WebSocket 101

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1. WHAT ?

2. WHY ?

3. HOW ?

4. DEMO

WHAT

基于TCP的全双工通信协议

WHY

麻烦&开销大

HOW - 链接

浏览器

服务器

GET /chat HTTP/1.1

HTTP/1.1 101 Switching Protocols

Host: server.example.com

Upgrade: websocket

Upgrade: websocket

Connection: Upgrade

Connection: Upgrade

Sec-WebSocket-Accept: s3pPLMBiTxaQ9kYGzzhZRbK+xOo=

Sec-WebSocket-Key: dGhlIHNhbXBsZSBub25jZQ==

Sec-WebSocket-Protocol: chat

Origin: http://example.com

Sec-WebSocket-Protocol: chat, superchat

Sec-WebSocket-Version: 13

Base64加密密钥

BASE64 (SHA1 (密钥+固定字符串))
固定字符串：258EAFA5-E914-47DA-95CA-C5AB0DC85B11

HOW - 数据

```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+-+-+-------+-+-------------+-------------------------------+
|F|R|R|R| opcode|M| Payload len |    Extended payload length    |
|I|S|S|S|  (4)  |A|     (7)     |             (16/64)           |
|N|V|V|V|       |S|             |   (if payload len==126/127)   |
| |1|2|3|       |K|             |                               |
+-+-+-+-+-------+-+-------------+ - - - - - - - - - - - - - - - +
|     Extended payload length continued, if payload len == 127  |
+ - - - - - - - - - - - - - - - +-------------------------------+
|                               |Masking-key, if MASK set to 1  |
+-------------------------------+-------------------------------+
| Masking-key (continued)       |          Payload Data         |
+-------------------------------- - - - - - - - - - - - - - - - +
:                     Payload Data continued ...                :
+ - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - +
|                     Payload Data continued ...                |
+---------------------------------------------------------------+
```
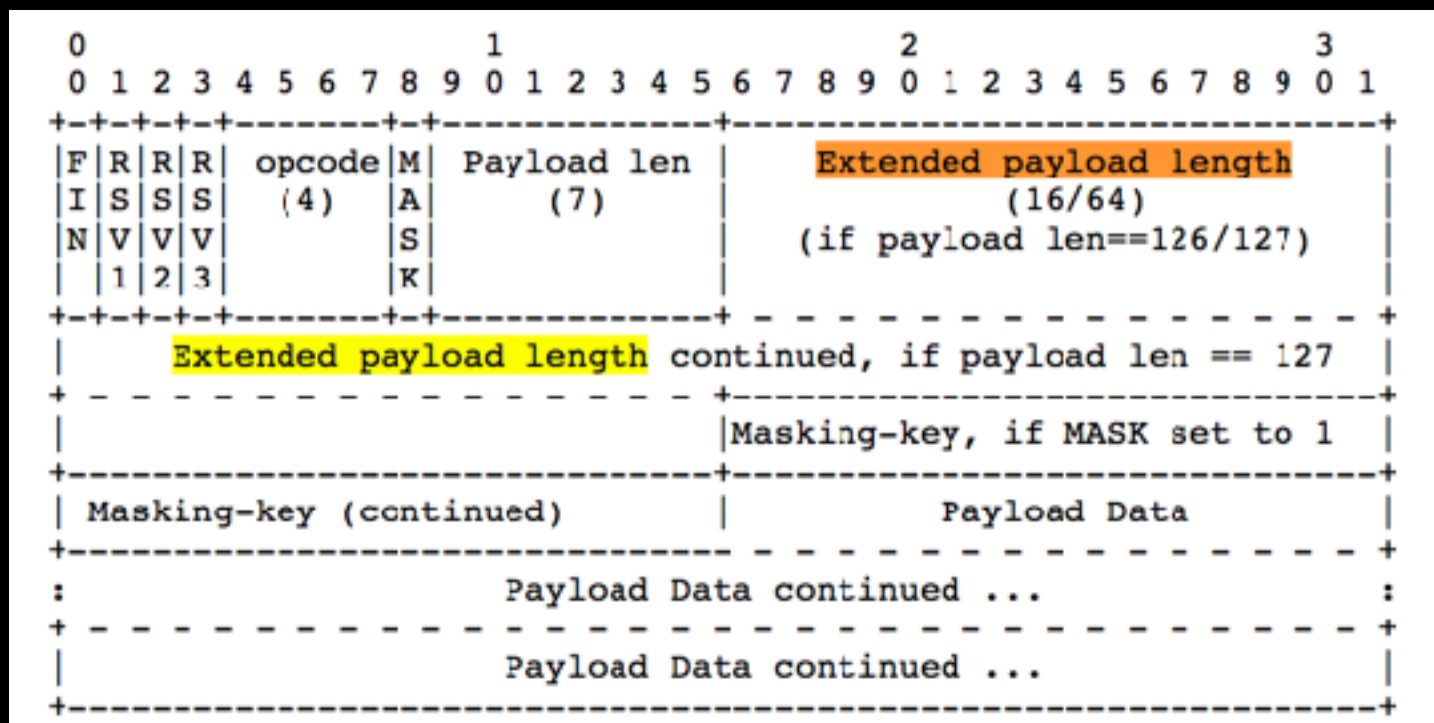
- FIN：结束标志位（1 bit）

- RSV：预留扩展位，默认为0（1 bit each）

- opCode：操作码（4 bit）

- mask：掩码标识位（1 bit）

- payloadLength：正文长度（7 bits / 7+16 bits / 7+64 bits）

- maskingKey：掩码（0 / 4 bytes）

- payloadData：正文

HOW - 服务器

1. 解析协议头

2. 返回协议头

3. 建立链接

4. 收发数据

5. 断开链接 / 链接断开处理

HOW - 浏览器

1. 发请求

2. 建立链接

3. 收发数据

4. 断开链接 / 链接断开处理

DEMO

THANK YOU