Taming Monero: The Hidden Model

A Specification for

Monero Wallet and Daemon Interfaces

based on Monero Core v0.15.0.1 Carbon Chameleon

Revision 32 - April 10, 2020

Java reference implementation: https://github.com/monero-ecosystem/monero-java

JavaScript reference implementation: https://github.com/monero-ecosystem/monero-javascript

C++ reference implementation: https://github.com/woodser/monero-cpp-library

Document source: https://github.com/monero-ecosystem/monero-java/blob/master/monero-spec.xml

Document source created and modifiable using: https://www.draw.io/

Monero Daemon Interface 1/2

isConnected(): bool

getVersion(): MoneroVersion

isTrusted(): bool

getHeight(): ulong

getBlockHash(ulong height): string

getBlockTemplate(string walletAddress, uint reserveSize=null): MoneroBlockTemplate

getLastBlockHeader(): MoneroBlockHeader

getBlockHeaderByHash(string blockHash): MoneroBlockHeader

getBlockHeaderByHeight(ulong height): MoneroBlockHeader

getBlockHeadersByRange(ulong startHeight=0, ulong endHeight=chainHeight): MoneroBlockHeader[]

getBlockByHash(string blockHash): MoneroBlock

getBlocksByHash(string[] blockHashes, ulong startHeight, bool prune=false): MoneroBlock[]

getBlockByHeight(ulong height): MoneroBlock

getBlocksByHeight(ulong[] heights): MoneroBlock[]

getBlocksByRange(ulong startHeight=0, ulong endHeight=chainHeight): MoneroBlock[]

getBlocksByRangeChunked(ulong startHeight=0, ulong endHeight=chainHeight, ulong maxChunkSize=3000000): MoneroBlock[]

getBlockHashes(string[] blockHashes, ulong startHeight): string[]

getTx(string txHash, bool prune=false): MoneroTx

getTxs(string[] txHashes, bool prune=false): MoneroTx[]

getTxHex(string txHash, bool prune=false): string

getTxHexes(string[] txHashes, bool prune=false): string[]

getMinerTxSum(ulong height, ulong numBlocks=chainHeight): MoneroMinerTxSum

getFeeEstimate(ulong graceBlocks=?): ulong

submitTxHex(string txHex, bool doNotRelay=false): MoneroSubmitTxResult

relayTxByHash(string txHash): void

relayTxsByHash(string[] txHashes): void

getTxPool(): MoneroTx[]

getTxPoolHashes(): string[]

getTxPoolBacklog(): MoneroTxBacklogEntry[]

getTxPoolStats(): MoneroTxPoolStats

flushTxPool(string[] txHashes=null): void

getKeyImageSpentStatus(string keyImage): MoneroKeyImageSpentStatus

getKeyImageSpentStatuses(string[] keyImages): MoneroKeyImageSpentStatus[]

getOutputs(MoneroOutput[] outputs): MoneroOutput[]

getInfo(): MoneroDaemonInfo

getSyncInfo(): MoneroDaemonSyncInfo

getHardForkInfo(): MoneroHardForkInfo

Monero Daemon Intereface 2/2

getAltChains(): MoneroAltChain[]

getAltBlockHashes(): string[]

getDownloadLimit(): uint

setDowloadLimit(uint limit): uint

resetDownloadLimit(): uint

getUploadLimit(): uint

setUploadLimit(uint): uint

resetUploadLimit(): uint

getKnownPeers(): MoneroDaemonPeer[]

getConnections(): MoneroDaemonConnection[]

setOutgoingPeerLimit(uint limit): void

setIncomingPeerLimit(uint limit): void

getPeerBans(): MoneroBan[]

setPeerBan(MoneroBan ban): void

setPeerBans(MoneroBan[] bans): void

getOutputDistribution(ulong[] amounts, bool isCumulative, ulong startHeight=0, ulong endHeight=chainHeight):
MoneroOutputDistributionEntry[]

getOutputHistogram(ulong[] amounts, ulong minCount, ulong maxCount, bool isUnlocked, ulong recentCutoff):
MoneroOutputHistogramEntry[]

startMining(string address, ulong numThreads=null, bool isBackground=false, bool ignoreBattery=false): void

