

# Burp it up

by Santiago

This presentation is only for education purposes.

Before assessing a web application, ask for consent.

# Agenda

1. Setup
2. Intro to BurpSuite
  - 2.1. BurpSuite Professional vs. Community Edition
3. A little bit of Hypertext Transfer Protocol (HTTP)
4. Using Burp
  - 4.1. Proxy
  - 4.2. Repeater
  - 4.3. Decoder
  - 4.4. Comparer
  - 4.5. Sequencer
  - 4.6. Intruder
  - 4.7. Extender
5. Resources and References

# Setup

# Setup

- Ubuntu 20.04
  - BurpSuite Community Edition
  - Docker
    - Damn Vulnerable Web Application (DVWA)



# Intro to BurpSuite

# Intro to BurpSuite

- Application designed for web application security assessments.
- Framework that includes tools and allows extensions.
- Included tools:
  - Proxy
  - Repeater
  - Decoder
  - Comparer
  - Sequencer
  - Intruder
  - Extender

# BurpSuite Professional vs. Community Edition

## Burp Suite Community Edition

Essential manual toolkit - perfect for learning more about AppSec.

- ✓ HTTP(s) / WebSockets proxy and history.
- ✓ Essential tools - Repeater, Decoder, Sequencer, and Comparer.
- ✓ Burp Intruder (demo).

- ✓ **Everything in Community Edition, plus ...**
- ✓ Project files (save your work).
- ✓ Orchestrate custom attacks (Burp Intruder - full version).
- ✓ Web vulnerability scanner.
- ✓ Pro-exclusive BApp extensions.
- ✓ Search function.
- ✓ Auto and manual OAST testing (Burp Collaborator).
- ✓ Automatically crawl and discover content to test.
- ✓ And much more ...

## Burp Suite Professional

Faster, more reliable security testing for AppSec professionals.

BUY NOW - \$399



# A little bit of Hypertext Transfer Protocol (HTTP)

# A little bit of Hypertext Transfer Protocol (HTTP)

Client




Server



# A little bit of Hypertext Transfer Protocol (HTTP)

Client



The diagram illustrates a basic HTTP client-server architecture. On the left, the word 'Client' is enclosed in a red hand-drawn oval. A vertical blue line extends downwards from the 'Client' label. On the right, the word 'Server' is positioned above another vertical blue line that also extends downwards. The two lines represent the communication channel between the client and the server.

