INSTITUTO FEDERAL DE EDUCAÇÃO, CIÊNCIA E TECNOLOGIA DE MATO GROSSO DO SUL
CÂMPUS COXIM
CURSO SUPERIOR DE TECNOLOGIA EM SISTEMAS PARA INTERNET
PERÍODO NOTURNO
TURMA 32110
PROGRAMAÇÃO PARA SERVIDORES WEB

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PRIMEIRA ATIVIDADE: DESENVOLVIMENTO DE UM EXEMPLO DE SERVLET

Coxim - Mato Grosso do Sul
2025

INTRODUÇÃO

Venho por meio desta atividade apresentar o conteúdo “Servlet” requisitado pelo prof. Me. Gustavo Yoshio Maruyama na matéria de “Programação de Servidores Web” do curso superior de Tecnologia em Sistemas para Internet (TSI), do Instituto Federal de Educação, Ciência e Tecnologia de Mato Grosso do Sul (IFMS), Câmpus Coxim.

Para o conteúdo, foi realizado um aspecto introdutório na matéria na lousa de vidro do laboratório, tendo sido em seguida realizado a liberação da turma para a realização da mesma com base em pesquisas na internet e um material suplementar presente no site do Moodle.

DESENVOLVIMENTO

No desenvolvimento de aplicações web em Java, duas tecnologias fundamentais são Tomcat e Servlets. O Apache Tomcat é um contêiner de servlets que permite executar aplicações web em conformidade com as especificações da Jakarta EE. Já os servlets são classes Java responsáveis por processar requisições HTTP e gerar respostas dinâmicas, servindo como ponte entre o cliente (navegador) e a aplicação.

O primeiro passo foi realizar o download do servidor Tomcat por meio do link oficial https://tomcat.apache.org/download-90.cgi. No NetBeans, foi criado um projeto do tipo Java with Maven → Web Application, nomeado "ExServlet". Durante a configuração inicial, foram definidos o servidor Apache Tomcat or TomEE, a versão Jakarta EE 11 Web, o caminho da instalação do Tomcat, além do usuário e senha para conexão com o servidor. Após a criação do projeto, foi feito um teste de inicialização pela própria interface do NetBeans, em Services → Servers → Tomcat → Start.

Durante a execução, houve um problema de compatibilidade que foi corrigido atualizando a versão do maven-war-plugin no arquivo pom.xml:

```
Java
<plugin>
   <groupId>org.apache.maven.plugins</groupId>
   <artifactId>maven-war-plugin</artifactId>
   <version>3.4.0</version>
   <configuration>
   </configuration>
</plugin>
```

Em seguida, foi criado um servlet chamado "MeuServlet", utilizando a anotação @WebServlet para mapeá-lo à URL /meu-servlet. O código implementado foi o seguinte:

```
Java
@WebServlet(urlPatterns = {"/MeuServlet"})
public class MeuServlet extends HttpServlet {

   @Override
   protected void doGet(HttpServletRequest request, HttpServletResponse response)
         throws ServletException, IOException {
      response.setContentType("text/html");
      PrintWriter out = response.getWriter();

      String name = request.getParameter("name");
```

```
        if (name == null || name.isEmpty()) {
            name = "Guest";
        }

        out.println("<html><body>");
        out.println("<h1>Hello, " + name + "!</h1>");
        out.println("<p>This is a response from the doGet method.</p>");
        out.println("</body></html>");
    }

    @Override
    protected void doPost(HttpServletRequest request, HttpServletResponse response)
            throws ServletException, IOException {
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();

        String name = request.getParameter("name");
        if (name == null || name.isEmpty()) {
            name = "Guest";
        }

        out.println("<html><body>");
        out.println("<h1>Hello, " + name + "!</h1>");
        out.println("<p>This is a response from the doPost method.</p>");
        out.println("</body></html>");
    }
}
```

Para permitir a interação do usuário com o servlet, foi criada uma página inicial index.html contendo dois formulários, um para envio via GET e outro via POST, ambos apontando para o servlet:

Java

```
<!DOCTYPE html>
<html>
    <head>
        <title>Start Page</title>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
    </head>
```

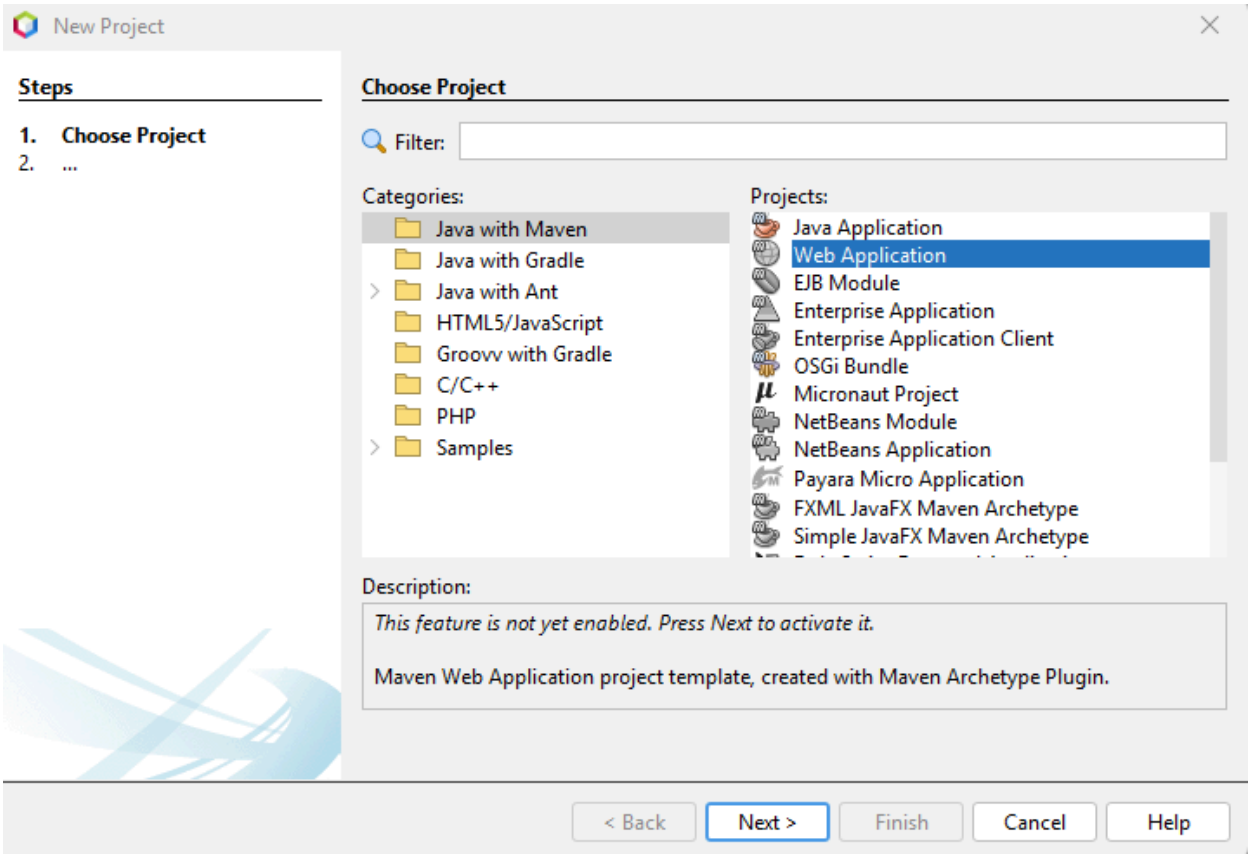
```
    <body>
        <h1>Hello World!</h1>

        <form action="MeuServlet" method="GET">
            <label for="name">Nome:</label>
            <input type="text" id="name" name="name">
            <button type="submit">Enviar via GET</button>
        </form>

        <form action="MeuServlet" method="POST">
            <label for="name2">Nome:</label>
            <input type="text" id="name2" name="name">
            <button type="submit">Enviar via POST</button>
        </form>

    </body>
</html>
```

