

The main flow

http://www.html5rocks.com/en/tutorials/internals/howbrowserswork/#The_browser_main_functionality

Note: DOM is short for Document Object Model.

The rendering engine will start getting the contents of the requested document from the networking layer. This will usually be done in 8kB chunks.

After that, this is the basic flow of the rendering engine:

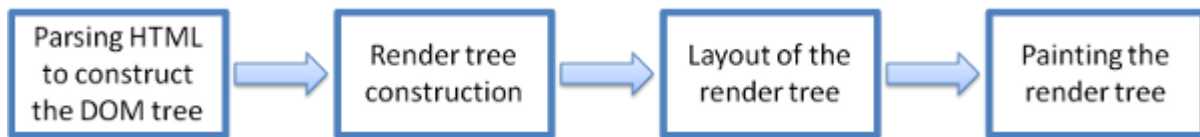


Figure : Rendering engine basic flow

The rendering engine will start parsing the HTML document and convert elements to [DOM](#) nodes in a tree called the "content tree". The engine will parse the style data, both in external CSS files and in style elements. Styling information together with visual instructions in the HTML will be used to create another tree: the [render tree](#).

The render tree contains rectangles with visual attributes like color and dimensions. The rectangles are in the right order to be displayed on the screen.

After the construction of the render tree it goes through a "[layout](#)" process. This means giving each node the exact coordinates where it should appear on the screen. The next stage is [painting](#)—the render tree will be traversed and each node will be painted using the UI backend layer.

It's important to understand that this is a gradual process. For better user experience, the rendering engine will try to display contents on the screen as soon as possible. It will not wait until all HTML is parsed before starting to build and layout the render tree. Parts of the content will be parsed and displayed, while the process continues with the rest of the contents that keeps coming from the network.

Main flow examples

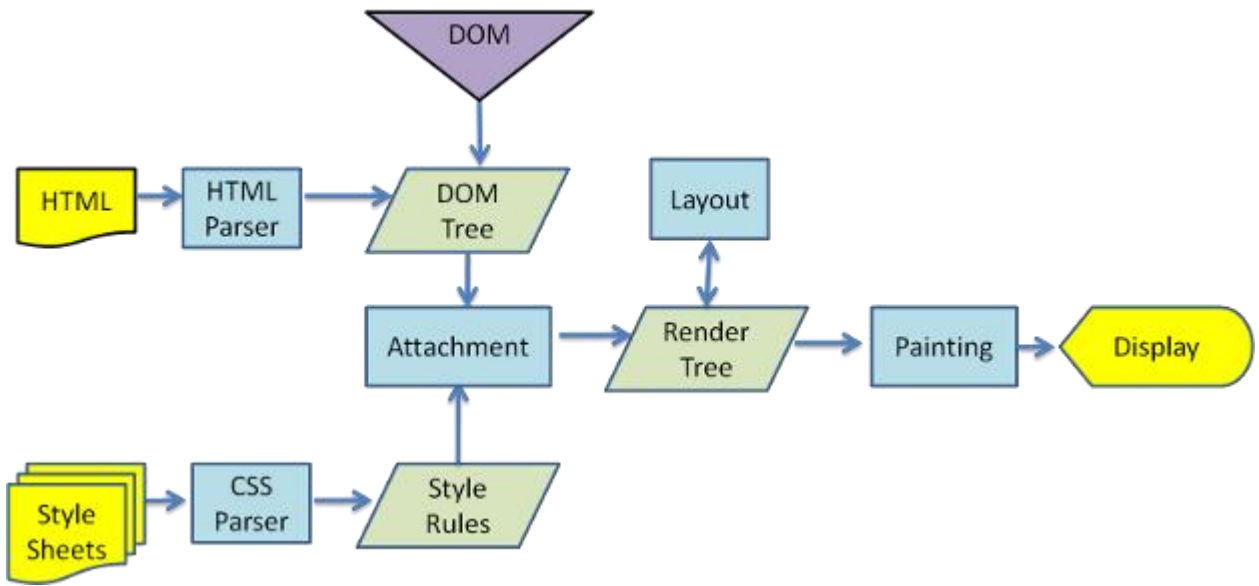


Figure : WebKit main flow

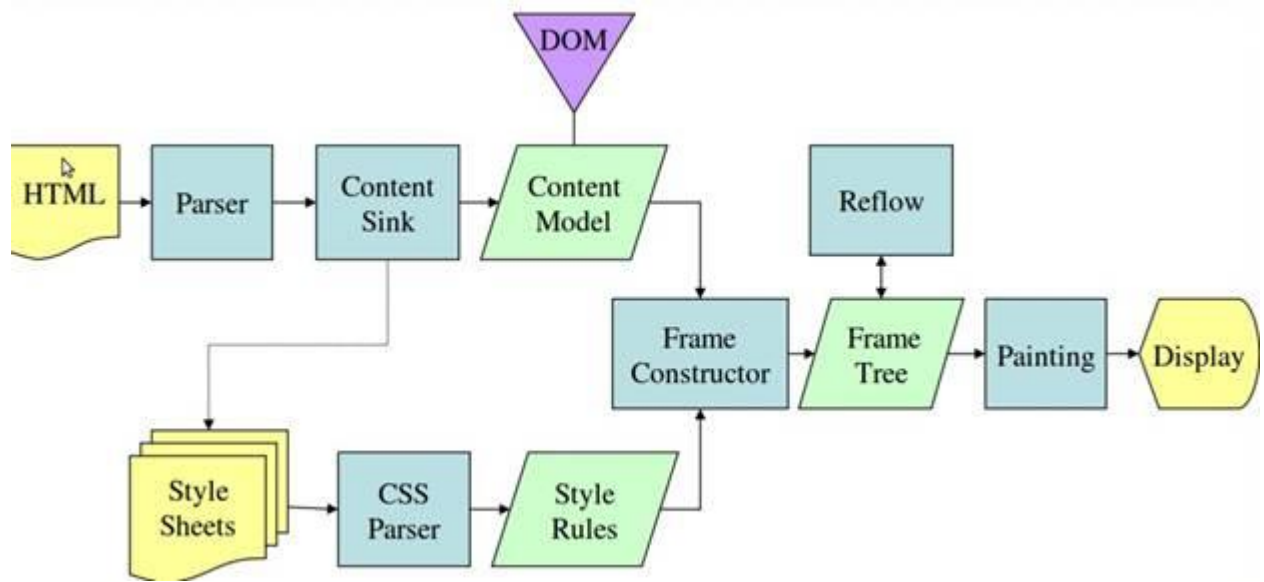


Figure : Mozilla's Gecko rendering engine main flow (3.6)