Server

# A little bit of Hypertext Transfer Protocol (HTTP)

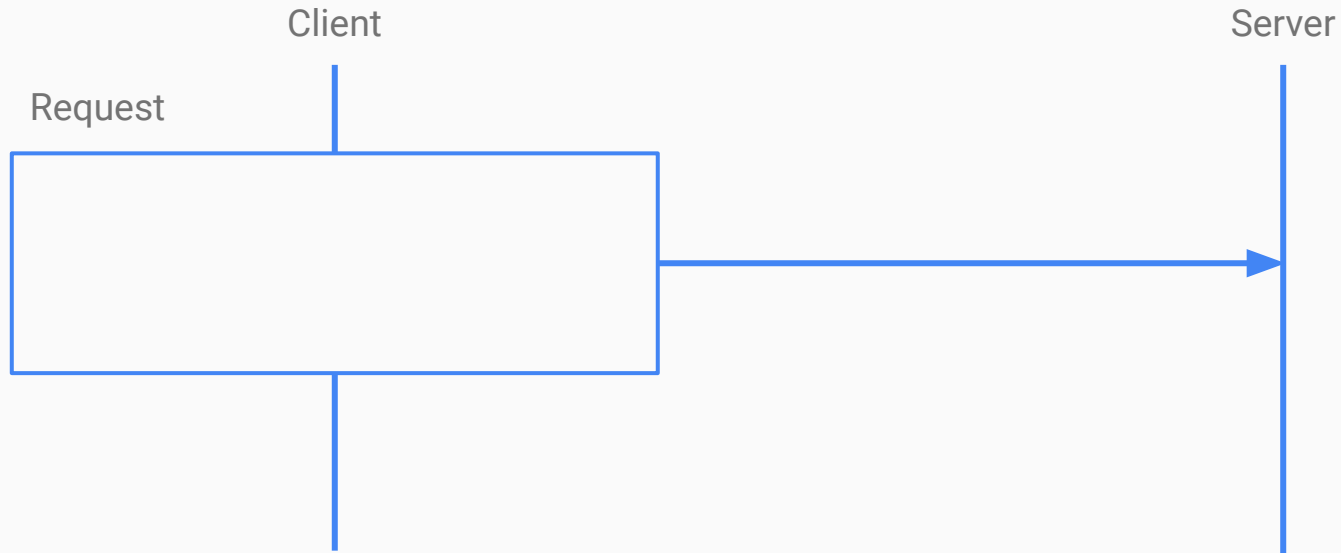
Client



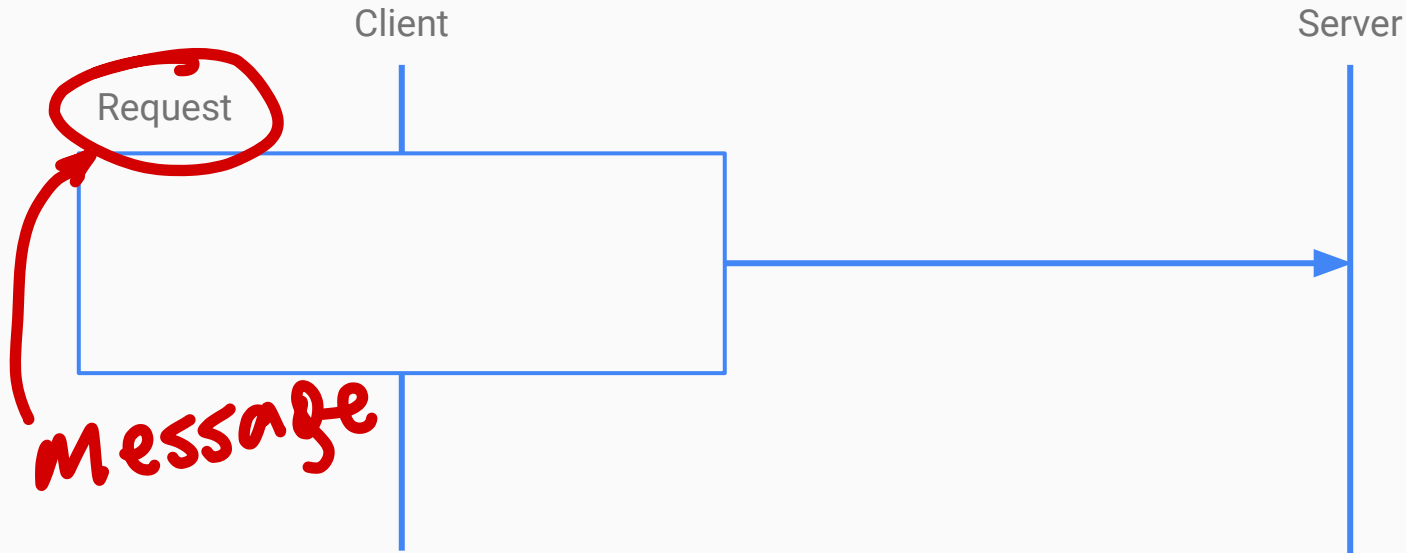
Server



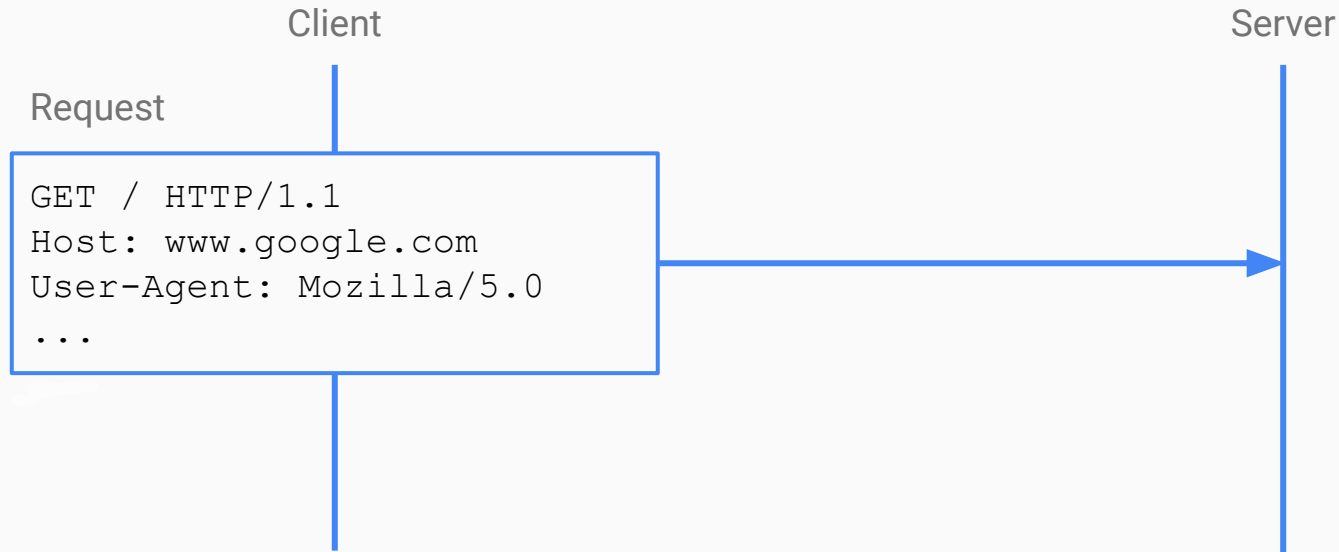
# A little bit of Hypertext Transfer Protocol (HTTP)