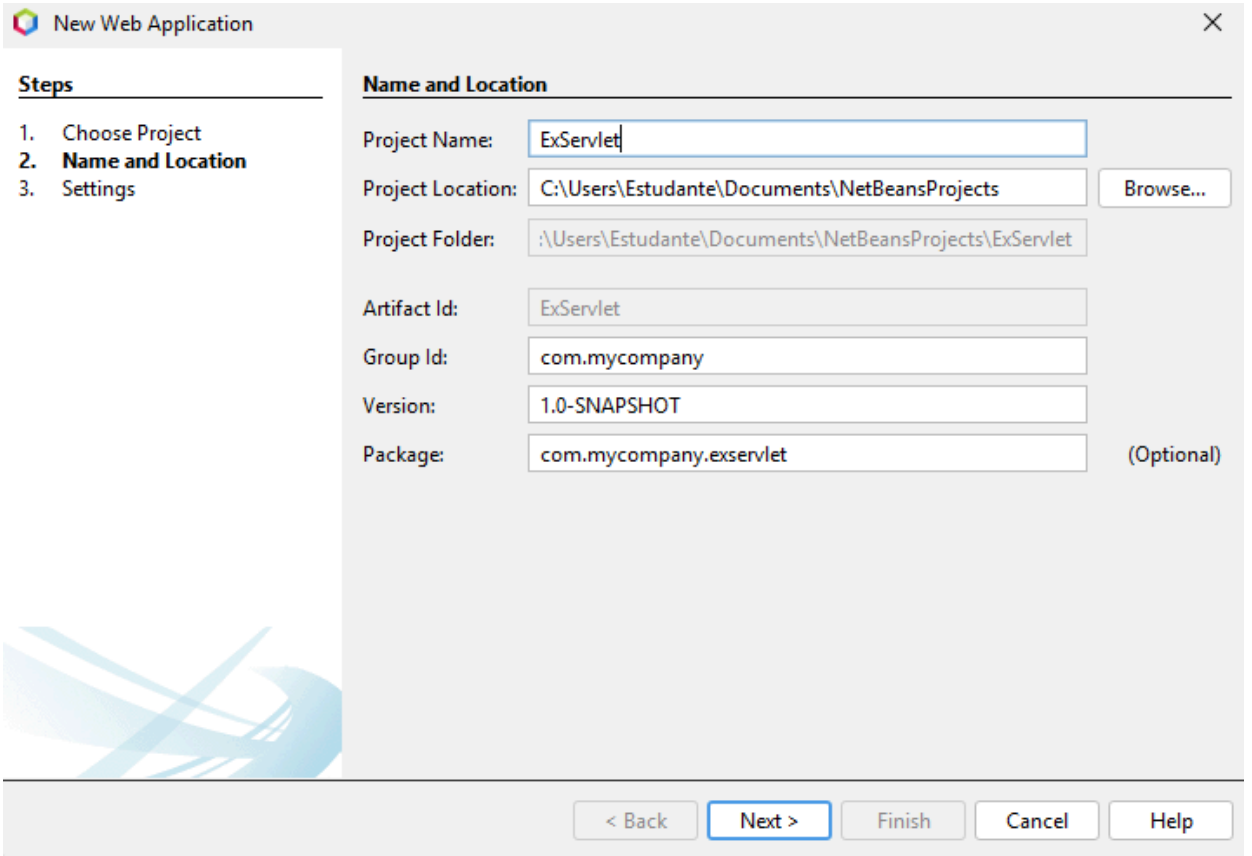
No primeiro formulário, ao clicar no botão “Enviar via GET”, o navegador gera uma requisição GET para o servlet, que retorna uma resposta exibindo o valor informado ou a palavra “Guest” caso nada tenha sido digitado. Já no segundo formulário, ao clicar em “Enviar via POST”, os dados são enviados por meio do método POST, sendo tratados pelo método doPost do servlet.