stopMining(): void

getMiningStatus(): MoneroMiningStatus

submitBlock(string blockBlob): void

submitBlocks(string[] blockBlobs): void

checkForUpdate(): MoneroDaemonUpdateCheckResult

downloadUpdate(string path): MoneroDaemonUpdateDownloadResult

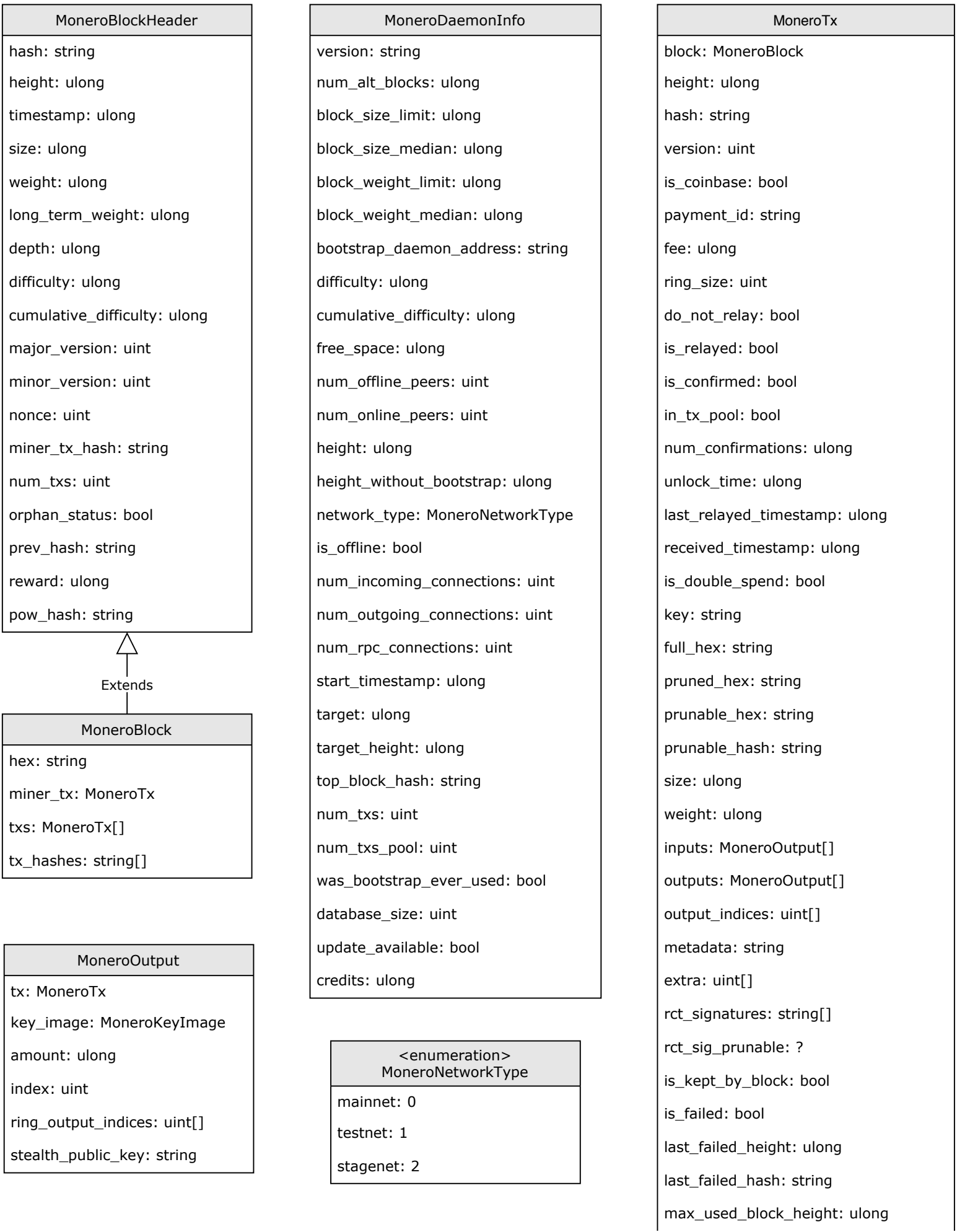
getNextBlockHeader(): MoneroBlockHeader

addListener(MoneroDaemonListener listener): void

removeListener(MoneroDaemonListener listener): void

stop(): void

Monero Daemon Types 1/3



Monero Daemon Types 2/3

MoneroDaemonSyncInfo
height: ulong
connections: MoneroDaemonConnection[]
spans: MoneroDaemonConnectionSpan[]
target_height: ulong
next_needed_pruning_seed: uint
overview: ?