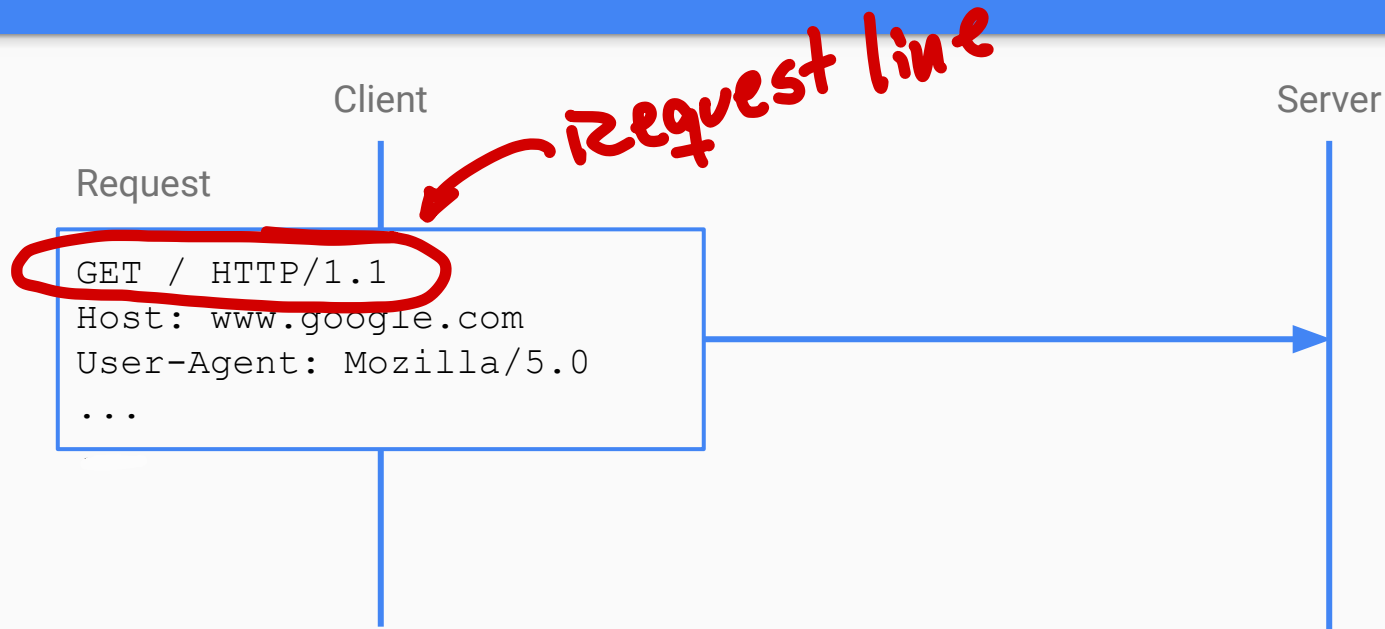
# A little bit of Hypertext Transfer Protocol (HTTP)