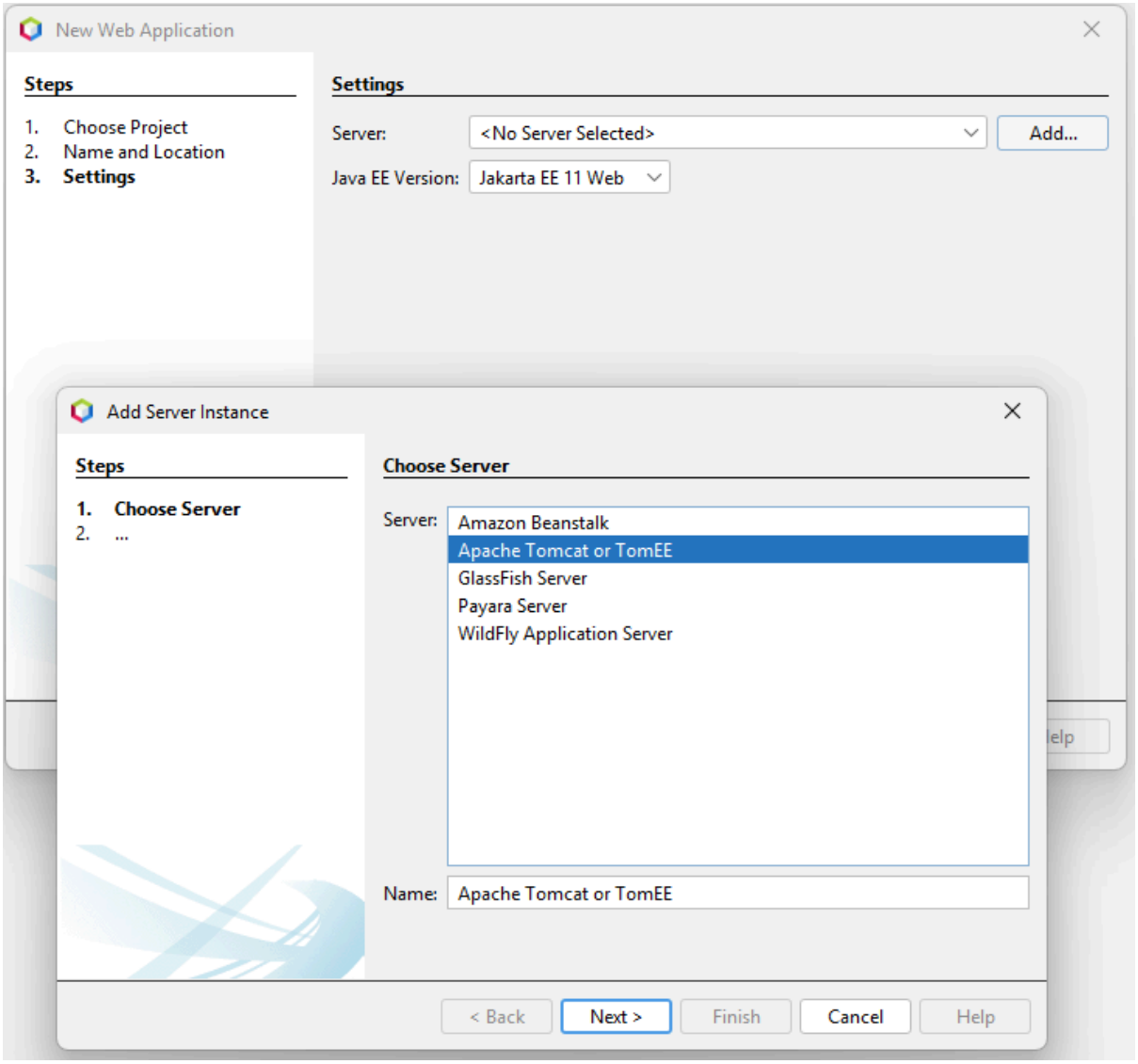
CONCLUSÃO

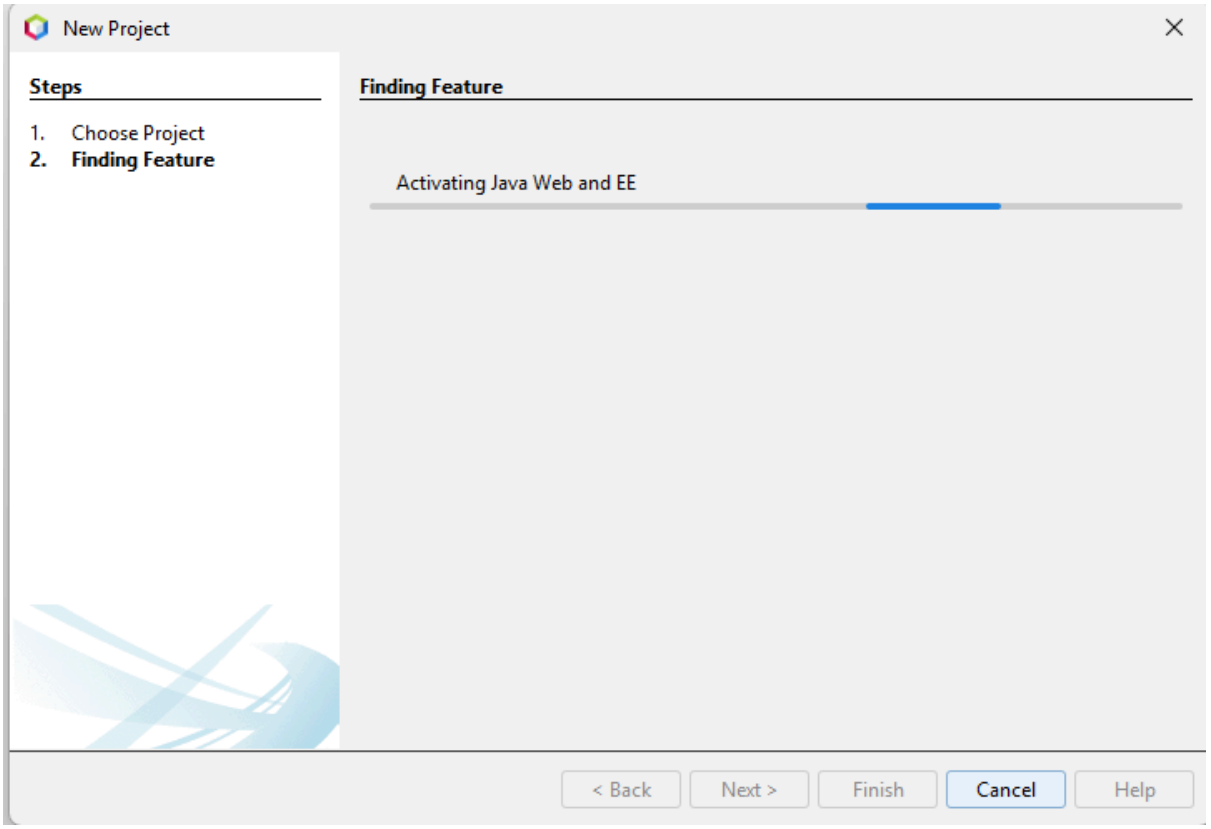
Esse exercício possibilitou compreender o funcionamento do Apache Tomcat, a configuração de um projeto Web Application no NetBeans e a criação de um servlet capaz de lidar com requisições GET e POST. Enquanto o doGet trata dados enviados diretamente pela URL ou por um formulário com method="GET", o doPost é utilizado para processar dados enviados de forma mais segura por formulários com method="POST". A partir desse primeiro contato, é possível avançar para tecnologias complementares como JSP e JSF, que trazem maior flexibilidade e produtividade no desenvolvimento de aplicações web em Java.

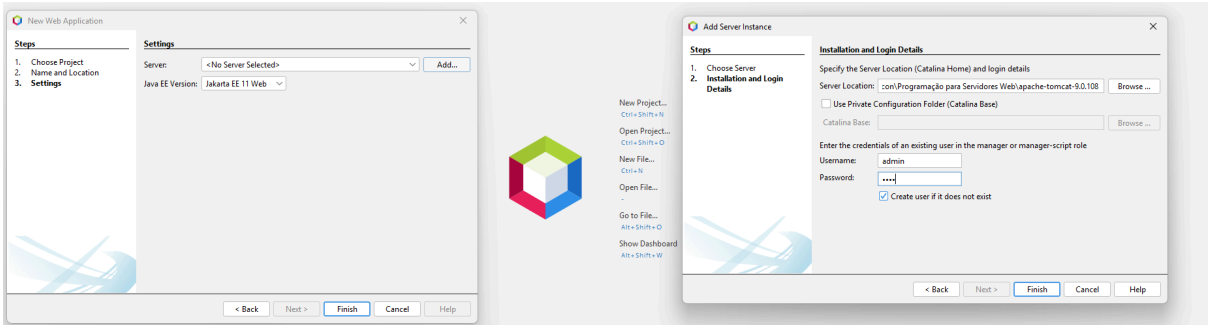
IMAGENS


New Project
Steps
1. Choose Project
2. ...
Choose Project
Filter:
Categories:
Java with Maven
Java with Gradle
Java with Ant
HTML5/JavaScript
Groovy with Gradle
C/C++
PHP
Samples
Projects:
Java Application
Web Application
EJB Module
Enterprise Application
Enterprise Application Client
OSGi Bundle
Micronaut Project
NetBeans Module
NetBeans Application
Payara Micro Application
FXML JavaFX Maven Archetype
Simple JavaFX Maven Archetype
Description:
This feature is not yet enabled. Press Next to activate it.
Maven Web Application project template, created with Maven Archetype Plugin.
< Back
Next >
Finish
Cancel
Help


New Web Application
Steps
1. Choose Project
2. Name and Location
3. Settings
Name and Location
Project Name: ExServlet
Project Location: C:\Users\Estudante\Documents\NetBeansProjects
Browse...
Project Folder: :\Users\Estudante\Documents\NetBeansProjects\ExServlet
Artifact Id: ExServlet
Group Id: com.mycompany
Version: 1.0-SNAPSHOT
Package: com.mycompany.exservlet
(Optional)
< Back
Next >
Finish
Cancel
Help


New Web Application
Steps
1. Choose Project
2. Name and Location
3. Settings
Settings
Server:
<No Server Selected>
Add...
Java EE Version:
Jakarta EE 11 Web
Add Server Instance
Steps
1. Choose Server
2. ...
Choose Server
Server:
Amazon Beanstalk
Apache Tomcat or TomEE
GlassFish Server
Payara Server
WildFly Application Server
Name:
Apache Tomcat or TomEE
< Back
Next >
Finish
Cancel
Help