MoneroDaemonConnection
peer: MoneroDaemonPeer
id: string
avg_download: ulong
avg_upload: ulong
current_download: ulong
current_upload: ulong
height: ulong
is_incoming: bool
live_time: ulong
is_local_ip: bool
is_local_host: bool
num_receives: uint
num_sends: uint
receive_idle_time: ulong
send_idle_time: ulong
state: string
num_support_flags: uint
type: ConnectionType

MoneroDaemonConnectionSpan
connection_id: string
num_blocks: ulong
remote_address: string
rate: ulong
speed: ulong
size: ulong
start_block_height: ulong

MoneroDaemonListener
onBlockHeader(MoneroBlockHeader header): void

MoneroKeyImage
hex: string
signature: string

<enumeration> MoneroKeyImageSpentStatus
not_spent: 0
confirmed: 1
tx_pool: 2

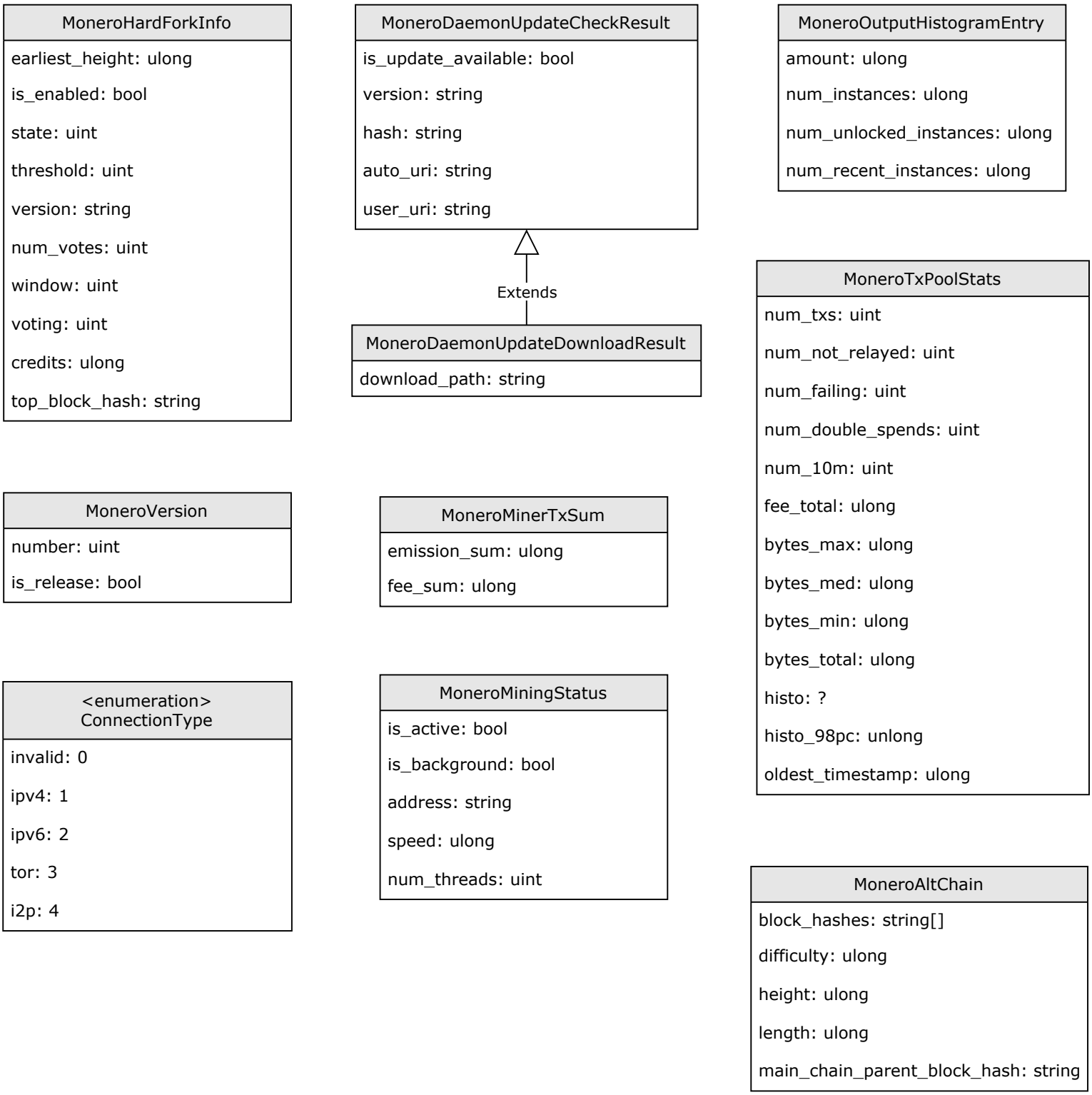
MoneroSubmitTxResult
is_good: bool
is_relayed: bool
is_double_spend_seen: bool
is_fee_too_low: bool
is_mixin_too_low: bool
has_invalid_input: bool
has_invalid_output: bool
has_too_few_outputs: bool
is_rct: bool
is_overspend: bool
is_too_big: bool
sanity_check_failed: bool
reason: string
credits: ulong
top_block_hash: string
max_used_block_hash: string
signatures: string[]