# A little bit of Hypertext Transfer Protocol (HTTP)

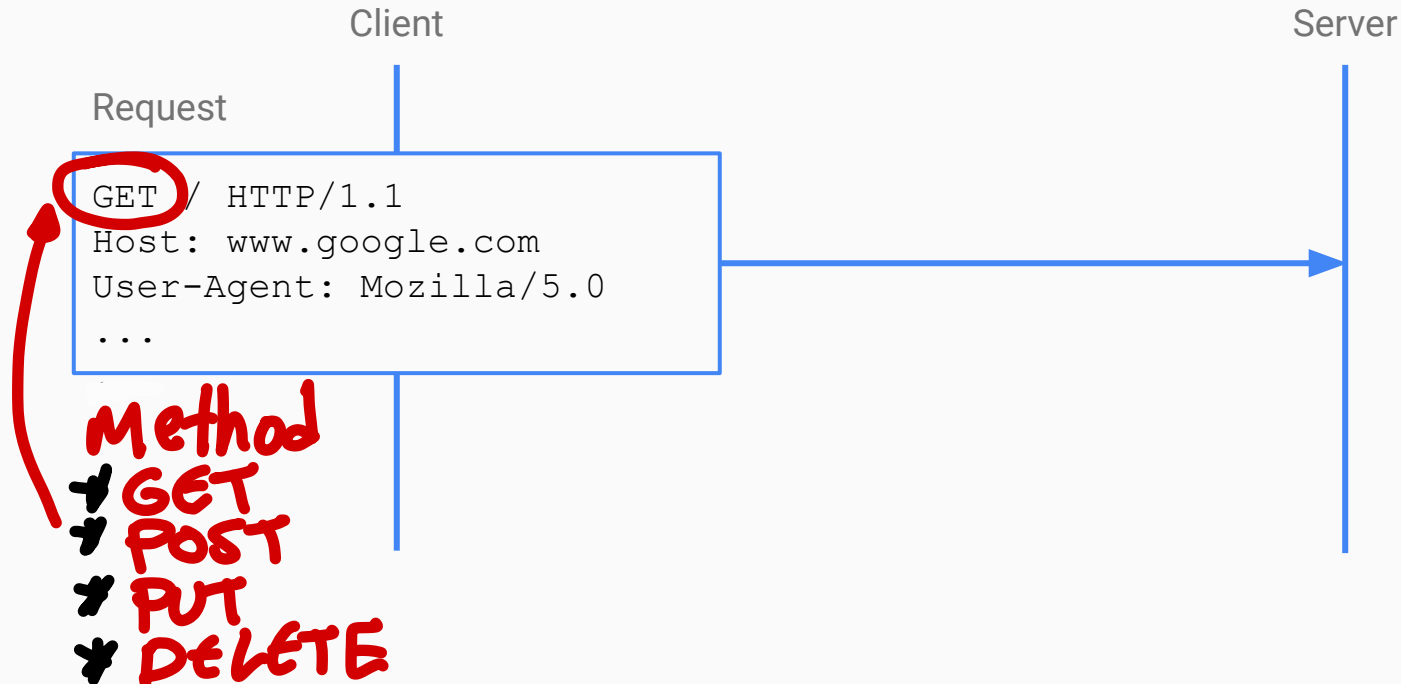


# A little bit of Hypertext Transfer Protocol (HTTP)

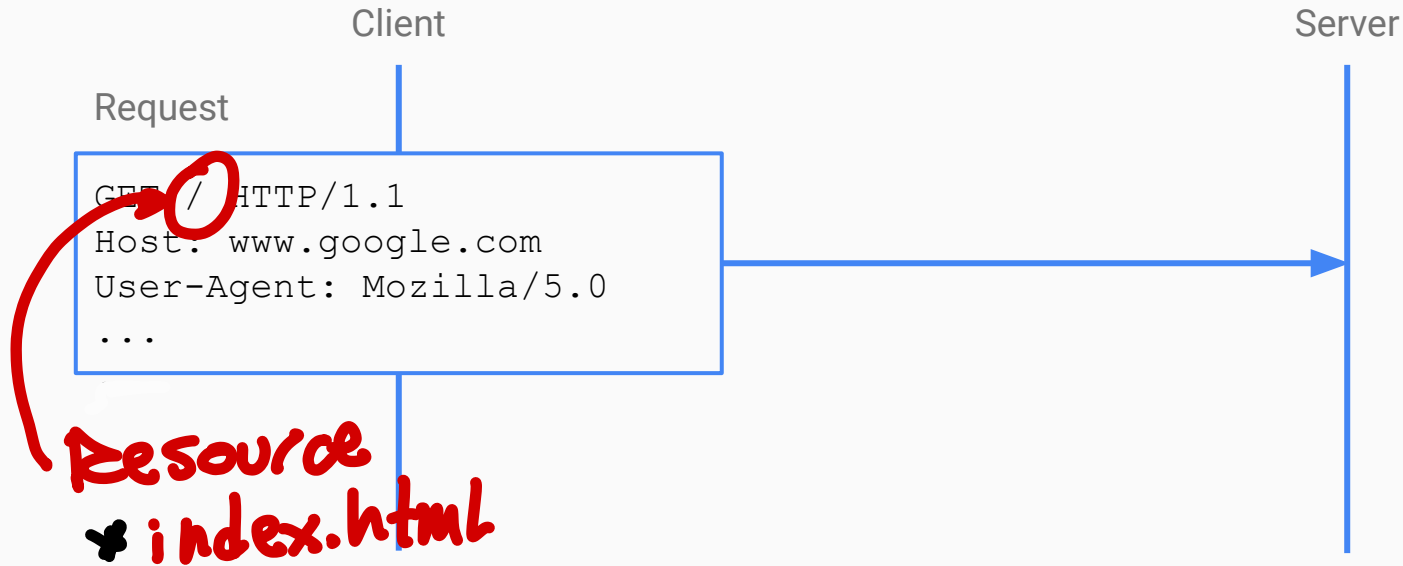




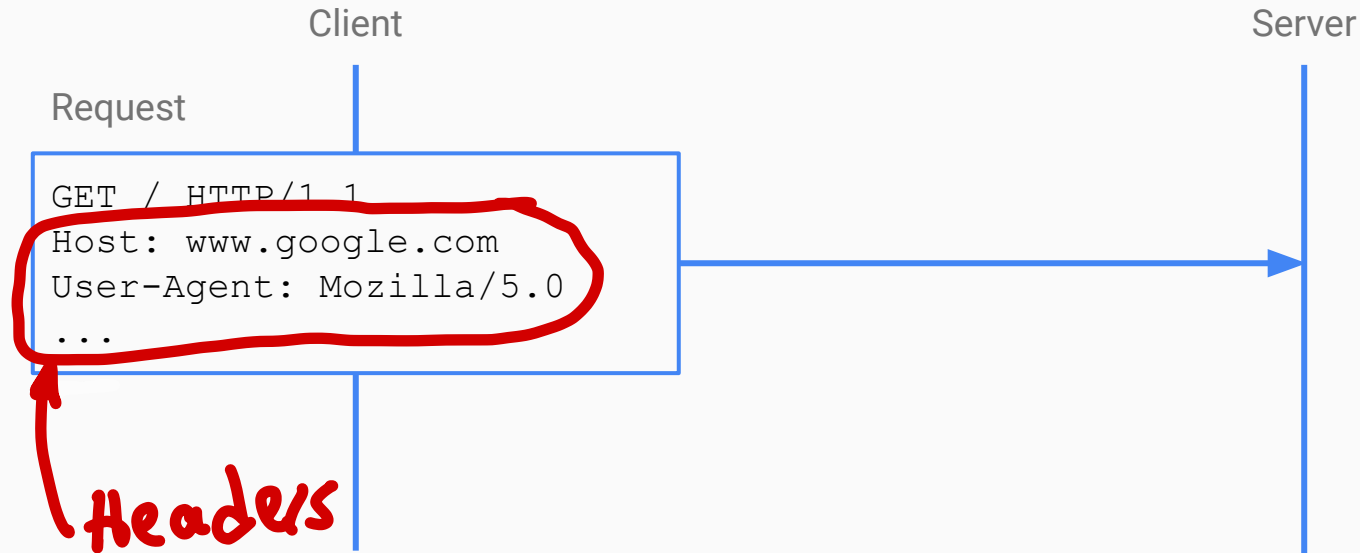
# A little bit of Hypertext Transfer Protocol (HTTP)



