higher than network average
- 89; new_address_incoming_value2; Address with significant part of incoming transactions executed from new addresses
- 90; new_address_outgoing_value2; Address with significant part of outgoing transactions executed to new addresses
- 91; accumulating_funds; Address accumulating funds for a long period of time
- 92; single_incoming_outgoing; Address with single incoming - outgoing transaction
- 93; quickly_released_incomes_value1; Address with significant part of transactions constituting quickly released incomes
- 94; quickly_released_incomes_value2; Address with significant part of transactions constituting quickly released incomes

- 95; round_amount_incoming_value1; Address with significant part of incoming transactions executed in round digital currencies amounts
- 96; round_amount_incoming_value2; Address with significant part of incoming transactions executed in round digital currencies amounts
- 97; round_amount_outgoing_value1; Address with significant part of outgoing transactions executed in round digital currencies amounts
- 98; round_amount_outgoing_value2; Address with significant part of outgoing transactions executed in round digital currencies amounts
- 99; hot_wallet;
- 100; medium_risk_country; Address belongs to entity registered in a medium risk country
- 101; ico_token_address; Address releasing tokens during an Initial Coin Offering
- 102; sanctioned_country_sub; Address directly related to subject from a country subject to comprehensive sanctions
- 103; cloud_mining_pool; Address belongs to cloud mining pool
- 104; high_risk_country; Address belongs to entity registered in high risk country/prohibited country
- 105; terrorist_financing_layering; Address being a part of funds layering/mixing scheme related to terrorism financing
- 106; weapon_trade_layering; Address being a part of funds layering/mixing scheme related to weapon trade or weapon trafficking
- 107; crime_against_person_layering; Address being a part of funds layering/mixing scheme related to crime against the person
- 108; drug_layering; Address being a part of funds layering/mixing scheme related to drugs trade
- 109; deep_market_layering; Address being a part of funds layering/mixing scheme related to darknet markets
- 110; blackmail_layering; Address being a part of funds layering/mixing scheme related to blackmail
- 111; blackmail_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses related to blackmail
- 112; deep_market_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses related to darknet markets
- 113; card_skimming; Address directly related to credit card skimming or cloning
- 114; deep_market_incoming_value2; Address with part of incoming transactions in close proximity to addresses related to darknet markets
- 115; scam_service_layering; Address being a part of funds layering/mixing scheme related to scam or investment frauds
- 116; piracy; Address directly related to intellectual property piracy
- 117; blackmail_incoming_value2; Address with part of incoming transactions in close proximity to addresses related to blackmail
- 118; ponzi_service_layering; Address being a part of funds layering/mixing scheme related to Ponzi schemes
- 119; pump_dump_layering; Address being a part of funds layering/mixing scheme related to pump and dump fraud
- 120; pump_dump_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses related to pump and dump fraud
- 121; pump_dump_incoming_value2; Address with part of incoming transactions in close proximity to addresses related to pump and dump fraud
- 122; piracy_layering; Address being a part of funds layering/mixing scheme related to intellectual property piracy
- 123; piracy_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses related to intellectual property piracy
- 124; piracy_incoming_value2; Address with part of incoming transactions in close proximity to addresses related to intellectual property piracy

125; card_skimming_layering; Address being a part of funds layering/mixing scheme related to credit card skimming or cloning

126; card_skimming_value1; Address with significant part of incoming transactions in close proximity to addresses related to credit card skimming or cloning

127; card_skimming_value2; Address with part of incoming transactions in close proximity to addresses related to credit card skimming or cloning

128; tax_evasion_layering; Address being a part of funds layering/mixing scheme related to tax evasion

129; sanctioned_country_incoming_taint;

130; ransom_layering; Address being a part of funds layering/mixing scheme related to ransom payment (other than ransomware)

131; blackmail; Address directly related to blackmail

132; company;

133; individual_user;

134; merchant;

135; seized_by_authorities;

136; non_profit; Address belongs to nonprofit organization

137; foundation; Address belongs to foundation

138; charity; Address belongs to charity

139; government_political;

140; pump_dump; Address directly related to pump and dump fraud

141; non_blockchain_anonymity_service; Address belongs to anonymity service

142; gaming_service; Address belongs to gaming service

143; ponzi_service; Address belongs to Ponzi scheme

144; media;

145; community;

146; entertainment;