MoneroDaemonPeer
id: string
address: string
host: string
port: uint
is_online: boolean
last_seen_timestamp: ulong
pruning_seed: uint
rpc_port: uint
rpc_credits_per_hash: ulong

MoneroBan
host: string
ip: string
is_banned: bool
seconds: ulong

MoneroBlockTemplate
block_template_blob: string
block_hashing_blob: string
difficulty: ulong
expected_reward: ulong
height: ulong
prev_hash: string
reserved_offset: ulong
seed_height: ulong
seed_hash: string
next_seed_hash: string

Monero Daemon Types 3/3



Monero Wallet Interface 1/3

isWatchOnly(): bool

setDaemonConnection(MoneroDaemonConnection connection): void

getDaemonConnection(): MoneroDaemonConnection

isConnected(): bool

getVersion(): MoneroVersion

getNetworkType(): MoneroNetworkType

getPath(): string

getMnemonic(): string

getMnemonicLanguage(): string

getMnemonicLanguages(): string[]

getPrivateSpendKey(): string

getPrivateViewKey(): string

getPublicSpendKey(): string

getPublicViewKey(): string

getPrimaryAddress(): string

getAddress(uint accountIdx, uint subaddressIdx): string

getAddressIndex(string address): MoneroSubaddress

getDaemonConnection(): MoneroRpcConnection

getHeight(): ulong

getDaemonHeight(): ulong

getDaemonMaxPeerHeight(): ulong

getApproximateChainHeight(): ulong

sync(ulong startHeight=null, MoneroSyncListener listener=null): MoneroSyncResult

startSyncing(): void

stopSyncing(): void

rescanSpent(): void

rescanBlockchain(): void

getBalance(uint accountIdx=null, uint subaddressIdx=null): ulong

getUnlockedBalance(uint accountIdx=null, uint subaddressIdx=null): ulong

getAccounts(bool includeSubaddresses=false, string tag=null): MoneroAccount[]

getAccount(uint accountIdx, bool includeSubaddresses=false): MoneroAccount

createAccount(string label=null): void

getSubaddresses(uint accountIdx, uint[] subaddressIndices): void

getSubaddress(uint accountIdx, uint subaddressIdx): MoneroSubaddress

createSubaddress(uint accountIdx, string label=null): MoneroSubaddress

getTx(string txId): MoneroTxWallet

getTxs(MoneroTxQuery query=null): MoneroTxWallet[]

getTransfers(uint accountIdx=null, uint subaddressIdx=null): MoneroTransfer[]