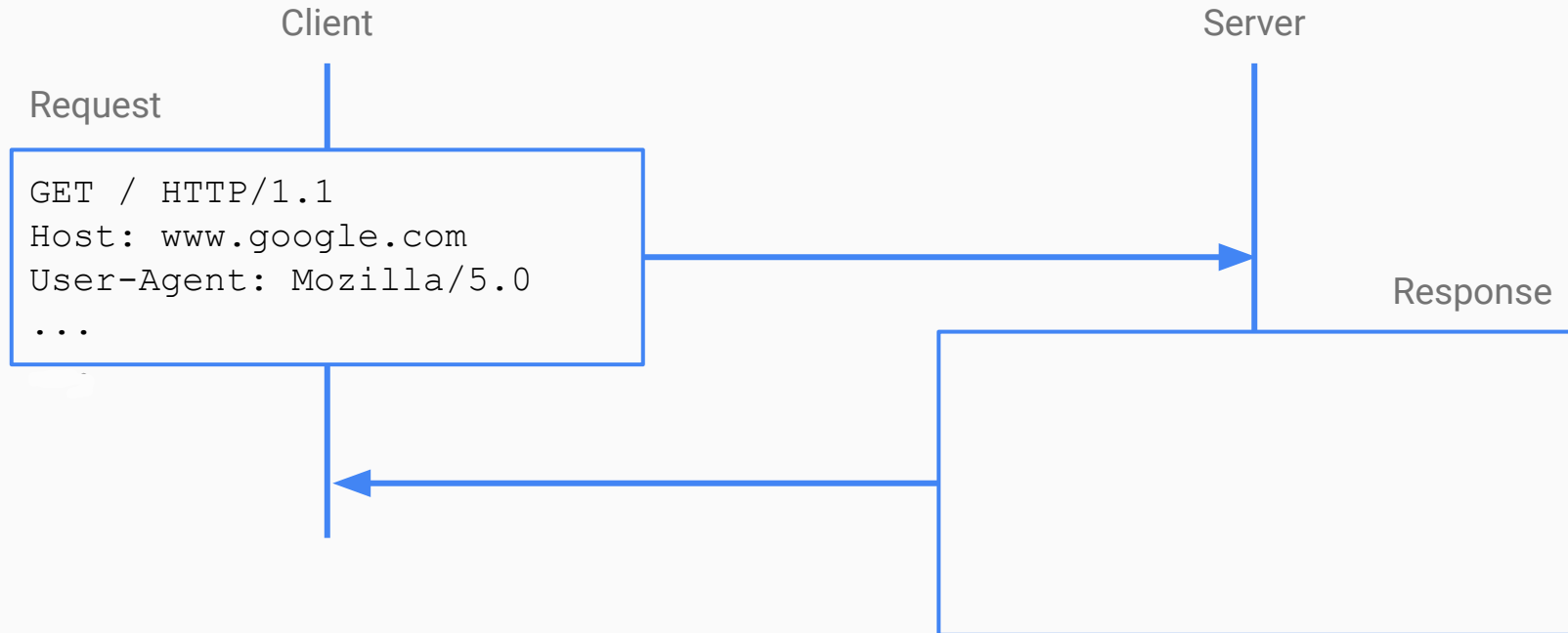
# A little bit of Hypertext Transfer Protocol (HTTP)



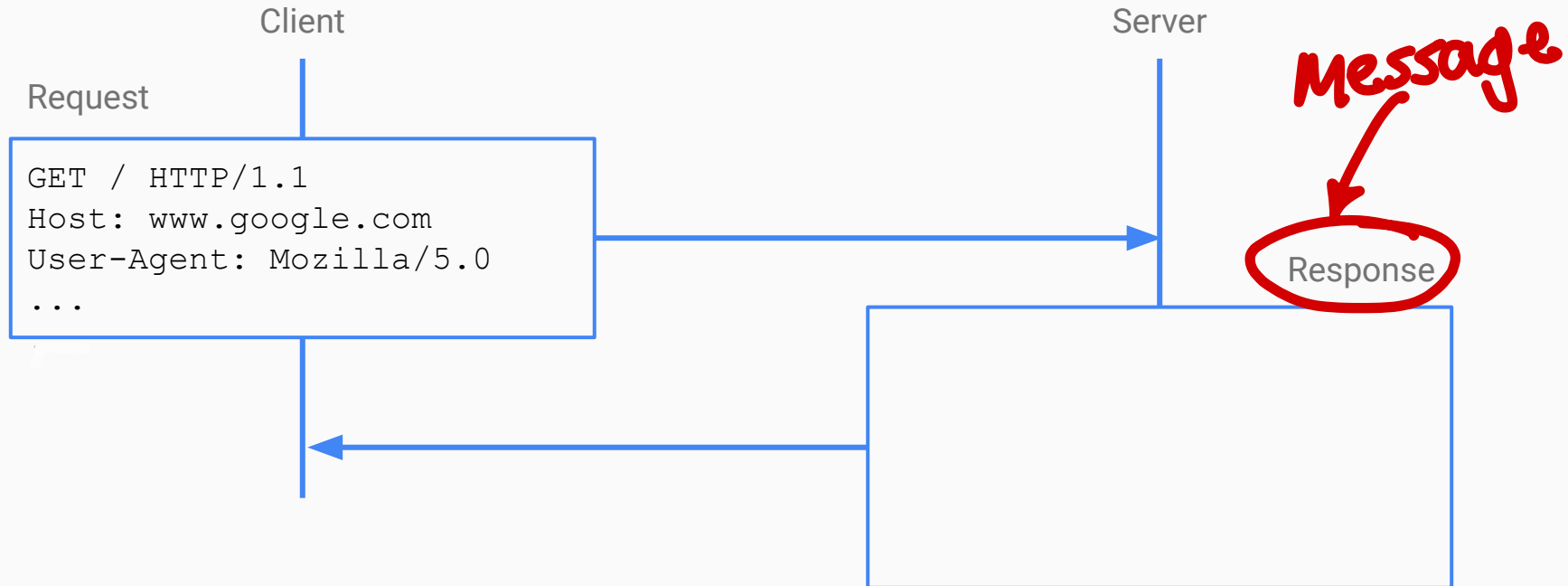
# A little bit of Hypertext Transfer Protocol (HTTP)



