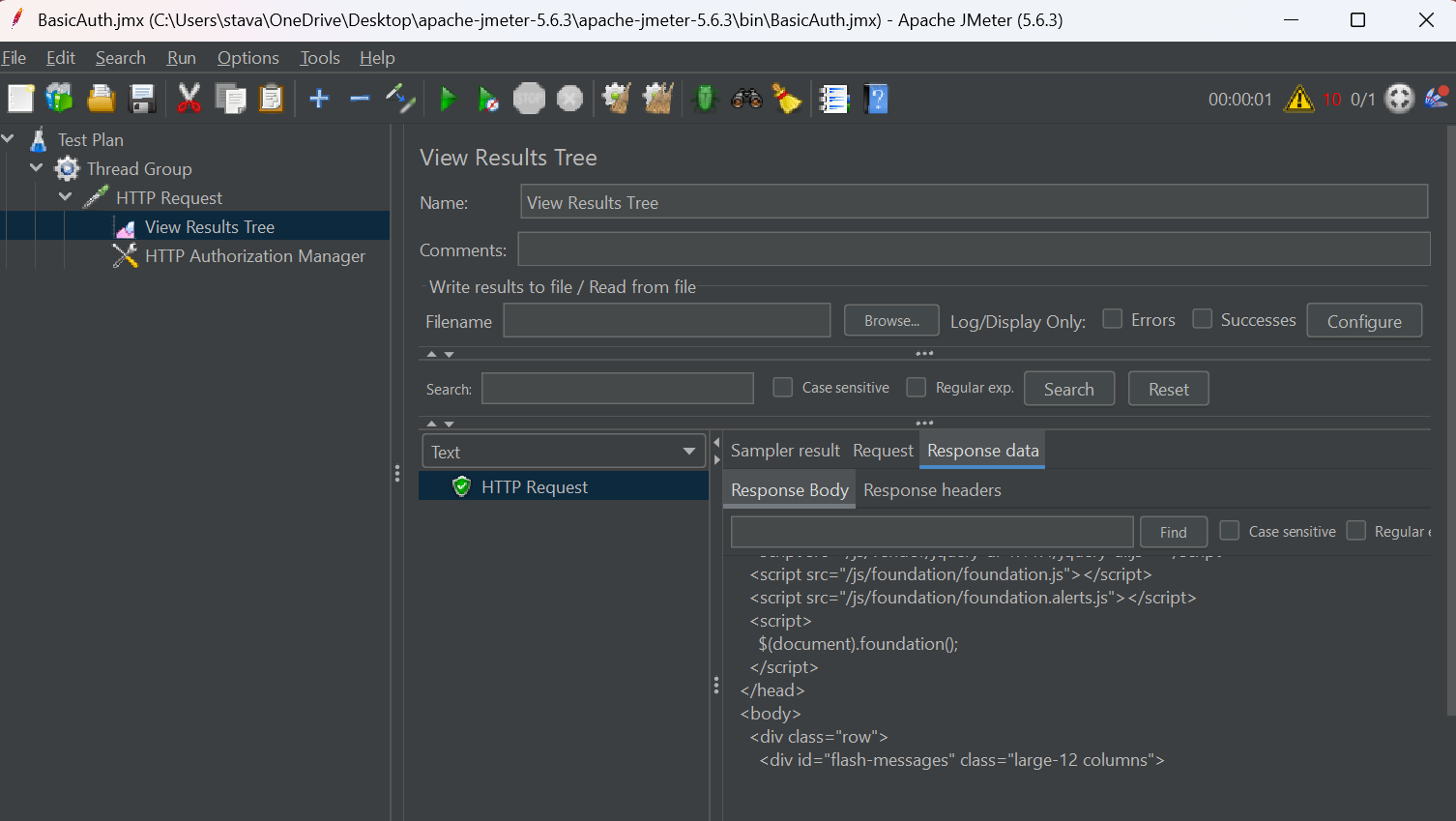
🔐 HTTP Basic Authentication



**HTTP Basic Authentication** is a simple authentication mechanism defined in the HTTP protocol. It works on a challenge-response model, where the client provides credentials in response to a server challenge.

**How It Works:**

1. **Initial Request**:  
   A client tries to access a protected resource:

vbnet

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GET /secure\_resource HTTP/1.1

Host: example.com

1. **Server Responds with Challenge**:  
   The server requires credentials and replies with:

mathematica

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HTTP/1.1 401 Unauthorized

WWW-Authenticate: Basic realm="Access to staging site"

1. **Client Responds with Authorization Header**:  
   The client encodes username:password in Base64 and includes it in the next request:

makefile

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Authorization: Basic YWRtaW46cGFzc3dvcmQ=

**🧠 HTTP Authorization Manager – Role and Functionality**

An **HTTP Authorization Manager** automates handling Basic Authentication:

**📦 Responsibilities:**

* **Store Credentials**: Securely stores username-password pairs mapped to domains/realms.
* **Detect 401 Challenges**: Identifies when authentication is needed.
* **Generate Authorization Headers**: Constructs and appends the correct Authorization header.
* **Retry Requests Automatically**: Reissues the original request with credentials.

**🔁 Conceptual Flow**

1. **Client sends unauthenticated request**
2. **Server responds with 401 + WWW-Authenticate**
3. **Authorization Manager detects challenge & retrieves credentials**
4. **Client re-sends request with Authorization header**
5. **Server validates credentials**
6. **Server responds with 200 OK or 403/401 if invalid**

**🛠️ Implementation in Tools & Languages**

**✅ Browsers**

Prompt for credentials via popup; automatically send on future requests to same realm.

**✅ Apache JMeter**

Use **HTTP Authorization Manager**:

* Add to test plan
* Specify URL, username, password, realm
* JMeter will handle authentication automatically

**✅ Python (requests)**

python

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import requests

response = requests.get('https://example.com', auth=('user', 'pass'))

**✅ Java (Apache HttpClient)**

java

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CredentialsProvider provider = new BasicCredentialsProvider();

provider.setCredentials(AuthScope.ANY, new UsernamePasswordCredentials("user", "pass"));

CloseableHttpClient client = HttpClients.custom()

.setDefaultCredentialsProvider(provider).build();

HttpGet request = new HttpGet("https://example.com");

CloseableHttpResponse response = client.execute(request);

**⚠️ Security Considerations**

* **Base64 ≠ Encryption**: Easily reversible—only safe over HTTPS.
* **Credential Storage**: Avoid hardcoding. Use environment variables, encrypted secrets, or config vaults.
* **Session Security**: Consider using tokens or more secure methods (OAuth, JWT) for sensitive or long-lived sessions.

**✅ Summary**

An **HTTP Authorization Manager** automates Basic Authentication handling by:

* Responding to 401 challenges
* Managing credential storage
* Retrying requests with proper headers
* Making development and testing seamless when dealing with protected resources

Always pair HTTP Basic Authentication with HTTPS to maintain confidentiality.