Monero Wallet Interface 2/3

getOutputs(MoneroOutputQuery query=null): MoneroOutputWallet[]

getOutgoingTransfers(MoneroTransferQuery query=null): MoneroOutgoingTransfer[]

getIncomingTransfers(MoneroTransferQuery query=null): MoneroIncomingTransfer[]

getTransfers(MoneroTransferQuery query=null): void

getKeyImages(): MoneroKeyImage[]

importOutputsHex(string outputsHex): uint

getOutputsHex(): string

importKeyImages(MoneroKeyImage[] keyImages): MoneroKeyImageImportResult

getNewKeyImagesFromLastImport(): MoneroKeyImage[]

createTx(MoneroSendRequest request): MoneroTxSet

createTx(uint accountIdx, string address, ulong amount): MoneroTxSet

createTxs(MoneroSendRequest request): MoneroTxSet

relayTx(string txMetadata): string

relayTx(MoneroTxWallet tx): string

relayTxs(string[] txMetadatas): string[]

relayTxs(MoneroTxWallet[] txs): string[]

send(MoneroSendRequest request): MoneroTxSet

send(uint accountIdx, string address, ulong amount): MoneroTxSet

sendSplit(MoneroSendRequest request): MoneroTxSet

sendSplit(uint accountIdx, string address, ulong amount): MoneroTxSet

sweepOutput(MoneroSendRequest request): MoneroTxSet

sweepOutput(string address, string keyImage): MoneroTxSet

sweepSubaddress(uint accountIdx, uint subaddressIdx, string address): MoneroTxSet

sweepAccount(uint accountIdx, string address): MoneroTxSet

sweepWallet(string address): MoneroTxSet[]

sweepUnlocked(MoneroSendRequest request): MoneroTxSet[]

sweepDust(bool doNotRelay=false): MoneroTxSet

parseTxSet(MoneroTxSet txSet): MoneroTxSet

signTxs(string unsignedTxHex): string

submitTxs(string signedTxHex): string[]

signMessage(string message): string

verifyMessage(string message, string address, string signature): bool

getTxKey(string txId): string

checkTxKey(string txId, string txKey, string address): MoneroCheckTx

getTxProof(String txId, string address, string message=null): string

checkTxProof(string txId, string address, string message, string signature): MoneroCheckTx

getSpendProof(string txId, string message=null): string

checkSpendProof(string txId, string message, string signature): bool

Monero Wallet Interface 3/3

getReserveProofWallet(string message): string

getReserveProofAccount(uint accountIdx, ulong amount, string message): string

checkReserveProof(string address, string message, string signature): MoneroCheckReserve

setTxNotes(string[] txHashes, string[] notes): void

setTxNote(string txHash, string note): void

getTxNotes(string[] txHashes): string[]

getTxNote(string txHash): string

getAddressBookEntries(uint[] entryIndices=null): MoneroAddressBookEntry[]

addAddressBookEntry(string address, string description): uint

editAddressBookEntry(uint entryIdx, bool setAddress, string address, bool setDescription, string description): void

deleteAddressBookEntry(uint entryIdx): void

tagAccounts(string tag, uint[] accountIndices): void

untagAccounts(uint[] accountIndices): void

getAccountTags(): MoneroAccountTag[]

setAccountTagLabel(string tag, string label): void

createPaymentUri(MoneroSendRequest request): string

parsePaymentUri(string uri): MoneroSendRequest

getAttribute(string key): string

setAttribute(string key, string val): void

startMining(uint numThreads=null, bool backgroundMining=false, bool ignoreBattery=true): void

stopMining(): void

isMultisigImportNeeded(): bool

isMultisig(): bool

getMultisigInfo(): MoneroMultisigInfo

prepareMultisig(): string

makeMultisig(string[] multisigHexes, uint threshold, string password): MoneroMultisigInitResult

exchangeMultisigKeys(string[] multisigHexes, string password): MoneroMultisigInitResult

getMultisigHex(): string

importMultisigHex(string[] multisigHexes): uint

signMultisigTxHex(string multsiigTxHex): MoneroMultisigSignResult

submitMultisig(string signedMultisigHex): string[]