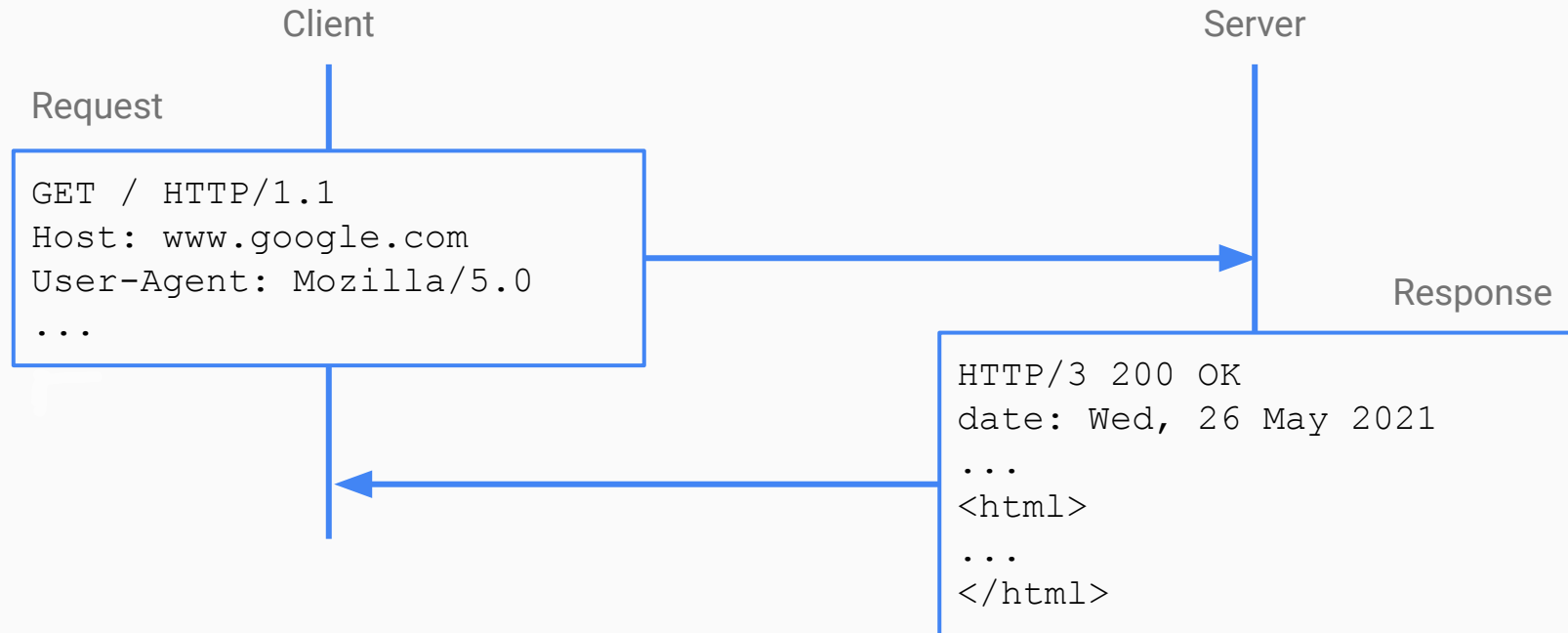
# A little bit of Hypertext Transfer Protocol (HTTP)



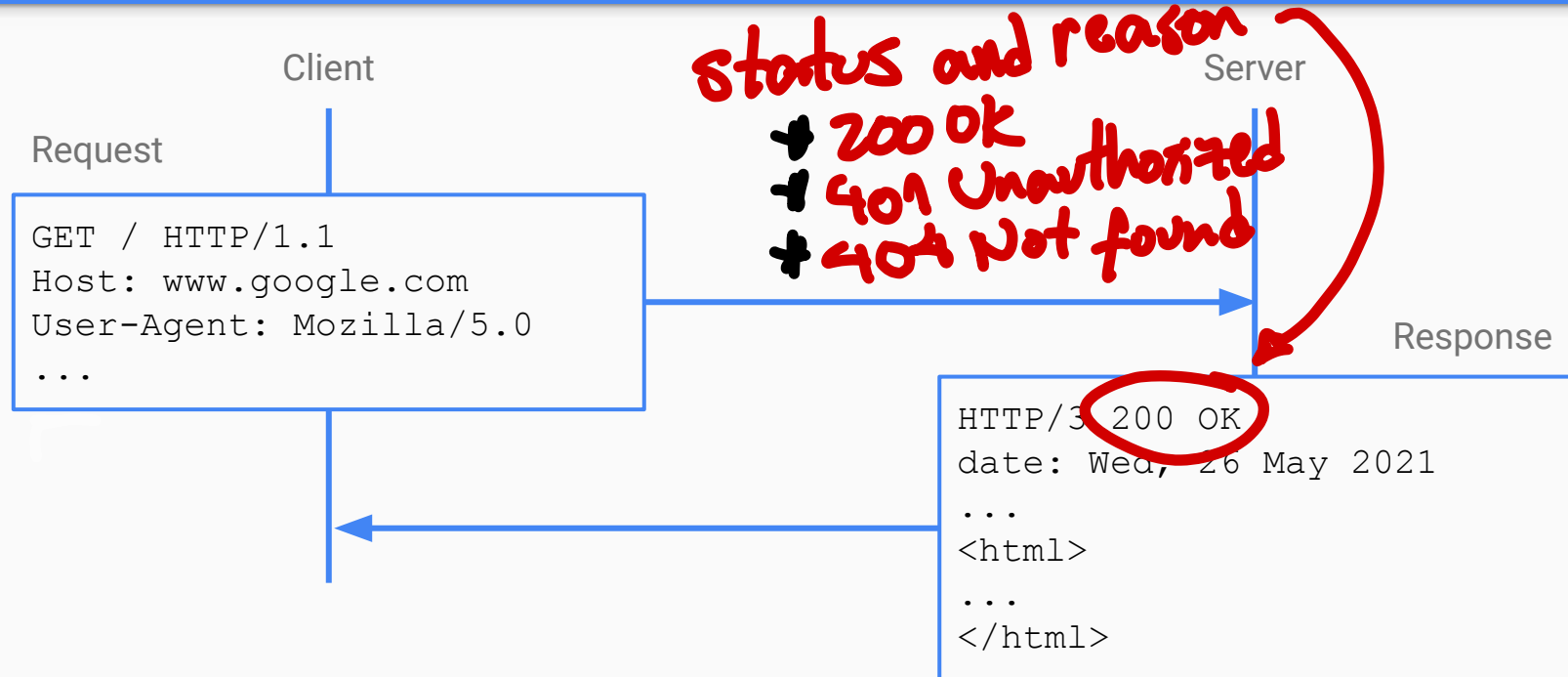
# A little bit of Hypertext Transfer Protocol (HTTP)



