# What are tokens and how to count them?

## What are tokens?

Tokens can be thought of as pieces of words. Before the API processes the prompts, the input is broken down into tokens. These tokens are not cut up exactly where the words start or end - tokens can include trailing spaces and even sub-words. Here are some helpful rules of thumb for understanding tokens in terms of lengths:

* 1 token ~= 4 chars in English
* 1 token ~= ¾ words
* 100 tokens ~= 75 words

Or

* 1-2 sentence ~= 30 tokens
* 1 paragraph ~= 100 tokens
* 1,500 words ~= 2048 tokens

To get additional context on how tokens stack up, consider this:

* Wayne Gretzky’s quote "You miss 100% of the shots you don't take" contains 11 tokens.
* OpenAI’s charter contains 476 tokens.
* The transcript of the US Declaration of Independence contains 1,695 tokens.

How words are split into tokens is also language-dependent. For example, ‘Cómo estás’ (‘How are you’ in Spanish) contains 5 tokens (for 10 chars). The higher token-to-char ratio can make it more expensive to implement the API for languages other than English.

## Token Limits

Depending on the model used, requests can use up to 4097 tokens shared between prompt and completion. If your prompt is 4000 tokens, your completion can be 97 tokens at most.

The limit is currently a technical limitation, but there are often creative ways to solve problems within the limit, e.g. condensing your prompt, breaking the text into smaller pieces, etc.

Hello Alberto,

I hope this message finds you well. Following our recent discussion, where you mentioned the possibility of setting up a dedicated development environment in the AWS cloud, I am writing to formally request access to facilitate the development and testing of machine learning models for the Test Department. Having a designated AWS environment would greatly enhance the efficiency of my work, allowing for seamless experimentation and deployment.

If there are any specific requirements or procedures to follow in order to set up the AWS environment, please let me know, and I will ensure they are promptly addressed.

Thank you for considering this request.

Best Regards,

Elshan Chalabiyev

Data Science Consultant