moveTo(string path, string password): void

save(): void

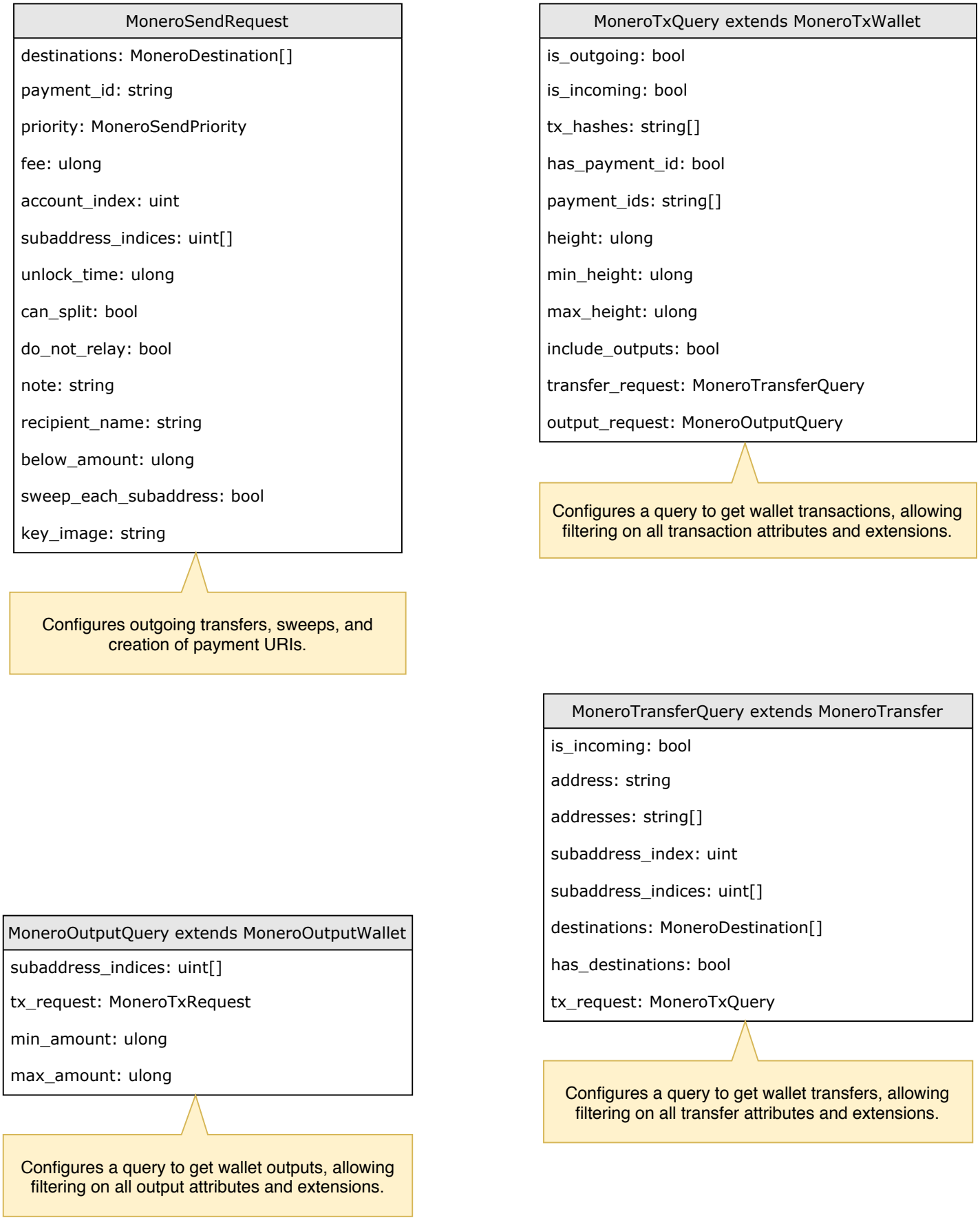
close(bool save=false): void

isClosed(): bool

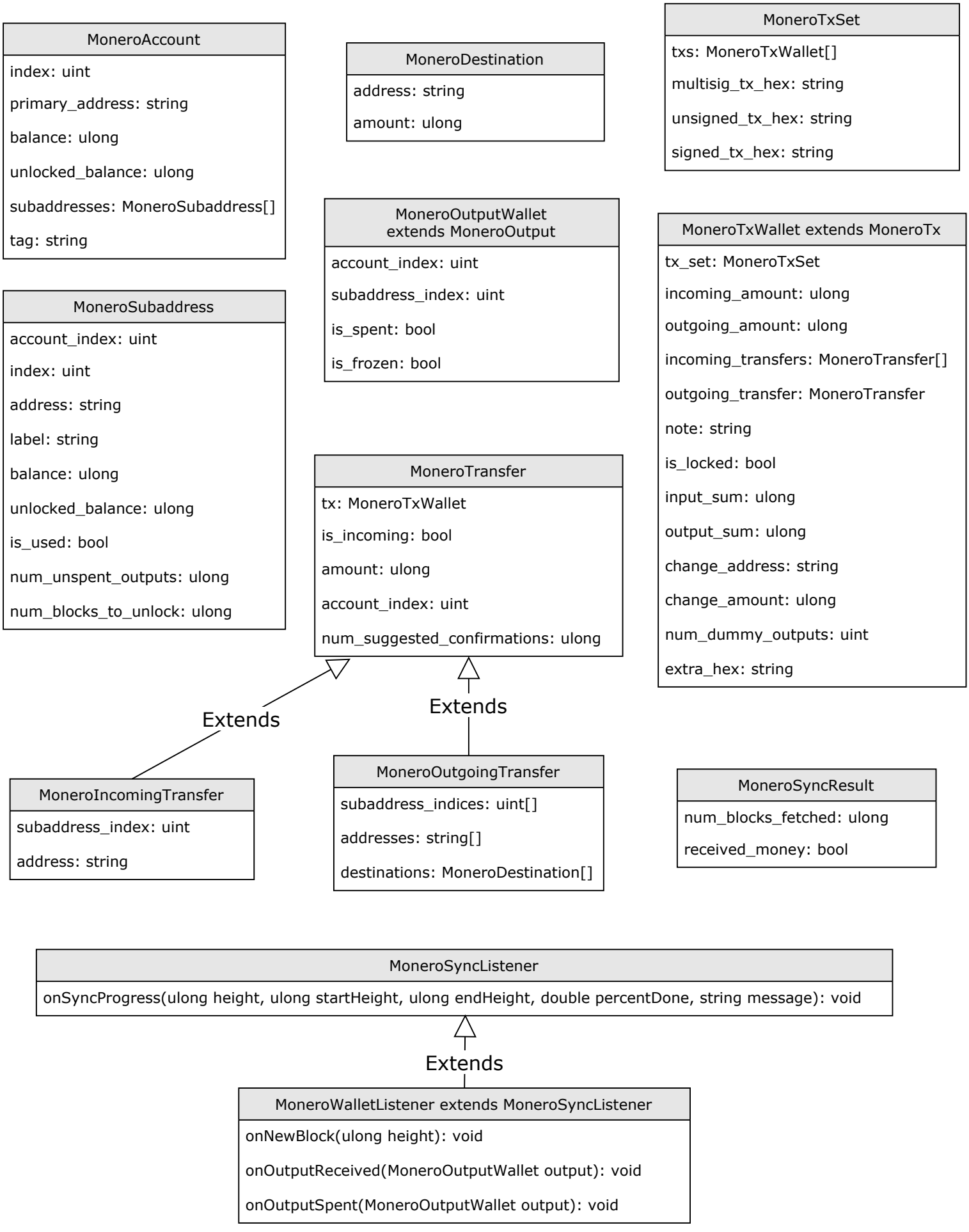
getIntegratedAddress(string paymentId=null): MoneroIntegratedAddress (deprecated)

decodeIntegratedAddress(string integratedAddress): MoneroIntegratedAddress (deprecated)