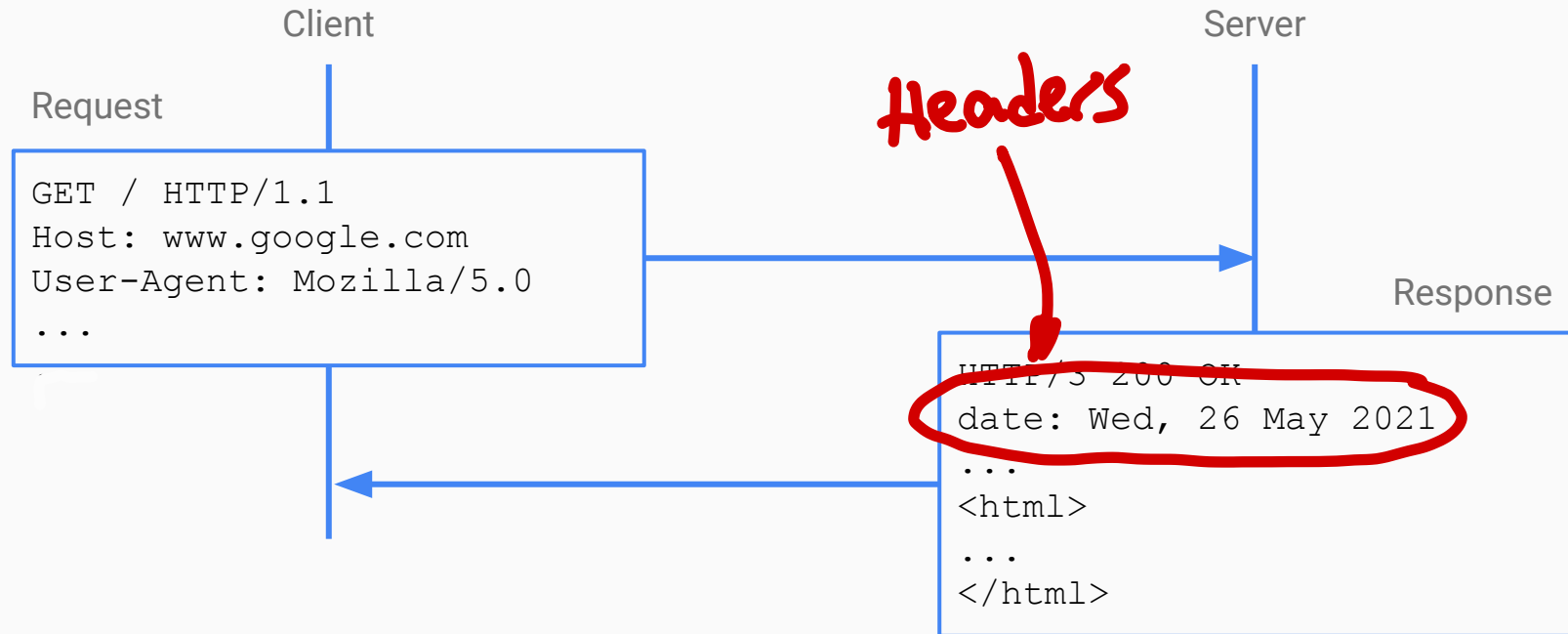
# A little bit of Hypertext Transfer Protocol (HTTP)