New Project
Steps
1. Choose Project
2. Finding Feature
Finding Feature
Activating Java Web and EE
< Back
Next >
Finish
Cancel
Help


New Web Application
Steps
1. Choose Project
2. Name and Location
3. Settings
Settings
Server:
<No Server Selected>
Add...
Java EE Version:
Jakarta EE 11 Web
< Back
Next >
Finish
Cancel
Help
New Project... Ctrl+Shift+N
Open Project... Ctrl+Shift+O
New File... Ctrl+N
Open File...
Go to File... Alt+Shift+O
Show Dashboard Alt+Shift+W
Add Server Instance
Steps
1. Choose Server
2. Installation and Login Details
Installation and Login Details
Specify the Server Location (Catalina Home) and login details
Server Location:
:on\Programação para Servidores Web\apache-tomcat-9.0.108
Browse ...
Use Private Configuration Folder (Catalina Base)
Catalina Base:
Browse ...
Enter the credentials of an existing user in the manager or manager-script role
Username:
admin
Password:
Create user if it does not exist
< Back
Next >
Finish
Cancel
Help

Apache Tomcat®

Tomcat 9 Software Downloads

Welcome to the Apache Tomcat® 9.x software download page. This page provides download links for obtaining the latest version of Tomcat 9.0.x software, as well as links to the archives of older releases.

Unsure which version you need? Specification versions implemented, minimum Java version required and lots more useful information may be found on the 'which version?' page.

Quick Navigation

KEYS | 9.0.108 | Browse | Archives

Release Integrity

You **must** verify the integrity of the downloaded files. We provide OpenPGP signatures for every release file. This signature should be matched against the KEYS file which contains the OpenPGP keys of Tomcat's Release Managers. We also provide `SHA-512` checksums for every release file. After you download the file, you should calculate a checksum for your download, and make sure it is the same as ours.

Mirrors

You are currently using **https://dlcdn.apache.org/**. If you encounter a problem with this mirror, please select another mirror. If all mirrors are failing, there are *backup* mirrors (at the end of the mirrors list) that should be available.

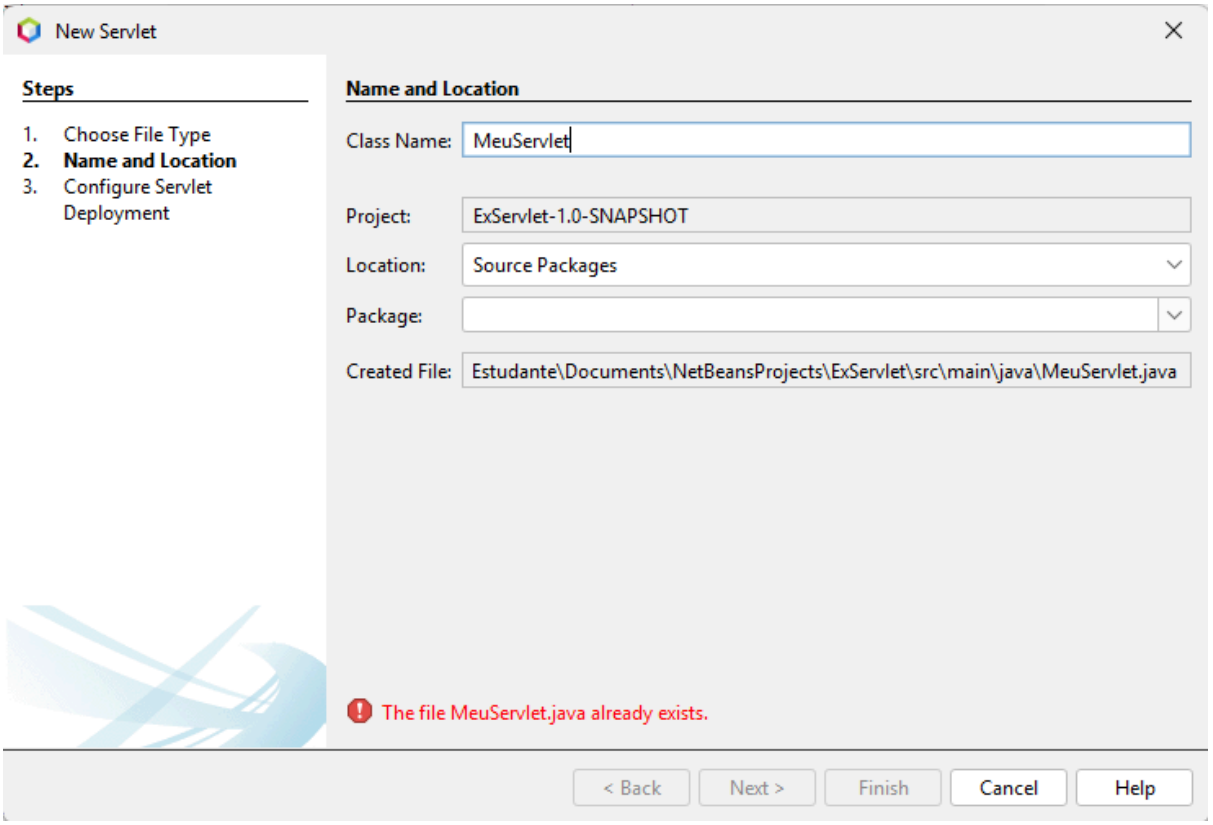
Other mirrors: https://dlcdn.apache.org/ Change

