**ENS**

* Decentralized domain name registry.
* ENS is a name and lookup service built on the Ethereum blockchain that allows crypto users to translate their machine-readable addresses to human-readable addresses. Think of it as a nickname generator for public Ethereum addresses, aiming to make crypto more accessible.
* ENS aims to become the naming protocol of the decentralized internet by creating portable Web 3.0 usernames that are interoperable across all blockchains and decentralized apps (dApps).
* This makes ENS more secure than centralized naming services as there is no single point of failure.

**Why?**

* Take crypto transactions, for example. To send a crypto payment, you need a long public wallet address composed of a string of digits and letters of the alphabet that looks like gibberish. Moreover, users have a different public address for every cryptocurrency, making it difficult to manage and confusing for crypto beginners.

**Works:**

* ENS is built on two Ethereum smart contracts. The first smart contract is the ENS registry, which records all the domains registered on ENS and stores three critical pieces of information about each domain: the owner of the domain, the resolver for the domain, and the caching time for all records under the domain. The second smart contract is the [resolver](https://docs.ens.domains/dapp-developer-guide/managing-names), which translates the domain names to the machine-readable addresses and vice versa. This second smart contract matches each domain to the corresponding user, website or address.
* The backbone of the service is the ENS registry smart contract, which maintains a list of all domains and subdomains which map representations of domain names to ENS resolvers’ smart contracts. Those, in turn, target Ethereum address to map.
* Those wishing to create their Web3 username can visit the ENS app and start by searching for an available domain name. Once you find one, you’ll simply have to follow the registration process, which includes confirming two transactions from your wallet and paying the yearly fee, which is US$5/year for names longer than five characters. Once you own the domain, you can link it to your crypto wallets, websites, and create multiple subdomains, like email.rick.eth or website.rick.eth — all connected under the same ENS domain.
* Users will have to wait for the name to become available before they can submit their bid. A user with the highest bid will win the name, and the auctioned ETH locked in a smart contract. The name will be locked in the smart contract for one year.
* It should be greater than seven characters.

**Auctions level**

* Bid
* Reveal

**Process**

* The process of claiming a name on the Ethereum Name Service takes five days.
* it is irreversible.
* start the process by opening a public auction for the name you want. An alert will be sent immediately to everyone watching the blockchain for that particular name. Once the auction has been opened, bidders who know how to spell that name can bid on it in the next five days. These bidders do this by sending a transaction with the maximum amount they are willing to pay for that name.
* The network will continue accepting bids until 72 hours after the initial auction opens. Next comes the “reveal phase” that will last for 48 hours. During this phase, bidders must reveal their bids.

**Cost:**

* 5+ character .eth names: $5 in ETH per year.
* 4 character .eth names: $160 in ETH per year.
* 3 character .eth names $640 in ETH per year.

**ENS Token:**

As ENS is an open-source, fully decentralized protocol, it is not managed by a traditional company hierarchy. ENS is community-governed as a DAO (decentralized autonomous organization), which leads us to the ENS token.

**ENS Cons:**

* Ownership transfer
* Not currently support popular browser

**DNS Registry**

derive the hash from a name while still preserving its hierarchal properties, a process called Namehash is used. For example, the namehash of 'alice.eth

A Vickrey auction is a type of sealed-bid auction. Bidders submit written bids without knowing the bid of the other people in the auction. The highest bidder wins but the price paid is the second-highest bid. This type of auction... gives bidders an incentive to bid their true value.

## Terminology

* domain - The complete, human-readable form of a name; eg, iam.alice.eth.
* label - A single component of a domain - eg, iam, alice, or eth.
* label hash - the output of the keccak-256 function applied to a label; eg, keccak256(‘eth’) = 0x4f5b812789fc606be1b3b16908db13fc7a9adf7ca72641f84d75b47069d3d7f0
* node - The output of the namehash

**DNSSEC**

DNSSEC strengthens authentication in DNS using digital signatures based on public key cryptography. With DNSSEC , it's not DNS queries and responses themselves that are cryptographically signed, but rather DNS data itself is signed by the owner of the data.

**TEXT**

* TXT records are a type of Domain Name System (DNS) record that contains text information for sources outside of your domain. You add these records to your domain settings.
* You can use TXT records for various purposes. Google uses them to verify domain ownership and to ensure email security.

**Resources:**

<https://medium.com/the-ethereum-name-service/step-by-step-guide-to-importing-a-dns-domain-name-to-ens-d2d15feb03e8>

<https://github.com/ensdomains/resolvers/blob/master/contracts/PublicResolver.sol>

[https://github.com/ensdomains/ens-contracts](https://github.com/ensdomains/resolvers/blob/master/contracts/PublicResolver.sol)

<https://www.toptal.com/dapp/ethereum-name-service-dapp-tutorial>

**Code Repo**

<https://github.com/ensdomains/ens-contracts>