

JEE Security Structure Part 1

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Chapter 1

JEE Security Structure Part 1

1.1 Introduction to Security Architecture

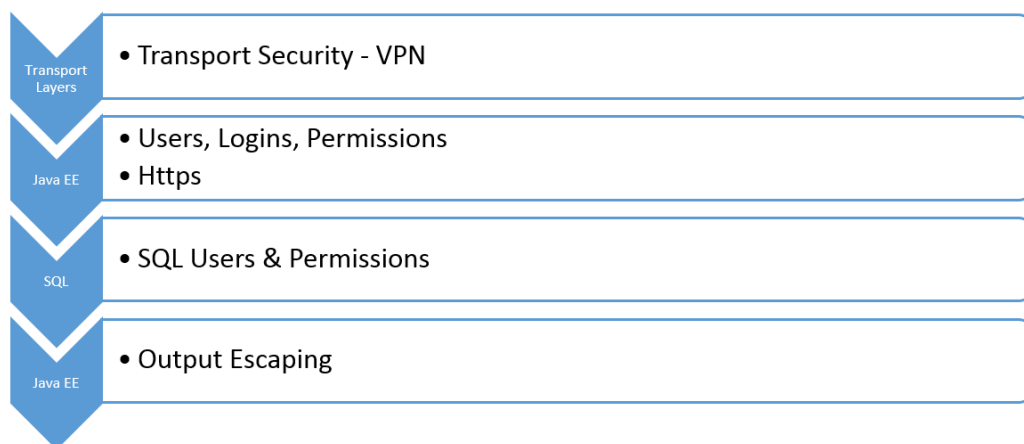


Figure 1.1: Security Layers in a common JEE application

1.2 Authentication

Authentication

Who are you?

Identification

1.3 Authorization

Authorization

What are you allowed to do?

Assignment of Permissions to a Authenticated User

1.4 Deployment Descriptors

Describes how the Application should be Deployed.

Defines Security Constraints

- Protected Information
- Probably SSL
- Specify which user may access them

Deployment Descriptors are XML-Files

Usually located in /WEB-INF/

- web.xml
- Vendor-specific.xml (E.g. Glassfish: glassfish-web.xml)

web.xml

Protected Resources

Security Roles

Authentication methods

(vendor-specific).xml

User – Role mapping

Group – Role mapping

Vendor specific settings

1.5 Principals

A Principal is a identity that can be authenticated.
E.g. a Unique user name

1.6 Credential

A Credential is defined as information that is used to authenticate a Principal.
E.g. a Password

1.7 Groups

Groups and Principals can be mapped to Roles.
Groups are defined in vendor-specific.xml

1.8 Roles

Permissions are granted to Roles.
Roles are defined in the web.xml file

1.9 Realms

aka Security policy domain
Provides information about principals, their Groups and their credentials
May be a Database, File structure, connection...

In other words:
It contains user information
E.g. Username, Password & Permissions

1.10 Implementation sample

<https://github.com/aayvazyan-tgm/JavaEESecurityExample>

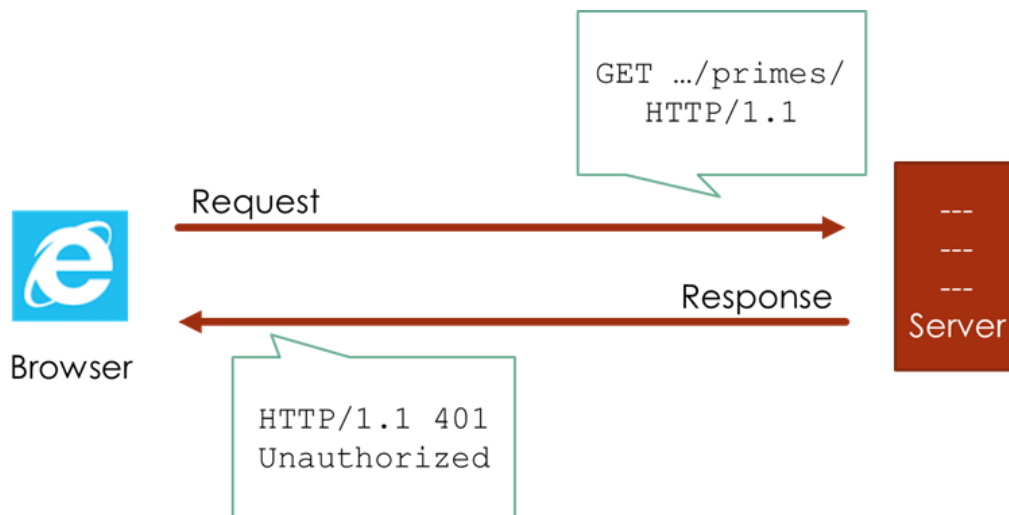


Figure 1.2: The user tries to access a resource without authentication

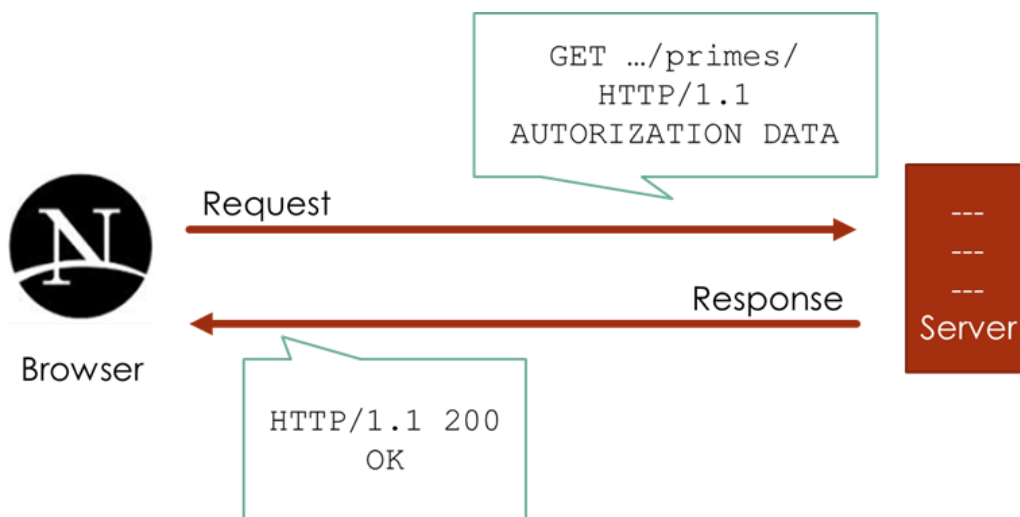


Figure 1.3: The user sends authentication data with his request

1.11 Frameworks

1.11.1 Shiro

Offers: Authentication, Authorization, Cryptography
Simple to use

Advantages/Disadvantages
Implementation Sample

1.11.2 Spring

Offers: Authentication, Authorization, Cryptography
Very structured

Advantages/Disadvantages

1.11.3 JAAS - Java Authentication and Authorization Service

Offers: Authentication, Authorization, Cryptography
Included in Java SE since Java 1.4 (javax.security.auth)

Advantages/Disadvantages

1.12 Output escaping

Escape user input to prevent injections.

Escape the output to add a extra layer of security.
Use a Framework to do so!

1.13 Whats to come in Part 2 (Adrian)

- Working with Digital Certificates

- Securing Application Clients
- Security with Enterprise Beans
- Further Framework Information

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