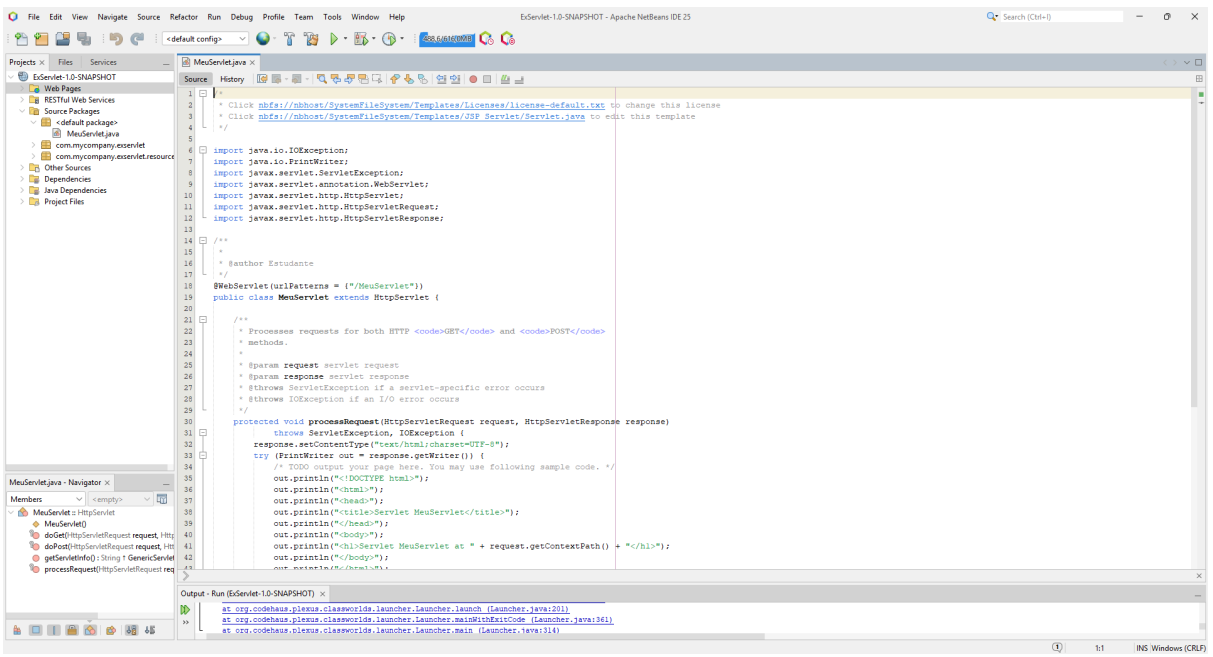
9.0.108

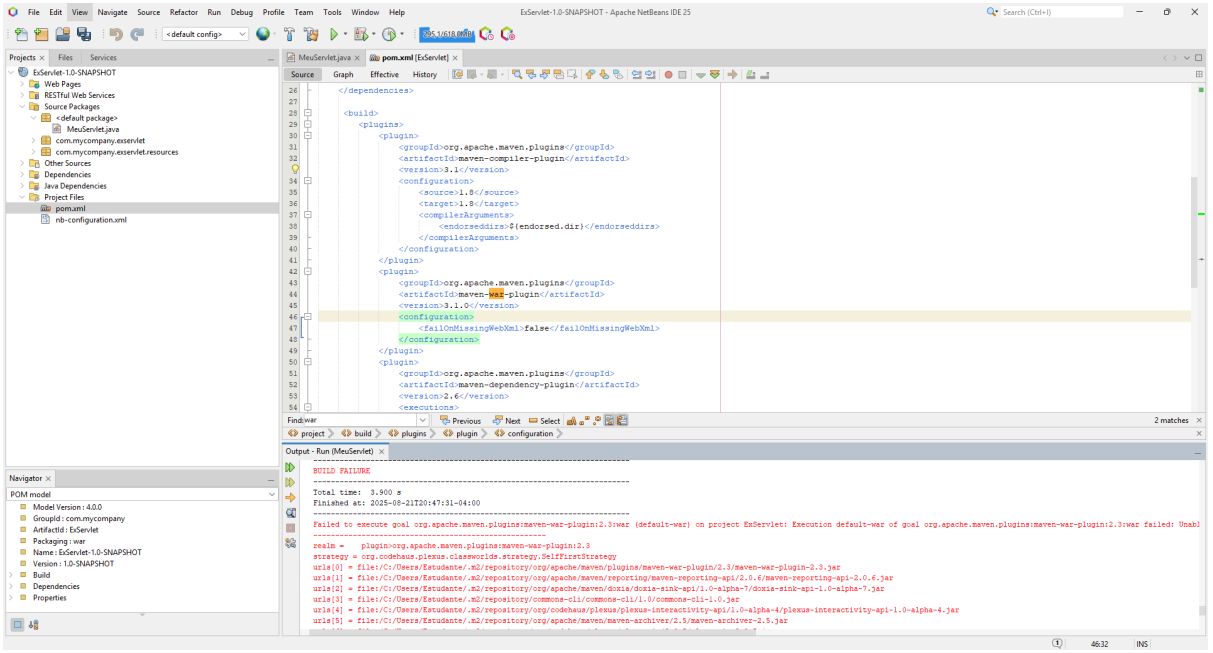
Please see the README file for packaging information. It explains what every distribution contains.