# A little bit of Hypertext Transfer Protocol (HTTP)

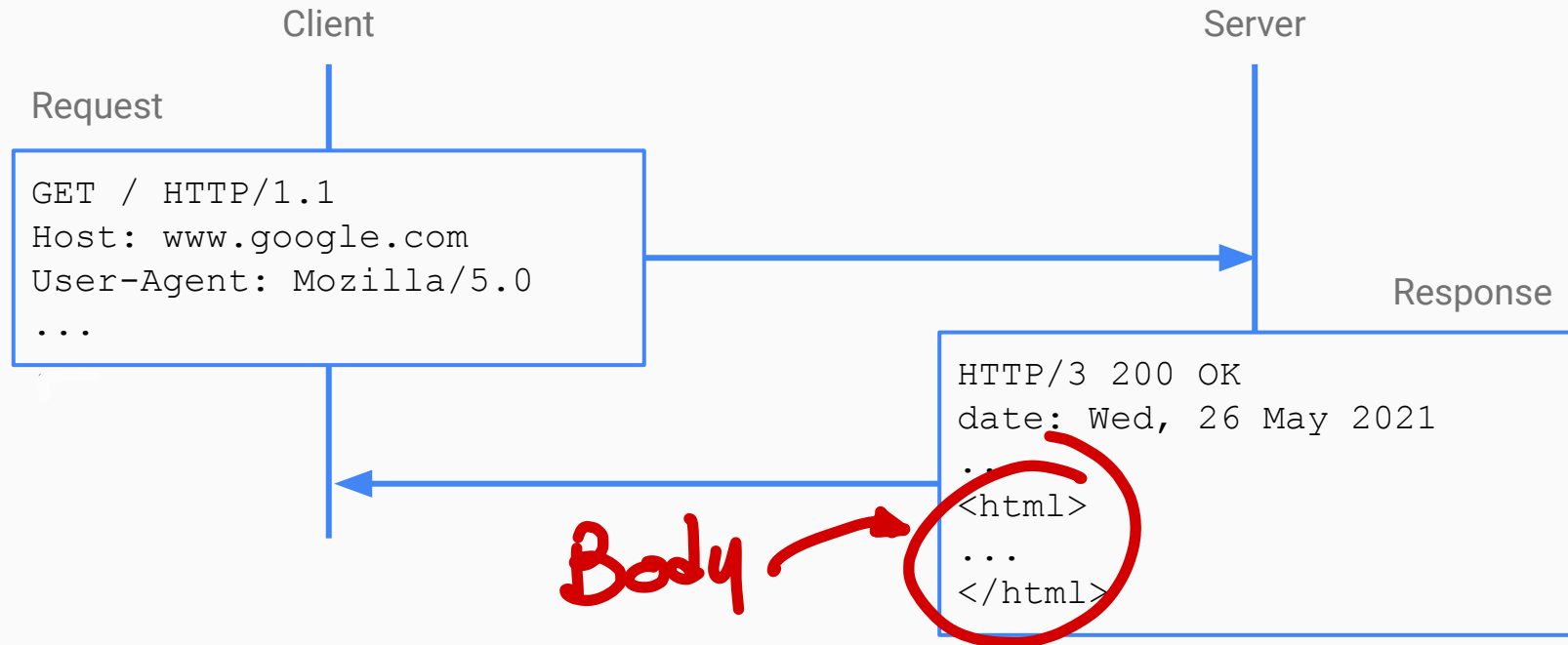


# A little bit of Hypertext Transfer Protocol (HTTP)





# A little bit of Hypertext Transfer Protocol (HTTP)



# Using BurpSuite

# Proxy

## Proxy:

- Application that sits between the client and the server.
- Might see and modify HTTP messages.

## BurpSuite Proxy:

- Inspect and modify the content of HTTP requests before they are sent to the server.
- See the history of all the requests and its responses.
- Highlight requests in history.
- Send requests to other tools.

# Proxy

## Proxy:

- Application that sits between the client and the server.
- Might see and modify HTTP messages.

\* Good for seeing what's going on

## BurpSuite Proxy:

- Inspect and modify the content of HTTP requests before they are sent to the server.
- See the history of all the requests and its responses.
- Highlight requests in history.
- Send requests to other tools.

# Repeater

- Re-send messages.
- Modify and send messages.
- Craft new messages and send them.
- Requests can be named and organized.
- Further modifications to request are tracked.

# Repeater

- Re-send messages.
- Modify and send messages.
- Craft new messages and send them.
- Requests can be named and organized.
- Further modifications to request are tracked.

+ Good for saving, modifying,  
and sending requests

# Decoder

- Encode and decode data into:
  - Base64
  - URL
  - Hex
  - Binary
- Hash data into:
  - MD2, MD4, MD5.
  - SHA1, SHA2, SHA3

# Decoder

- Encode and decode data into:
  - Base64
  - URL
  - Hex
  - Binary
- Hash data into:
  - MD2, MD4, MD5.
  - SHA1, SHA2, SHA3

➔ Good for checking "hidden" data



# Comparer

- Compare two different requests or two different responses.
- Highlights what has been modified, deleted, or added.

# Comparer

- Compare two different requests or two different responses.
- Highlights what has been modified, deleted, or added.

† Good for finding differences

# Sequencer

- Analyzes the entropy of data.
- Sends multiple requests and compare the randomness of the different responses.

# Sequencer

- Analyzes the entropy of data.
- Sends multiple requests and compare the randomness of the different responses.

\* Good for attacking session cookies

# Intruder

- Send multiple modified requests.
- Modifications are based on rules set by the analyst.

Types of attacks:

- Sniper
- Bettering
- Pitchfork
- Cluster bomb

- CE does not include the full version.
  - Throttled
  - No payloads

# Intruder

- Send multiple modified requests.
- Modifications are based on rules set by the analyst.
- CE does not include the full version.
  - Throttled
  - No payloads

Types of attacks:

- Sniper
- Bettering
- Pitchfork
- Cluster bomb

✦ Good for:

- ✦ Brute force attacks
- ✦ Dictionary attacks

# Extender

- Install external extensions to Burp.
- Extensions are used to handle information, or to add specific attacks
- Some of the extensions are only available to BurpSuite Pro.
- Users can develop extensions for BurpSuite in Java and Python.
- Python extensions need Jython.

# Extender

- Install external extensions to Burp.
- Extensions are used to handle information, or to add specific attacks
- Users can develop extensions for BurpSuite in Java and Python.
- Python extensions need Jython.
- Some of the extensions are only available to BurpSuite Pro.

✦ Good for customizing BurpSuite



# Resources and References

# Resources

## Learn more about Web Security:

- Portswigger's Web Academy (Free)
  - Theory and exercises
  - <https://portswigger.net/web-security>

## Practice Web Assessment:

- Hacker101(Free)
  - <https://www.hacker101.com/>
- Tryhackme (Freemium)
  - Guides and challenges
  - <https://tryhackme.com/>
- HackTheBox (Freemium)
  - <https://www.hackthebox.eu/>