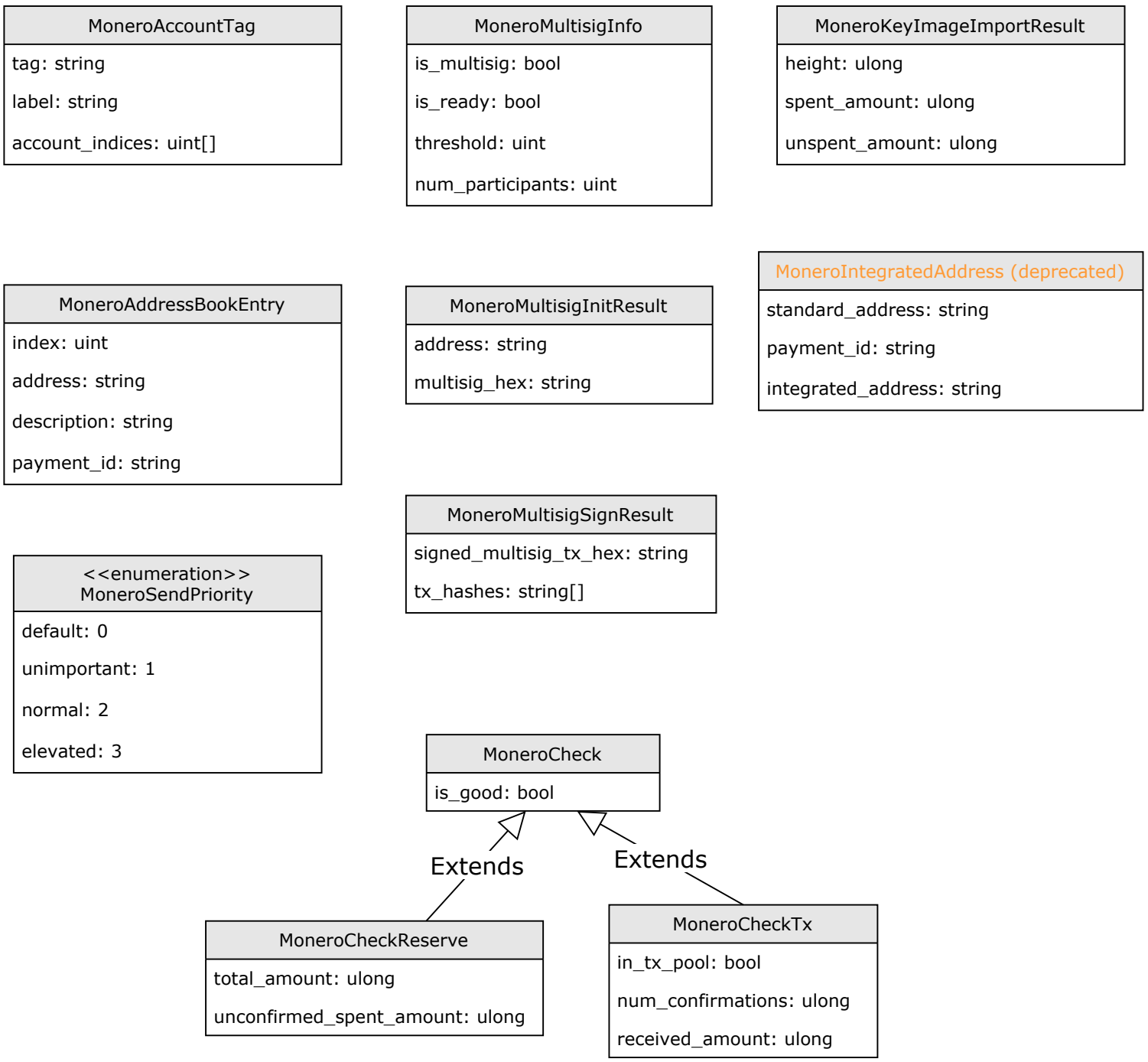
Monero Wallet Types 1/3 - Send Request and Queries for Transactions, Transfers, and Outputs



Monero Wallet Types 2/3

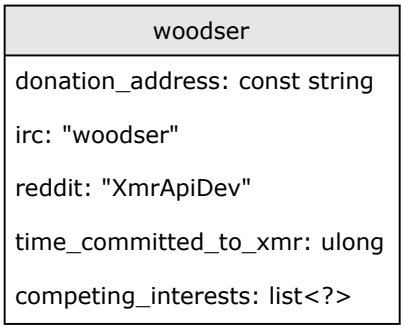


Monero Wallet Types 3/3



woodser API 1/1

46FR1GKVqFNQnDiFkH7AuzbUBrGQwz2VdaXTDD4jcjRE8YkkoTYTmZ2Vohsz9gLSqkj5EM6ai9Q7sBoX4FPPYJdGKQQXPVz



Motivation tends to increase with support shown to donation address.