A display server is a program which is responsible for the input and output coordination of its clients, to and from the rest of the operating system, and among the hardware and the operating system. Basically, thanks to a display server, you can use your computer graphically (GUI). Without the display server, you would only be restricted to a command line interface (TTY).

The display server provides the framework for a graphical environment so that you can use mouse and keyboard to interact with applications.

The display server communicates with its clients over the display server protocol, like X11. The display server is a key component in any graphical user interface, specifically the windowing system.