

Open-Source Report

[Flask]

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Code Repository	https://github.com/pallets/flask
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Dispel the magic of this technology. Replace this text with some that answers the following questions for the above tech:

- How does this technology do what it does? Please explain this in detail, starting from after the TCP socket is created

After the TCP socket is created, the server is ready to listen for any TCP connection in the assigned port. Once the client sends the request to the server, the three-way handshake will be used to establish TCP connection.

In the first handshake, the client sends a packet with random sequence number X and SYN. The client enters SYN_SENT status waiting for confirmation from the server.

In the second handshake, the server receives the packet from the client (X and syn). The server is going to respond with the packet that includes SYN, ACK, a random sequence number Y, and ACK number $X + 1$ (X is the sequence number received from the client). The server enters SYN_RECV status waiting for the response from the client.

In the third handshake, the client sends the packet with ACK and $Y + 1$ (Y is the sequence number received from the server)

The TCP connection is established after the three-way handshake. Now the client can send get, post, or any other requests to the server.

- Where is the specific code that does what you use the tech for? You **must** provide a link to the specific file in the repository for your tech with a line number or number range.

Flask is using Werkzeug library to handle TCP such as creating TCP socket and listen on a certain port.

ForkingWSGIServer class (lines 799 – 1096)

We need to create a socket before listening on any port.

[This line of code is used to create a socket.](#) (line 895)

After socket is created, the server is ready to listen on a certain port.

[This line indicates that we are listening for the request.](#) (line 930)

Once the client sends a request, the server will perform the three-way handshake to establish the TCP connection. The three-way handshake is handled by the operating system. Once the three-way handshake is completed, the client can send requests. (Probably, see the link below. I spent a couple of hours on going through debugger, search for keywords like SYN and ACK, going through socket library and google, but I still can't find any code related to three-way handshake, I will go to OH to confirm that)

<https://stackoverflow.com/questions/9809348/tcp-where-is-the-3way-handshake-implemented>

In our project, we are calling the function app.run to make it works.

```
if __name__ == "__main__":  
    app.run(host='0.0.0.0', port=8082, debug=True)
```