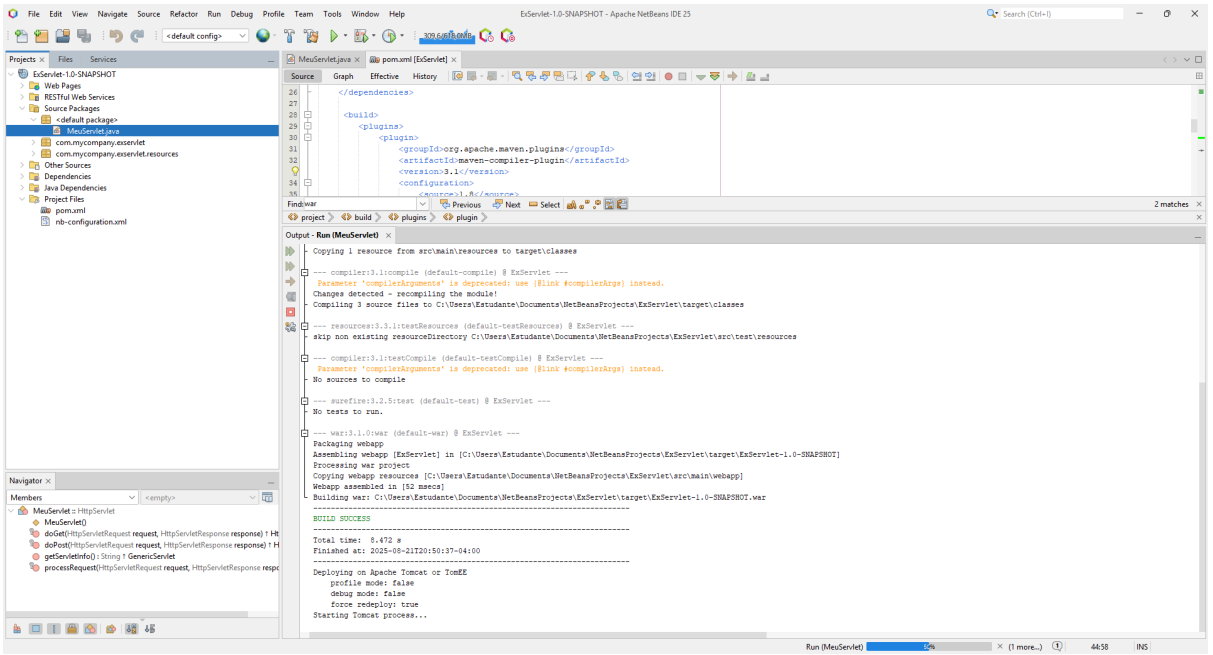
Binary Distributions

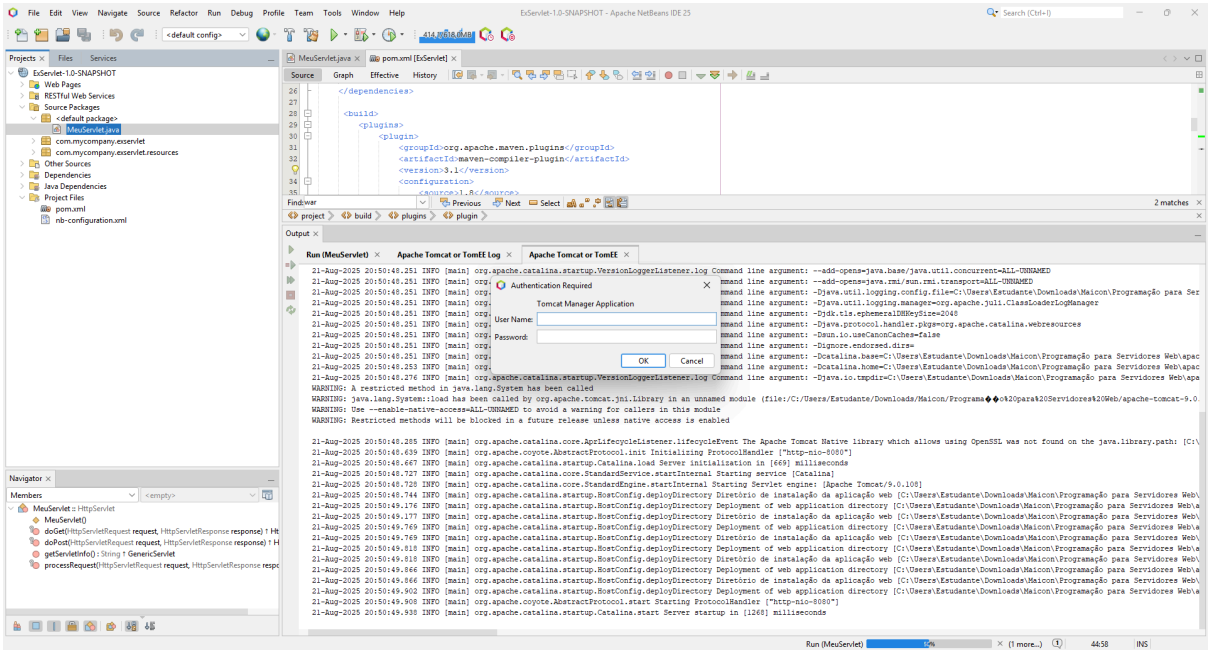
- Core:
  - zip (pgp, sha512)
  - tar.gz (pgp, sha512)
  - 32-bit Windows zip (pgp, sha512)
  - 64-bit Windows zip (pgp, sha512)
  - 32-bit/64-bit Windows Service Installer (pgp, sha512)
- Full documentation:
  - tar.gz (pgp, sha512)
- Deployer:
  - zip (pgp, sha512)
  - tar.gz (pgp, sha512)
- Embedded:
  - tar.gz (pgp, sha512)

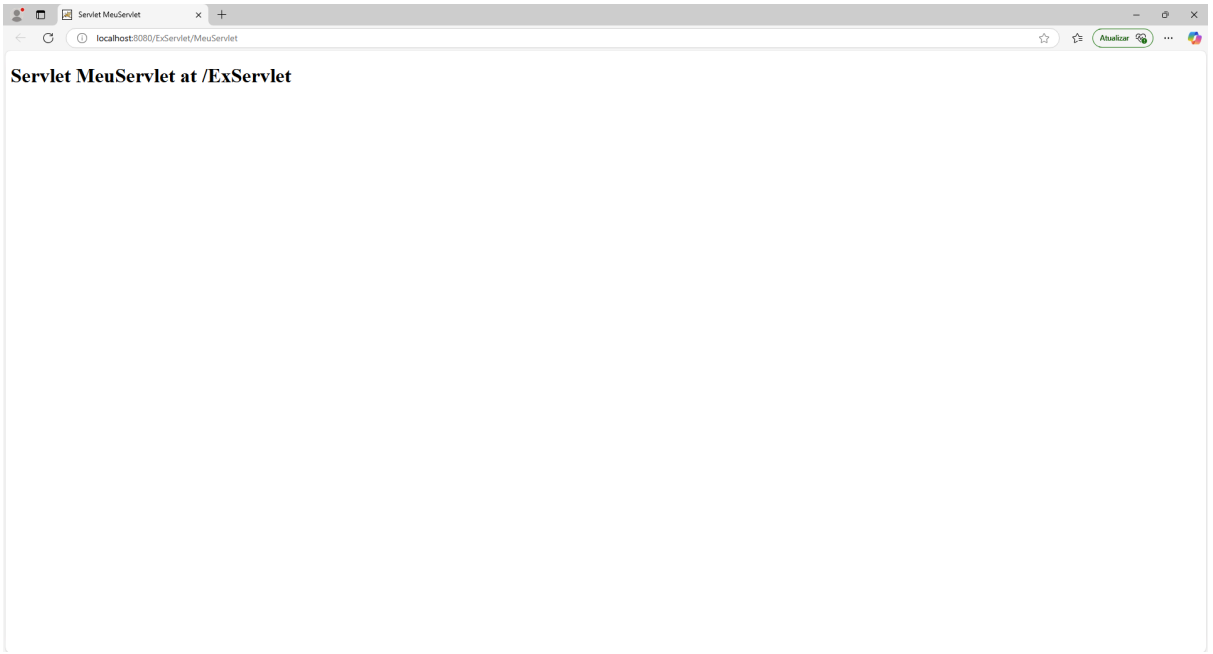

New Servlet
Steps
1. Choose File Type
2. Name and Location
3. Configure Servlet Deployment
Name and Location
Class Name: MeuServlet
Project: ExServlet-1.0-SNAPSHOT
Location: Source Packages
Package:
Created File: Estudante\Documents\NetBeansProjects\ExServlet\src\main\java\MeuServlet.java
The file MeuServlet.java already exists.
< Back
Next >
Finish
Cancel
Help

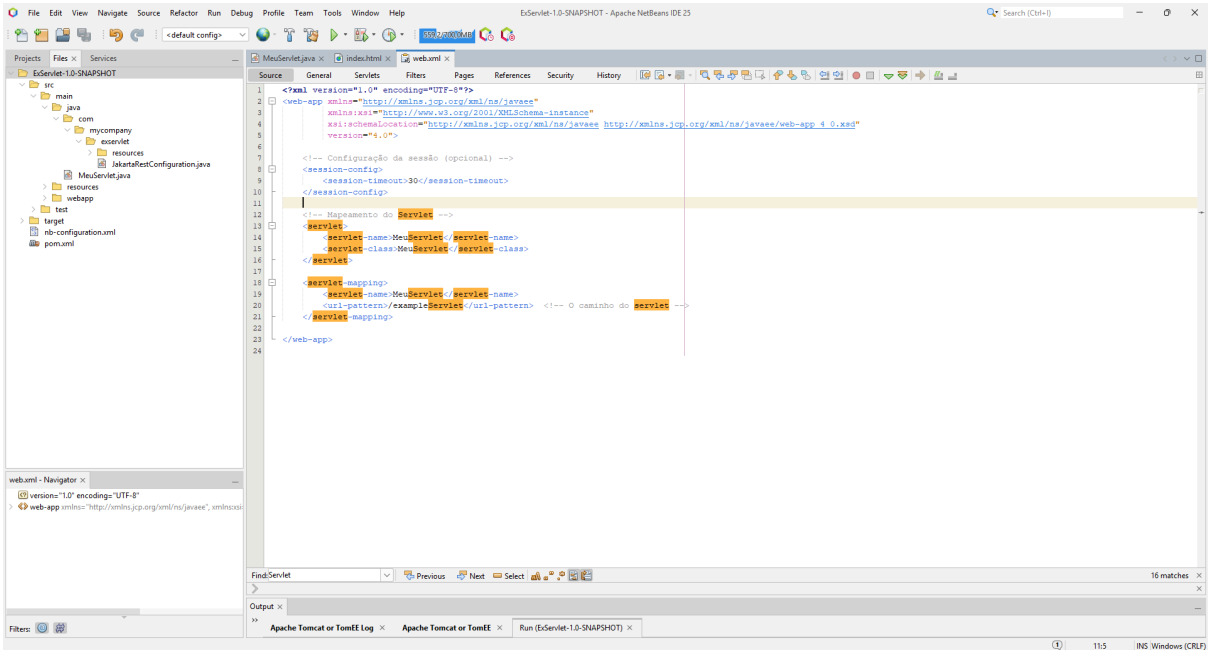

ExServlet-1.0-SNAPSHOT - Apache NetBeans IDE 25
MeuServlet.java
Output - Run (ExServlet-1.0-SNAPSHOT)