147; data_vendor;

148; it;

149; healthcare;

150; travel;

151; gift_cards;

152; online_forum;

153; digital_assets;

154; no_to_limited_kyc; Address belongs to obliged service which had no KYC and currently has limited KYC process

155; cryptocurrency_enterprise;

156; blockchain_exploring_service;

157; sanctioned_country_sub_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses related to subject from sanctioned country

158; limited_to_full_kyc; Address belongs to obliged service which had limited KYC and has implemented full KYC process

159; sanctioned_country_sub_incoming_value2; Address with part of incoming transactions in close proximity to addresses related to subject from sanctioned country

160; no_to_full_kyc; Address belongs to obliged service which had no KYC and has implemented full KYC process

161; ponzi_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses related to Ponzi schemes

162; ponzi_incoming_value2; Address with part of incoming transactions in close proximity to addresses related to Ponzi schemes

163; mixer_incoming_value1; Address with significant part of incoming transactions in close proximity to mixers or tumblers addresses

164; mixer_incoming_value2; Address with part of incoming transactions in close proximity to mixers or tumblers addresses

165; mixer_outgoing_value1; Address with significant part of outgoing transactions in close proximity to mixers or tumblers addresses

166; mixer_outgoing_value2; Address with part of outgoing transactions in close proximity to mixers or tumblers addresses

167; local_exchange_incoming_value1; Address with significant part of incoming transactions in close proximity to over-the-counter exchange

168; sanctioned_country_sub_outgoing_value1; Address with significant part of outgoing transactions in close proximity to addresses related to subject from sanctioned country

169; local_exchange_incoming_value2; Address with part of incoming transactions in close proximity to over-the-counter exchange addresses

170; sanctioned_country_sub_outgoing_value2; Address with part of outgoing transactions in close proximity to addresses related to subject from sanctioned country

171; local_exchange_outgoing_value1; Address with significant part of outgoing transactions in close proximity to over-the-counter exchange addresses

172; ico_payment_address; Address is Initial Coin Offering payment address

173; local_exchange_outgoing_value2; Address with part of outgoing transactions in close proximity to over-the-counter exchange addresses

174; no_kyc_incoming_value1; Address with significant part of incoming transactions in close proximity to obliged service with no KYC process

175; no_kyc_incoming_value2; Address with part of incoming transactions in close proximity to obliged service with no KYC process

176; no_kyc_outgoing_value1; Address with significant part of outgoing transactions in close proximity to obliged service with no KYC process

177; no_kyc_outgoing_value2; Address with part of outgoing transactions in close proximity to obliged service with no KYC process

178; limited_KYC; Address belongs to obliged service with limited KYC process

179; terrorist_financing_incoming_taint;

180; limited_kyc_incoming_value1; Address with significant part of incoming transactions in close proximity to obliged service with limited KYC process

181; limited_kyc_incoming_value2; Address with part of incoming transactions in close proximity to obliged service with limited KYC process

182; rec_from_ico; Address receiving funds from Initial Coin Offering payment address

183; limited_kyc_outgoing_value1; Address with significant part of outgoing transactions in close proximity to obliged service with limited KYC process

184; limited_kyc_outgoing_value2; Address with part of outgoing transactions in close proximity to obliged service with limited KYC process

185; ico_contract_creator; Address creating Initial Coin Offering smart contract

186; not_functioning_service; Address belongs to shutdown or inactive service

187; ransomware_layering; Address being a part of funds layering/mixing scheme related to ransomware

188; payment_processor; Address belongs to payment processor

189; deep_market_outgoing_value1; Address with significant part of outgoing transactions in close proximity to addresses related to darknet markets

190; hacker_outgoing_value1; Address with significant part of outgoing transactions in close proximity to hacker's addresses

191; deep_market_outgoing_value2; Address with part of outgoing transactions in close proximity to addresses related to darknet markets

192; hacker_outgoing_value2; Address with part of outgoing transactions in close proximity to hacker's addresses

193; card_provider; Address belongs to payment cards provider

194; inactive_user; Inactive address

195; active_inactive_user; Active-inactive address

196; proof_of_burn_address; Address is proof of burn address

197; sanctioned_country_sub_incoming_taint;