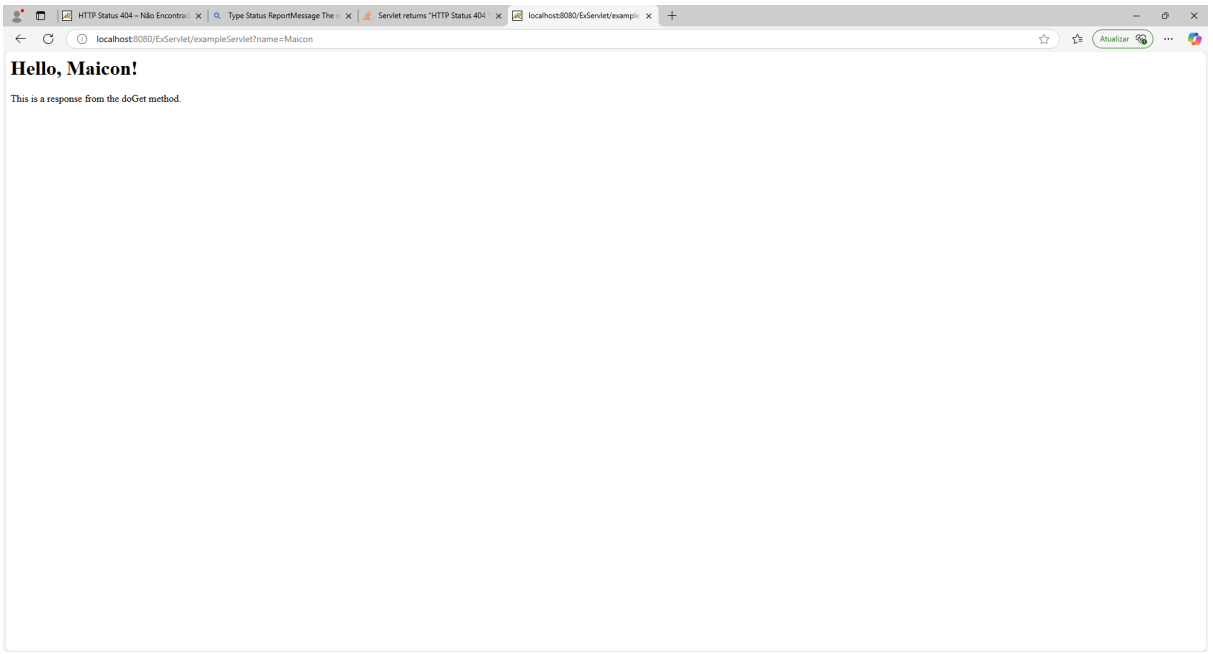

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
ExServlet-1.0-SNAPSHOT - Apache NetBeans IDE 25
Projects Files Services
ExServlet-1.0-SNAPSHOT
Web Pages
RESTful Web Services
Source Packages
<default package>
MeuServlet.java
com.mycompany.exservlet
com.mycompany.exservlet.resources
Other Sources
Dependencies
Java Dependencies
Project Files
pom.xml
nb-configuration.xml
MeuServlet.java
pom.xml [ExServlet]
Source Graph Effective History
</dependencies>
<build>
<plugins>
<plugin>
<groupId>org.apache.maven.plugins</groupId>
<artifactId>maven-compiler-plugin</artifactId>
<version>3.1</version>
<configuration>
<source>1.8</source>
<target>1.8</target>
<compilerArguments>
<endorseddirs>${endorsed.dir}</endorseddirs>
</compilerArguments>
</configuration>
</plugin>
<plugin>
<groupId>org.apache.maven.plugins</groupId>
<artifactId>maven-war-plugin</artifactId>
<version>3.1.0</version>
<configuration>
<failOnMissingWebXml>false</failOnMissingWebXml>
</configuration>
</plugin>
<plugin>
<groupId>org.apache.maven.plugins</groupId>
<artifactId>maven-dependency-plugin</artifactId>
<version>2.6</version>
<executions>
Find:war
Previous
Next
Select
2 matches
project
build
plugins
plugin
configuration
Navigator
POM model
Model Version : 4.0.0
GroupId : com.mycompany
ArtifactId : ExServlet
Packaging : war
Name : ExServlet-1.0-SNAPSHOT
Version : 1.0-SNAPSHOT
Build
Dependencies
Properties
Output - Run (MeuServlet)
BUILD FAILURE
Total time: 3.900 s
Finished at: 2025-08-21T20:47:31-04:00
Failed to execute goal org.apache.maven.plugins:maven-war-plugin:2.3:war (default-war) on project ExServlet: Execution default-war of goal org.apache.maven.plugins:maven-war-plugin:2.3:war failed: Unabl
realm = plugin>org.apache.maven.plugins:maven-war-plugin:2.3
strategy = org.codehaus.plexus.classworlds.strategy.SelfFirstStrategy
urls[0] = file:/C:/Users/Estudante/.m2/repository/org/apache/maven/plugins/maven-war-plugin/2.3/maven-war-plugin-2.3.jar
urls[1] = file:/C:/Users/Estudante/.m2/repository/org/apache/maven/reporting/maven-reporting-api/2.0.6/maven-reporting-api-2.0.6.jar
urls[2] = file:/C:/Users/Estudante/.m2/repository/org/apache/maven/doxia/doxia-sink-api/1.0-alpha-7/doxia-sink-api-1.0-alpha-7.jar
urls[3] = file:/C:/Users/Estudante/.m2/repository/commons-cli/commons-cli/1.0/commons-cli-1.0.jar
urls[4] = file:/C:/Users/Estudante/.m2/repository/org/codehaus/plexus/plexus-interactivity-api/1.0-alpha-4/plexus-interactivity-api-1.0-alpha-4.jar
urls[5] = file:/C:/Users/Estudante/.m2/repository/org/apache/maven/maven-archiver/2.5/maven-archiver-2.5.jar
46:32
INS

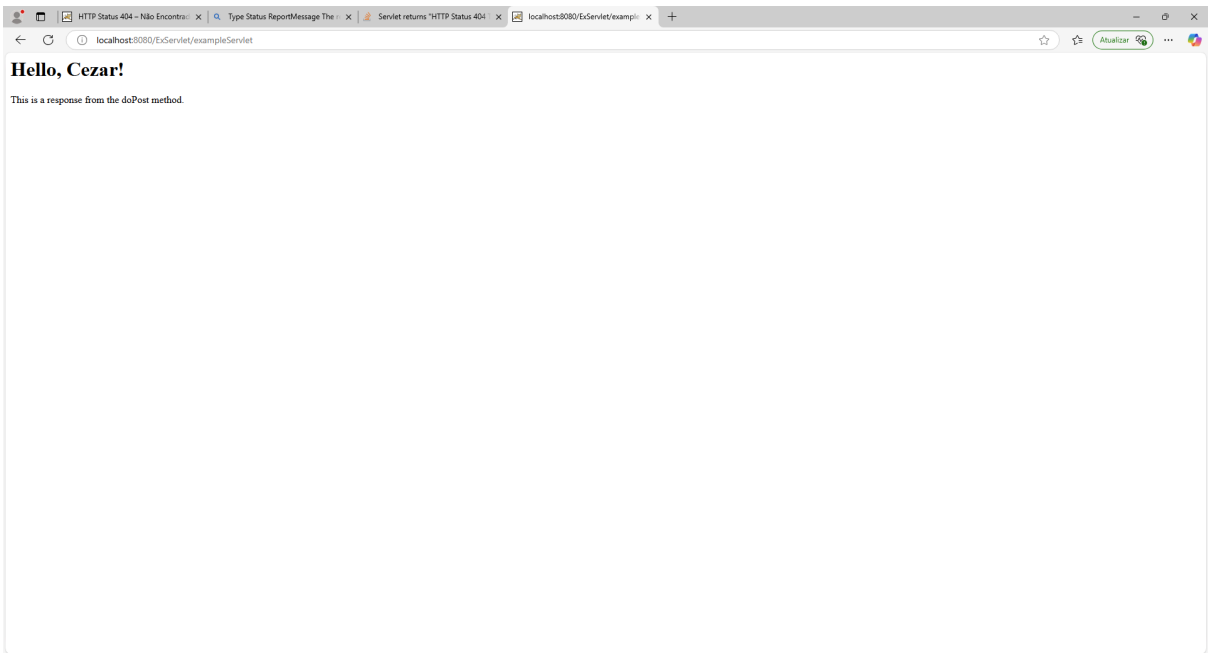

File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
ExServlet-1.0-SNAPSHOT - Apache NetBeans IDE 25
Projects Files Services
ExServlet-1.0-SNAPSHOT
Web Pages
RESTful Web Services
Source Packages
<default package>
MeuServlet.java
com.mycompany.exservlet
com.mycompany.exservlet.resources
Other Sources
Dependencies
Java Dependencies
Project Files
pom.xml
nb-configuration.xml
MeuServlet.java
pom.xml [ExServlet]
Source Graph Effective History
</dependencies>
<build>
<plugins>
<plugin>
<groupId>org.apache.maven.plugins</groupId>
<artifactId>maven-compiler-plugin</artifactId>
<version>3.1</version>
<configuration>
Find:war
Previous
Next
Select
2 matches
project
build
plugins
plugin
Navigator
Members
MeuServlet :: HttpServlet
MeuServlet()
doGet(HttpServletRequest request, HttpServletResponse response) ? Ht
doPost(HttpServletRequest request, HttpServletResponse response) ? H
getServletInfo() : String ? GenericServlet
processRequest(HttpServletRequest request, HttpServletResponse respc
Output - Run (MeuServlet)
Copying 1 resource from src\main\resources to target\classes
--- compiler:3.1:compile (default-compile) @ ExServlet ---
Parameter 'compilerArguments' is deprecated: use {@link #compilerArgs} instead.
Changes detected - recompiling the module!
Compiling 3 source files to C:\Users\Estudante\Documents\NetBeansProjects\ExServlet\target\classes
--- resources:3.3.1:testResources (default-testResources) @ ExServlet ---
skip non existing resourceDirectory C:\Users\Estudante\Documents\NetBeansProjects\ExServlet\src\test\resources
--- compiler:3.1:testCompile (default-testCompile) @ ExServlet ---
Parameter 'compilerArguments' is deprecated: use {@link #compilerArgs} instead.
No sources to compile
--- surefire:3.2.5:test (default-test) @ ExServlet ---
No tests to run.
--- war:3.1.0:war (default-war) @ ExServlet ---
Packaging webapp
Assembling webapp [ExServlet] in [C:\Users\Estudante\Documents\NetBeansProjects\ExServlet\target\ExServlet-1.0-SNAPSHOT]
Processing war project
Copying webapp resources [C:\Users\Estudante\Documents\NetBeansProjects\ExServlet\src\main\webapp]
Webapp assembled in [52 msecs]
Building war: C:\Users\Estudante\Documents\NetBeansProjects\ExServlet\target\ExServlet-1.0-SNAPSHOT.war
BUILD SUCCESS
Total time: 8.472 s
Finished at: 2025-08-21T20:50:37-04:00
Deploying on Apache Tomcat or TomEE
profile mode: false
debug mode: false
force redeploy: true
Starting Tomcat process...
Run (MeuServlet)
(1 more...)
44:58
INS


File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
ExServlet-1.0-SNAPSHOT - Apache NetBeans IDE 25
Projects
Files
Services
ExServlet-1.0-SNAPSHOT
Web Pages
RESTful Web Services
Source Packages
<default package>
MeuServlet.java
com.mycompany.exservlet
com.mycompany.exservlet.resources
Other Sources
Dependencies
Java Dependencies
Project Files
pom.xml
nb-configuration.xml
MeuServlet.java
pom.xml [ExServlet]
Source
Graph
Effective
History
</dependencies>
<build>
<plugins>
<plugin>
<groupId>org.apache.maven.plugins</groupId>
<artifactId>maven-compiler-plugin</artifactId>
<version>3.1</version>
<configuration>
<source>1.8</source>
Output
Run (MeuServlet)
Apache Tomcat or TomEE Log
Apache Tomcat or TomEE
Authentication Required
Tomcat Manager Application
User Name:
Password:
OK
Cancel
Navigator
Members
MeuServlet :: HttpServlet
MeuServlet()
doGet(HttpServletRequest request, HttpServletResponse response)
doPost(HttpServletRequest request, HttpServletResponse response)
getServletInfo() : String
processRequest(HttpServletRequest request, HttpServletResponse


Servlet MeuServlet
localhost:8080/ExServlet/MeuServlet
Atualizar
Servlet MeuServlet at /ExServlet


File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
ExServlet-1.0-SNAPSHOT - Apache NetBeans IDE 25
Projects Files Services
ExServlet-1.0-SNAPSHOT
src
main
java
com
mycompany
exservlet
resources
JakartaRestConfiguration.java
MeuServlet.java
resources
webapp
test
target
nb-configuration.xml
pom.xml
MeuServlet.java
index.html
web.xml
Source General Servlets Filters Pages References Security History
<?xml version="1.0" encoding="UTF-8"?>
<web-app xmlns="http://xmlns.jcp.org/xml/ns/javaee"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee http://xmlns.jcp.org/xml/ns/javaee/web-app_4_0.xsd"
version="4.0">
<!-- Configuração da sessão (opcional) -->
<session-config>
<session-timeout>30</session-timeout>
</session-config>
<!-- Mapeamento do Servlet -->
<servlet>
<servlet-name>MeuServlet</servlet-name>
<servlet-class>MeuServlet</servlet-class>
</servlet>
<servlet-mapping>
<servlet-name>MeuServlet</servlet-name>
<url-pattern>/exampleServlet</url-pattern> <!-- O caminho do servlet -->
</servlet-mapping>
</web-app>
web.xml - Navigator
version="1.0" encoding="UTF-8"
web-app xmlns="http://xmlns.jcp.org/xml/ns/javaee", xmlns:xsi
Find:Servlet
Previous
Next
Select
16 matches
Output
Apache Tomcat or TomEE Log
Apache Tomcat or TomEE
Run (ExServlet-1.0-SNAPSHOT)
11:5
INS Windows (CRLF)


localhost:8080/ExServlet/exampleServlet?name=Maicon
Atualizar
Hello, Maicon!
This is a response from the doGet method.


HTTP Status 404 – Não Encontrad
Type Status ReportMessage The r
Servlet returns "HTTP Status 404
localhost:8080/ExServlet/example
localhost:8080/ExServlet/exampleServlet
Atualizar
Hello, Cezar!
This is a response from the doPost method.