198; sanctioned_subject_incoming_taint;
199; dex_user; Decentralized Exchange User
200; negative_news; Negative news
201; charged_with_ml; Owner charged with Money Laundering
202; licensed_owner;
203; atm_chain_owner; Address belongs to an ATM chain
204; atm_settlement_address; Address is a cryptocurrency ATM settlement address
205; forum_user;
206; unauthorized_withdrawal;
207; unauthorized_withdrawal_layering; Address being a part of funds layering/mixing scheme related to unauthorized withdrawal
208; unauthorized_withdrawal_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses related to unauthorized withdrawal
209; unauthorized_withdrawal_incoming_value2; Address with significant part of incoming transactions in close proximity to addresses related to unauthorized withdrawal
210; cold_wallet;
211; settlement;
212; user_deposit;
213; user_withdrawal;
214; donation;
215; payment_acceptance;
216; sanctioned_subject; Address related to subject appearing in sanctions lists
217; sanctioned_subject_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses related to subject appearing in sanctions lists
218; sanctioned_subject_incoming_value2; Address with part of incoming transactions in close proximity to addresses related to subject appearing in sanctions lists
219; sanctioned_subject_outgoing_value1; Address with significant part of outgoing transactions in close proximity to addresses related to subject appearing in sanctions lists
220; sanctioned_subject_outgoing_value2; Address with part of outgoing transactions in close proximity to addresses related to subject appearing in sanctions lists
221; geo_restr_outgoing; Address with outgoing transactions initiated from IP address located in sanctioned country
222; geo_restr_incoming_value; Address with significant part of incoming transactions initiated from IP address located in sanctioned country
223; tor_outgoing; Address with outgoing transactions initiated from anonymous network exit node
224; tor_incoming_value; Address with significant part of incoming transactions initiated from anonymous network exit node
225; pol_person; Address related to politically exposed person (PEP)
226; pol_person_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses related to politically exposed persons (PEPs)
227; pol_person_incoming_value2; Address with part of incoming transactions in close proximity to addresses related to politically exposed persons (PEPs)
228; pol_person_outgoing_value1; Address with significant part of outgoing transactions in close proximity to addresses related to politically exposed persons (PEPs)
229; pol_person_outgoing_value2; Address with part of outgoing transactions in close proximity to addresses related to politically exposed persons (PEPs)
230; banks_financial;
231; manufacturing;
232; geo_restr_outgoing_value; Address with significant part of outgoing transactions initiated from IP address located in sanctioned country
233; tor_outgoing_value; Address with significant part of outgoing transactions initiated from anonymous network exit node
234; identity_theft; Address directly related to identity theft

235; identity_theft_layering; Address being a part of funds layering/mixing scheme related to identity theft
236; id_theft_incoming_value1; Address with significant part of incoming transactions in close proximity to addresses related to identity theft
237; id_theft_incoming_value2; Address with part of incoming transactions in close proximity to addresses related to identity theft
238; fiat_crypto_swap_gateway; Address belongs to entity that allows instant crypto to fiat currency on ramp swaps
239; dex_exchange; Address belongs to decentralized exchange
240; dex_exchange_incoming_value1; Address with significant part of incoming transactions in close proximity to decentralized exchange
241; dex_exchange_incoming_value2; Address with part of incoming transactions in close proximity to decentralized exchange addresses
242; dex_exchange_outgoing_value1; Address with significant part of outgoing transactions in close proximity to decentralized exchange addresses
243; dex_exchange_outgoing_value2; Address with part of outgoing transactions in close proximity to over the decentralized exchange addresses
244; defi; Address belongs to decentralized finance service
245; sanctioned_subject_layering; Address being a part of funds layering scheme related to sanctioned subjects
246; cashback; Address belongs to cashback service
247; sanctioned_country_sub_targeted; Address directly related to subject from a country subject to targeted sanctions
248; sanctioned_country_sub_incoming_direct; Address with transactions directly incoming from the subject from a sanctioned country
249; sanctioned_country_sub_outgoing_direct; Address with transactions directly outgoing to the subject from a sanctioned country
250; sanctioned_subject_incoming_direct; Address with transactions directly incoming from addresses related to subject appearing in sanctions lists
251; sanctioned_subject_outgoing_direct; Address with transactions directly outgoing to addresses related to subject appearing in sanctions lists
252; full_kyc;
253; no_legal_entity; Financial service with no legal entity
254; nft_smart_contract; Address is a smart contract for non-fungible tokens
255; trusted_member;

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